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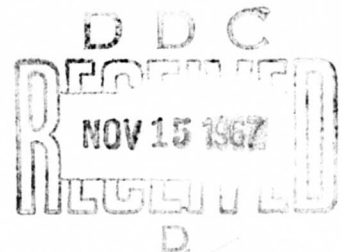
TECHNICAL REPORT ECOM-65-G10  
ROUND HILL TURBULENCE MEASUREMENTS  
VOLUME I

EXPERIMENTAL TECHNIQUES, DATA-PROCESSING PROCEDURES, AND  
DATA TABULATIONS FOR RUNS 87A THROUGH 95A

By  
H. E. CRAMER, F. A. RECORD, AND J. E. TILLMAN

DECEMBER 1966

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VOLUME I

Experimental Techniques, Data-Processing Procedures, And  
Data Tabulations for Runs 87A through 95A

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## ABSTRACT

This volume describes the experimental techniques and the data-processing procedures employed in a program of turbulent structure measurements carried out at the Round Hill Field Station. It also contains data summaries for 12 of the 76 field experiments selected for inclusion in this report. The field site and the experimental procedures are described in Section I. Sections II and III respectively contain descriptions of the data-acquisition system and the data-processing procedures. Section IV contains data summaries for Runs 87A through 95A; data summaries for the remaining field experiments are presented in Volumes II, III, IV, and V.

## FOREWORD

In December 1958, the research team at the Round Hill Field Station began a program of field measurements and data analysis dealing with characteristic properties of the energy spectra and cospectra associated with turbulent energy exchange processes within the first 100 meters of the atmosphere. The early phases of the work were devoted to the development of suitable instrumentation and experimental techniques and were carried out under Contract No. DA-36-039-SC-80209 with the U. S. Army Electronic Proving Ground at Fort Huachuca, Arizona. The instrumentation comprised a fast-response system for the simultaneous measurement of fluctuations in wind-velocity components and air temperature, and a slow-response system for supporting meteorological measurements. Measurements of the fluctuations in refractive index were also made during several experiments. During the first phase of the field program, approximately 100 experiments were carried out on a 40-m tower located in relatively flat terrain. During the second phase of the program, 32 experiments were carried out on a 91-m tower located in a wooded area. Processing of the fast-response measurements was begun by the Meteorology Department at Fort Huachuca and continued by the Massachusetts Institute of Technology under Grant No. DA-AMC-28-043-65-G10.

The purpose of this series of five volumes is to furnish a comprehensive listing of spectral and cospectral calculations and of supporting meteorological data obtained from 76 selected field experiments. An analysis of much of the experimental data was carried out under Grant No. DA-AMC-36-039-64-G1 and will be published separately in a final report.

Publication of these volumes was carried out by the Atmospheric Sciences Research Division at Fort Huachuca under the direction of Mr. Thomas H. Pries. The authors wish to express their appreciation to Mr. Pries for his assistance in the preparation of this series. They also wish to acknowledge the valuable contributions and support of Mr. J. F. Appleby and Mr. W. D. Ohmstede of the Atmospheric Science Research Division throughout the research program.

The authors wish to acknowledge the important contributions of George Fontes, Harry V. Geary, John E. Luby and James H. Peers of the research team at the Round Hill Field Station to the work described in this volume.

The authors also express their appreciation to Mr. James H. Chisholm, Dr. Lee J. Sullivan and other members of M.I.T. Lincoln Laboratory for their assistance in various phases of the work. The paper-tape decoding program was written by Mr. John Avery with the assistance of Mr. James J. Fitzgerald, Mrs. Marion Andrews and Mr. Peter Hefferman. The latter also ran the decoding program. Mr. John A. Bauer arranged for the loan of the microwave refractometer and Mr. Roy H. Erickson aided in the installation and initial operation of the refractometer at Round Hill.

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## SECTION I

### INTRODUCTION

Under the sponsorship of the Atmospheric Sciences Research Division at Fort Huachuca, the research team at the Round Hill Field Station engaged in a five-year program of field measurements and data analysis dealing with characteristic properties of the energy spectra and cospectra associated with turbulent energy exchange processes within the first 100 meters of the atmosphere. The early phases of this work were devoted to the development of suitable instrumentation and experimental techniques; these are described in two previous reports (Cramer, Record, Tillman, and Vaughan, 1961; Cramer, Record, and Tillman, 1962). The results of an analysis of some of the experiments, centered primarily on the general form of the spectra and cospectra of the characteristic air properties, are presented in the 1962 report, the results of an analysis of the bulk of the experimental data are presented in the Final Report (Cramer, Record, and Tillman, 1967). The purpose of this series of five volumes is to furnish a comprehensive listing of spectral and cospectral calculations and of associated meteorological measurements obtained during the field program.

The principal objectives of the experimental program were: the direct measurement of the turbulent fluctuations in wind velocity, air temperature, and water vapor density; calculation of the spectral and cospectral distributions of these quantities; and, an investigation of the relation of these distributions to height above ground, surface roughness, and such meteorological parameters as lapse rate, wind speed, and radiation. Attempts to develop new infrared and ultraviolet techniques for measuring humidity fluctuations were unsuccessful. Measurements of humidity fluctuations reported in these volumes are limited to a small number of field experiments in which a microwave refractometer system was used to measure changes in refractive index.

The instrumentation for the field measurement program comprised a fast-response system for the simultaneous measurement of the fluctuations in the orthogonal wind-velocity components, in air temperature, and refractive index at two heights above ground level; and a slow-response system for supporting measurements of radiation, vertical profiles of mean wind speed, wet- and dry-bulb temperature, soil temperature, and other quantities requisite for calculations of the boundary-layer heat budget. Outputs from the fast-response transducers were sampled at intervals of 1.2 sec for periods of one or more hours. Slow-response system outputs are available for similar periods of observation.



The remainder of Section I contains a description of the field site, a summary of the field experiments, a discussion of the basis for selecting data for publication, and a listing of the field experiments included in each volume of the report. A description of the data-acquisition system is presented in Section II. The procedures used in processing the data and in calculating power spectra and cospectra of the measured variable for the range of frequencies from 0.4 to 0.0014 cycles  $\text{sec}^{-1}$  are described in Section III. An explanation of the data presentation format precedes the tabulation of the results in each of the five volumes.

#### A. SITE DESCRIPTION

The field measurement program carried out at the Round Hill Field Station was divided into two phases. The first phase deals with measurements made on a 40-m tower located in a relatively smooth field; in the second phase, similar measurements were made on a 91-m tower located in a wooded area. The field station is situated on a flat point of land bordered by Buzzards Bay on the east and south. The location of the field station and of the meteorological towers used in the two phases of the field program are shown in Figure 1. The 40-m tower  $T_1$  is located about 40 m from the shoreline at the southern edge of a cleared field. The field is about 20 acres in extent and the grass was mowed annually during the experimental program. The grass within a radius of about 100 m to the west and north of tower  $T_1$  was kept trimmed to a length of 5 to 10 cm. At the western edge of the 20-acre field there is a wooded section which is approximately 335 m from  $T_1$  at the nearest point. A ridge with a maximum elevation of 24 m and oriented along a north-south line is located about 1 km west of  $T_1$ . For the second phase of the field program, the instrumentation was moved to a 91-m tower  $T_2$  located in the wooded area about 1 km northwest of  $T_1$ . The purposes of the relocation were to obtain measurements of turbulence structure above a rougher surface and to extend the measurements to greater heights.

A sketch showing the principal roughness elements in the vicinity of the two towers is presented in Figure 2. The series of overlapping photographs presented in Figures 3 and 7 were taken from the 40-m level of tower  $T_1$  and show the features of the upwind terrain for the first phase of the field program. In these photographs, the camera is pointed successively along azimuth bearings of 216, 254, 294, 329, and 2 deg. The two points of land shown in Figure 3 extend into Buzzards Bay and are approximately 1.5 and 3 km from  $T_1$  (see Figure 1). The extensive area of marshland west of  $T_1$  extends from the shoreline, as shown in Figure 4, across the central region in Figure 5 and terminates in Figure 6. Salt water enters the marsh during normal high tides and completely floods the area during extremely high tides. A network of shallow drainage ditches appears as regular lines in Figure 5. The 91-m tower extends above the horizon just to the right of center in Figure 5. In Figure 7, which shows the view toward the north, a portion of the 20-acre field appears in the foreground, and Buzzards Bay is at the upper right. The location of both meteorological towers is shown in the aerial photograph presented in Figure 8.

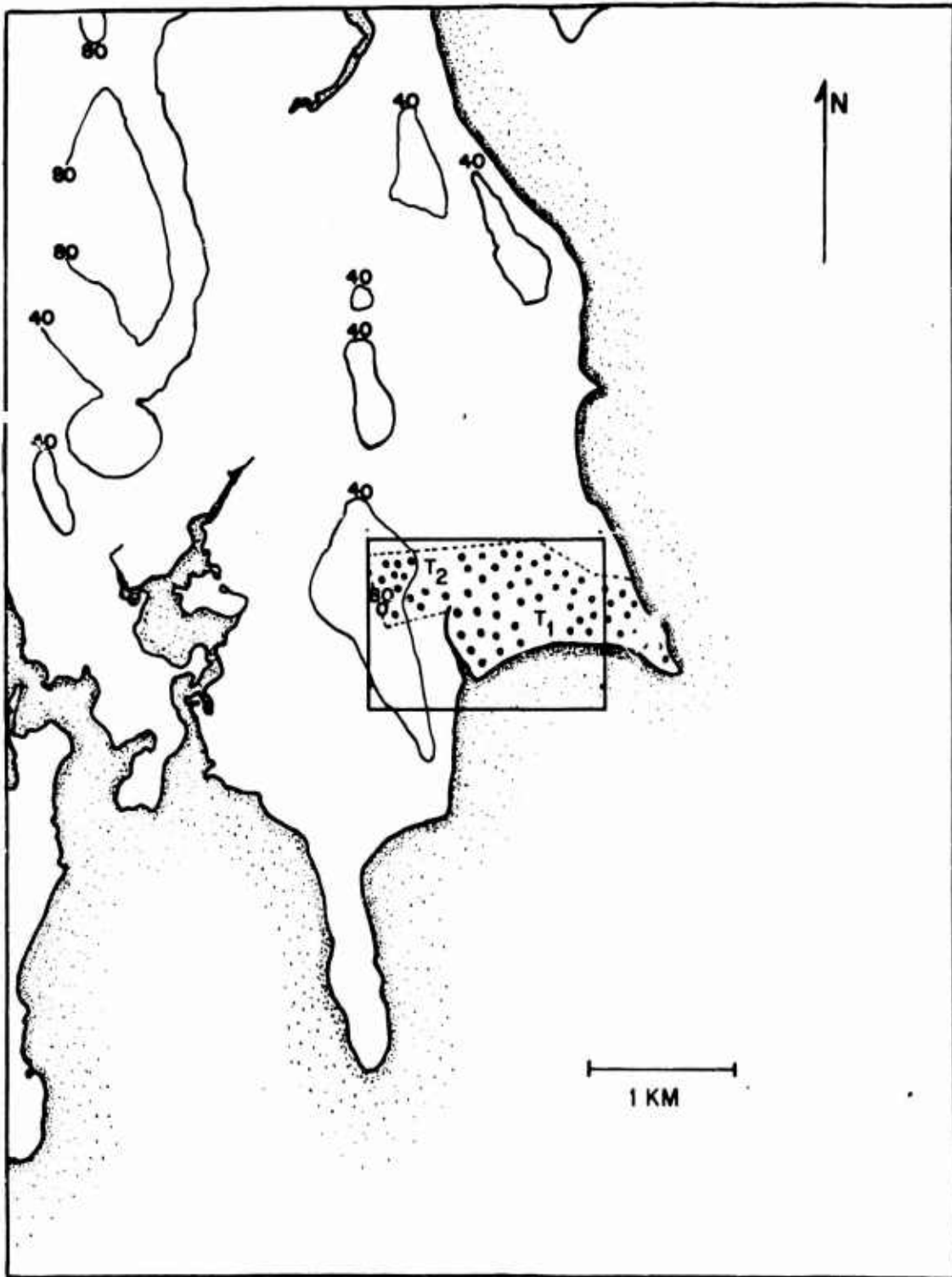


Figure 1. Map showing the location of the Round Hill Field Station. Stippled area marks the estate; the location of the meteorological towers are indicated by the symbols  $T_1$  and  $T_2$ . Surface features of the rectangular area are presented in Figure 2.

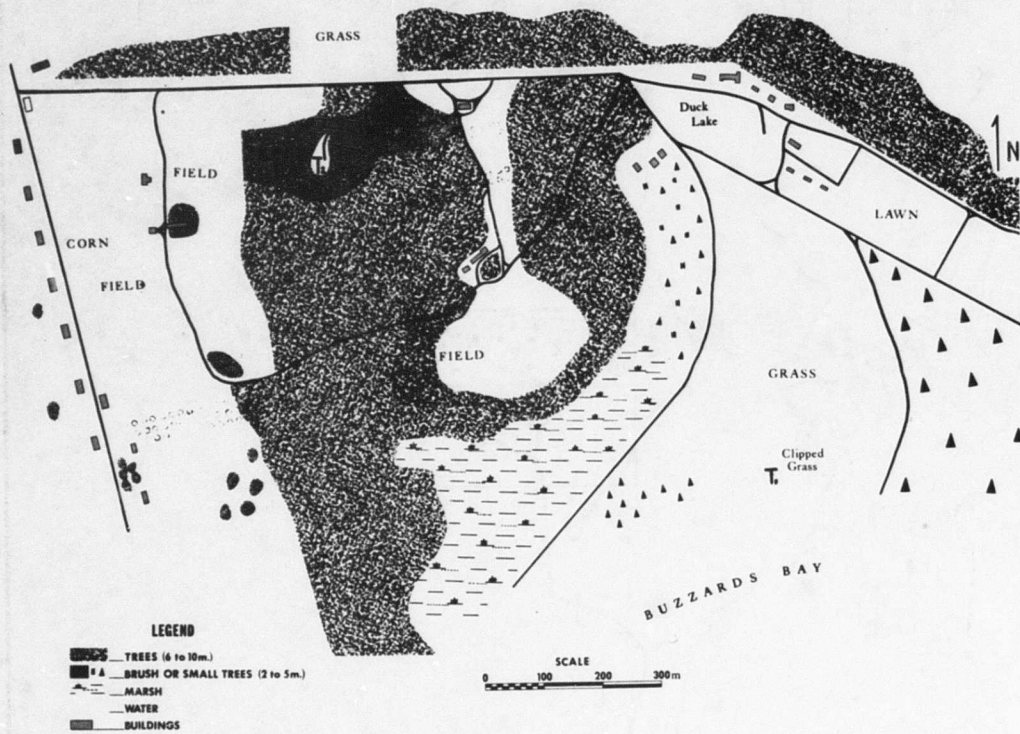


Figure 2. Roughness elements of the Round Hill Field Site.

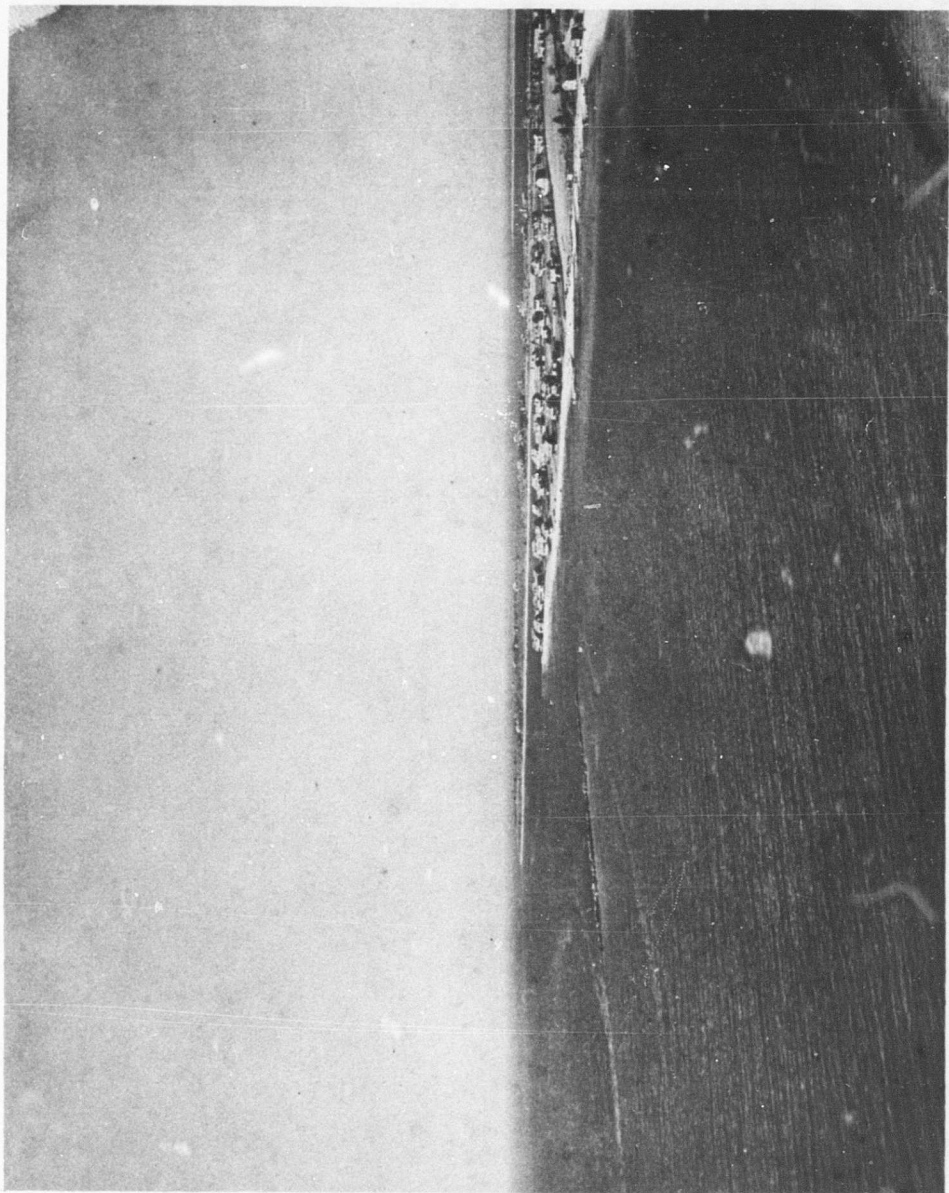


Figure 3. View from 40-m level of  $T_1$ . Camera pointed toward 216 deg.

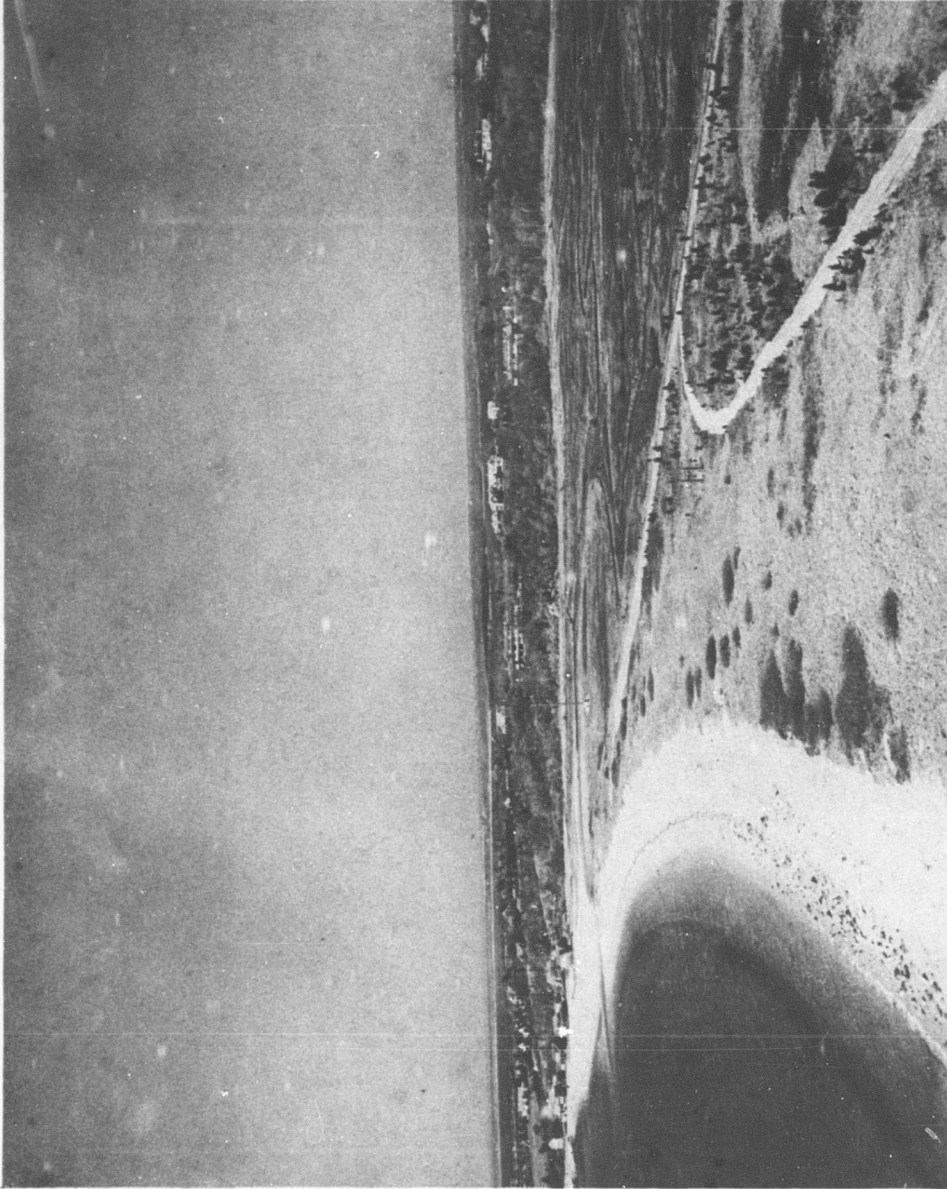


Figure 4. View from 40-m level of  $T_1$ . Camera pointed toward 254 deg.

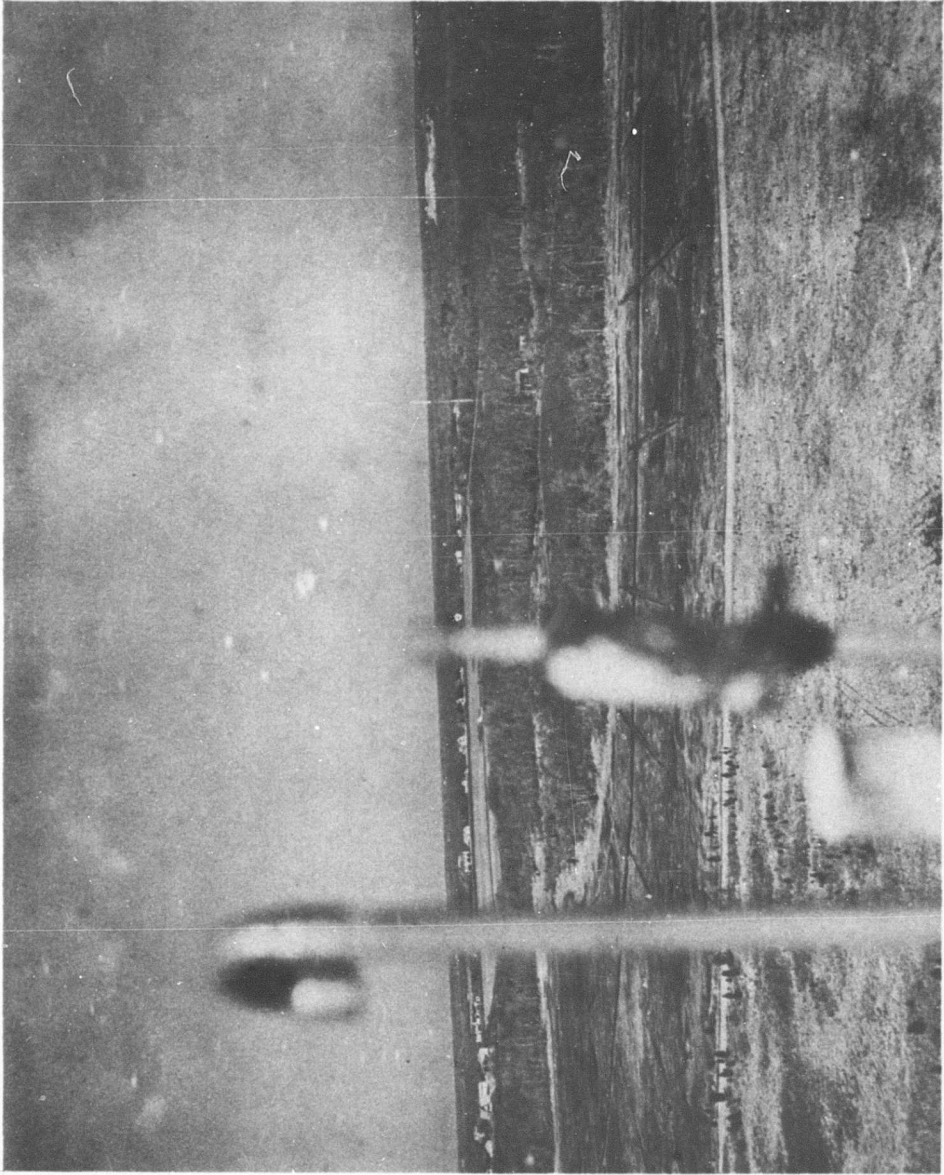


Figure 5. View from 40-m level of  $T_1$ . Camera pointed toward 294 deg.

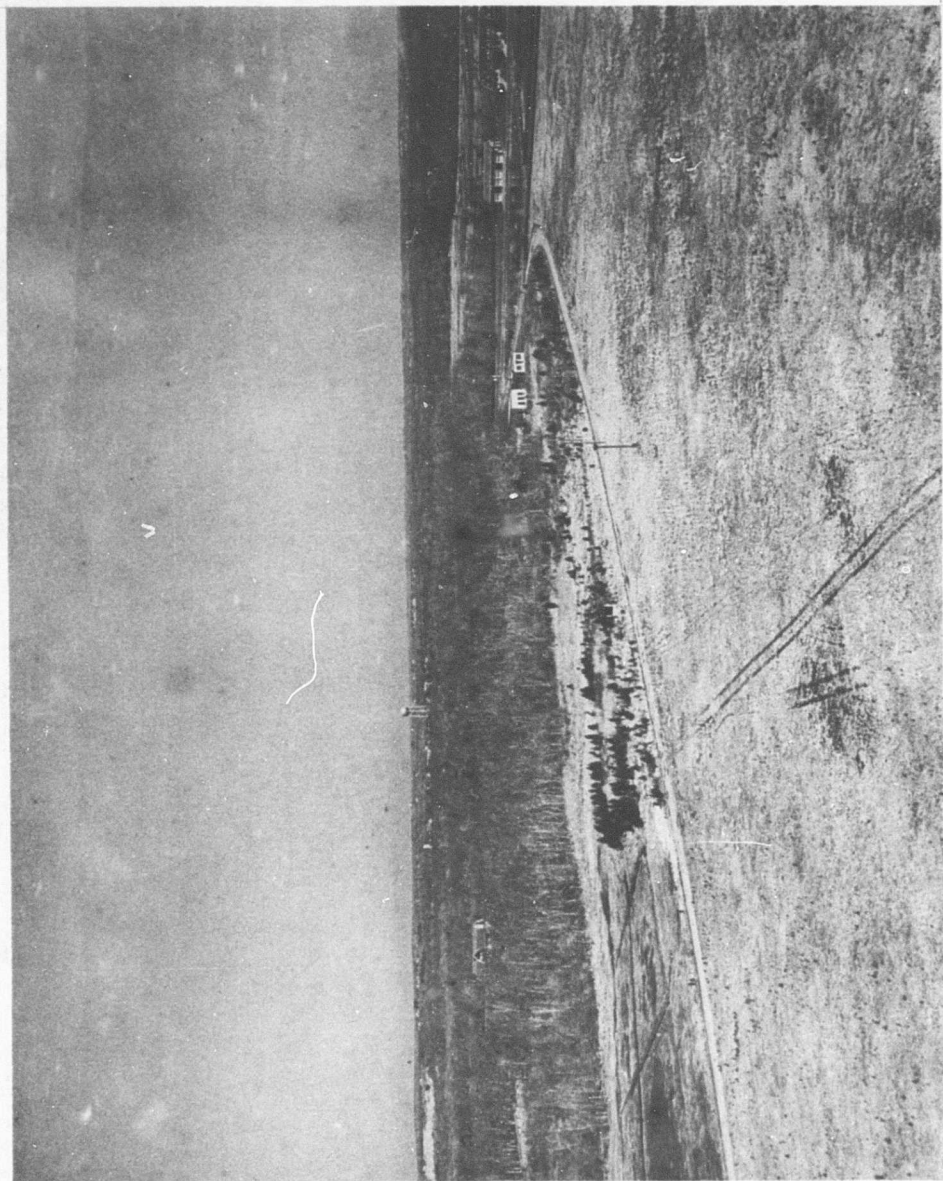


Figure 6. View from 40-m level of T<sub>1</sub>. Camera pointed toward 329 deg.

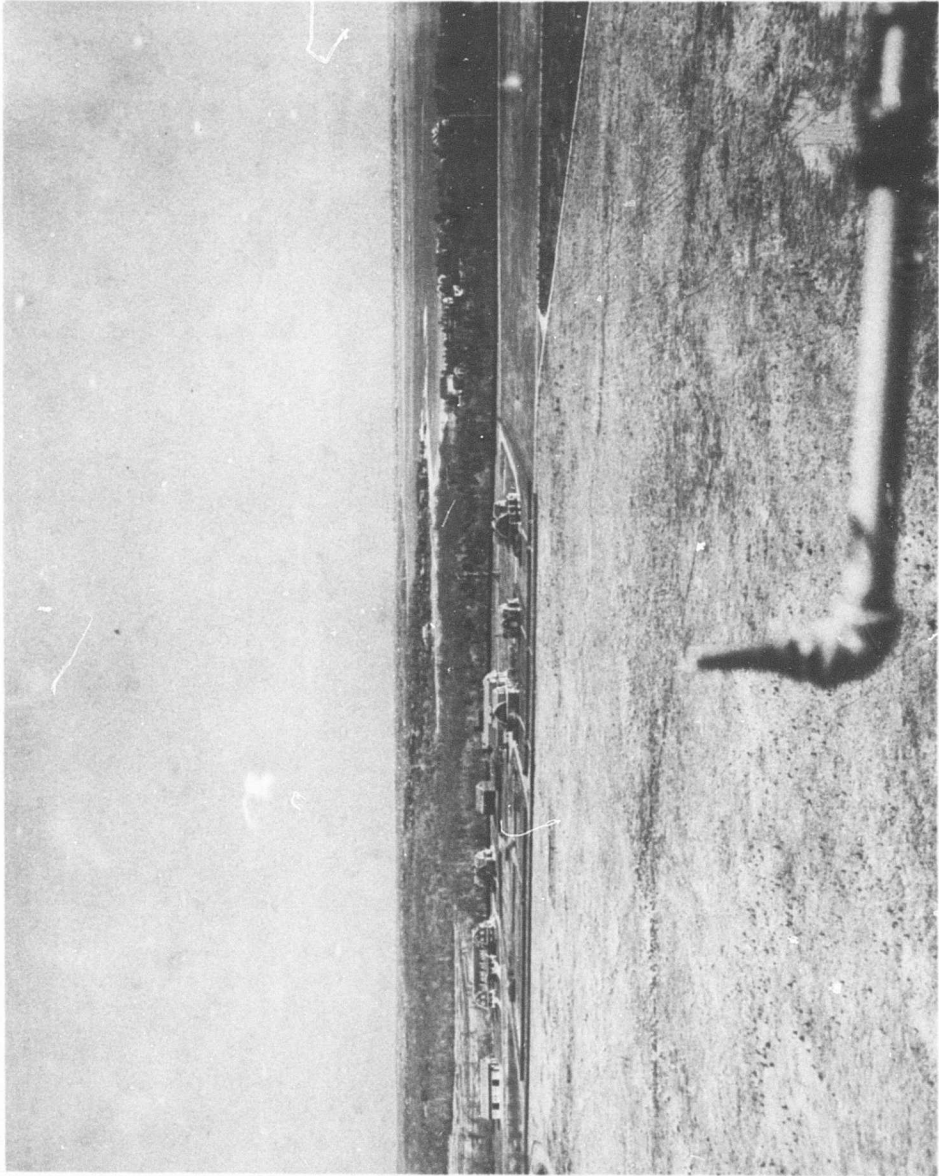


Figure 7. View from 40-m level of T<sub>1</sub>. Camera pointed toward 2 deg.



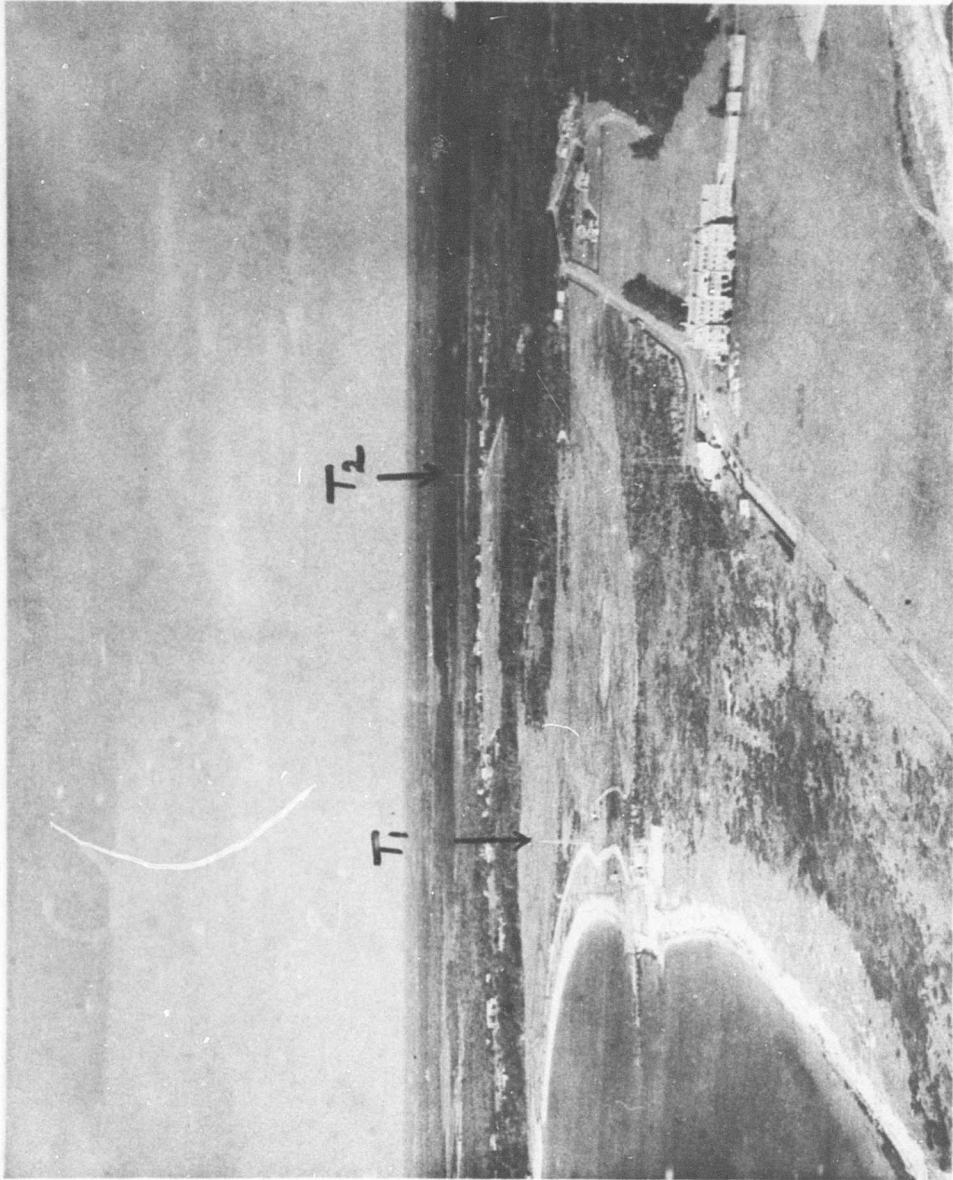


Figure 8. Aerial view of the Round Hill Field Station showing the location of the two meteorological towers. Observer is looking toward the west.

## B. SUMMARY OF FIELD EXPERIMENTS

### 1. Experiments at T<sub>1</sub>

During the first phase of the field measurement program, fast-response instrumentation was installed on tower T<sub>1</sub> at heights of 16 m and 40 m above ground level. Seventy-five two-level experiments were successfully carried out during 1961 and 1962, providing a total of 87 hours of data. Fast-response measurements from the 16-m level are also available from 26 additional one-hour experiments. Also, the fast-response data for all experiments included simultaneous observations of the fluctuations in air temperature and the orthogonal components of wind velocity. Refractive index measurements were made at both levels in seven experiments and at the 16-m level alone during six additional experiments. Mean wind directions during the experiments ranged from south through west to north. It is evident from the site description that a wind direction of 245 deg is approximately parallel to the shoreline in the vicinity of T<sub>1</sub>; more northerly flow has a land trajectory. Air flow in the sector from 205 to 245 deg passes over two points of land upwind from the tower and is thus influenced by both land and water surfaces. Of the total data set of 101 experiments, 22 were carried out in May, 1 in July, 37 in October, 35 in November, and 6 in December; 45 were carried out during unstable thermal stratification, 42 during stable conditions and 14 during transitional or near-neutral conditions; 12 experiments are associated with a water or mixed land-water trajectory, and the remaining 89 with a land trajectory.

The supporting slow-response meteorological observations for these experiments comprised: wind speed measurements made with cup anemometers at heights of 0.25, 0.5, 1, 2, 4, 8, 16, 32, and 40 m; wet- and dry-bulb temperature measurements at each anemometer level and also at 0.12 m; and solar and net radiation. Solar radiation was measured with an Eppley pyr heliometer and net radiation with both Beckman-Whitley and Fritschen\* radiometers. In addition, soil temperature measurements needed for the calculation of the heat flux at the earth-air interface were made along a 40-m observation line with three Beckman-Whitley heat plates inserted at a depth of 5 cm beneath the soil surface, and five resistance elements positioned to yield a space-integrated temperature for the soil layer from 0 to -5 cm. The heat capacity of the soil within this layer was calculated from the density and specific heat of dried soil samples determined at the start of the field program, and from measurements during each experiment of the fraction of water present in soil samples from the layer. The temperature profile within the soil at each end of the observation line was also determined for most of the experiments

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\*Two net-radiometers, designed and fabricated by Dr. Leo Fritschen, were loaned to Round Hill by the U.S. Water Conservation Laboratory Agricultural Research Service, Tempe, Arizona.

by soil thermometers inserted at depths of 1.6, 3.1, 6.2, 12.5, 25, 50, and 100 cm.

## 2. Experiments at T<sub>2</sub>

Provisions were made for the installation of fast-response sensors at three levels (15.2 m, 45.7 m, and 91.4 m) on the 91-m tower to facilitate studies of the height dependence of the turbulence parameters. Since the capacity of the data-acquisition system was limited to simultaneous observations at only two levels, information could be obtained at only two of the three levels during any particular experiment. Thirty two-level experiments comprising 35 hours of data were carried out during June and July 1963. Fast-response data were collected at the 45.7-m level in all of these experiments; during 13 of the experiments, fast-response data were also collected at the 15.2-m level; and during the remaining 17 experiments, at the 91.4-m level. These data consisted of simultaneous observations of the fluctuations in air temperature and wind velocity components at each level. No refractive index measurements were made. Fifteen of the observation periods were during unstable thermal stratification, eight were during stable conditions, and seven during transitional or near-neutral conditions. Data were collected only during periods in which the mean wind direction had a westerly component. For these directions, the surface upwind from the tower is characterized by open fields, bushes, wooded areas, and the N-S ridge which lies about 450-m west of the tower and rises to a height of about 15 m above the base of the tower. The air trajectory for all experiments was over land for distances of at least 1.5 km upwind from the tower. Features of the upwind surface for individual experiments can be determined by reference to Figures 1 and 2 and the mean wind directions listed in the data tabulations.

Slow-response measurements comprised wind speed and air temperature at seven tower levels (3.8, 7.6, 15.2, 30.5, 45.7, 68.6, 91.4 m) and solar radiation.

### C. SELECTION OF DATA FOR PUBLICATION

Data from forty-nine experiments carried out at tower T<sub>1</sub> are included in the tabulation presented below. These experiments encompass a wide range of atmospheric stability conditions and also reflect some differences in surface roughness. Final selection was based on the quality of the data after checking and editing procedures had been completed. Due to limitations of time and money, about 25 percent of the 40-m tower data collected during the field program was not processed. Data from 27 of the 30 experiments carried out at T<sub>2</sub> were selected for publication following similar screening procedures.

To include as many experiments with humidity data as possible, Runs 76A, 76B, and 78A have been retained even though systematic errors in encoding the 40-m wind speed occurred during these runs. The principal effect of

these errors is an apparent increase in energy at the high-frequency end of the power spectrum for the u- component of wind velocity. Runs 82D and 82E also contain humidity data.

Runs 43 and 47 were carried out during southwesterly and south-southwesterly flow, respectively; Runs 82C, 82D, and 82E were carried out during a period when the wind direction was gradually veering from northwest to north-northeast. Irregularities found at the higher levels of the wind speed profiles during these runs may have been caused by the supporting tower structure, since the sensors were mounted on fixed booms extending toward the west. Runs 43 and 47 are associated with a water trajectory.

The resistance thermometers used to measure soil-temperature profiles proved to be unreliable, and many failures took place during the experimental program. Absolute calibration of the remaining thermometers is estimated to be within 0.3 C. The data have been included primarily to indicate the marked differences in the behavior of the profiles at the two ends of the 40-m sampling line presumed to be the result of differences in soil composition and vegetative cover. At the north end of the observation line, the ground is covered with thick grass with matted roots penetrating a 15-cm layer of topsoil. Below the topsoil, there is about 20 cm of hard-packed fill followed by 65 cm of moist sand. The ground cover at the south end of the observation line consists of scattered clumps of beach grass. The top 26 cm of soil is beach sand washed in by storms; beneath this layer there are 13 cm of loam, 24 cm of sandy fill, and 37 cm of sand.

#### D. ORGANIZATION OF VOLUMES

Data summaries for the selected experiments are presented in five volumes. Volumes 1 and 2 refer to the second phase of the measurement program at tower T<sub>2</sub> and contain Runs 87A through 95A and 96A through 104, respectively.

Summaries of the measurements made during the first phase of the field program at tower T<sub>1</sub> are contained in the remaining three volumes. Volume 3 contains Runs 32 through 66 D; Volume 4 contains Runs 66E through 76B; Volume 5 contains Runs 78A through 85C.

Each volume presents tabular summaries of the spectral and cospectral estimates and of the gross statistics for individual experiments. These summaries are preceded by tables of vertical profiles of mean wind speed and air temperature for each experiment. Volumes 3, 4, and 5 also contain tables of soil temperatures and calculated values of the terms in the heat-budget equation for the earth-air interface.

## SECTION II

### DATA ACQUISITION SYSTEM

#### A. INTRODUCTION

The meteorological data acquisition system used in the field program consisted of two subsystems: a fast-response installation for the simultaneous measurement of the fluctuations in air temperature, humidity, and the orthogonal components of wind velocity at two tower levels; and a slow-response system for measuring solar radiation, net radiation, vertical profiles of mean wind speed, dry- and wet-bulb air temperature, soil temperature, and other quantities required to calculate the heat budget at the air-earth interface. The complete slow-response installation was used for the first phase of the field program at tower  $T_1$ . During the second phase of the program at tower  $T_2$ , the slow-response measurements were limited to vertical profiles of mean wind speed and air temperature. Major features of the subsystems are summarized below.

#### B. SLOW-RESPONSE SUBSYSTEM

##### 1. Wind Speed and Direction Measurements

Wind speeds were measured with cup anemometers. In the first phase of the measurement program, two types of sensors were employed. During the early experiments lightweight cup anemometers were installed at heights of 0.25, 0.5, 1, 2, and 4 m on a small tower located about 12 m northwest of tower  $T_1$ . To minimize interference from supporting structures these lightweight anemometers were relocated at the same heights on a pipe mast 10 m to the northwest before the 1962 field program was begun. Conventional 3-cup anemometers were installed at heights of 1, 2, 4, and 8 m on the small tower and at heights of 16, 32, and 40 m on the large tower. Starting and stopping speeds of the larger anemometers are approximately  $1 \text{ m sec}^{-1}$  and, for the smaller anemometers, are about  $0.75 \text{ m sec}^{-1}$ . Outputs from both types of sensor are in the form of counts of the number of revolutions of the cup wheels. The small cup anemometers employ a photocell, light source, and single-slot chopper or disc. Each rotation of the cup wheel produces an electrical pulse from the photocell that is amplified, shaped into a square wave form, and fed into a Sodeco counter. The output of the larger cup anemometers consist of electrical pulses produced by a single contact device activated once per revolution of the cup wheel. In the tabulations of mean wind speeds presented in Volumes 3, 4, and 5, values at heights of 0.25 and 0.50 m were obtained from the small cup anemometers; mean wind speeds at all

other heights were obtained from the large cup anemometers. During the second phase of the field measurement program, only the large cup anemometers were used. These were installed at heights of 3.8, 7.6, 15.2, 30.5, 45.7, 68.6, and 91.4 m on tower T<sub>2</sub>.

Skeleton slow-response instrumentation was operated continuously to provide background information on fluctuations in wind speed and wind direction. This instrumentation comprised large cup anemometers and flat-plate azimuth vanes. During the first phase of the program these measurements were made at the top of the small tower near T<sub>1</sub>; during the second phase of the program, they were made at heights of 16, 46, and 91 m on T<sub>2</sub>.

## 2. Air Temperature Measurements

Air temperatures were measured with C. P. Nickel resistance elements manufactured by RdF Corporation. Each element was sealed in a stainless steel sheath and connected electrically to a 3-wire compensated Wheatstone-bridge. Radiation shielding was provided by housing the sheathed elements in cylindrical sections of phenolic linen tubing; the outer surface of the tubing was covered with gold foil. Each temperature element was ventilated at a uniform rate of about 5 m sec<sup>-1</sup>. During the first phase of the experimental program at tower T<sub>1</sub>, both dry- and wet-bulb temperature measurements were made. For the latter purpose, the sheathed resistance elements were encased in linen wicks connected to water reservoirs. Only dry-bulb temperature measurements were made at tower T<sub>2</sub>.

Measurement heights for both the dry- and wet-bulb temperatures were the same as for wind speed at both tower sites (see Section 1 above).

## 3. Soil Temperature Measurements

Temperature profiles within the soil were measured with electrical resistance elements similar to those described above. Individual temperature probes were positioned at depths of 1.6, 3.1, 6.2, 12.5, 25, 50, and 100 m at both ends of a 40-m observation line. In addition, five elements were inserted vertically in the soil at equally-spaced intervals along the 40-m observation line to provide integrated temperatures for the 0 to 5 cm soil layer. Also, three Beckman-Whitley heat plates connected in series were used to measure the soil heat flux through the -5 cm level.

## 4. Radiation Measurements

Incoming solar radiation was measured with a 50-junction Eppley pyrheliometer during both phases of the field program. The net flux of long- and short-wave radiation was measured with a Gier and Dunkle type net radiometer, manufactured by Beckman and Whitley, during the first phase of the field program at tower T<sub>1</sub>.

## 5. Data Acquisition

A block diagram of the components of the slow-response system at tower T<sub>1</sub> is shown in Figure 9. The cup anemometer outputs were registered on electro-mechanical counters and on an Esterline-Angus operations recorder. All temperature measurements were registered on a 20-channel Brown strip chart potentiometer. Wind direction, net radiation, solar radiation, and heat plate information were registered on Esterline-Angus recorders.

### C. FAST-RESPONSE SUBSYSTEM

The fast-response subsystem provides for the simultaneous measurement of five meteorological variables at each of two fixed locations. Bivanes equipped with bead thermistor anemometers were used to measure wind elevation angle, azimuth angle, and wind speed. These data are later converted through the use of trigonometric relationships to orthogonal components of wind velocity. Air temperature was measured with platinum-wire resistance elements. In some of the experiments, microwave refractometers were used to measure changes in the refractive index of the air which are closely related to changes in atmospheric water vapor density.

The basic components of the fast-response subsystem are shown in Figure 10. The output of each transducer passes through an amplifier-filter system that controls the range of the variable being measured, removes undesirable electrical noise from the signal, and filters the high frequency components of the transducer output such that the response time of all transducers is effectively the same. The filtered output then passes through a servo-balancing recorder where it is registered on a chart by a pen trace. The output also is applied to an electro-mechanical shaft encoder that converts the signal to a binary digital form. The outputs of all shaft encoders are simultaneously sampled every 1.2 sec and stored in a relay memory. The maximum time required for encoder sampling and storage is 0.05 sec. During the remaining 1.15 sec of the sampling cycle, the data are sequentially removed from storage and punched on a paper tape.

The final steps in the preparation of the transducer output data for computer processing were performed off-line, i.e., after an experiment had been completed. These steps include the decoding and transfer of the information on the paper tape to a magnetic tape.

A description of transducer characteristics and the operation of various system components is provided below. Transducer characteristics are summarized in Table 1.

#### 1. Transducers

##### a. Azimuth and Elevation Angle

The azimuth and elevation angles of the wind were measured by the revised M.I.T. bivane shown in Figure 11. The vane is constructed of

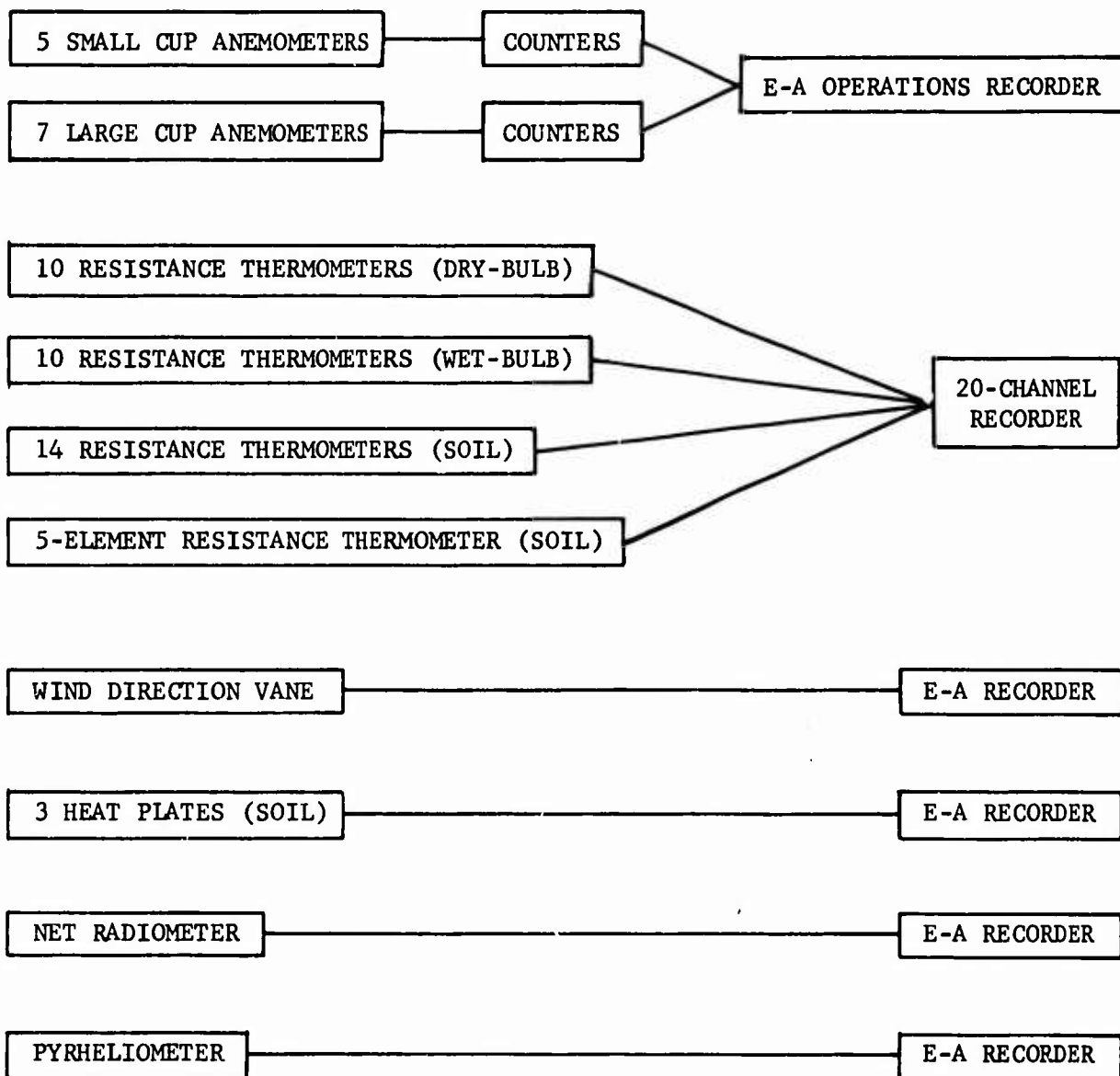


Figure 9. Block diagram of basic components of slow-response system at tower T<sub>1</sub>.



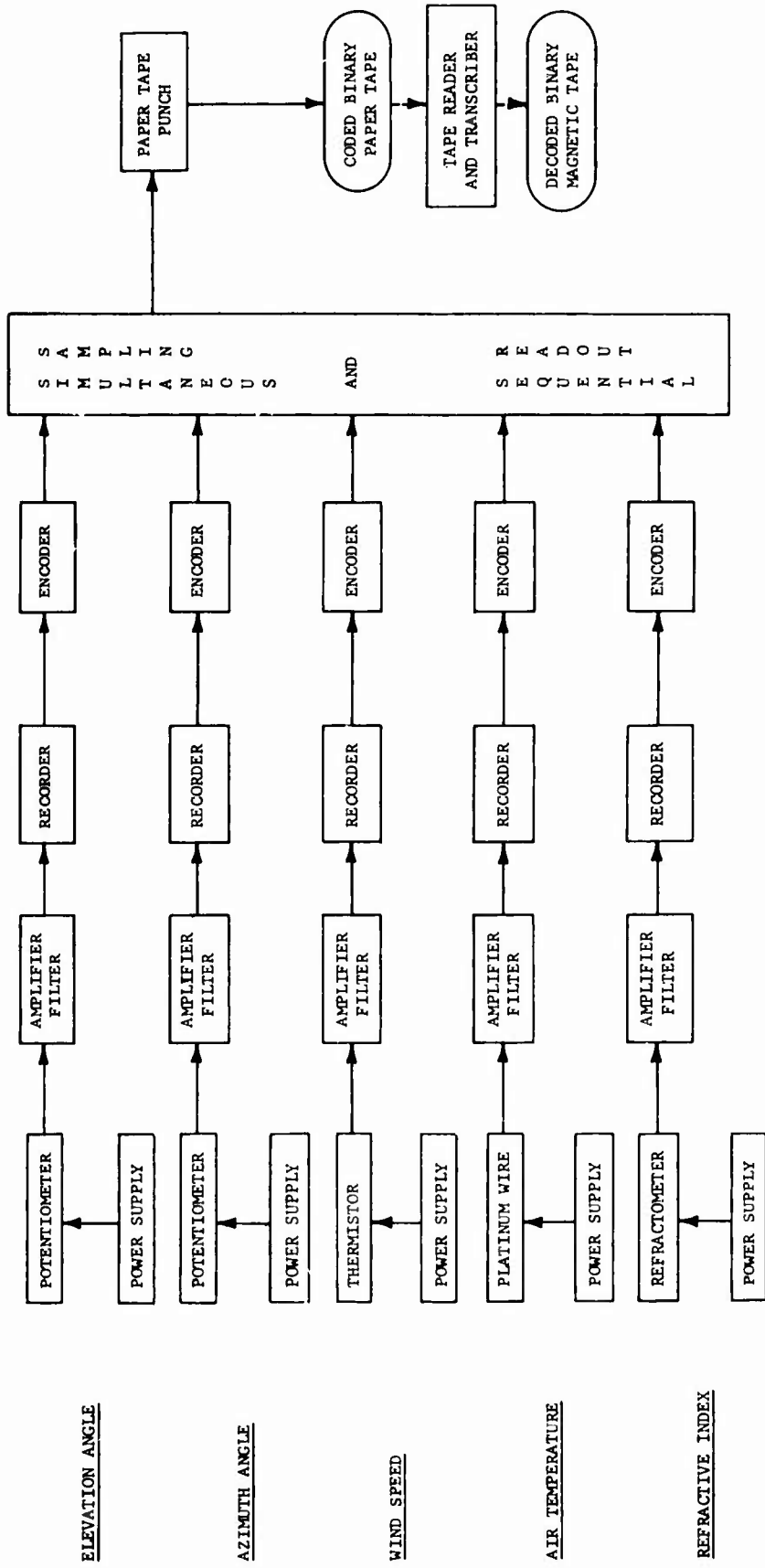


Figure 10. Basic components of fast-response data-acquisition system for measurement at one tower level. Duplicate system for second level. Dashed lines indicate off-line operation.

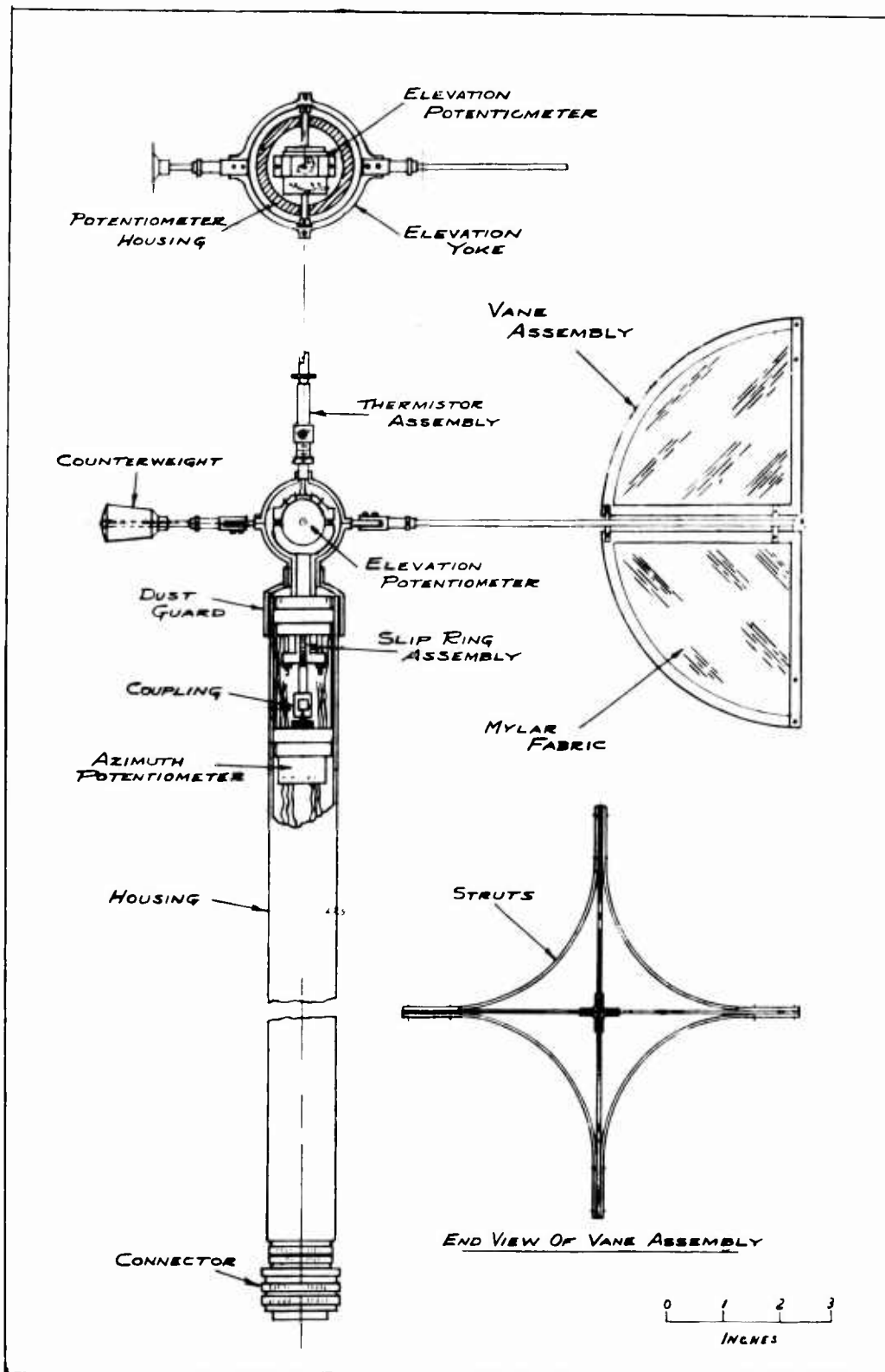


Figure 11. Sketch of the revised MIT bivane.

TABLE 1

SUMMARY OF TRANSDUCER CHARACTERISTICS

Elevation Angle, Bivane

Ranges:  $\pm 25$ ,  $\pm 50$ ,  $\pm 75$  deg electrical; mechanically limited to  $\pm 55$  deg  
Distance Constant: 1.5 m  
Accuracy:  $\pm 1$  percent  
Stability:  $\pm 0.1$  percent per hour  
Resolution: Limited by 8-bit digital encoder  
Noise:  $\ll \pm 1$  encoder bit

Azimuth Angle, Bivane

Ranges:  $\pm 50$ ,  $\pm 100$ ,  $\pm 150$ ,  $\pm 178$  deg electrical; continuous mechanical  
Distance Constant: 1.5 m  
Accuracy:  $\pm 1$  percent  
Stability:  $\pm 0.1$  percent per hour  
Resolution: Limited by 8-bit digital encoder  
Noise:  $\ll \pm 1$  encoder bit

Wind Speed, Thermistor

Range: 0 to 20 m sec<sup>-1</sup>  
Distance Constant: 1 to 2 m for wind speeds from 2 to 20 m sec<sup>-1</sup>  
Time Constant:  $< 0.5$  sec for wind speed  $> 2$  m sec<sup>-1</sup>  
Accuracy:  $\pm 15$  percent absolute  
Stability:  $\pm 1$  percent per hour  
Resolution: Limited by 8-bit digital encoder  
Noise:  $\ll \pm 1$  encoder bit

Temperature, Platinum Wire Resistance Element

Range: 5 or 10 C between -20 and +40 C  
Distance Constant:  $< 2$  m for wind speed  $> 2$  m sec<sup>-1</sup>  
Accuracy:  $\pm 0.5$  C  
Stability:  $\pm 0.01$  C per hour neglecting radiation errors  
Resolution: Limited by 8-bit digital encoder  
Noise:  $\ll \pm 1$  encoder bit  
Radiation Error: (See text).

Refractive Index, Microwave Refractometer

Range: 5 or 10 N unit segment of the range encountered in the atmosphere  
Distance Constant:  $< 1$  m  
Accuracy: Relative indications only; absolute value established by reference to wet and dry bulb temperature measurements  
Stability:  $\pm 1$  N per hour  
Resolution: Limited by 8-bit digital encoder  
Noise:  $\ll \pm 1$  encoder bit

an aluminum frame with a very thin mylar covering. A potentiometer in the spherical top of the vane translates the elevation angle information into voltage while another potentiometer in the top of the vertical tube generates an azimuth signal. The distance constant of the vane is identical for both axes and is approximately 1.5 m.

#### b. Wind Speed

The wind speed was measured by a heated bead thermistor (Fenwal G-128) mounted on top of the bivane housing. The thermistor assembly is inclined in the vertical so that the response of the transducer is invariant for angles of attack of the wind of  $\pm 25$  degrees. This feature of the assembly compensates for an asymmetry in the shape of the bead. The response time of the thermistor for mean wind speeds greater than  $2 \text{ m sec}^{-1}$  is less than 0.5 sec.

The thermistors were checked and set to zero output at zero wind speed before and after each experiment. Thermistors that showed variations in resistance at zero velocity of more than a few percent were examined under a microscope for contamination or physical damage and either recalibrated or discarded.

#### c. Temperature

The temperature transducer consists of 0.001-inch platinum wire wound on four vertical supports. The small diameter of the wire ensures a short response time and acceptably small errors due to solar radiation. The response time of the transducer is less than 1 second for wind speeds greater than  $2 \text{ m sec}^{-1}$ . Tests indicated that under field use the error resulting from heating of the vertical supports might reach 0.2 or 0.3 C for certain sun angles and strong solar radiation. Since the spectral calculations use fluctuation data, these errors in absolute temperature would be of significance only during such periods of alternating clear and cloudy conditions as occasionally occur during days with fair weather cumulus. To minimize errors during these periods, small shades were used to shield the thermometers from direct solar radiation during most of the field program.

#### d. Humidity

A microwave refractometer was used to obtain fast response humidity measurements for a limited number of experiments at the 40-m tower. The instrument was obtained on loan from the M.I.T. Lincoln Laboratory. At frequencies of 10,000 mc and beyond, the atmospheric refractive index is a strong function of water vapor density due to the large dipole moment of the water vapor molecule. Although the water vapor pressure seldom exceeds 3 to 4 percent of the total atmospheric pressure, it can account for as much as 50 percent of the atmospheric refractive index. The refractive index is also a function of temperature and dry air density. The actual computation of water vapor density is described below.

The microwave refractive index of the air is determined by measuring the resonant frequency of a perforated cavity of fixed dimensions containing an air sample. The resonant frequency of the cavity is given by the expression

$$f = \frac{f_o}{n} = \frac{f_o}{1 + (N \times 10^{-6})}$$

where

$f$  = resonant frequency with ambient gas density  
 $f_o$  = resonant frequency with cavity evacuated  
 $n$  = refractive index of ambient gas  
 $N = (n - 1) \times 10^{-6}$ .

Since  $n$  rarely exceeds 1.004, the variable  $N$  is more often used for atmospheric applications. In terms of pressure, temperature and humidity (National Bureau of Standards Circular #6744):

$$N = \frac{77.6}{T} (P + 4.81 \times 10^3 \frac{e}{T}) ,$$

where

$P$  = total atmospheric pressure in millibars  
 $e$  = water vapor pressure in millibars  
 $T$  = temperature in degrees Kelvin.

Finally, the relationship between water vapor density and  $N$  is given by

$$\rho = \alpha NT - \beta P' ,$$

where

$\rho$  = water vapor density in  $g/m^{-3}$   
 $\alpha = 5.8004 \times 10^{-4}$   
 $\beta = 4.5011 \times 10^{-2}$ .

In practice, the cavity is used as the frequency determining component of a microwave oscillator. The difference in frequency between this oscillator and a reference oscillator in a sealed cavity is used to measure the refractive index. The device used at Round Hill is almost identical in operation to that described by Tuller, Galloway and Zaffarano (1948).

During the experiments, the cavities were ventilated at a rate that ensured a response time considerably less than 1 sec.

#### D. AMPLIFIER-FILTER SYSTEM

The output signal from each transducer is processed by an amplifier-filter system. The amplifiers control the measurement range of each variable

and the filter networks provide for the control of certain frequencies in the transducer outputs. Specifically, the filter networks perform the following functions. First, they eliminate the power-line frequency and its harmonics which otherwise would appear as dc signals since the recorders are chopper stabilized at the power-line frequency. Second, the filter networks prevent high frequency signals of large amplitude from reaching the recorders. This is essential since the response of the recorders to unfiltered signals of this type is nonlinear due to the finite slewing rates of the recorders. Third, the filter networks reduce the aliasing of spectral estimates inherent in the use of discrete data sample points and make it possible to correct for the aliasing that does occur.

Transmission curves for the amplifier-filter system are shown in Figure 12. The foldover frequency for a sampling rate of one data point every 1.2 sec is  $0.416 \text{ cycles sec}^{-1}$ . All the energy in the output signal above the foldover frequency appears at lower frequencies in the calculated power spectrum. However, if the amount of high frequency energy is small and if the transmission of the system at these frequencies is known, the power spectrum can be corrected for the aliasing effects. It should be pointed out that the transmission curves in Figure 12 apply to all transducer outputs when the mean wind speed exceeds  $2 \text{ m sec}^{-1}$ .

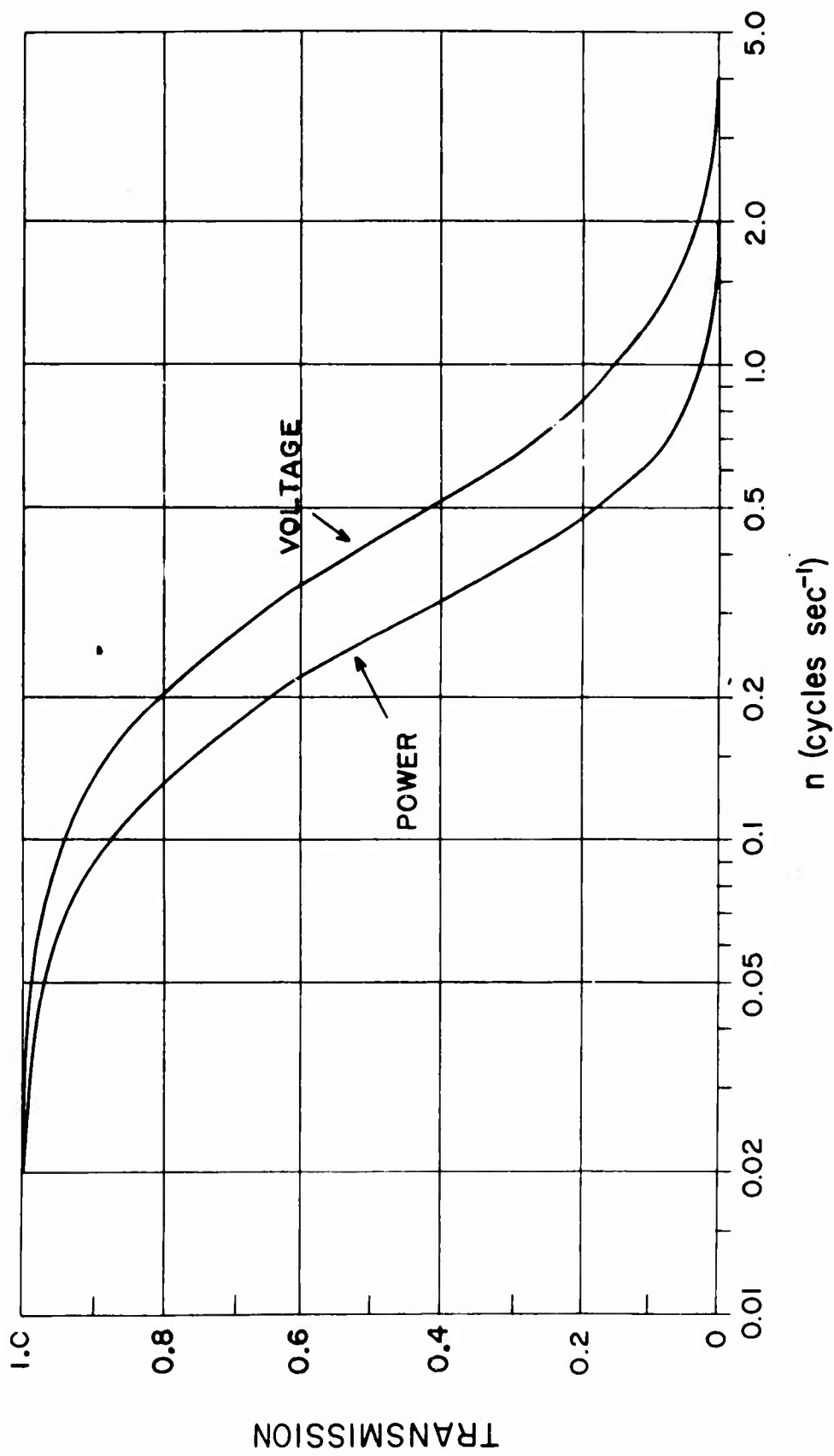


Figure 12. Transmission curves for the amplifier-filter system.

## SECTION III

### DATA PROCESSING

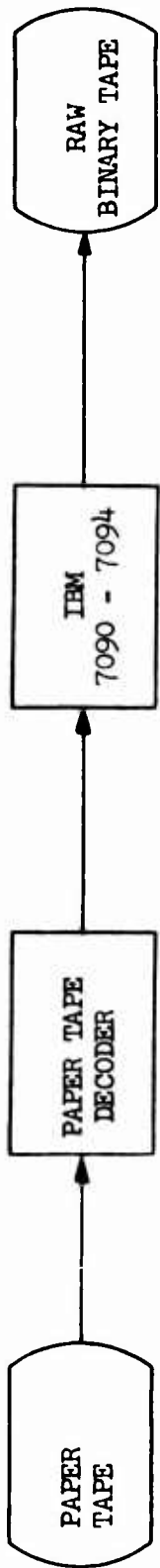
Processing of the data from the slow-response subsystem was accomplished manually and through the use of desk calculators to obtain the requisite average values of the wind speed, wind direction, dry- and wet-bulb air temperatures, soil temperature, solar and net radiation. The processing of the data from the fast-response subsystem was accomplished by automatic techniques that required a special set of computer programs written in Fortran II language (or Fortran II compatible language) for use with the IBM 7090 or 7094 computer. The sequence of computer operations by which the data were processed is shown schematically in Figure 13. More detailed information on the data-processing procedures may be found in several reports (Cramer, Record, Tillman, and Vaughan, 1961; Cramer, Record, and Tillman, 1962, 1967). A brief description of the computer programs and the mathematical operations used in the data processing is given below.

#### A. CONVERSION OF RAW BINARY DATA FROM PAPER TAPE TO MAGNETIC TAPE AND DATA EDITING

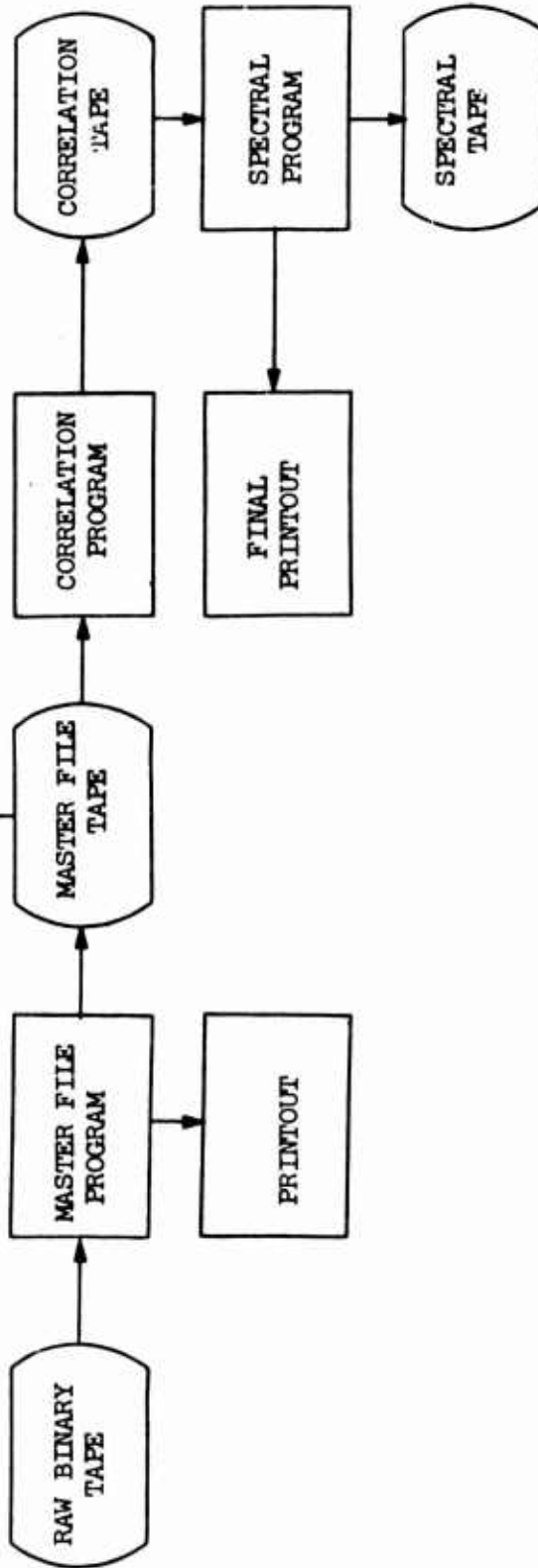
The first steps in processing the fast-response data were the decoding of the data on the punched-paper output tapes, checking for errors in format, and writing the decoded data in binary form on magnetic tape. This phase of the data reduction, which is shown schematically in Figure 13A was accomplished at the M.I.T. Lincoln Laboratory. The computer program for the conversion to magnetic tape provided for an error stop of the decoding process whenever a formatting error was detected in the paper tape. Since formatting errors had to be corrected before the decoding could proceed, errors due to malfunctions of the paper tape reader or punching mechanism were thus readily detected and eliminated. The two remaining sources of error were anomalous data points and faulty initial synchronization of the paper tape. Tape synchronization errors were checked by comparing a sample printout of the decoded data with the corresponding master paper tape records. Erroneous data points were isolated and checked by a special frequency counting program that produced from the raw binary data a table on magnetic tape showing the number of occurrences of the individual variables for each of the 256 segments of the encoding mechanisms. The output of this program was useful in spotting systematic and random errors as well as in checking extreme values in each meteorological variable against the original chart recordings and printouts of the raw data generated by the paper-tape conversion program.

Correction cards were prepared for any erroneous data points discovered by the above processes and the cards were used with the Master File Program described below.





A. Transfer of raw binary data from paper tape to magnetic tape.



B. Sequence of operations from raw binary magnetic tape to the final printout of gross turbulence statistics, correlations, and corrected spectral and cospectral estimates.

Figure 13. Block diagram of data-processing operations.

B. SCALING AND CONVERSION OF RAW BINARY DATA TO METEOROLOGICAL UNITS, AND GENERATION OF MASTER DATA FILES

The next steps in processing the fast-response data included the correction of errors previously detected in the raw binary data, conversion of the corrected data to meteorological units, and the writing of new magnetic tapes containing labeled files of the converted data as well as certain input and computed values in a format suitable for spectral and cospectral analysis. These steps were accomplished by the Master File Program which provided for the scaling of the binary sensor data to yield five meteorological variables: Elevation Angle  $E_i$  (deg), Azimuth Angle  $A_i$  (deg), Wind Speed  $V_i$  ( $\text{m sec}^{-1}$ ), Air Temperature  $T_i$  (C), Refractive Index  $N_i$  (see Section II C), and Water Vapor Density  $P_i$  ( $\text{g m}^{-3}$ ). The variances of the elevation and azimuth angles were also calculated from the expressions

$$\sigma_E^2 = \frac{1}{N} \sum_{i=1}^N E_i^2 - \left[ \frac{1}{N} \sum_{i=1}^N E_i \right]^2 ,$$

and

$$\sigma_A^2 = \frac{1}{N} \sum_{i=1}^N A_i^2 - \left[ \frac{1}{N} \sum_{i=1}^N A_i \right]^2 .$$

The quantity N refers to the total number of data points in a single field trial which was about 3000.

The Master File Program also provided for the calculation of the orthogonal velocity components  $u_i$ ,  $v_i$ , and  $w_i$  through the use of the following trigonometric relationships:

$$E^* = \tan^{-1} \frac{\sum_{i=1}^N V_i \sin E_i}{\sum_{i=1}^N V_i \cos E_i}$$

$$A^* = \tan^{-1} \frac{\sum_{i=1}^N V_i \cos (E_i - E^*) \sin A_i}{\sum_{i=1}^N V_i \cos (E_i - E^*) \cos A_i}$$

$$U_i = V_i \cos (E_i - E^*) \cos (A_i - A^*)$$

$$\bar{U} = \frac{1}{N} \sum_{i=1}^N U_i$$

$$u_i = U_i - \bar{U}$$

$$v_i = V_i \cos (E_i - E^*) \sin (A_i - A^*)$$

and

$$w_i = V_i \sin (E_i - E^*)$$

The quantities  $A^*$  and  $E^*$  are virtual mean values of the azimuth and elevation angles required to satisfy the condition that

$$\bar{u}_i \equiv \bar{v}_i \equiv \bar{w}_i \equiv 0$$

The Master File Program additionally provided for calculations of the mean values  $\bar{T}$ ,  $\bar{N}$ , and  $\bar{P}$  and of the deviations from the mean  $t_i$ ,  $n_i$ , and  $p_i$  through the use of the following expressions:

$$\bar{T} = \frac{1}{N} \sum_{i=1}^N T_i \qquad t_i = T_i - \bar{T}$$

$$\bar{N} = \frac{1}{N} \sum_{i=1}^N N_i \qquad n_i = N_i - \bar{N}$$

$$\bar{P} = \frac{1}{N} \sum_{i=1}^N P_i \qquad p_i = P_i - \bar{P}$$

As shown schematically in Figure 13 B, the output of the Master File Program was a magnetic tape containing labeled data files. The information in each file included: run identification and measurement height; means and variances of elevation angles and azimuth angles; mean wind velocity, air temperature, refractive index, and water vapor density; and, the time-series data sets for  $u_i$ ,  $v_i$ ,  $w_i$ ,  $t_i$ ,  $n_i$ , and  $p_i$ . This tape was used as the input to the Frequency Distribution Correlation, and Spectral Analysis Program described below.

### C. FREQUENCY DISTRIBUTION, CORRELATION, AND SPECTRAL ANALYSIS PROGRAMS

The processing of the data files from the Master File Tape was accomplished through the use of three computer programs. One of these, the Frequency Distribution Program, was routinely used to calculate frequency distributions of the meteorological variables, second and third moments of the data, and various statistical functions for use in establishing the form of the distributions. This program is similar in many respects to the Frequency Count Program used in checking the raw binary tape data except that the maximum number of class intervals is 17 instead of 256. The Frequency Distribution Program printout was also used to check the quality of the data.

The spectral and cospectral analysis of the Master File data was performed through the use of a pair of programs. The first one, the Correlation Program, provides for statistical filtering of the various data sets, for the calculation of the autocovariance and covariance functions required for calculating the spectral and cospectral estimates, and for the calculation of gross statistics (means, variances, covariances, etc.). The second program (Spectral Program) read the output tape from the Correlation Program, formed the spectral, cospectral, and coherence estimates, and provided both an output tape and printout of the correlations, spectra, cospectra, covariances, and gross statistics in the desired final format. These two programs could have been combined in a single program but there was a significant gain in efficiency for mass production by separating the correlation calculations from the spectral calculations.

The mathematical specifications for the above pair of programs were based on methods of spectral and cospectral analysis for discrete time series described by Blackman and Tukey (1958). Gross statistics for various cross products of these variables as described in Section IV B were calculated for the unfiltered data sets and the filtered sets described below.

Spectral and cospectral analysis was performed in two steps and provided estimates within the time frequency range from 0.417 to 0.0014 cycles  $\text{sec}^{-1}$ . The first step comprised a 60-lag analysis that yielded spectral and cospectral estimates for the frequency range from 0.417 to 0.0069 cycles  $\text{sec}^{-1}$ . The original time series for  $u_i$ ,  $v_i$ ,  $w_i$ ,  $t_i$ ,  $n_i$ , and  $p_i$  were conditioned for this

analysis by smoothing each series with a 61-point running mean and differencing the original set with respect to appropriate values of this running mean to form a filtered set. This choice of the length of the running mean follows from a consideration of the half-power point of the transmission function for variances (see Pasquill, 1962, p. 14). The purpose of the filtering process is to remove low-frequency variations in the data that are outside the frequency resolution of the 60-lag spectral and cospectral analysis, *i.e.*, frequencies  $< 0.0069$  cycles  $\text{sec}^{-1}$ . As indicated in the formulas presented below, the filtered data sets contain  $(N-L)$  points — where  $L$  is the maximum number of lags — due to the removal of  $L/2$  points at each end of the original records in the formation of the running mean.

The second step in the spectral and cospectral analysis comprised a 30-lag analysis that yielded estimates within the time frequency range from 0.0417 to 0.0014 cycles  $\text{sec}^{-1}$ . Undesirable low-frequency energy was removed from the original records by smoothing the data with a 301-point running mean and differencing, following the procedures described above for filtering the 60-lag analysis data. These filtered data sets, each containing  $N - 300$  data points, were then reduced by taking 10-point sequential block averages to form new sets of  $(N - 300)/10$  points. The reduced sets were used as inputs to the 30-lag spectral and cospectral programs.

One of the final steps in the spectral and cospectral analysis was the correction of the estimates for the effects of the statistical-filtering and block-averaging processes as well as for the effects of foldover and system-response limitations at high frequencies (see Figure 12). The correction factors are presented in Table 2 for the adjusted frequency bands shown in Table 5.

#### D. MATHEMATICAL FORMULAS USED IN CONSTRUCTING THE CORRELATION AND SPECTRAL PROGRAMS

The following mathematical expressions were used to specify the computer operations in the Correlation and Spectral Programs.

1. Average of  $x_n = \bar{x}$

$$\bar{x} = \frac{1}{N} \sum_{n=1}^N x_n$$

where  $N$  is the total number of data points in the set.

TABLE 2

CORRECTION FACTORS APPLIED TO SPECTRAL AND COSPECTRAL ESTIMATES  
TO COMPENSATE FOR RUNNING-MEAN FILTERING, SEQUENTIAL  
BLOCK AVERAGING, SYSTEM RESPONSE, AND FOLDOVER\*

| 60-LAG ANALYSIS |                      |  |       |                      |
|-----------------|----------------------|--|-------|----------------------|
| K               | Correction<br>Factor |  | K     | Correction<br>Factor |
| 1               | 1.64                 |  | 9-11  | 1.04                 |
| 2               | 1.00                 |  | 12-15 | 1.07                 |
| 3               | 1.04                 |  | 16-20 | 1.15                 |
| 4               | 1.00                 |  | 21-27 | 1.30                 |
| 5               | 1.02                 |  | 28-36 | 1.55                 |
| 6               | 1.01                 |  | 37-47 | 1.90                 |
| 7-8             | 1.02                 |  | 48-60 | 2.10                 |

| 30-LAG ANALYSIS |                      |  |       |                      |
|-----------------|----------------------|--|-------|----------------------|
| K               | Correction<br>Factor |  | K     | Correction<br>Factor |
| 1               | 1.64                 |  | 7     | 1.05                 |
| 2               | 1.00                 |  | 8     | 1.06                 |
| 3               | 1.06                 |  | 9-11  | 1.10                 |
| 4               | 1.02                 |  | 12-14 | 1.17                 |
| 5               | 1.04                 |  | 15-21 | 1.37                 |
| 6               | 1.03                 |  | 22-30 | 1.98                 |

\*The k values refer to the adjusted frequency bands shown in Table 5.

2. Variance of  $x_n = \sigma_x^2$

$$\sigma_x^2 = \frac{1}{N} \sum_{n=1}^N (x_n - \bar{x})^2$$

3. Covariance of  $x_n, y_n = \sigma_{x,y}^2$

$$\sigma_{x,y}^2 = \frac{1}{N} \sum_{n=1}^N (x_n - \bar{x})(y_n - \bar{y})$$

4. High-Pass Statistical Filter (Running Mean and Differencing Procedure)

The filtered data set is defined by the expression

$$\hat{x}_n = x_n - \frac{1}{L+1} \sum_{j=-L/2}^{L/2} x_{n+j}, \quad n = (L/2 + 1), (L/2 + 2), \dots, (N - L/2)$$

where  $\hat{x}_n$  is the filtered  $n^{\text{th}}$  value,  $x_n$  is the  $n^{\text{th}}$  value of the original set,  $L$  is the maximum number of lagged products used in the spectral analysis, and  $N$  is the total number of data points in the original set.

5. Sequential Block Averaging

The reduced set of sequential block-averaged data points is given by

$$\tilde{x}_n = \frac{1}{m} \sum_{j=m(n-1)+1}^{mn} x_j, \quad n = 1, 2, \dots, M; \quad M \text{ the least integer } > \frac{N}{m} - 1$$

where  $\tilde{x}_n$  is the reduced  $n^{\text{th}}$  value and  $m$  is the number of data points within each block to be included in the average.

6. Autocovariance of  $x_n = R_\ell$

$$R_\ell = \frac{1}{N-\ell} \sum_{n=\ell+1}^N x_{n-\ell} x_n - \frac{1}{(N-\ell)^2} \sum_{n=\ell+1}^N x_{n-\ell} \sum_{n=\ell+1}^N x_n, \quad \ell = 0, 1, \dots, L$$

where L is the maximum number of lagged products.

7. Covariance of  $x_n, y_n = C_\ell$

$$C_\ell = \frac{1}{N-\ell} \sum_{n=\ell+1}^N x_{n-\ell} y_n - \frac{1}{(N-\ell)^2} \sum_{n=\ell+1}^N x_{n-\ell} \sum_{n=\ell+1}^N y_n, \ell = 0, 1, \dots, L$$

and

$$C_{-\ell} = \frac{1}{N-\ell} \sum_{n=\ell+1}^N y_{n-\ell} x_n - \frac{1}{(N-\ell)^2} \sum_{n=\ell+1}^N y_{n-\ell} \sum_{n=\ell+1}^N x_n, \ell = 0, 1, \dots, L$$

where L is the maximum number of lagged products.

8. Power Spectrum Estimates =  $G_k$

$$G_0 = \frac{1}{2L} \left\{ R_0 + \sum_{\ell=1}^L R_\ell \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, k = 0$$

$$G_k = \frac{1}{L} \left\{ R_0 + \sum_{\ell=1}^L R_\ell \cos \left( \frac{k\ell\pi}{L} \right) \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, k = 1, 2, \dots, L-1$$

$$G_L = \frac{1}{2L} \left\{ R_0 + \sum_{\ell=1}^L R_\ell \cos(\ell\pi) \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, k = L$$

9. Cospectral Estimates =  $Z_k$

$$Z_0 = \frac{1}{2L} \left\{ C_0 + \sum_{\ell=1}^L \left[ \frac{C_\ell + C_{-\ell}}{2} \right] \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, k = 0$$



$$z_k = \frac{1}{L} \left\{ c_0 + \sum_{\ell=1}^L \left[ \frac{c_\ell + c_{-\ell}}{2} \right] \cos \left( \frac{k\ell\pi}{L} \right) \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, \quad k = 1, 2, \dots, L-1$$

$$z_L = \frac{1}{2L} \left\{ c_0 + \sum_{\ell=1}^L \left[ \frac{c_\ell + c_{-\ell}}{2} \right] \cos(\ell\pi) \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, \quad k = L$$

10. Quadrature Spectrum Estimates =  $Q_k$

$$Q_0 = \frac{1}{2L} \left\{ \sum_{\ell=1}^L \left[ \frac{c_\ell - c_{-\ell}}{2} \right] \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, \quad k = 0$$

$$Q_k = \frac{1}{L} \left\{ \sum_{\ell=1}^L \left[ \frac{c_\ell - c_{-\ell}}{2} \right] \cos \left( \frac{k\ell\pi}{L} \right) \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, \quad k = 1, 2, \dots, L-1$$

$$Q_L = \frac{1}{2L} \left\{ \sum_{\ell=1}^L \left[ \frac{c_\ell - c_{-\ell}}{2} \right] \cos(\ell\pi) \left[ 1 + \cos \left( \frac{\ell\pi}{L} \right) \right] \right\}, \quad k = L$$

11. Coherence Estimates =  $COH_k$

$$COH_k = \frac{z_k^2 + Q_k^2}{G_k(x) G_k(y)}, \quad k = 0, 1, \dots, L$$

12. Total Turbulent Kinetic Energy =  $E$

$$E = \frac{1}{2N} \sum_{i=1}^N (u_i^2 + v_i^2 + w_i^2)$$

13. Vertical Flux of Total Turbulent Kinetic Energy =  $WE$

$$WE = \frac{1}{2N} \sum_{i=1}^N w_i (u_i^2 + v_i^2 + w_i^2)$$

## SECTION IV

### DATA TABULATION FOR RUNS 87A THROUGH 95A

#### A. VERTICAL PROFILES OF MEAN WIND SPEED AND AIR TEMPERATURE

Vertical profiles of mean wind speed and air temperature, based on measurements taken at seven heights within the layer from 3.8 m to 91.4 m, are presented in Tables 3 and 4, respectively. Run number, date, and time duration of the measurements are indicated by column headings in the body of each table.

#### B. TURBULENCE STATISTICS

Turbulence statistics are tabulated separately for each run and for each level at which data are available. Throughout the tabulation U, V, and W refer to the orthogonal components of the wind velocity and T refers to temperature. The letter E refers to the total kinetic energy defined by the expression  $E = 1/2(U^2 + V^2 + W^2)$ . Units of velocity are  $m \text{ sec}^{-1}$  and the unit of temperature is deg C. Covariances and cospectra are identified by the appropriate symbols of the two variables separated by a comma, except that the covariance between the vertical component of the wind velocity and the total kinetic energy is identified simply by WE. The data presentation follows a standard format which is explained below.

##### 1. Identification of Experiment

The run number, measurement height, date, and the time duration of each experiment are listed at the top of the first page of each data set

##### 2. Gross Statistics

###### a. Summary Information

Summary information is presented in three vertical columns. The first column gives the amount of cloud cover in tenths followed by the cloud type, and the thermal stratification. The second vertical column lists the mean wind speed, the mean azimuth wind direction, and the solar radiation. The third column presents the standard deviations of azimuth angle and elevation angle.

TABLE 3

## VERTICAL PROFILES OF MEAN WIND SPEED

| Run No.    | 87A                              | 88A       | 89A       | 90A       |
|------------|----------------------------------|-----------|-----------|-----------|
| Date       | 6-14-63                          | 6-18-63   | 6-18-63   | 6-18-63   |
| Time (EST) | 1401-1502                        | 0936-1052 | 1336-1437 | 1501-1601 |
| Height (m) | $\bar{U}$ (m sec <sup>-1</sup> ) |           |           |           |
| 91.4       | 5.31                             | 4.65      | 7.55      | 6.99      |
| 68.6       | 5.18                             | 5.04      | 7.20      | 6.47      |
| 45.7       | 4.83                             | 5.15      | 6.75      | 5.77      |
| 30.5       | 4.72                             | 5.13      | 6.45      | 5.44      |
| 15.2       | 3.88                             | 4.12      | 5.06      | 4.16      |
| 7.6        | 3.24                             | 3.45      | 4.20      | 3.46      |
| 3.8        | 2.75                             | 2.89      | 3.54      | 2.93      |

| Run No.    | 90B                              | 90C       | 90D       | 91A       |
|------------|----------------------------------|-----------|-----------|-----------|
| Date       | 6-18-63                          | 6-18-63   | 6-18-63   | 6-18-63   |
| Time (EST) | 1615-1714                        | 1721-1836 | 1840-1956 | 2150-2300 |
| Height (m) | $\bar{U}$ (m sec <sup>-1</sup> ) |           |           |           |
| 91.4       | 8.60                             | 9.42      | 8.75      | 8.76      |
| 68.6       | 7.78                             | 8.18      | 7.66      | 7.48      |
| 45.7       | 6.75                             | 6.72      | 6.14      | 5.83      |
| 30.5       | 6.36                             | 6.03      | 5.43      | 4.90      |
| 15.2       | 5.24                             | 4.84      | 4.13      | 3.58      |
| 7.6        | 4.36                             | 3.94      | 3.35      | 2.72      |
| 3.8        | 3.57                             | 3.21      | 2.67      | 2.12      |

| Run No.    | 91B                              | 92A       | 94A       | 95A       |
|------------|----------------------------------|-----------|-----------|-----------|
| Date       | 6-18-63                          | 6-19-63   | 6-19-63   | 6-19-63   |
| Time (EST) | 2306-0010                        | 0030-0146 | 1306-1422 | 1446-1602 |
| Height (m) | $\bar{U}$ (m sec <sup>-1</sup> ) |           |           |           |
| 91.4       | 9.09                             | 8.75      | 6.17      | 6.18      |
| 68.6       | 7.83                             | 7.69      | 5.50      | 5.65      |
| 45.7       | 6.00                             | 5.97      | 4.97      | 5.21      |
| 30.5       | 5.00                             | 5.09      | 4.64      | 4.98      |
| 15.2       | 3.56                             | 3.78      | 3.81      | 4.15      |
| 7.6        | 2.65                             | 2.94      | 3.23      | 3.51      |
| 3.8        | 2.04                             | 2.22      | 2.68      | 2.84      |

TABLE 4

## VERTICAL PROFILES OF MEAN AIR TEMPERATURE

| Run No.           | 87A       | 88A          | 89A       | 90A       |
|-------------------|-----------|--------------|-----------|-----------|
| Date              | 6-14-63   | 6-18-63      | 6-18-63   | 6-18-63   |
| Time (EST)        | 1401-1502 | 0936-1052    | 1336-1437 | 1501-1601 |
| <u>Height (m)</u> |           | <u>T (C)</u> |           |           |
| 91.4              | 19.4      | 21.4         | 18.6      | 19.0      |
| 68.6              | 19.7      | 21.2         | 18.9      | 19.3      |
| 45.7              | 20.0      | 21.2         | 19.1      | 19.5      |
| 30.5              | 20.3      | 21.5         | 19.5      | 19.9      |
| 15.2              | 20.7      | 21.9         | 19.9      | 20.1      |
| 7.6               | 21.0      | 22.2         | 20.2      | 20.4      |
| 3.8               | 21.2      | 22.5         | 20.5      | 20.6      |
| Run No.           | 90B       | 90C          | 90D       | 91A       |
| Date              | 6-18-63   | 6-18-63      | 6-18-63   | 6-18-63   |
| Time (EST)        | 1615-1714 | 1721-1836    | 1840-1956 | 2150-2300 |
| <u>Height (m)</u> |           | <u>T (C)</u> |           |           |
| 91.4              | 20.0      | 20.0         | 18.0      | 18.4      |
| 68.6              | 20.2      | 20.0         | 18.0      | 17.4      |
| 45.7              | 20.5      | 20.1         | 18.1      | 17.0      |
| 30.5              | 20.8      | 20.2         | 18.1      | 16.7      |
| 15.2              | 20.9      | 20.2         | 18.1      | 16.6      |
| 7.6               | 21.0      | 20.2         | 18.0      | 16.4      |
| 3.8               | 21.1      | 20.2         | 17.9      | 16.2      |
| Run No.           | 91B       | 92A          | 94A       | 95A       |
| Date              | 6-18-63   | 6-19-63      | 6-19-63   | 6-19-63   |
| Time (EST)        | 2306-0010 | 0030-0146    | 1306-1422 | 1446-1602 |
| <u>Height (m)</u> |           | <u>T (C)</u> |           |           |
| 91.4              | 18.4      | 18.4         | 18.9      | 17.6      |
| 68.6              | 17.5      | 17.2         | 19.3      | 17.9      |
| 45.7              | 16.6      | 16.4         | 19.6      | 18.2      |
| 30.5              | 16.4      | 16.2         | 20.0      | 18.5      |
| 15.2              | 16.1      | 16.1         | 20.4      | 18.8      |
| 7.6               | 15.9      | 15.9         | 20.7      | 19.1      |
| 3.8               | 15.8      | 15.8         | 21.0      | 19.3      |

#### b. Variances

Variances are presented for the three components of the wind velocity and for air temperature. Identification of the variables for which the variances and other gross statistics have been calculated appears in the column at the left. Variances identified by E are one-half the sum of the variances of the three velocity components.

The variances for U, V, W, and T are presented for the four conditions indicated by the column headings below the summary information. These are:

- . . With No Running Mean - refers to the complete data set.
- . . With 301 Point Running Mean - data have been differenced with respect to a 301-point running mean.
- . . With 61 Point Running Mean - data have been differenced with respect to a 61-point running mean.
- . . 301 Pt Run Mean 10 Pt Block Avg - the 301-point running mean data set described above has been reduced by 10-point sequential block averaging.

The variance for E is presented for the first three of these data sets only.

#### c. Gustiness Ratios

The gustiness ratios for the three orthogonal components of the wind velocity are defined as  $\sigma_u/\bar{U}$ ,  $\sigma_v/\bar{U}$ ,  $\sigma_w/\bar{U}$  where  $\sigma$  is the standard deviation of the distribution and  $\bar{U}$  is the mean wind speed. Gustiness ratios are presented for each of the four data sets described above.

#### d. Covariances

The covariances U,V; U,W; U,T; V,W; V,T; and W,T are presented for each of the four data sets. The covariance WE is presented for the first three data sets only.

#### e. Normalized Covariances

The normalized covariances for U,V; U,W; U,T; V,W; V,T; and W,T were calculated by dividing the covariances by the product of the standard deviations of the two variates.

### 3. Spectral and Cospectral Estimates

Spectral and cospectral calculations were carried out using the last two data sets described in Section 2b above for variables U, V, W, and T.

The results are presented in the following order:

a. 61 Point Running Mean, No Block Averaging

Normalized cospectrum covariance  
Normalized quadrature covariance  
Normalized autocovariance  
Cospectrum  
Quadrature spectrum  
Power spectrum

b. 301 Point Running Mean, 10 Point Block Average

Normalized cospectrum covariance  
Cospectrum  
Normalized quadrature covariance  
Quadrature spectrum  
Normalized autocovariance  
Power spectrum

c. Coherence

Estimates of the coherence between levels are presented for each of the three wind velocity components and for temperature. These estimates include quadrature and are presented for both the 61 Point Running Mean, No Block Averaging and the 301 Point Running Mean, 10 Point Block Average data sets. Tabulation of the coherence estimates follows the power spectrum estimates for the second level.

Cospectrum covariance, quadrature covariance, and autocovariance are tabulated against lag number M. Cospectrum covariance and quadrature covariance estimates have been normalized by dividing by the product of the standard deviations of the two variables; autocovariance estimates have been normalized by dividing by the variance of the data set. Normalization factors are listed at the head of each column.

Cospectrum, quadrature spectrum, power spectrum, and coherence estimates are tabulated against K number. Tabulated values should be multiplied by the power of 10 indicated in the column heading. Estimates have been combined within various frequency bands as indicated by K numbers at the left. Table 5 presents the relationship between these K numbers and the central frequencies of the individual bands.

It should be noted that the coherence estimate for W at  $K = 0$  for Run 90A, 301 Point Running Mean, 10 Point Block Average is unreasonably large and should be disregarded.

TABLE 5

## ADJUSTED FREQUENCY BANDS FOR SPECTRAL AND COSPECTRAL ESTIMATES

| 60-LAG ANALYSIS |                                   |       |                                   |
|-----------------|-----------------------------------|-------|-----------------------------------|
| K               | $f_k$ (cycles sec <sup>-1</sup> ) | K     | $f_k$ (cycles sec <sup>-1</sup> ) |
| 1               | 0.0069                            | 9-11  | 0.0694                            |
| 2               | 0.0139                            | 12-15 | 0.0937                            |
| 3               | 0.0208                            | 16-20 | 0.1250                            |
| 4               | 0.0278                            | 21-27 | 0.1667                            |
| 5               | 0.0347                            | 28-36 | 0.2222                            |
| 6               | 0.0417                            | 37-47 | 0.2917                            |
| 7-8             | 0.0521                            | 48-60 | 0.3750                            |

| 30-LAG ANALYSIS |                                   |       |                                   |
|-----------------|-----------------------------------|-------|-----------------------------------|
| K               | $f_k$ (cycles sec <sup>-1</sup> ) | K     | $f_k$ (cycles sec <sup>-1</sup> ) |
| 1               | 0.0014                            | 7     | 0.0097                            |
| 2               | 0.0028                            | 8     | 0.0111                            |
| 3               | 0.0042                            | 9-11  | 0.0139                            |
| 4               | 0.0056                            | 12-14 | 0.0181                            |
| 5               | 0.0069                            | 15-21 | 0.0250                            |
| 6               | 0.0083                            | 22-30 | 0.0361                            |

4. Data summaries for Runs 87A through 95A.

The turbulence statistics for Runs 87A through 95A appear on pages 42 through 245.



RUN NO 87A 46M 6-14-63 1401-1502(EST)

GROSS STATISTICS

4 AS CU WIND SPEED 4.83 M/SEC SIGMA A 8.4 DEG  
 UNSTABLE WIND DIRECTION 214 DEG SIGMA E 7.90 DEG  
 SOLAR RAD. 1.14 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.10412E 01             | 0.52897E 00                    | 0.33436E-00                   | 0.38352E-00                        |
| V                | 0.39635E-00             | 0.36510E-00                    | 0.28072E-00                   | 0.21661E-00                        |
| W                | 0.32012E-00             | 0.26343E-00                    | 0.20821E-00                   | 0.14339E-00                        |
| T                | 0.23321E-00             | 0.25660E-01                    | 0.14050E-01                   | 0.20301E-01                        |
| E                | 0.87882E 00             | 0.57878E 00                    | 0.41165E-00                   |                                    |

|                         | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.21126                 | 0.15058                        | 0.11972                       | 0.12822                            |
| V                       | 0.13034                 | 0.12510                        | 0.10970                       | 0.09636                            |
| W                       | 0.11714                 | 0.10626                        | 0.09447                       | 0.07840                            |

|                    | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | 0.17111E-00             | 0.35281E-01                    | 0.36109E-01                   | 0.27891E-01                        |
| U,W                | -0.29183E-00            | -0.14785E-00                   | -0.94944E-01                  | -0.11485E-00                       |
| U,T                | -0.35768E-00            | -0.77110E-01                   | -0.41148E-01                  | -0.53593E-01                       |
| V,W                | -0.36989E-01            | -0.64063E-02                   | -0.68512E-02                  | -0.13540E-02                       |
| V,T                | -0.78532E-01            | 0.27765E-02                    | 0.31255E-02                   | -0.30577E-03                       |
| W,T                | 0.97034E-01             | 0.20997E-01                    | 0.11039E-01                   | 0.19956E-01                        |
| WE                 | 0.15302E-00             | 0.50527E-01                    | 0.33294E-01                   |                                    |

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | 0.26636                 | 0.08028                        | 0.11786                       | 0.09677                            |
| U,W                           | -0.50548                | -0.39608                       | -0.35984                      | -0.48974                           |
| U,T                           | -0.72587                | -0.66186                       | -0.60035                      | -0.72071                           |
| V,W                           | -0.10384                | -0.02066                       | -0.02834                      | -0.00768                           |
| V,T                           | -0.25831                | 0.02869                        | 0.04977                       | -0.00461                           |
| W,T                           | 0.35514                 | 0.25539                        | 0.20410                       | 0.36987                            |

RUN NO 87A 46M 6-14-63 1401-1502(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.30638<br>10E 00 | 0.26385<br>10E 00 | 0.68531<br>10E-01 | 0.24179<br>10E 00 | 0.62802<br>10E-01 | 0.54085<br>10E-01 |
| 0  | .117684           | -.359935          | -.600185          | -.028177          | .050072           | .204125           |
| 1  | .120408           | -.334507          | -.541008          | -.020412          | .028231           | .213989           |
| 2  | .117621           | -.289995          | -.458577          | -.008985          | .006812           | .211002           |
| 3  | .104014           | -.241658          | -.394392          | .002268           | -.008837          | .194215           |
| 4  | .091452           | -.192887          | -.339385          | .014228           | -.020684          | .171691           |
| 5  | .077622           | -.150995          | -.288758          | .019973           | -.030644          | .147393           |
| 6  | .061044           | -.120329          | -.238804          | .027227           | -.035815          | .125597           |
| 7  | .044199           | -.080510          | -.193418          | .032904           | -.041650          | .100198           |
| 8  | .027395           | -.038362          | -.156205          | .025623           | -.042596          | .071607           |
| 9  | .011624           | -.006730          | -.111749          | .011366           | -.036638          | .049129           |
| 10 | .003534           | .007900           | -.065569          | -.003338          | -.031741          | .035005           |
| 11 | -.007179          | .024479           | .024169           | -.010561          | -.022469          | .017387           |
| 12 | -.016963          | .051703           | .020907           | -.008256          | -.013254          | -.012683          |
| 13 | -.030734          | .084654           | .069110           | -.003618          | -.003552          | -.043314          |
| 14 | -.048672          | .101552           | .098016           | -.000923          | -.009878          | -.064774          |
| 15 | -.064431          | .108128           | .118673           | .004380           | .026341           | -.078665          |
| 16 | -.076987          | .106775           | .137475           | .010607           | .044519           | -.087376          |
| 17 | -.084990          | .103949           | .161411           | .020336           | .062519           | -.093334          |
| 18 | -.091617          | .100676           | .187519           | .022172           | .073595           | -.093258          |
| 19 | -.099772          | .102114           | .205630           | .018181           | .077387           | -.096196          |
| 20 | -.105143          | .113744           | .216849           | .011658           | .069531           | -.099707          |
| 21 | -.111760          | .130091           | .223348           | -.001177          | .062929           | -.108550          |
| 22 | -.112260          | .139330           | .223903           | -.007230          | .052587           | -.114036          |
| 23 | -.109307          | .146824           | .221420           | -.012649          | .040040           | -.118341          |
| 24 | -.102609          | .151783           | .222332           | -.017065          | .027249           | -.117273          |
| 25 | -.091528          | .154466           | .223811           | -.017370          | .018537           | -.113176          |
| 26 | -.081775          | .154960           | .221768           | -.011881          | .010317           | -.105386          |
| 27 | -.074235          | .147949           | .214887           | -.008047          | .005038           | -.097882          |
| 28 | -.060622          | .139659           | .204293           | -.010554          | .004265           | -.095660          |
| 29 | -.047515          | .128459           | .185569           | -.007457          | .008078           | -.083193          |
| 30 | -.032192          | .099600           | .166278           | -.007232          | .010589           | -.066505          |
| 31 | -.013863          | .069615           | .147165           | -.011123          | .009561           | -.054037          |
| 32 | .003026           | .042127           | .127527           | -.020153          | .009445           | -.043574          |
| 33 | .017363           | .013970           | .108563           | -.024814          | .007106           | -.028747          |
| 34 | .032473           | -.008292          | .089304           | -.031165          | .002957           | -.012303          |
| 35 | .044947           | -.022708          | .065675           | -.040123          | -.000448          | .002475           |
| 36 | .052102           | -.041730          | .040745           | -.037206          | -.004346          | .016344           |
| 37 | .055127           | -.064756          | .015111           | -.028622          | -.016124          | .024841           |
| 38 | .055280           | -.081904          | -.000281          | -.021427          | -.026490          | .031886           |
| 39 | .057547           | -.087019          | -.014696          | -.015498          | -.035997          | .039280           |
| 40 | .058851           | -.091579          | -.034482          | -.013058          | -.038051          | .047417           |
| 41 | .062920           | -.090996          | -.045488          | -.009090          | -.037827          | .050800           |
| 42 | .064942           | -.083521          | -.052590          | -.006448          | -.034997          | .049669           |
| 43 | .067651           | -.077376          | -.055531          | -.004500          | -.028520          | .043553           |
| 44 | .073507           | -.076376          | -.056775          | -.002203          | -.027528          | .044666           |
| 45 | .080996           | -.071739          | -.059754          | -.004021          | -.031078          | .036750           |
| 46 | .085346           | -.064858          | -.062914          | .006341           | -.040381          | .031379           |
| 47 | .081257           | -.061757          | -.059866          | .019215           | -.044910          | .036239           |
| 48 | .064482           | -.061398          | -.054519          | .025229           | -.043134          | .044313           |
| 49 | .044909           | -.057468          | -.046366          | .022496           | -.031260          | .042682           |
| 50 | .032566           | -.059943          | -.046361          | .018006           | -.026387          | .032939           |
| 51 | .023550           | -.059463          | -.053146          | .020001           | -.027972          | .020977           |
| 52 | .015570           | -.051297          | -.051490          | .024472           | -.027474          | .009716           |
| 53 | .006788           | -.034338          | -.042852          | .023778           | -.027713          | -.000693          |
| 54 | .003542           | -.022532          | -.038802          | .025844           | -.024199          | -.006150          |
| 55 | .000183           | -.020441          | -.035642          | .027407           | -.025081          | -.005310          |
| 56 | -.004118          | -.021920          | -.031880          | .024349           | -.025119          | -.003625          |
| 57 | -.020615          | -.022240          | -.029049          | .015745           | -.019917          | .000080           |
| 58 | -.033297          | -.013038          | -.027658          | .002232           | -.012826          | .001742           |
| 59 | -.042293          | -.003088          | -.028066          | -.004070          | -.014962          | .002134           |
| 60 | -.043462          | .004264           | -.029355          | -.005278          | -.018544          | .010284           |

RUN NO 87A 46M 6-14-63 1401-1502(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.30638<br>10E 00 | 0.26385<br>10E 00 | 0.68531<br>10E-01 | 0.24179<br>10E 00 | 0.62802<br>10E-01 | 0.54085<br>10E-01 |
| 1  | -.000091          | -.022405          | -.027873          | -.002742          | .019239           | .004853           |
| 2  | .001260           | -.042651          | -.042497          | -.004590          | .030825           | .009614           |
| 3  | .005088           | -.059080          | -.056208          | -.013657          | .037294           | .016469           |
| 4  | .009293           | -.074166          | -.065492          | -.018314          | .037766           | .017500           |
| 5  | .016546           | -.077841          | -.071974          | -.017161          | .035322           | .021899           |
| 6  | .022332           | -.072848          | -.076897          | -.017800          | .034114           | .042730           |
| 7  | .023077           | -.056450          | -.077003          | -.023252          | .049352           | .044102           |
| 8  | .018434           | -.040388          | -.080244          | -.026691          | .054794           | .044814           |
| 9  | .023338           | -.031765          | -.078679          | -.021449          | .060482           | .046585           |
| 10 | .037223           | -.028521          | -.075552          | -.015271          | .064055           | .048841           |
| 11 | .048285           | -.026406          | -.078321          | -.012834          | .058720           | .049887           |
| 12 | .056034           | -.031359          | -.083028          | -.007887          | .051924           | .050039           |
| 13 | .057502           | -.037381          | -.079343          | -.002603          | .046614           | .052634           |
| 14 | .056301           | -.034897          | -.070044          | .000439           | .040492           | .057532           |
| 15 | .053741           | -.024642          | -.068483          | .002217           | .034874           | .057068           |
| 16 | .050855           | -.017548          | -.072515          | -.002258          | .037200           | .053176           |
| 17 | .043058           | -.013493          | -.064571          | -.008494          | .038537           | .049309           |
| 18 | .036998           | -.007745          | -.052608          | -.011401          | .038916           | .046157           |
| 19 | .028934           | -.007887          | -.045235          | -.011511          | .039768           | .040372           |
| 20 | .025230           | -.014192          | -.038820          | -.002203          | .039519           | .034412           |
| 21 | .023379           | -.018060          | -.031143          | .003107           | .045201           | .024711           |
| 22 | .020704           | -.025823          | -.025901          | .002854           | .048510           | .013671           |
| 23 | .022207           | -.030870          | -.025433          | -.000071          | .052536           | .004387           |
| 24 | .029887           | -.024898          | -.018256          | .000178           | .054999           | -.006789          |
| 25 | .038645           | -.016228          | -.003640          | -.001836          | .056097           | -.016126          |
| 26 | .047872           | -.010596          | .011969           | .002132           | .054144           | -.029799          |
| 27 | .056617           | .002207           | .021948           | .015173           | .051183           | -.036923          |
| 28 | .053248           | .019487           | .022296           | .027873           | .045051           | -.035002          |
| 29 | .048915           | .029809           | .020674           | .030947           | .036217           | -.029978          |
| 30 | .045147           | .030110           | .022308           | .028437           | .027257           | -.024769          |
| 31 | .034052           | .027912           | .018741           | .024381           | .018302           | -.021693          |
| 32 | .022994           | .028030           | .018750           | .023941           | .011729           | -.020721          |
| 33 | .013004           | .024282           | .016514           | .017718           | .005632           | -.017763          |
| 34 | -.005832          | .025659           | .012542           | .007464           | .000283           | -.018411          |
| 35 | -.027427          | .021906           | .009798           | -.011298          | -.001760          | -.018763          |
| 36 | -.039917          | .010309           | .006446           | -.026744          | -.009240          | -.022648          |
| 37 | -.050457          | -.003758          | -.003875          | -.035532          | -.019424          | -.029226          |
| 38 | -.058842          | -.010214          | -.014024          | -.040146          | -.025919          | -.032567          |
| 39 | -.065574          | -.010243          | -.023522          | -.047622          | -.031150          | -.027378          |
| 40 | -.067716          | -.007443          | -.027507          | -.050077          | -.037464          | -.025526          |
| 41 | -.062256          | -.010897          | -.025657          | -.051955          | -.038636          | -.026193          |
| 42 | -.052251          | -.011804          | -.021835          | -.054222          | -.036427          | -.026923          |
| 43 | -.042740          | -.006994          | -.019476          | -.052387          | -.031851          | -.024575          |
| 44 | -.028800          | .001663           | -.013119          | -.049401          | -.028921          | -.022225          |
| 45 | -.016418          | .001712           | -.003534          | -.045037          | -.029672          | -.023970          |
| 46 | -.003674          | -.006620          | .007325           | -.035334          | -.025154          | -.028636          |
| 47 | -.002881          | -.007464          | .010236           | -.023945          | -.023391          | -.036614          |
| 48 | -.010663          | -.004404          | .006310           | -.011544          | -.025298          | -.038448          |
| 49 | -.011730          | -.011248          | -.000176          | -.001743          | -.027189          | -.036053          |
| 50 | -.011451          | -.017622          | -.004711          | .007451           | -.027102          | -.029330          |
| 51 | -.009864          | -.022774          | -.006208          | .019089           | -.029346          | -.027370          |
| 52 | -.006896          | -.019806          | -.007618          | .030554           | -.028093          | -.025880          |
| 53 | -.011778          | -.007063          | -.007004          | .033374           | -.027937          | -.016949          |
| 54 | -.021941          | .003101           | .001186           | .033525           | -.031672          | -.002435          |
| 55 | -.023109          | .007710           | .010763           | .027588           | -.036360          | .020041           |
| 56 | -.020247          | .008901           | .014727           | .023386           | -.038016          | .037500           |
| 57 | -.018456          | .010231           | .015362           | .028413           | -.037812          | .044984           |
| 58 | -.013631          | .012744           | .021504           | .027716           | -.035246          | .042989           |
| 59 | -.017954          | .017324           | .025671           | .024171           | -.032192          | .047893           |
| 60 | -.020910          | .022723           | .021659           | .023130           | -.028194          | .050295           |

RUN NO 87A 46M 6-14-63 1401-1502(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.33433<br>10E 00 | 0.28076<br>10E 00 | 0.20823<br>10E 00 | 0.14048<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .847380           | .837941           | .805663           | .867168           |
| 2  | .661145           | .624542           | .573277           | .724948           |
| 3  | .531677           | .460170           | .402196           | .614145           |
| 4  | .431789           | .330474           | .269901           | .524331           |
| 5  | .350659           | .228900           | .168797           | .445065           |
| 6  | .282635           | .158795           | .094473           | .368698           |
| 7  | .218443           | .104423           | .036197           | .301702           |
| 8  | .162827           | .060370           | -.011047          | .242638           |
| 9  | .100506           | .019033           | -.040692          | .182612           |
| 10 | .041298           | -.021164          | -.070317          | .115823           |
| 11 | -.008311          | -.056665          | -.095960          | .058724           |
| 12 | -.065416          | -.091843          | -.118077          | -.004094          |
| 13 | -.116296          | -.118583          | -.124867          | -.067146          |
| 14 | -.154456          | -.145056          | -.123418          | -.110458          |
| 15 | -.185741          | -.171558          | -.129364          | -.142834          |
| 16 | -.219113          | -.189686          | -.134446          | -.171593          |
| 17 | -.251998          | -.201997          | -.141677          | -.200043          |
| 18 | -.276885          | -.218992          | -.150309          | -.231043          |
| 19 | -.296951          | -.236107          | -.171881          | -.257448          |
| 20 | -.317642          | -.252949          | -.186158          | -.278512          |
| 21 | -.332841          | -.263629          | -.198011          | -.292044          |
| 22 | -.336274          | -.268971          | -.213505          | -.308066          |
| 23 | -.335562          | -.272124          | -.227334          | -.324039          |
| 24 | -.339165          | -.266807          | -.233880          | -.337264          |
| 25 | -.338435          | -.255669          | -.240245          | -.342203          |
| 26 | -.318545          | -.245884          | -.241483          | -.348693          |
| 27 | -.290908          | -.228696          | -.231974          | -.349100          |
| 28 | -.265916          | -.209184          | -.215085          | -.337487          |
| 29 | -.232377          | -.184348          | -.179172          | -.316967          |
| 30 | -.192896          | -.155808          | -.127415          | -.293742          |
| 31 | -.154040          | -.127440          | -.074699          | -.266007          |
| 32 | -.119170          | -.106178          | -.035110          | -.240207          |
| 33 | -.089534          | -.083102          | -.007013          | -.214733          |
| 34 | -.060766          | -.056043          | .021032           | -.196403          |
| 35 | -.033487          | -.029300          | .041301           | -.176531          |
| 36 | -.005384          | -.005294          | .041170           | -.142264          |
| 37 | .023967           | .002069           | .034491           | -.107227          |
| 38 | .043821           | .006686           | .032929           | -.084883          |
| 39 | .059809           | .019784           | .036699           | -.062624          |
| 40 | .079800           | .044219           | .048953           | -.039197          |
| 41 | .088241           | .074432           | .047809           | -.017631          |
| 42 | .092534           | .108385           | .029686           | .001424           |
| 43 | .095628           | .129953           | .023861           | .016208           |
| 44 | .098387           | .136468           | .027551           | .030277           |
| 45 | .097767           | .136758           | .034006           | .046583           |
| 46 | .093445           | .129021           | .036208           | .060292           |
| 47 | .082674           | .117547           | .044192           | .077226           |
| 48 | .081226           | .101660           | .059044           | .090630           |
| 49 | .072756           | .093111           | .078149           | .104925           |
| 50 | .065717           | .088576           | .097140           | .116631           |
| 51 | .070648           | .078810           | .102644           | .123851           |
| 52 | .061946           | .069814           | .092182           | .119255           |
| 53 | .041623           | .058317           | .078403           | .104604           |
| 54 | .029533           | .039678           | .065018           | .096776           |
| 55 | .029229           | .024788           | .040749           | .087919           |
| 56 | .028950           | .013700           | .024672           | .079044           |
| 57 | .029671           | .002251           | .019789           | .070133           |
| 58 | .024560           | -.018725          | .016738           | .073522           |
| 59 | .018377           | -.039879          | .016115           | .070655           |
| 60 | .014075           | -.053421          | .009375           | .067102           |

RUN NO 87A 46M 6-14-63 1401-1502(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 0     | -.005779 | -.007967 | -.071109 | -.004315 | .016709  | .025199  |
| 1     | .018720  | -.109002 | -.750309 | .132101  | .030202  | .237372  |
| 2     | .109675  | -.200007 | -.973011 | .130800  | -.066597 | .342150  |
| 3     | .157175  | -.233348 | -.914823 | -.046610 | -.103008 | .361927  |
| 4     | .067383  | -.115668 | -.438502 | -.100359 | -.018601 | .168989  |
| 5     | .002433  | -.056148 | -.200397 | -.004307 | .054628  | .053039  |
| 6     | .002737  | -.070954 | -.159355 | -.025289 | .093033  | .042339  |
| 7-8   | .011381  | -.038149 | -.092958 | -.053987 | .068911  | .010702  |
| 9-11  | .004455  | -.012952 | -.066380 | -.166607 | .006118  | .002734  |
| 12-15 | -.001560 | -.011793 | -.051398 | -.006685 | .015628  | .002623  |
| 16-20 | -.000058 | -.003966 | -.022998 | .007594  | .006295  | -.005300 |
| 21-27 | -.000811 | -.002445 | -.019617 | -.019918 | .005984  | -.002774 |
| 28-34 | -.000925 | -.000931 | -.012227 | .002846  | .003201  | -.002671 |
| 37-47 | -.000707 | -.000899 | -.006452 | -.007220 | .003180  | -.002091 |
| 48-60 | .000041  | -.000410 | -.003226 | -.000158 | .002102  | -.001124 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .767451  | -.367253 | -.220037 | -.120086 | .211224  | .063894  |
| 2     | .684862  | -.423450 | -.209865 | -.031568 | .167865  | .120265  |
| 3     | .209706  | -.470053 | -.206974 | -.191243 | .067899  | .111253  |
| 4     | -.083389 | -.283796 | -.115661 | -.177013 | .019280  | .039615  |
| 5     | .119053  | -.189103 | -.021138 | .040276  | .050821  | -.012024 |
| 6     | -.021914 | -.295569 | -.018244 | -.071058 | .044835  | -.022344 |
| 7-8   | -.196940 | -.208591 | -.030012 | -.072491 | .000163  | .008377  |
| 9-11  | .066903  | -.119488 | -.013400 | .020366  | -.000535 | -.003716 |
| 12-15 | -.008581 | .003594  | -.004420 | .008919  | .011533  | -.004079 |
| 16-20 | -.031909 | .021996  | -.002445 | .001829  | .006071  | -.000008 |
| 21-27 | .014614  | -.000185 | -.003325 | .010582  | .000355  | .002150  |
| 28-36 | -.008274 | -.001880 | -.001811 | -.002020 | -.000392 | -.001191 |
| 37-47 | .001808  | -.003696 | -.001716 | -.005107 | .001301  | -.000089 |
| 48-60 | .001382  | .003420  | -.000270 | -.001663 | .000140  | .000775  |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .037170 | .020472 | .012836 | .027342 |
| 1     | .443569 | .282601 | .173801 | .274483 |
| 2     | .636609 | .436845 | .267493 | .321084 |
| 3     | .661074 | .470698 | .301515 | .267341 |
| 4     | .345596 | .273297 | .191972 | .124818 |
| 5     | .156440 | .170607 | .122596 | .070842 |
| 6     | .139474 | .154166 | .137530 | .058633 |
| 7-8   | .114853 | .131548 | .123486 | .037775 |
| 9-11  | .073489 | .086375 | .064741 | .024005 |
| 12-15 | .055847 | .057720 | .045095 | .019066 |
| 16-20 | .035158 | .032821 | .026526 | .010024 |
| 21-27 | .023554 | .018791 | .017898 | .007824 |
| 28-36 | .014869 | .012667 | .010997 | .005238 |
| 37-47 | .009456 | .007531 | .007268 | .003559 |
| 48-60 | .004977 | .004306 | .004589 | .002663 |

RUN NO 87A 46M 6-14-63 1401-1502(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.28829<br>10E 00 | 0.23456<br>10E 00 | 0.88202<br>10E-01 | 0.17631<br>10E 00 | 0.66297<br>10E-01 | 0.53942<br>10E-01 |
| 0  | .096746           | -.489615          | -.720998          | -.007680          | -.004612          | .369948           |
| 1  | .037317           | -.234304          | -.423498          | .006751           | -.039198          | .206377           |
| 2  | -.051307          | -.071966          | -.162770          | .008108           | .011266           | .054718           |
| 3  | .004699           | -.012057          | -.035365          | -.050672          | -.036622          | -.012548          |
| 4  | .073990           | -.099863          | -.028926          | -.017423          | -.061377          | .030063           |
| 5  | .064094           | -.012692          | .026661           | .004240           | -.070109          | -.051208          |
| 6  | -.000824          | .065459           | .054142           | .008040           | -.030287          | -.058972          |
| 7  | -.004930          | .127211           | .109482           | .000255           | .035859           | -.123681          |
| 8  | -.039192          | .134894           | .134629           | -.008367          | .074875           | -.126540          |
| 9  | -.052924          | .087344           | .143831           | -.002500          | .082308           | -.057166          |
| 10 | -.064784          | -.023106          | .086534           | -.027557          | .047577           | .020622           |
| 11 | .009724           | -.029977          | .050668           | -.051625          | -.038855          | .053161           |
| 12 | .015428           | -.013743          | .056603           | -.009579          | -.009738          | .056284           |
| 13 | -.016555          | .112031           | .162452           | .067029           | .032243           | -.014326          |
| 14 | -.057190          | .062793           | .067703           | .064373           | .008962           | .000375           |
| 15 | -.023800          | -.013088          | -.043912          | .047222           | -.026249          | .026570           |
| 16 | -.028398          | -.058949          | -.131502          | .050774           | -.038837          | .050448           |
| 17 | -.056286          | -.005702          | -.027522          | .015087           | .023951           | -.022790          |
| 18 | -.028422          | .078527           | .098530           | -.011044          | .048805           | -.085529          |
| 19 | .039733           | .167339           | .164658           | .038877           | .014048           | -.141826          |
| 20 | .167359           | .107144           | .136067           | -.015244          | -.074576          | -.137436          |
| 21 | .136749           | .063100           | .069072           | -.054845          | -.112451          | -.074978          |
| 22 | .036616           | .082331           | .042888           | .001192           | -.059208          | -.079425          |
| 23 | .004223           | .164287           | .082124           | -.052652          | .001386           | -.126920          |
| 24 | -.034515          | .084436           | .040677           | -.034253          | .044085           | -.032669          |
| 25 | -.016213          | .033037           | -.035296          | -.019079          | .054076           | .036428           |
| 26 | -.022496          | -.095491          | -.145678          | -.041753          | .007518           | .155145           |
| 27 | -.007761          | -.117780          | -.141787          | -.022163          | -.004488          | .146507           |
| 28 | -.006854          | -.115812          | -.158562          | .012433           | .026229           | .092358           |
| 29 | -.030416          | -.125798          | -.104881          | -.029510          | .066431           | .063518           |
| 30 | -.045102          | -.130471          | -.065522          | -.016001          | .011891           | .047621           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T     |
|-------|----------|----------|----------|----------|----------|---------|
|       | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02  |
| 0     | .041322  | -.011269 | -.085357 | -.004940 | -.016562 | .012504 |
| 1     | .156053  | -.123871 | -.664436 | -.097606 | -.049899 | .171291 |
| 2     | .381946  | -.113703 | -.699558 | -.143460 | -.068053 | .150651 |
| 3     | .476829  | -.107133 | -.756739 | .006375  | -.106944 | .152980 |
| 4     | -.029939 | -.131949 | -.756680 | .159510  | -.049540 | .290958 |
| 5     | -.079627 | -.100592 | -.503931 | -.024124 | .010569  | .274011 |
| 6     | -.005387 | -.053718 | -.284090 | -.129290 | .075151  | .125713 |
| 7     | -.443508 | -.035822 | -.383104 | .004057  | .143113  | .078998 |
| 8     | -.222488 | -.008742 | -.340750 | .179747  | .070915  | .035235 |
| 9-11  | .327720  | -.044965 | -.281890 | .062702  | -.044171 | .092150 |
| 12-14 | .306231  | -.058029 | -.179209 | .049466  | -.015270 | .088527 |
| 15-21 | .202444  | -.029280 | -.127676 | -.091688 | -.008918 | .046736 |
| 22-30 | -.037373 | -.020800 | -.075094 | .014499  | .034668  | .016494 |

RUN NO 87A 46M 6-14-63 1401-1502(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.28829<br>10E 00 | 0.23456<br>10E 00 | 0.88202<br>10E-01 | 0.17631<br>10E 00 | 0.66297<br>10E-01 | 0.53942<br>10E-01 |
| 1  | .072861           | -.039297          | -.125987          | -.010356          | .100800           | .065536           |
| 2  | .106635           | -.045928          | -.149796          | -.033940          | .131195           | .058899           |
| 3  | .081426           | -.036826          | -.131637          | .011874           | .111860           | .006959           |
| 4  | .020032           | -.036043          | -.146942          | -.053944          | .051289           | .023071           |
| 5  | .018645           | -.034070          | -.106474          | .025900           | .017692           | .020968           |
| 6  | -.005344          | .007742           | -.066179          | .046644           | -.011254          | .078717           |
| 7  | .015064           | .021871           | -.042156          | .067268           | .025144           | .050363           |
| 8  | -.017444          | -.014768          | -.016095          | -.075059          | .024464           | .016768           |
| 9  | -.037104          | -.039642          | -.002012          | -.083096          | .022978           | -.022240          |
| 10 | -.033506          | -.032231          | .029016           | -.014273          | -.010264          | -.080868          |
| 11 | .000557           | -.016432          | .031014           | .021078           | .000488           | -.027086          |
| 12 | .045811           | -.018952          | .040632           | .074615           | .057315           | -.034551          |
| 13 | .032989           | -.041399          | .033717           | .045659           | .020177           | -.033115          |
| 14 | -.005342          | -.055127          | .063910           | -.042623          | -.063153          | -.061325          |
| 15 | .036193           | -.029785          | .081946           | -.045944          | -.061966          | -.039197          |
| 16 | .044399           | .047813           | .032661           | -.020904          | .002254           | .056690           |
| 17 | .042204           | .056004           | -.051998          | .016310           | .048654           | .106046           |
| 18 | .077573           | .059076           | -.055897          | .045631           | .085790           | .102148           |
| 19 | .082540           | .035446           | -.005639          | .059821           | .117909           | .044430           |
| 20 | .007472           | -.018615          | .031292           | .037868           | .041805           | -.037964          |
| 21 | -.079974          | -.054556          | .040827           | -.023837          | -.071870          | -.054581          |
| 22 | -.093166          | .010318           | .031689           | .013340           | -.112089          | -.003675          |
| 23 | -.043151          | .027417           | .034388           | -.013811          | -.070593          | -.000210          |
| 24 | .001069           | .017732           | .063422           | -.080871          | -.007542          | -.053408          |
| 25 | -.069222          | .021951           | .046560           | -.088043          | -.058052          | -.092677          |
| 26 | -.097012          | .014150           | .025110           | -.059172          | -.044386          | -.106451          |
| 27 | -.022597          | -.020240          | -.016908          | -.002857          | -.043639          | -.075943          |
| 28 | -.013667          | -.030701          | -.031575          | -.008971          | -.006269          | -.034645          |
| 29 | -.046108          | -.069351          | -.051256          | -.020748          | -.035516          | -.031710          |
| 30 | -.056718          | -.087090          | -.013949          | .005507           | -.093610          | -.076343          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .430361  | -.310294 | -.097564 | .012228  | .121280  | .024347  |
| 2     | .194270  | -.308704 | -.240922 | -.033966 | .105582  | .029659  |
| 3     | .077759  | -.162011 | -.378950 | -.055671 | .107895  | .068906  |
| 4     | .560910  | .000962  | -.400487 | .035420  | .156195  | .135958  |
| 5     | .691208  | -.156728 | -.254555 | -.018559 | .108931  | .051213  |
| 6     | .402835  | -.374211 | -.126738 | -.004064 | .089367  | -.054257 |
| 7     | .428727  | -.214059 | -.160082 | -.025838 | .192728  | -.014207 |
| 8     | .307286  | -.019249 | -.125363 | -.316925 | .135982  | .036339  |
| 9-11  | .291623  | -.039306 | -.052020 | -.012209 | .081462  | .047469  |
| 12-14 | .058732  | -.024684 | -.025967 | .096818  | -.017510 | .037007  |
| 15-21 | -.018448 | -.037187 | -.043451 | -.057442 | .013422  | .011950  |
| 22-30 | .027013  | -.008501 | .006956  | .112815  | .007614  | -.009871 |

RUN NO 87A 46M 6-14-63 1401-1502(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.38354<br>10F 00 | 0.21669<br>10E 00 | 0.14345<br>10E 00 | 0.20283<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .524003           | .349745           | .349740           | .597201           |
| 2  | .178449           | .017115           | .079508           | .212778           |
| 3  | .072631           | -.030721          | .002744           | -.031909          |
| 4  | .081926           | -.021835          | .013243           | -.080798          |
| 5  | -.007016          | -.023372          | .015125           | -.094849          |
| 6  | -.062265          | -.113481          | -.058189          | -.117252          |
| 7  | -.131883          | -.149776          | -.152724          | -.152417          |
| 8  | -.176658          | -.124569          | -.183708          | -.175404          |
| 9  | -.209267          | -.194867          | -.098668          | -.142553          |
| 10 | -.133451          | -.226073          | -.021674          | -.060875          |
| 11 | -.077888          | -.197716          | -.023896          | -.047990          |
| 12 | -.043399          | -.123012          | -.068067          | -.077308          |
| 13 | -.143859          | -.102768          | -.107301          | -.185419          |
| 14 | -.128677          | -.080988          | -.061643          | -.089204          |
| 15 | -.050666          | -.010687          | -.047005          | .083387           |
| 16 | .063707           | .096513           | -.071669          | .199830           |
| 17 | -.076705          | .038999           | -.076078          | .117455           |
| 18 | -.192199          | .003843           | -.102049          | -.025818          |
| 19 | -.209306          | .156372           | -.192143          | -.124752          |
| 20 | -.129706          | .169025           | -.059473          | -.142702          |
| 21 | -.070451          | .188150           | -.051839          | -.104084          |
| 22 | -.023709          | .149573           | -.052964          | -.065532          |
| 23 | -.097714          | .120590           | -.078561          | -.051148          |
| 24 | -.016636          | .130632           | .016494           | -.003421          |
| 25 | .075486           | .049020           | .070899           | .078589           |
| 26 | .164620           | -.087324          | .168123           | .167284           |
| 27 | .165621           | -.090081          | .163630           | .178477           |
| 28 | .262735           | -.198253          | .078249           | .111090           |
| 29 | .190647           | -.155623          | .045372           | .009427           |
| 30 | .131080           | -.098425          | .062387           | -.065845          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .035528 | .002527 | .007615 | .026664 |
| 1     | .399427 | .039997 | .104807 | .158955 |
| 2     | .450311 | .151047 | .120522 | .174617 |
| 3     | .426801 | .257162 | .111798 | .227959 |
| 4     | .381535 | .176511 | .109798 | .244935 |
| 5     | .288862 | .101520 | .103094 | .176024 |
| 6     | .165404 | .092136 | .071324 | .133169 |
| 7     | .160877 | .094871 | .056152 | .170093 |
| 8     | .158151 | .117401 | .046948 | .128460 |
| 9-11  | .175588 | .105837 | .065244 | .096555 |
| 12-14 | .120943 | .098336 | .067581 | .056654 |
| 15-21 | .099364 | .069720 | .041639 | .030698 |
| 22-30 | .058634 | .060325 | .042259 | .025038 |



RUN NO 87A 91M 6-14-63 1401-1502(EST)

GROSS STATISTICS

4 AS CU  
UNSTABLE

WIND SPEED 5.31 M/SEC  
WIND DIRECTION 217 DEG  
SOLAR RAD. 1.14 LY/MIN

SIGMA A 5.8 DEG  
SIGMA E 6.1 DEG

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b>              |                         |                                |                               |                                    |
| U                             | 0.79301E 00             | 0.34089E-00                    | 0.21153E-00                   | 0.25132E-00                        |
| V                             | 0.25804E-00             | 0.21217E-00                    | 0.17502E-00                   | 0.12921E-00                        |
| W                             | 0.26006E-00             | 0.20558E-00                    | 0.17510E-00                   | 0.11800E-00                        |
| T                             | 0.17380E-00             | 0.18931E-01                    | 0.11119E-01                   | 0.13245E-01                        |
| E                             | 0.65806E 00             | 0.37934E-00                    | 0.28083E-00                   |                                    |
| <b>GUSTINESS RATIOS</b>       |                         |                                |                               |                                    |
| U                             | 0.16823                 | 0.10995                        | 0.08661                       | 0.09441                            |
| V                             | 0.09567                 | 0.08675                        | 0.07879                       | 0.06769                            |
| W                             | 0.09604                 | 0.08539                        | 0.07880                       | 0.06469                            |
| <b>COVARIANCES</b>            |                         |                                |                               |                                    |
| U,V                           | 0.11824E-00             | 0.30554E-01                    | 0.23851E-01                   | 0.24872E-01                        |
| U,W                           | -0.20321E-00            | -0.11981E-00                   | -0.73193E-01                  | -0.99439E-01                       |
| U,T                           | -0.24515E-00            | -0.21281E-01                   | -0.69331E-02                  | -0.16274E-01                       |
| V,W                           | -0.53853E-01            | -0.28404E-01                   | -0.29679E-01                  | -0.94360E-02                       |
| V,T                           | -0.62734E-01            | 0.93191E-02                    | 0.87233E-02                   | 0.34068E-02                        |
| W,T                           | 0.37884E-01             | -0.28348E-01                   | -0.27263E-01                  | -0.14324E-01                       |
| WE                            | 0.14715E-00             | 0.11879E-00                    | 0.51399E-01                   |                                    |
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | 0.26056                 | 0.11361                        | 0.12396                       | 0.13802                            |
| U,W                           | -0.44607                | -0.45258                       | -0.38031                      | -0.57744                           |
| U,T                           | -0.65826                | -0.26491                       | -0.14296                      | -0.28207                           |
| V,W                           | -0.20788                | -0.13600                       | -0.16953                      | -0.07642                           |
| V,T                           | -0.29623                | 0.14704                        | 0.19774                       | 0.08235                            |
| W,T                           | 0.17819                 | -0.45439                       | -0.61786                      | -0.36232                           |

RUN NO 87A 91M 6-14-63 1401-1502(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.19245<br>10E 00 | 0.19249<br>10E 00 | 0.48516<br>10E-01 | 0.17506<br>10E 00 | 0.44124<br>10E-01 | 0.44133<br>10E-01 |
| 0  | .124424           | -.380488          | -.142808          | -.170117          | .197898           | -.617810          |
| 1  | .125096           | -.364364          | -.106466          | -.149855          | .161384           | -.516967          |
| 2  | .123768           | -.337586          | -.060080          | -.113544          | .106012           | -.376444          |
| 3  | .116276           | -.301546          | -.033233          | -.080017          | .060576           | -.264210          |
| 4  | .105086           | -.258984          | -.016109          | -.047727          | .026674           | -.184831          |
| 5  | .085869           | -.219525          | -.004483          | -.017315          | -.001863          | -.119126          |
| 6  | .064958           | -.177547          | .001971           | .008493           | -.019707          | -.065738          |
| 7  | .042753           | -.131351          | .005067           | .029212           | -.035738          | -.024924          |
| 8  | .020802           | -.090686          | .002032           | .045408           | -.046507          | .014763           |
| 9  | .006649           | -.054106          | -.002622          | .056454           | -.052751          | .052631           |
| 10 | -.000618          | -.024117          | -.005619          | .064500           | -.060991          | .087924           |
| 11 | -.007875          | .004170           | -.007162          | .065364           | -.062015          | .114838           |
| 12 | -.020361          | .031752           | -.005614          | .065613           | -.056201          | .128338           |
| 13 | -.028179          | .058252           | -.002092          | .066468           | -.054777          | .136438           |
| 14 | -.033658          | .081286           | -.001147          | .069095           | -.055734          | .145577           |
| 15 | -.036525          | .099628           | .009207           | .069127           | -.057643          | .153788           |
| 16 | -.038880          | .125491           | .016633           | .065891           | -.051387          | .154495           |
| 17 | -.042156          | .143327           | .023379           | .061711           | -.038068          | .152809           |
| 18 | -.044741          | .154351           | .023952           | .050161           | -.024263          | .144759           |
| 19 | -.051623          | .162347           | .020200           | .041874           | -.016356          | .135479           |
| 20 | -.056352          | .165148           | .017974           | .034027           | -.012221          | .137363           |
| 21 | -.059473          | .167816           | .017574           | .024423           | -.006305          | .133356           |
| 22 | -.063915          | .170787           | .017368           | .013838           | -.003569          | .121893           |
| 23 | -.060139          | .170855           | .018061           | -.002315          | .001321           | .111013           |
| 24 | -.051185          | .168906           | .022078           | -.020722          | .009066           | .101389           |
| 25 | -.039422          | .164233           | .020673           | -.028479          | .004947           | .094707           |
| 26 | -.029008          | .154807           | .017656           | -.026264          | -.007347          | .084094           |
| 27 | -.020619          | .143659           | .013324           | -.025462          | -.018455          | .076579           |
| 28 | -.016852          | .131237           | .008209           | -.025666          | -.020861          | .066374           |
| 29 | -.010575          | .116683           | .004658           | -.027314          | -.018481          | .053326           |
| 30 | -.006340          | .097187           | -.001012          | -.028317          | -.016467          | .031645           |
| 31 | -.007661          | .072558           | -.004105          | -.033053          | -.011723          | .005716           |
| 32 | -.008014          | .050982           | -.005699          | -.038746          | -.008320          | -.023481          |
| 33 | -.010410          | .032308           | -.005924          | -.039816          | -.002001          | -.049209          |
| 34 | -.014386          | .016209           | -.008182          | -.034448          | -.001156          | -.067627          |
| 35 | -.020752          | .005270           | -.013104          | -.028383          | .000930           | -.071542          |
| 36 | -.027495          | -.001325          | -.017050          | -.024991          | .015271           | -.072142          |
| 37 | -.027657          | -.008723          | -.014536          | -.027743          | .031924           | -.074597          |
| 38 | -.021015          | -.016696          | -.009052          | -.025253          | .039312           | -.073982          |
| 39 | -.013198          | -.027874          | -.003482          | -.020029          | .041678           | -.065440          |
| 40 | -.008211          | -.033609          | -.002406          | -.021868          | .044991           | -.056795          |
| 41 | -.001854          | -.038912          | -.001221          | -.024793          | .046343           | -.049043          |
| 42 | .005538           | -.041718          | -.008936          | -.019986          | .040343           | -.034498          |
| 43 | .009862           | -.044114          | -.017411          | -.013943          | .039789           | -.015024          |
| 44 | .008150           | -.045818          | -.027671          | -.012322          | .040640           | .009830           |
| 45 | .004103           | -.052138          | -.030070          | -.005961          | .036019           | .028186           |
| 46 | .006933           | -.054327          | -.031548          | .007173           | .023479           | .038720           |
| 47 | .014682           | -.051778          | -.029762          | .021619           | .014738           | .045591           |
| 48 | .014310           | -.044912          | -.029316          | .031811           | .008648           | .047989           |
| 49 | .007558           | -.036579          | -.028053          | .034982           | .006918           | .051132           |
| 50 | -.004495          | -.028580          | -.027927          | .030853           | .011079           | .052744           |
| 51 | -.011820          | -.026646          | -.021972          | .026394           | .016598           | .042552           |
| 52 | -.010530          | -.027082          | -.011593          | .019651           | .020554           | .036271           |
| 53 | -.008952          | -.029500          | .004640           | .010188           | .027047           | .033308           |
| 54 | -.009187          | -.027149          | .010816           | .001418           | .040398           | .031227           |
| 55 | -.012254          | -.019216          | .006468           | -.008751          | .055658           | .025363           |
| 56 | -.015291          | -.008487          | .012008           | -.016906          | .065172           | .017835           |
| 57 | -.017135          | .001230           | .022246           | -.021126          | .064029           | .008542           |
| 58 | -.020730          | .007947           | .027051           | -.022518          | .058339           | -.002981          |
| 59 | -.020830          | .014940           | .029929           | -.016765          | .047864           | -.000339          |
| 60 | -.015464          | .014577           | .034922           | -.010388          | .030220           | -.015786          |

RUN NO 87A 91M 6-14-63 1401-1502(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| N  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.19245<br>10E 00 | 0.19249<br>10E 00 | 0.48516<br>10E-01 | 0.17506<br>10E 00 | 0.44124<br>10E-01 | 0.44133<br>10E-01 |
| 1  | -.027078          | .002925           | -.031948          | -.056599          | .055911           | -.005658          |
| 2  | -.047844          | .006761           | -.044444          | -.095796          | .083581           | -.009650          |
| 3  | -.065431          | .005116           | -.042589          | -.124768          | .104847           | -.013147          |
| 4  | -.077444          | .000749           | -.042000          | -.144870          | .121802           | -.019462          |
| 5  | -.083984          | -.009263          | -.041657          | -.154610          | .137303           | -.025691          |
| 6  | -.089289          | -.021304          | -.038205          | -.156041          | .145256           | -.029125          |
| 7  | -.098433          | -.032262          | -.031825          | -.157775          | .151716           | -.031274          |
| 8  | -.104732          | -.039001          | -.029592          | -.157613          | .153033           | -.026781          |
| 9  | -.106493          | -.037768          | -.033321          | -.157665          | .149347           | -.022004          |
| 10 | -.107443          | -.033828          | -.035625          | -.162678          | .146133           | -.013721          |
| 11 | -.104740          | -.034061          | -.031981          | -.161737          | .140927           | -.004742          |
| 12 | -.103823          | -.042050          | -.021648          | -.154539          | .134465           | .000040           |
| 13 | -.106874          | -.049900          | -.013654          | -.144735          | .125593           | .003857           |
| 14 | -.101794          | -.045736          | -.009979          | -.134158          | .118343           | .013953           |
| 15 | -.093438          | -.031772          | -.017760          | -.125794          | .111018           | .030879           |
| 16 | -.084664          | -.016648          | -.025958          | -.112923          | .094561           | .040427           |
| 17 | -.074855          | -.001125          | -.036592          | -.072905          | .074212           | .046309           |
| 18 | -.063500          | .009722           | -.043906          | -.068489          | .053951           | .047958           |
| 19 | -.052521          | .014083           | -.043196          | -.048791          | .038771           | .041691           |
| 20 | -.040835          | .013650           | -.041132          | -.028476          | .024843           | .033846           |
| 21 | -.027340          | .012471           | -.034438          | -.002460          | .011010           | .030630           |
| 22 | -.010171          | .017242           | -.026292          | .023014           | -.003227          | .033446           |
| 23 | .004000           | .023344           | -.022345          | .046925           | -.012765          | .026513           |
| 24 | .012914           | .026108           | -.019228          | .067081           | -.024734          | .015185           |
| 25 | .019118           | .025652           | -.009526          | .077391           | -.037888          | .008608           |
| 26 | .025598           | .021805           | .003317           | .087862           | -.046550          | .000808           |
| 27 | .030326           | .016564           | .017382           | .097850           | -.054018          | -.003802          |
| 28 | .031799           | .012843           | .025677           | .103587           | -.057045          | -.008710          |
| 29 | .037214           | .005060           | .033760           | .110478           | -.062379          | -.015692          |
| 30 | .042631           | -.002045          | .043913           | .115038           | -.067158          | -.020413          |
| 31 | .046352           | -.008824          | .049637           | .111939           | -.068697          | -.022401          |
| 32 | .048340           | -.014132          | .050317           | .109239           | -.065046          | -.023771          |
| 33 | .052023           | -.016889          | .046196           | .098827           | -.062281          | -.023682          |
| 34 | .055062           | -.017456          | .041084           | .083073           | -.065117          | -.026348          |
| 35 | .052015           | -.012241          | .031514           | .062873           | -.069564          | -.023997          |
| 36 | .043270           | -.003287          | .019050           | .030894           | -.063508          | -.018536          |
| 37 | .031934           | .008049           | .005403           | -.001827          | -.045518          | -.012330          |
| 38 | .022671           | .013858           | -.001364          | -.019415          | -.034755          | -.011568          |
| 39 | .012346           | .012586           | -.001221          | -.023368          | -.034135          | -.014551          |
| 40 | .005432           | .005735           | .003545           | -.020862          | -.038736          | -.015983          |
| 41 | .000863           | .002050           | .003399           | -.020057          | -.040017          | -.014953          |
| 42 | -.005884          | .001857           | -.002597          | -.024411          | -.036410          | -.014464          |
| 43 | -.011335          | .003320           | -.009318          | -.025603          | -.029368          | -.016626          |
| 44 | -.013436          | .000672           | -.012368          | -.026649          | -.029291          | -.022165          |
| 45 | -.012859          | -.002704          | -.016998          | -.030397          | -.026802          | -.023048          |
| 46 | -.009049          | -.003659          | -.018375          | -.036892          | -.023435          | -.015809          |
| 47 | -.009254          | -.006466          | -.018261          | -.040803          | -.021428          | -.008400          |
| 48 | -.008139          | -.012139          | -.014772          | -.042672          | -.016315          | -.005362          |
| 49 | -.004034          | -.017420          | -.010705          | -.042340          | -.011350          | -.005003          |
| 50 | -.000257          | -.017078          | -.010830          | -.035752          | -.005228          | -.001615          |
| 51 | .004091           | -.014274          | -.015362          | -.027142          | .001310           | .004622           |
| 52 | .010265           | -.010540          | -.020517          | -.017271          | .009238           | .008400           |
| 53 | .013268           | -.001353          | -.028647          | -.009035          | .014206           | .009839           |
| 54 | .011284           | .001044           | -.029446          | -.005522          | .018657           | .015207           |
| 55 | .012011           | -.000299          | -.022680          | .000316           | .025412           | .017447           |
| 56 | .008311           | .000624           | -.020218          | .005068           | .027555           | .016686           |
| 57 | .005978           | .001033           | -.020441          | .012167           | .024365           | .016081           |
| 58 | .007702           | .003976           | -.020338          | .014838           | .025682           | .017631           |
| 59 | .007641           | .007302           | -.017841          | .017069           | .024742           | .019078           |
| 60 | .005723           | .015542           | -.024604          | .024124           | .020571           | .022250           |

RUN NO 87A 91M 6-14-63 1401-1502(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.21160<br>10E 00 | 0.17503<br>10E 00 | 0.17510<br>10E 00 | 0.11124<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .879243           | .853455           | .842678           | .802394           |
| 2  | .724093           | .667646           | .635770           | .586687           |
| 3  | .598075           | .518991           | .470085           | .424346           |
| 4  | .492322           | .400825           | .336041           | .315574           |
| 5  | .394354           | .305480           | .229602           | .220057           |
| 6  | .303367           | .218970           | .138997           | .133712           |
| 7  | .219606           | .137859           | .069              | .067875           |
| 8  | .150360           | .070044           | .009806           | .017663           |
| 9  | .092336           | .015047           | -.045260          | -.028992          |
| 10 | .030581           | -.030691          | -.093980          | -.073411          |
| 11 | -.025091          | -.073319          | -.136177          | -.107624          |
| 12 | -.076107          | -.114753          | -.170038          | -.126341          |
| 13 | -.121669          | -.167663          | -.203734          | -.139962          |
| 14 | -.163606          | -.215248          | -.240577          | -.156269          |
| 15 | -.204815          | -.250596          | -.268233          | -.176964          |
| 16 | -.246177          | -.270890          | -.284951          | -.189822          |
| 17 | -.282381          | -.285448          | -.291914          | -.201794          |
| 18 | -.309175          | -.301828          | -.279526          | -.203638          |
| 19 | -.323333          | -.321514          | -.262609          | -.199416          |
| 20 | -.331799          | -.333860          | -.255573          | -.204711          |
| 21 | -.341681          | -.337095          | -.250680          | -.202216          |
| 22 | -.350170          | -.335160          | -.235021          | -.191117          |
| 23 | -.350599          | -.335306          | -.215321          | -.172721          |
| 24 | -.342712          | -.330090          | -.200605          | -.163655          |
| 25 | -.326940          | -.309493          | -.186437          | -.160896          |
| 26 | -.306384          | -.282404          | -.167491          | -.151938          |
| 27 | -.279281          | -.247176          | -.149792          | -.148811          |
| 28 | -.248529          | -.207970          | -.124473          | -.139584          |
| 29 | -.217772          | -.169348          | -.090530          | -.125504          |
| 30 | -.173620          | -.133618          | -.049296          | -.098387          |
| 31 | -.119773          | -.099126          | -.003386          | -.066642          |
| 32 | -.067948          | -.070705          | .043713           | -.036490          |
| 33 | -.027983          | -.043085          | .085750           | -.009446          |
| 34 | .005314           | -.014051          | .111310           | .012970           |
| 35 | .026435           | .014697           | .115156           | .023543           |
| 36 | .043240           | .040122           | .107483           | .036777           |
| 37 | .048957           | .059709           | .100149           | .052522           |
| 38 | .044785           | .070976           | .098099           | .060117           |
| 39 | .041033           | .076659           | .100525           | .057866           |
| 40 | .039069           | .089258           | .098951           | .056267           |
| 41 | .042950           | .099604           | .091016           | .056789           |
| 42 | .051746           | .110359           | .076713           | .061332           |
| 43 | .062943           | .129131           | .059347           | .047043           |
| 44 | .069925           | .156080           | .038025           | .020671           |
| 45 | .076763           | .170516           | .018817           | -.000034          |
| 46 | .084503           | .168178           | -.001066          | -.011445          |
| 47 | .088954           | .162561           | -.017924          | -.015098          |
| 48 | .090216           | .152137           | -.027688          | -.025415          |
| 49 | .084711           | .139927           | -.036846          | -.038597          |
| 50 | .074831           | .122456           | -.046344          | -.039334          |
| 51 | .065478           | .103448           | -.042536          | -.032492          |
| 52 | .059022           | .088101           | -.036924          | -.024612          |
| 53 | .044363           | .077883           | -.040786          | -.023392          |
| 54 | .029162           | .076988           | -.050002          | -.014069          |
| 55 | .013490           | .078742           | -.053928          | .000088           |
| 56 | -.002819          | .076062           | -.056137          | .008486           |
| 57 | -.013875          | .066109           | -.053710          | .018740           |
| 58 | -.017172          | .049543           | -.045012          | .026798           |
| 59 | -.021436          | .033739           | -.038298          | .028921           |
| 60 | -.031336          | .010811           | -.030372          | .026198           |

RUN NO 87A 91M 6-14-63 1401-1502(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,M      | U,T      | V,M      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-03   | 10E-02   | 10E-02   | 10E-02   |
| 0     | .053132  | -.011905 | -.149938 | .003426  | -.005422 | -.010223 |
| 1     | .498055  | -.131148 | -.504825 | .053606  | -.015453 | -.167502 |
| 2     | .608713  | -.186301 | -.583660 | -.097845 | .044127  | -.298713 |
| 3     | .638696  | -.195473 | -.739602 | -.462597 | .101047  | -.447365 |
| 4     | .442675  | -.102925 | -.461700 | -.612424 | .101312  | -.368944 |
| 5     | .234697  | -.040838 | -.270127 | -.453070 | .107388  | -.217568 |
| 6     | .084934  | -.028946 | -.240685 | -.294957 | .106178  | -.191243 |
| 7-8   | .096442  | -.019896 | -.376937 | -.166487 | .049440  | -.131956 |
| 9-11  | -.009697 | -.008566 | -.375582 | -.126068 | .039190  | -.080720 |
| 12-15 | -.013763 | -.001385 | -.182964 | -.039659 | .021290  | -.055283 |
| 16-20 | -.016380 | -.001528 | -.134636 | -.025008 | .014340  | -.036459 |
| 21-27 | .000590  | -.000995 | -.094710 | -.011507 | .005998  | -.019509 |
| 28-36 | .000046  | .000027  | -.053403 | -.009603 | .004243  | -.011893 |
| 37-47 | -.002556 | -.000672 | -.031561 | -.004474 | .002183  | -.005861 |
| 48-60 | .000298  | -.000266 | -.013283 | -.000897 | .001225  | -.004395 |

QUADRATURE SPECTRUM

| K     | U,V      | U,M      | U,T      | V,M      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-02   | 10E-02   | 10E-03   | 10E-01   | 10E-02  | 10E-03   |
| 1     | -.541661 | -.094765 | -.494737 | -.043662 | .116165 | .155818  |
| 2     | -.757675 | -.141823 | -.750131 | -.088024 | .224543 | .276745  |
| 3     | -.833896 | -.227523 | -.802053 | -.129538 | .264638 | -.040470 |
| 4     | -.413816 | -.210039 | -.162534 | -.079559 | .157183 | -.558216 |
| 5     | -.068896 | -.074443 | .070032  | -.013649 | .064502 | -.592886 |
| 6     | -.043646 | .102623  | -.345680 | -.006600 | .032191 | -.286996 |
| 7-8   | -.035303 | .106040  | -.395909 | -.014774 | .023523 | .046015  |
| 9-11  | -.043665 | .028913  | -.068438 | -.010075 | .016825 | .044586  |
| 12-15 | -.016376 | .027566  | -.126427 | -.004039 | .004640 | .009434  |
| 16-20 | -.013737 | -.009350 | -.036556 | -.000969 | .006852 | .000778  |
| 21-27 | .004551  | .002753  | -.053166 | -.000678 | .004051 | -.001210 |
| 28-36 | -.001906 | -.002432 | -.018807 | -.000395 | .002401 | -.003449 |
| 37-47 | -.001865 | -.001667 | -.000603 | -.000234 | .001152 | -.003516 |
| 48-60 | -.001387 | -.001235 | .000301  | -.000165 | .000963 | .000753  |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .030858 | .006399 | .010207 | .011531 |
| 1     | .297386 | .159790 | .125104 | .102033 |
| 2     | .412059 | .297464 | .218980 | .138943 |
| 3     | .446283 | .352976 | .314132 | .168000 |
| 4     | .255049 | .209611 | .240782 | .122925 |
| 5     | .109717 | .107121 | .129819 | .077922 |
| 6     | .086571 | .083499 | .103276 | .069382 |
| 7-8   | .079803 | .073482 | .076940 | .049763 |
| 9-11  | .045995 | .044881 | .054049 | .034086 |
| 12-15 | .024707 | .027754 | .031906 | .020172 |
| 16-20 | .016208 | .017234 | .019604 | .014417 |
| 21-27 | .011629 | .011792 | .011382 | .009569 |
| 28-36 | .006595 | .006434 | .007205 | .006075 |
| 37-47 | .004304 | .004456 | .004629 | .003749 |
| 48-60 | .002761 | .002837 | .002767 | .003152 |

RUN NO 87A 91M 6-14-63 1401-1502(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.18023<br>10E 00 | 0.17223<br>10E 00 | 0.57727<br>10E-01 | 0.12345<br>10E 00 | 0.41370<br>10E-01 | 0.39540<br>10E-01 |
| 0  | .137998           | -.577372          | -.281909          | -.076435          | .082333           | -.362255          |
| 1  | .034136           | -.313595          | -.242565          | .071026           | -.001267          | -.025217          |
| 2  | -.051753          | -.059306          | -.200613          | .037113           | .065594           | .074907           |
| 3  | -.051324          | -.008242          | -.158749          | -.034575          | .077795           | .003271           |
| 4  | -.057121          | -.018103          | -.097456          | -.020900          | .099544           | .004048           |
| 5  | -.078903          | .032625           | -.047107          | .015677           | .086023           | .031551           |
| 6  | -.078961          | .097725           | .014932           | .031695           | .031210           | .022961           |
| 7  | -.043473          | .102639           | .058834           | .031061           | -.044200          | .044831           |
| 8  | -.031181          | .132946           | .074145           | .040253           | -.043453          | .008066           |
| 9  | -.050352          | .127417           | .061467           | .000269           | .002813           | .053928           |
| 10 | -.055593          | .094240           | .037572           | -.011173          | .016564           | .079730           |
| 11 | .002169           | .009439           | .055801           | -.026405          | .001701           | .044177           |
| 12 | .023894           | .035327           | .055421           | .041934           | .060723           | .015615           |
| 13 | .009275           | .036925           | .074787           | .040918           | -.029257          | -.008610          |
| 14 | .056529           | .003885           | .069680           | -.015817          | .000362           | -.009424          |
| 15 | .133044           | -.035434          | .105269           | -.049841          | -.051147          | -.034647          |
| 16 | .113085           | .026664           | .120961           | .002584           | -.085822          | -.073019          |
| 17 | .037662           | .090464           | .117045           | .009086           | -.081933          | -.069381          |
| 18 | .000309           | .118901           | .150067           | .005193           | -.066473          | -.096058          |
| 19 | .025781           | .093551           | .142500           | -.012135          | -.040712          | -.097037          |
| 20 | .071653           | .041930           | .113654           | -.051211          | -.063898          | -.068890          |
| 21 | .067987           | .043143           | .054713           | -.061958          | -.051423          | -.021146          |
| 22 | .089430           | -.038879          | .060293           | -.083222          | -.046778          | .005655           |
| 23 | .116062           | -.058724          | .039397           | -.138516          | -.030338          | .035749           |
| 24 | .041333           | -.026616          | -.019395          | -.049508          | -.014903          | .095635           |
| 25 | -.053247          | -.122402          | -.055019          | .031330           | -.021813          | .097540           |
| 26 | -.045942          | -.125128          | -.095898          | -.002997          | -.034615          | .068403           |
| 27 | -.014975          | -.062313          | -.095507          | -.043794          | .010708           | .094849           |
| 28 | -.007259          | -.055535          | -.093765          | .012611           | .019503           | .060327           |
| 29 | -.001138          | -.074827          | -.070812          | .043685           | -.033396          | -.014361          |
| 30 | .028354           | .040705           | -.111316          | -.030060          | .020538           | .029149           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-03   |
| 0     | -.054133 | -.003123 | -.042675 | .022583  | .013033  | -.141970 |
| 1     | -.579136 | -.065775 | -.467200 | .184922  | .154969  | -.088318 |
| 2     | -.298232 | -.095911 | -.451698 | .040280  | .122114  | -.098862 |
| 3     | .264038  | -.107014 | -.286101 | -.062691 | .039214  | -.966288 |
| 4     | .459103  | -.112090 | -.198099 | .005043  | .004753  | -.813675 |
| 5     | .323654  | -.102152 | -.187663 | -.021821 | .002507  | .009737  |
| 6     | .131096  | -.049356 | -.073556 | .006132  | -.030305 | -.288482 |
| 7     | .157315  | -.032506 | -.003072 | .067929  | -.062379 | -.648094 |
| 8     | .358059  | -.046578 | .011886  | .043276  | -.062942 | -.789369 |
| 9-11  | .136529  | -.047677 | -.001487 | .072318  | -.022651 | -.749143 |
| 12-14 | .081733  | -.040970 | -.021045 | -.071433 | .038095  | -.522870 |
| 15-17 | .153385  | -.026594 | -.006250 | -.133704 | .004295  | -.901941 |
| 20-30 | .040331  | -.010005 | -.007391 | -.106279 | .034200  | -.582949 |

RUN NO 87A 91M 6-14-63 1401-1502(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.18023<br>10E 00 | 0.17223<br>10E 00 | 0.57727<br>10E-01 | 0.12345<br>10E 00 | 0.41378<br>10E-01 | 0.39540<br>10E-01 |
| 1  | -.130816          | -.034433          | -.061613          | -.165576          | .087987           | .008826           |
| 2  | -.115450          | .000775           | -.093846          | -.075582          | .022765           | .038923           |
| 3  | -.054502          | -.027697          | -.059777          | .040597           | -.041433          | -.001719          |
| 4  | -.082126          | -.002758          | -.098510          | -.034081          | -.058481          | .022446           |
| 5  | -.066677          | -.021169          | -.095606          | -.056394          | -.020367          | .028537           |
| 6  | -.033143          | -.019433          | .060377           | .017732           | .005087           | .031787           |
| 7  | -.026620          | .007373           | .025581           | -.003395          | .017381           | .016393           |
| 8  | .003357           | .000650           | -.000598          | -.061657          | .040250           | .004466           |
| 9  | .024133           | -.033276          | .041611           | -.016691          | .089431           | -.024249          |
| 10 | .060007           | -.011082          | .048993           | .035679           | .059676           | .005971           |
| 11 | .049340           | .042689           | -.008968          | .027085           | .044004           | .017267           |
| 12 | .066617           | -.008150          | .023074           | .064702           | -.023575          | -.031185          |
| 13 | .078397           | -.028036          | .044273           | .061736           | -.021075          | -.034746          |
| 14 | .012139           | -.039097          | .060168           | .006695           | .011862           | -.028408          |
| 15 | -.013414          | -.025111          | .034805           | -.006538          | -.008541          | -.045517          |
| 16 | .006910           | -.032046          | .044496           | -.015850          | -.015961          | -.066275          |
| 17 | -.007906          | -.047279          | .071380           | .044820           | -.067925          | -.069166          |
| 18 | .000532           | -.035517          | .072643           | .09542            | -.105307          | -.060852          |
| 19 | -.011159          | .000455           | .031317           | .016774           | -.085948          | -.048341          |
| 20 | -.023057          | -.005331          | .030573           | .029223           | -.088840          | -.027084          |
| 21 | -.017503          | .009635           | .023908           | .039509           | -.071072          | -.005947          |
| 22 | -.033867          | .033687           | .005956           | -.003948          | -.059112          | -.032226          |
| 23 | -.022610          | .021307           | .018688           | -.018122          | -.052938          | -.015046          |
| 24 | -.052464          | .031507           | .028747           | -.028231          | -.041826          | .015015           |
| 25 | -.123616          | .022121           | .012628           | -.079618          | -.005777          | .008395           |
| 26 | -.092475          | .017369           | .002140           | -.123544          | .002140           | .045993           |
| 27 | -.070688          | .006537           | .000424           | -.081646          | -.012900          | .063291           |
| 28 | .013217           | -.040582          | .028772           | .002618           | -.000426          | .016894           |
| 29 | .019205           | -.038362          | .058091           | -.005798          | .021777           | -.010712          |
| 30 | -.021263          | -.002084          | .041315           | -.095412          | .084428           | -.012034          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 1     | -.000154 | -.22616  | .040778  | .089250  | -.137122 | -.511333 |
| 2     | -.121240 | -.082676 | -.106619 | -.092323 | .611040  | .321204  |
| 3     | -.516771 | .016196  | -.189994 | -.226167 | .109505  | .629256  |
| 4     | -.617598 | -.097076 | -.149586 | -.147652 | -.724549 | .139744  |
| 5     | -.430782 | -.126779 | -.106856 | -.116558 | -.459790 | .011319  |
| 6     | -.187910 | .005762  | -.081629 | -.044109 | -.116503 | .138403  |
| 7     | -.099307 | .016309  | -.029985 | -.020946 | .142082  | .063354  |
| 8     | -.188732 | -.039442 | .014319  | -.172527 | .604983  | -.088762 |
| 9-11  | -.175259 | -.031473 | -.002175 | -.165677 | .446447  | .002834  |
| 12-14 | -.181737 | -.019842 | -.032166 | -.173208 | .550161  | .199113  |
| 15-21 | -.119000 | -.033967 | -.010530 | -.174748 | .175646  | -.045698 |
| 22-30 | .017891  | -.070973 | .014869  | .007410  | .123477  | -.146445 |

RUN NO 87A 91M 6-14-63 1401-1502(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| N  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.25145<br>10E 00 | 0.12919<br>10E 00 | 0.11797<br>10E 00 | 0.13253<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .562121           | .312002           | .226163           | .604340           |
| 2  | .177451           | -.027999          | -.080346          | .404131           |
| 3  | .086358           | .002352           | .063678           | .315289           |
| 4  | .029162           | .092772           | .049439           | .219738           |
| 5  | -.067998          | .096438           | -.087539          | .086614           |
| 6  | -.158753          | -.043731          | -.137403          | -.018667          |
| 7  | -.201351          | -.168757          | -.017883          | -.071408          |
| 8  | -.231677          | -.145159          | -.110827          | -.167464          |
| 9  | -.175810          | -.158938          | -.181625          | -.229671          |
| 10 | -.082506          | -.115077          | -.196503          | -.265944          |
| 11 | -.016763          | -.202422          | -.011387          | -.261424          |
| 12 | -.069783          | -.311776          | -.016400          | -.221784          |
| 13 | -.064807          | -.161127          | -.025684          | -.175460          |
| 14 | .033631           | .004304           | -.019582          | -.140026          |
| 15 | .050846           | .091800           | .020878           | -.140081          |
| 16 | -.031728          | -.011077          | -.020142          | -.098356          |
| 17 | -.138730          | -.083812          | -.059148          | -.076301          |
| 18 | -.246845          | .023059           | -.004832          | -.073250          |
| 19 | -.236231          | .126797           | -.006642          | -.028785          |
| 20 | -.151511          | .139442           | .010226           | -.039720          |
| 21 | -.088581          | .020073           | -.026770          | -.043379          |
| 22 | -.002140          | -.010097          | .015174           | -.082662          |
| 23 | .012022           | .151378           | .002900           | -.097950          |
| 24 | .025678           | .163884           | -.082964          | -.115667          |
| 25 | .092743           | -.027827          | .091250           | -.088179          |
| 26 | .131806           | -.099742          | .115524           | -.030827          |
| 27 | .118473           | -.136876          | -.004166          | -.025168          |
| 28 | .109041           | -.082797          | .018318           | .018677           |
| 29 | .109088           | -.066328          | .143938           | .071647           |
| 30 | .163462           | .005701           | .017360           | .089534           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-02  | 10E-02  |
| 0     | .021591 | .005092 | .032549 | .032967 |
| 1     | .232452 | .058837 | .435871 | .232013 |
| 2     | .259576 | .106593 | .662854 | .231826 |
| 3     | .265199 | .142769 | .883528 | .218516 |
| 4     | .302397 | .088494 | .859691 | .140103 |
| 5     | .277954 | .035939 | .645269 | .063428 |
| 6     | .135631 | .027343 | .401803 | .037193 |
| 7     | .090295 | .043223 | .326018 | .033776 |
| 8     | .111572 | .059907 | .421942 | .036433 |
| 9-11  | .092488 | .051081 | .513452 | .032843 |
| 12-14 | .094366 | .088534 | .424133 | .027730 |
| 15-21 | .061846 | .043585 | .641296 | .027165 |
| 22-30 | .027912 | .036904 | .356859 | .022225 |



RUN NO 87A 46M 6-14-63 1401-1502(EST)  
 RUN NO 87A 91M 6-14-63 1401-1502(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .218766 | .046398 | .414098 | .267979 |
| 1     | .266410 | .454596 | .491974 | .196026 |
| 2     | .271381 | .423996 | .442103 | .096176 |
| 3     | .190186 | .400923 | .359306 | .041977 |
| 4     | .078310 | .340556 | .299845 | .080279 |
| 5     | .068944 | .226439 | .349999 | .098636 |
| 6     | .082180 | .209929 | .394924 | .072113 |
| 7-8   | .106230 | .245336 | .226286 | .063204 |
| 9-11  | .179985 | .051351 | .099697 | .060630 |
| 12-15 | .124639 | .213486 | .082763 | .124643 |
| 16-20 | .140594 | .093236 | .176301 | .043589 |
| 21-27 | .093453 | .079595 | .057269 | .116931 |
| 28-36 | .106036 | .101985 | .098552 | .139491 |
| 37-47 | .097160 | .117130 | .101468 | .071373 |
| 48-60 | .081355 | .134468 | .100556 | .102458 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .837585 | .381822 | .850300 | .218261 |
| 1     | .680434 | .443057 | .713002 | .502647 |
| 2     | .527267 | .699051 | .652125 | .508714 |
| 3     | .466568 | .735712 | .631490 | .407283 |
| 4     | .627702 | .598372 | .542865 | .321340 |
| 5     | .644772 | .639934 | .555826 | .301240 |
| 6     | .341943 | .681079 | .555171 | .141355 |
| 7     | .439320 | .450509 | .379133 | .208596 |
| 8     | .631043 | .465264 | .231737 | .332415 |
| 9-11  | .445760 | .579598 | .605226 | .178195 |
| 12-14 | .370066 | .400379 | .408370 | .155989 |
| 15-21 | .247589 | .382733 | .376097 | .207934 |
| 22-30 | .260565 | .216522 | .344393 | .157173 |

RUN NO 88A 15M 6-18-63 0936-1052(EST)

GROSS STATISTICS

CLEAR WIND SPEED 4.12 M/SEC SIGMA A 13.3 DEG  
 STABLE/UNSTABLE WIND DIRECTION 216 DEG SIGMA E 11.6 DEG  
 SOLAR RAD. 1.36 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.18156E 01             | 0.13952E 01                    | 0.99116E 00                   | 0.94096E 00                        |
| V                | 0.73342E 00             | 0.71740E 00                    | 0.56400E 00                   | 0.37002E-00                        |
| W                | 0.44009E-00             | 0.42522E-00                    | 0.39476E-00                   | 0.14447E-00                        |
| T                | 0.12421E 01             | 0.20322E-00                    | 0.98641E-01                   | 0.16029E-00                        |
| E                | 0.14945E 01             | 0.12689E 01                    | 0.97496E 00                   |                                    |

|                         |         |         |         |         |
|-------------------------|---------|---------|---------|---------|
| <b>GUSTINESS RATIOS</b> |         |         |         |         |
| U                       | 0.32705 | 0.28669 | 0.24164 | 0.23544 |
| V                       | 0.20786 | 0.20558 | 0.18228 | 0.14764 |
| W                       | 0.16102 | 0.15828 | 0.15250 | 0.09225 |

|                    |              |              |              |              |
|--------------------|--------------|--------------|--------------|--------------|
| <b>COVARIANCES</b> |              |              |              |              |
| U,V                | -0.52531E-01 | -0.40191E-01 | -0.25151E-01 | -0.73142E-01 |
| U,W                | -0.36286E-00 | -0.32245E-00 | -0.23088E-00 | -0.21958E-00 |
| U,T                | -0.99113E 00 | -0.42436E-00 | -0.24852E-00 | -0.32475E-00 |
| V,W                | -0.69695E-02 | -0.10973E-01 | -0.19924E-02 | -0.57209E-02 |
| V,T                | 0.77773E-01  | 0.67103E-01  | 0.16206E-01  | 0.59086E-01  |
| W,T                | 0.15418E-00  | 0.12230E-00  | 0.84783E-01  | 0.78670E-01  |
| WE                 | 0.15410E-00  | 0.15536E-00  | 0.11370E-00  |              |

|                               |          |          |          |          |
|-------------------------------|----------|----------|----------|----------|
| <b>NORMALIZED COVARIANCES</b> |          |          |          |          |
| U,V                           | -0.04552 | -0.08015 | -0.03364 | -0.12396 |
| U,W                           | -0.40594 | -0.41864 | -0.36910 | -0.59556 |
| U,T                           | -0.65999 | -0.79695 | -0.79481 | -0.83621 |
| V,W                           | -0.01227 | -0.01987 | -0.00422 | -0.02474 |
| V,T                           | 0.08148  | 0.17574  | 0.06871  | 0.24262  |
| W,T                           | 0.20853  | 0.41603  | 0.42965  | 0.51699  |

RUN NO 88A 15M 6-18-63 0936-1052(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.74775<br>10E 00 | 0.62567<br>10E 00 | 0.31268<br>10E 00 | 0.47202<br>10E 00 | 0.23589<br>10E 00 | 0.19738<br>10E 00 |
| 0  | -.033618          | -.369122          | -.794839          | -.004006          | .068630           | .429844           |
| 1  | -.038434          | -.333175          | -.715078          | -.010248          | .056682           | .368554           |
| 2  | -.035409          | -.265681          | -.586453          | -.010831          | .040394           | .274511           |
| 3  | -.029391          | -.196544          | -.468185          | .002845           | .031054           | .194427           |
| 4  | -.026131          | -.138487          | -.369238          | .007052           | .027860           | .127851           |
| 5  | -.026186          | -.090802          | -.285517          | -.001122          | .030249           | .081428           |
| 6  | -.023491          | -.054142          | -.208186          | -.011598          | .027635           | .050817           |
| 7  | -.019167          | -.025470          | -.140568          | -.016561          | .019160           | .026726           |
| 8  | -.016511          | -.000619          | -.081961          | -.001769          | .012539           | .004178           |
| 9  | -.019276          | .022293           | -.031098          | .009276           | .012455           | -.018944          |
| 10 | -.017175          | .040338           | .015922           | .023542           | .014110           | -.035170          |
| 11 | -.012542          | .055457           | .063394           | .029473           | .011674           | -.047835          |
| 12 | -.012151          | .060017           | .100429           | .031281           | .008520           | -.053686          |
| 13 | -.010836          | .061377           | .126826           | .024968           | .000823           | -.058002          |
| 14 | -.014080          | .060237           | .143934           | .026449           | .000273           | -.062511          |
| 15 | -.013769          | .051531           | .154712           | .024937           | .005960           | -.066443          |
| 16 | -.017003          | .041636           | .163809           | .017909           | .010296           | -.069280          |
| 17 | -.015794          | .035356           | .174585           | .005424           | .007523           | -.070628          |
| 18 | -.007302          | .049397           | .190390           | -.004276          | .000988           | -.075408          |
| 19 | .000945           | .069715           | .211484           | -.007068          | -.000521          | -.084232          |
| 20 | .009096           | .082898           | .226252           | -.003474          | -.002398          | -.091148          |
| 21 | .014600           | .087452           | .229532           | -.005247          | -.002455          | -.092398          |
| 22 | .017344           | .086965           | .228489           | -.002553          | -.005823          | -.089168          |
| 23 | .019769           | .092982           | .228087           | .003531           | -.006102          | -.086873          |
| 24 | .020047           | .103610           | .229642           | .006572           | -.005925          | -.092406          |
| 25 | .020697           | .113203           | .227848           | .000137           | -.004931          | -.109934          |
| 26 | .021541           | .115834           | .221276           | -.021771          | -.004796          | -.117083          |
| 27 | .024087           | .114577           | .213965           | -.040363          | -.010823          | -.112135          |
| 28 | .028137           | .104490           | .198528           | -.035905          | -.016684          | -.097105          |
| 29 | .032460           | .086851           | .171036           | -.030163          | -.021413          | -.081527          |
| 30 | .031. 10          | .062761           | .144924           | -.020667          | -.019633          | -.060400          |
| 31 | .024405           | .038844           | .115519           | -.004623          | -.014750          | -.033604          |
| 32 | .019410           | .022812           | .090285           | .007780           | -.009151          | -.012712          |
| 33 | .014970           | .010511           | .068133           | .019401           | -.007334          | -.006345          |
| 34 | .010905           | .001161           | .052898           | .020851           | -.012700          | -.005222          |
| 35 | .007451           | -.003323          | .039464           | .017296           | -.018638          | .002710           |
| 36 | .006664           | -.011698          | .017949           | .016802           | -.023601          | .011563           |
| 37 | .004380           | -.022938          | -.005198          | .008203           | -.028255          | .025612           |
| 38 | .007437           | -.032701          | -.027545          | -.004458          | -.033433          | .034374           |
| 39 | .016100           | -.043006          | -.049467          | -.015114          | -.041134          | .038810           |
| 40 | .021829           | -.047075          | -.070800          | -.029446          | -.042616          | .048401           |
| 41 | .021302           | -.046851          | -.085794          | -.032143          | -.036661          | .054381           |
| 42 | .022331           | -.039177          | -.089975          | -.028738          | -.033120          | .051094           |
| 43 | .025405           | -.028578          | -.087835          | -.023919          | -.032198          | .045583           |
| 44 | .029828           | -.024607          | -.081140          | -.024930          | -.031636          | .042714           |
| 45 | .029487           | -.019042          | -.076123          | -.028804          | -.030444          | .040829           |
| 46 | .022533           | -.021064          | -.076168          | -.021422          | -.028630          | .039344           |
| 47 | .018894           | -.028077          | -.079094          | -.013371          | -.028040          | .039010           |
| 48 | .020527           | -.030908          | -.079548          | -.009076          | -.027678          | .033882           |
| 49 | .016839           | -.031452          | -.073117          | -.016766          | -.023993          | .023194           |
| 50 | .011847           | -.026159          | -.061399          | -.020084          | -.019877          | .007937           |
| 51 | .008379           | -.015571          | -.047604          | -.019593          | -.021029          | .000633           |
| 52 | .011062           | -.007053          | -.039049          | -.014773          | -.021449          | .004747           |
| 53 | -.018981          | -.000372          | -.035401          | -.002077          | -.019754          | .009268           |
| 54 | .018783           | -.005803          | -.032719          | .002608           | -.015147          | .012095           |
| 55 | .016528           | -.012820          | -.032942          | .005026           | -.013315          | .014695           |
| 56 | .009988           | -.012524          | -.030071          | .014275           | -.004198          | .016270           |
| 57 | -.002328          | -.004393          | -.022687          | .024848           | .010194           | .009764           |
| 58 | -.011292          | .009775           | -.010496          | .024443           | .016200           | -.006135          |
| 59 | -.015219          | .015596           | .000411           | .019367           | .018516           | -.018534          |
| 60 | -.017447          | .012348           | .008848           | .015731           | .019751           | -.026965          |

RUN NO 88A 15M 6-18-63 0936-1052(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.74775<br>10E 00 | 0.62567<br>10E 00 | 0.31268<br>10E 00 | 0.47202<br>10E 00 | 0.23589<br>10E 00 | 0.19738<br>10E 00 |
| 1  | .000110           | -.043624          | -.062634          | .000333           | .024984           | -.025238          |
| 2  | .008339           | -.062922          | -.089150          | -.002100          | .042431           | -.034536          |
| 3  | .014511           | -.064810          | -.105212          | -.004209          | .052795           | -.026286          |
| 4  | .017060           | -.065077          | -.118279          | -.000403          | .055018           | -.016490          |
| 5  | .024830           | -.067763          | -.127225          | .007895           | .053673           | -.011692          |
| 6  | .038238           | -.070382          | -.132249          | .022743           | .056872           | -.005690          |
| 7  | .056665           | -.066218          | -.135907          | .031455           | .064355           | .001656           |
| 8  | .071607           | -.056138          | -.138812          | .029545           | .072160           | .007829           |
| 9  | .083603           | -.047393          | -.138249          | .027033           | .078862           | .011265           |
| 10 | .082896           | -.045450          | -.136107          | .027554           | .076363           | .014081           |
| 11 | .070976           | -.047977          | -.136364          | .025516           | .066622           | .010379           |
| 12 | .064384           | -.044530          | -.128076          | .019643           | .063583           | .008286           |
| 13 | .054894           | -.032749          | -.118061          | .014679           | .057670           | .015449           |
| 14 | .051212           | -.025046          | -.109211          | .013995           | .051430           | .018828           |
| 15 | .048797           | -.018012          | -.098625          | .012970           | .048999           | .023390           |
| 16 | .043795           | -.011295          | -.084907          | .016917           | .042522           | .021188           |
| 17 | .047525           | -.000203          | -.074794          | .017339           | .038713           | .027434           |
| 18 | .048399           | .009932           | -.066328          | .008006           | .036207           | .034707           |
| 19 | .036153           | .011386           | -.059469          | -.002872          | .027068           | .029678           |
| 20 | .023382           | .012984           | -.052006          | -.011443          | .017479           | .031228           |
| 21 | .016099           | .023227           | -.044171          | -.023570          | .009497           | .036421           |
| 22 | .002736           | .034835           | -.038995          | -.029276          | .001084           | .045729           |
| 23 | -.009075          | .035380           | -.033510          | -.034510          | -.006076          | .041260           |
| 24 | -.014092          | .030914           | -.023392          | -.034934          | -.008694          | .030659           |
| 25 | -.022813          | .023084           | -.010132          | -.035504          | -.008000          | .021493           |
| 26 | -.027859          | .018083           | .003242           | -.035030          | -.009498          | .020182           |
| 27 | -.027122          | .019266           | .014771           | -.040021          | -.010261          | .018108           |
| 28 | -.031504          | .024917           | .025051           | -.036730          | -.012142          | .017490           |
| 29 | -.040592          | .031245           | .036018           | -.026698          | -.017018          | .019524           |
| 30 | -.045673          | .033460           | .046642           | -.018375          | -.025562          | .019344           |
| 31 | -.050930          | .038784           | .053894           | -.014211          | -.033741          | .014049           |
| 32 | -.054467          | .041302           | .056720           | -.010372          | -.037549          | .009422           |
| 33 | -.055125          | .032006           | .057077           | -.001377          | -.041434          | -.000281          |
| 34 | -.052298          | .025851           | .057060           | .007048           | -.045106          | -.003741          |
| 35 | -.049749          | .022066           | .054777           | .015773           | -.042987          | -.002655          |
| 36 | -.047796          | .011994           | .049707           | .021463           | -.035390          | -.007775          |
| 37 | -.042500          | .002539           | .047456           | .018280           | -.025309          | -.013721          |
| 38 | -.039207          | -.003948          | .046181           | .021483           | -.017150          | -.020501          |
| 39 | -.035603          | -.004922          | .043948           | .027474           | -.014976          | -.018920          |
| 40 | -.025645          | .000397           | .044006           | .030633           | -.011801          | -.015190          |
| 41 | -.019541          | .005208           | .038702           | .025176           | -.012296          | -.010040          |
| 42 | -.011665          | -.000920          | .031657           | .025693           | -.006473          | -.011316          |
| 43 | -.007896          | -.012217          | .023646           | .019566           | -.002691          | -.017069          |
| 44 | -.006155          | -.016054          | .014446           | .009346           | -.001312          | -.017290          |
| 45 | -.004117          | -.013400          | .005466           | .001143           | -.003539          | -.012004          |
| 46 | -.002170          | -.011057          | -.000532          | .004340           | -.003444          | -.005945          |
| 47 | .004918           | -.011569          | -.002919          | .019292           | .001790           | -.005233          |
| 48 | .013096           | -.013719          | -.005127          | .031008           | .005999           | -.004244          |
| 49 | .019684           | -.018197          | -.009186          | .032408           | .005152           | -.005939          |
| 50 | .024876           | -.020160          | -.006114          | .029924           | .012398           | -.014802          |
| 51 | .034605           | -.024541          | -.005336          | .034242           | .023437           | -.024632          |
| 52 | .047956           | -.022238          | -.010853          | .032637           | .033827           | -.020255          |
| 53 | .057713           | -.016351          | -.015155          | .025134           | .038586           | -.011790          |
| 54 | .057114           | -.007811          | -.017007          | .019629           | .041334           | -.001108          |
| 55 | .051882           | -.003112          | -.017097          | .015708           | .037663           | .004659           |
| 56 | .048276           | -.008284          | -.022851          | .013867           | .029871           | -.002825          |
| 57 | .052031           | -.020681          | -.027111          | .005945           | .027097           | -.012802          |
| 58 | .048447           | -.024192          | -.029995          | -.005596          | .025040           | -.019508          |
| 59 | .037903           | -.014936          | -.030048          | -.013467          | .015167           | -.013990          |
| 60 | .028005           | -.014806          | -.028330          | -.023404          | .008443           | -.008420          |

RUN NO 88A 15M 6-18-63 0936-1052(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.99116<br>10E 00 | 0.56412<br>10E 00 | 0.39495<br>10E 00 | 0.98643<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .839100           | .758177           | .654688           | .863137           |
| 2  | .638951           | .503935           | .327696           | .683704           |
| 3  | .490032           | .334235           | .133133           | .541461           |
| 4  | .374835           | .213548           | .040177           | .427507           |
| 5  | .273287           | .118145           | -.011859          | .340564           |
| 6  | .189869           | .048885           | -.054075          | .263494           |
| 7  | .125017           | -.001991          | -.078517          | .189665           |
| 8  | .069278           | -.040745          | -.082545          | .122036           |
| 9  | .014904           | -.066789          | -.080874          | .062006           |
| 10 | -.038036          | -.074004          | -.078529          | .008507           |
| 11 | -.089061          | -.080741          | -.066009          | -.043602          |
| 12 | -.122545          | -.098446          | -.047244          | -.090720          |
| 13 | -.141329          | -.111229          | -.045175          | -.128283          |
| 14 | -.157101          | -.135207          | -.049985          | -.156807          |
| 15 | -.172892          | -.160681          | -.068176          | -.177383          |
| 16 | -.185059          | -.176363          | -.092426          | -.194552          |
| 17 | -.198623          | -.180915          | -.104342          | -.209918          |
| 18 | -.215028          | -.180930          | -.108133          | -.227474          |
| 19 | -.233583          | -.168744          | -.118982          | -.246921          |
| 20 | -.247651          | -.154345          | -.113003          | -.260778          |
| 21 | -.246942          | -.147111          | -.112141          | -.260321          |
| 22 | -.245158          | -.148434          | -.086844          | -.256301          |
| 23 | -.248219          | -.141765          | -.065696          | -.254147          |
| 24 | -.255892          | -.124473          | -.067982          | -.253908          |
| 25 | -.259528          | -.119068          | -.098872          | -.257710          |
| 26 | -.254952          | -.128316          | -.125695          | -.257350          |
| 27 | -.243527          | -.133605          | -.117785          | -.251524          |
| 28 | -.222801          | -.135186          | -.114272          | -.239167          |
| 29 | -.183927          | -.137359          | -.096943          | -.210630          |
| 30 | -.155020          | -.126033          | -.078703          | -.172411          |
| 31 | -.120483          | -.101911          | -.047715          | -.132093          |
| 32 | -.094338          | -.076671          | -.019714          | -.099621          |
| 33 | -.072220          | -.049785          | -.004817          | -.077279          |
| 34 | -.046563          | -.028246          | .014910           | -.065155          |
| 35 | -.025834          | -.004155          | .033400           | -.055521          |
| 36 | -.006990          | .021797           | .041470           | -.036040          |
| 37 | .012090           | .031308           | .056440           | -.011375          |
| 38 | .036295           | .035181           | .066078           | .010564           |
| 39 | .057120           | .028552           | .074374           | .030907           |
| 40 | .076018           | .030435           | .072929           | .056228           |
| 41 | .089396           | .037025           | .052239           | .078250           |
| 42 | .089914           | .033475           | .040715           | .087131           |
| 43 | .083866           | .025304           | .042220           | .088279           |
| 44 | .082965           | .031402           | .057575           | .087482           |
| 45 | .086644           | .040349           | .046522           | .085911           |
| 46 | .086685           | .041265           | .019178           | .086675           |
| 47 | .091441           | .050832           | .014107           | .086630           |
| 48 | .093460           | .064441           | .014301           | .082748           |
| 49 | .087371           | .078530           | .023316           | .070278           |
| 50 | .071104           | .079848           | .011026           | .055704           |
| 51 | .053773           | .070551           | -.006051          | .045291           |
| 52 | .042958           | .058669           | -.016278          | .039678           |
| 53 | .042997           | .048188           | -.017971          | .038236           |
| 54 | .045463           | .022998           | -.009414          | .039358           |
| 55 | .053792           | .004152           | -.001410          | .035825           |
| 56 | .052864           | .013201           | .015471           | .033165           |
| 57 | .044811           | .028070           | .016288           | .023073           |
| 58 | .030991           | .041469           | .011001           | .006659           |
| 59 | .020147           | .042764           | .017648           | -.007240          |
| 60 | .011607           | .042298           | .015968           | -.016643          |

RUN NO 88A 15M 6-18-63 0936-1052(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T     |
|-------|----------|----------|----------|----------|---------|---------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02  | 10E-01  |
| 0     | -.015266 | -.021718 | -.033879 | .015619  | .063134 | .007275 |
| 1     | -.130468 | -.237994 | -.328335 | .254447  | .475089 | .075211 |
| 2     | -.098709 | -.357886 | -.457284 | .107263  | .301111 | .116879 |
| 3     | -.040541 | -.399583 | -.486338 | -.117846 | .114878 | .136009 |
| 4     | .003132  | -.236047 | -.286189 | -.261507 | .106767 | .083660 |
| 5     | .013505  | -.160399 | -.174248 | -.365552 | .089506 | .055709 |
| 6     | -.013106 | -.201521 | -.155383 | -.118282 | .058208 | .062207 |
| 7-8   | -.019087 | -.155762 | -.106437 | .080157  | .061225 | .048121 |
| 9-11  | -.000262 | -.053716 | -.051689 | .164501  | .026495 | .027055 |
| 12-15 | -.004275 | -.043883 | -.036584 | -.086774 | .029820 | .017596 |
| 16-20 | .001765  | -.017228 | -.017508 | -.083335 | .016517 | .010711 |
| 21-27 | -.001293 | -.008796 | -.012030 | .029379  | .027641 | .004626 |
| 28-36 | .003034  | -.004459 | -.005177 | .036546  | .003104 | .002829 |
| 37-47 | .001555  | -.001399 | -.002938 | .017653  | .006269 | .001794 |
| 48-60 | .000928  | -.001361 | -.001728 | -.003710 | .002120 | .000793 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .064911  | -.003886 | -.123623 | -.045282 | .356541  | .293779  |
| 2     | .178198  | -.072698 | -.164257 | .079519  | .576916  | .192492  |
| 3     | .212348  | -.149195 | -.161840 | .558525  | .654369  | -.024527 |
| 4     | .072378  | -.126929 | -.081303 | .531345  | .338663  | -.154571 |
| 5     | -.006336 | -.073648 | -.041937 | -.005719 | .143070  | -.098057 |
| 6     | -.009526 | -.052012 | -.038385 | -.240067 | .106847  | -.048860 |
| 7-8   | -.017190 | -.027807 | -.019917 | -.024921 | .030060  | -.051857 |
| 9-11  | -.028418 | -.029615 | -.011136 | -.090402 | .034358  | -.076833 |
| 12-15 | .001347  | -.013301 | -.008926 | -.068880 | .042097  | -.045420 |
| 16-20 | .005834  | -.006494 | -.004889 | .007185  | .031228  | -.021067 |
| 21-27 | -.003451 | -.009773 | -.003891 | .036074  | -.005067 | -.021337 |
| 28-36 | -.001632 | -.001521 | -.002521 | -.007801 | .001251  | -.003112 |
| 37-47 | -.001599 | -.000402 | -.001195 | .008766  | .001618  | .001062  |
| 48-60 | .000211  | -.000221 | -.000372 | -.004952 | .000808  | .001040  |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-01  |
| 0     | .009452 | .024468 | .009805 | .016228 |
| 1     | .106442 | .378973 | .142195 | .135320 |
| 2     | .156807 | .598727 | .252327 | .174036 |
| 3     | .170311 | .700421 | .328278 | .179215 |
| 4     | .102742 | .515803 | .237204 | .105403 |
| 5     | .064574 | .395575 | .189047 | .063420 |
| 6     | .060431 | .358694 | .228059 | .053952 |
| 7-8   | .044619 | .263492 | .207922 | .037208 |
| 9-11  | .024795 | .227680 | .189279 | .022307 |
| 12-15 | .017691 | .121052 | .109607 | .015789 |
| 16-20 | .010604 | .087019 | .091770 | .009524 |
| 21-27 | .007059 | .058000 | .064154 | .006221 |
| 28-36 | .004641 | .041453 | .039212 | .003309 |
| 37-47 | .002637 | .025949 | .026372 | .002325 |
| 48-60 | .001723 | .018005 | .021145 | .001326 |

RUN NO 88A 15M 6-18-63 0936-1052(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.58994<br>10E 00 | 0.36871<br>10E 00 | 0.38839<br>10E 00 | 0.23117<br>10E 00 | 0.24351<br>10E 00 | 0.15219<br>10E 00 |
| 0  | -.123981          | -.595545          | -.836147          | -.024747          | .242641           | .516913           |
| 1  | -.086355          | -.264880          | -.471592          | -.010117          | .189871           | .249545           |
| 2  | -.046186          | -.134546          | -.273552          | -.014168          | .150520           | .139024           |
| 3  | .009863           | -.046379          | -.139278          | -.040951          | .087364           | .080846           |
| 4  | .028197           | -.029071          | -.084845          | -.041718          | .025474           | .046801           |
| 5  | .058396           | .037562           | .005695           | -.045267          | -.023843          | -.026014          |
| 6  | .035973           | .085258           | .108060           | .036454           | -.024706          | -.096609          |
| 7  | .015361           | .137378           | .196003           | .021313           | -.046437          | -.140633          |
| 8  | .019088           | .111768           | .246833           | -.009056          | -.075161          | -.131240          |
| 9  | .053690           | .092795           | .205955           | -.003844          | -.134655          | -.129825          |
| 10 | .043286           | .135256           | .226520           | .022570           | -.151569          | -.153812          |
| 11 | .015302           | .112235           | .198930           | .017708           | -.138369          | -.123021          |
| 12 | .076726           | .128862           | .229236           | .019405           | -.151030          | -.100608          |
| 13 | .014014           | .075841           | .191204           | .064315           | -.082813          | -.060258          |
| 14 | .030139           | .073630           | .175380           | -.001684          | -.065798          | -.055280          |
| 15 | .013410           | .049844           | .080418           | -.014504          | -.034702          | -.023841          |
| 16 | -.065864          | .027011           | .029121           | .041297           | .035990           | .004007           |
| 17 | -.100230          | .010518           | .025317           | .091172           | .094318           | .017434           |
| 18 | -.090934          | -.058550          | -.015881          | .088137           | .120417           | .078813           |
| 19 | -.077457          | -.064702          | -.069850          | .024584           | .105320           | .088910           |
| 20 | -.057984          | -.064237          | -.117497          | -.018077          | .086999           | .084523           |
| 21 | -.079763          | -.029955          | -.106246          | .009426           | .095362           | .033471           |
| 22 | -.028290          | -.052769          | -.110508          | .000264           | .028063           | .050014           |
| 23 | .027617           | -.075068          | -.135484          | .005563           | -.003260          | .051234           |
| 24 | .044598           | -.056432          | -.137534          | -.057453          | -.029213          | .021498           |
| 25 | .063023           | -.025918          | -.039506          | -.080576          | -.056387          | -.017233          |
| 26 | .083549           | .047990           | .049383           | -.099053          | -.081806          | -.088021          |
| 27 | .078054           | .060743           | .084581           | -.097099          | -.097372          | -.097917          |
| 28 | .100875           | .048049           | .098599           | -.060709          | -.105363          | -.077114          |
| 29 | .095583           | .066772           | .109596           | -.082502          | -.095553          | -.073561          |
| 30 | .090242           | .071688           | .122466           | -.119189          | -.077530          | -.074866          |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T     |
|-------|----------|----------|----------|----------|----------|---------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-01   | 10E-01  |
| 0     | -.002605 | -.007340 | -.015600 | .020961  | .004781  | .003749 |
| 1     | .022262  | -.125183 | -.263213 | -.235528 | .052540  | .045929 |
| 2     | -.041416 | -.237394 | -.474948 | -.376950 | .116139  | .090350 |
| 3     | -.176872 | -.318449 | -.591192 | -.131899 | .184710  | .136097 |
| 4     | -.122590 | -.220809 | -.367724 | .023406  | .100669  | .098526 |
| 5     | -.025434 | -.139727 | -.207374 | -.059571 | .004814  | .050347 |
| 6     | -.087237 | -.124586 | -.162291 | .081590  | .020481  | .037177 |
| 7     | -.107398 | -.101654 | -.118956 | .138699  | .037096  | .025661 |
| 8     | -.062137 | -.076550 | -.093806 | .063201  | .027577  | .018919 |
| 9-11  | -.031685 | -.063895 | -.093341 | .155550  | .012375  | .019907 |
| 12-14 | .010134  | -.083954 | -.099380 | -.120548 | -.005529 | .026692 |
| 15-21 | -.003628 | -.050553 | -.058391 | -.029353 | .004007  | .018758 |
| 22-30 | -.012356 | -.059001 | -.061642 | -.031356 | .006673  | .019127 |

RUN NO 88A 15M 6-18-63 0936-1052(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.58994<br>10E 00 | 0.36871<br>10E 00 | 0.38839<br>10E 00 | 0.23117<br>10E 00 | 0.24351<br>10E 00 | 0.15219<br>10E 00 |
| 1  | .045542           | -.047004          | -.164341          | .036776           | .067210           | .069112           |
| 2  | .010317           | .041833           | -.186979          | -.024059          | .047677           | .131764           |
| 3  | -.071122          | .031849           | -.179467          | -.043068          | .015589           | .125760           |
| 4  | -.086660          | -.005930          | -.181133          | .020628           | .002004           | .108999           |
| 5  | -.027276          | -.005012          | -.187687          | .006140           | .020305           | .100128           |
| 6  | -.039870          | -.007775          | -.180231          | -.039684          | .004222           | .084110           |
| 7  | -.068251          | .012470           | -.136517          | -.102815          | -.024227          | .089316           |
| 8  | -.100842          | .002046           | -.091507          | -.032742          | -.048333          | .040442           |
| 9  | -.114442          | .015055           | -.051101          | -.026279          | -.069516          | .040951           |
| 10 | -.030780          | .014565           | -.008290          | -.011162          | -.042533          | -.003225          |
| 11 | -.013958          | .055749           | -.018512          | -.032102          | -.044666          | .040709           |
| 12 | .013511           | -.001708          | -.001627          | -.078848          | -.044730          | .007639           |
| 13 | .023788           | -.007038          | .044986           | -.018705          | -.029339          | -.023008          |
| 14 | .032739           | .014343           | .088445           | -.022147          | -.019730          | -.036525          |
| 15 | .047137           | -.040050          | .090219           | .005425           | -.033148          | -.064956          |
| 16 | .027474           | -.032508          | .072484           | .003292           | -.027342          | -.061159          |
| 17 | .056050           | -.008926          | .069079           | -.013108          | .018326           | -.058186          |
| 18 | .018299           | .007357           | .077679           | -.002938          | .006377           | -.047734          |
| 19 | -.017690          | .013548           | .081736           | .028332           | .004808           | -.040823          |
| 20 | .000255           | .004100           | .039926           | -.009076          | .006017           | .010079           |
| 21 | -.039730          | -.037694          | .009901           | -.042187          | .006217           | -.012071          |
| 22 | -.011864          | -.041964          | -.008981          | .052625           | .031804           | -.008835          |
| 23 | .068226           | .019748           | -.010682          | .115086           | .096498           | .033745           |
| 24 | .038663           | .024261           | -.034722          | .080229           | .072056           | .046084           |
| 25 | -.019038          | .043376           | -.063296          | -.013857          | .011962           | .054568           |
| 26 | -.015052          | -.011569          | -.067580          | -.011376          | .016900           | .025133           |
| 27 | -.005353          | -.010265          | -.051301          | -.036172          | .005451           | .017178           |
| 28 | .029297           | .021390           | -.010370          | .020078           | .018228           | .000228           |
| 29 | .071350           | .013730           | -.002621          | .061641           | .045392           | -.010889          |
| 30 | -.002121          | -.006975          | .037269           | .017569           | -.036480          | -.039091          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-02   |
| 1     | -.121712 | .131145  | -.136502 | -.517694 | -.441844 | .377464  |
| 2     | -.157060 | .193425  | -.239417 | -.403144 | -.257386 | .562580  |
| 3     | -.151545 | .124843  | -.300066 | -.101762 | .198939  | .694901  |
| 4     | -.035736 | -.090976 | -.183118 | .071419  | .392093  | .394121  |
| 5     | .068719  | -.077160 | -.095286 | .092315  | .314970  | .210612  |
| 6     | .053661  | .115931  | -.073223 | .091286  | .229141  | .238337  |
| 7     | -.005551 | .282555  | -.048190 | .023864  | .091721  | .187486  |
| 8     | -.010297 | .161362  | -.031010 | .01690   | .069165  | .092873  |
| 9-11  | .026631  | -.027791 | -.036338 | -.135524 | .119031  | .081648  |
| 12-14 | .086509  | -.132552 | -.035436 | .107391  | .199478  | .022633  |
| 15-21 | .008201  | -.308485 | -.016485 | .155956  | .050557  | -.021217 |
| 22-30 | -.001929 | -.071726 | -.006186 | -.008104 | .028188  | .000536  |



RUN NO 88A 15M 6-18-63 0936-1052(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.94092<br>10E 00 | 0.36989<br>10E 00 | 0.14448<br>10E 00 | 0.16031<br>10E 00 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .457111           | .365817           | .204049           | .665630           |
| 2  | .210608           | .158920           | .015796           | .441994           |
| 3  | .073889           | .111916           | .017014           | .273127           |
| 4  | .038865           | .053235           | .052796           | .158876           |
| 5  | -.021447          | .023387           | -.011933          | .021636           |
| 6  | -.109087          | -.046314          | -.115400          | -.127924          |
| 7  | -.206075          | -.149029          | -.173997          | -.253120          |
| 8  | -.228003          | -.262487          | -.134818          | -.344254          |
| 9  | -.158350          | -.178859          | -.141937          | -.342858          |
| 10 | -.164918          | -.211931          | -.170355          | -.366538          |
| 11 | -.156437          | -.244736          | -.060170          | -.321537          |
| 12 | -.239342          | -.245399          | -.076850          | -.322886          |
| 13 | -.195533          | -.212766          | -.025268          | -.278630          |
| 14 | -.172216          | -.142700          | -.062074          | -.236270          |
| 15 | -.063551          | -.016550          | .021572           | -.115836          |
| 16 | -.043848          | .007436           | .029390           | -.028049          |
| 17 | -.048612          | .016854           | .022690           | .000075           |
| 18 | -.021704          | .084308           | .031865           | .062407           |
| 19 | .043432           | .050622           | .029964           | .133374           |
| 20 | .098147           | .077311           | .027640           | .187512           |
| 21 | .092901           | .100498           | -.011973          | .161453           |
| 22 | .092373           | .093593           | .057745           | .151500           |
| 23 | .143357           | -.018449          | -.026433          | .151588           |
| 24 | .169768           | -.032014          | -.060683          | .126527           |
| 25 | .075036           | .073083           | .038318           | .011301           |
| 26 | -.003882          | .028669           | .014392           | -.093983          |
| 27 | -.058719          | .039228           | -.062154          | -.141535          |
| 28 | -.097569          | -.076043          | -.093005          | -.149401          |
| 29 | -.093600          | -.060591          | .031180           | -.164307          |
| 30 | -.110062          | -.046552          | .063410           | -.166061          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-01  |
| 0     | .002697 | .009142 | .003964 | .013425 |
| 1     | .059599 | .218854 | .049918 | .166042 |
| 2     | .108843 | .405062 | .084848 | .284409 |
| 3     | .131850 | .523015 | .128031 | .357919 |
| 4     | .085905 | .327684 | .115252 | .213324 |
| 5     | .060067 | .131554 | .072869 | .094086 |
| 6     | .052376 | .115866 | .048813 | .067044 |
| 7     | .043015 | .141027 | .041255 | .045606 |
| 8     | .034243 | .130646 | .040192 | .035715 |
| 9-11  | .031352 | .133529 | .055581 | .038833 |
| 12-14 | .036571 | .145253 | .068471 | .034610 |
| 15-21 | .021319 | .112759 | .056930 | .022210 |
| 22-30 | .023553 | .110072 | .059782 | .021553 |

RUN NO 88A 46M 6-18-63 0936-1052(EST)

GROSS STATISTICS

CLEAR WIND SPEED 5.15 M/SEC SIGMA A 7.4 DEG  
 STABLE/UNSTABLE WIND DIRECTION 218 DEG SIGMA E 5.8 DEG  
 SOLAR RAD. 1.36 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.94606E 00             | 0.32815E-00                    | 0.23134E-00                   | 0.21394E-00                        |
| V                | 0.35994E-00             | 0.29848E-00                    | 0.23703E-00                   | 0.17201E-00                        |
| W                | 0.20708E-00             | 0.19017E-00                    | 0.15294E-00                   | 0.10075E-00                        |
| T                | 0.10000E 01             | 0.53967E-01                    | 0.4121E-01                    | 0.42365E-01                        |
| E                | 0.75654E 00             | 0.40841E-00                    | 0.31066E-00                   |                                    |

|                         | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.18887                 | 0.11123                        | 0.09339                       | 0.08981                            |
| V                       | 0.11649                 | 0.10608                        | 0.09454                       | 0.08053                            |
| W                       | 0.08836                 | 0.08468                        | 0.07594                       | 0.06163                            |

|                    | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | 0.26997E-01             | 0.46993E-01                    | 0.29087E-01                   | 0.38758E-01                        |
| U,W                | -0.13367E-00            | -0.72028E-01                   | -0.37751E-01                  | -0.50452E-01                       |
| U,T                | -0.75500E 00            | -0.44206E-01                   | -0.21088E-01                  | -0.36169E-01                       |
| V,W                | -0.54152E-01            | -0.61124E-01                   | -0.48687E-01                  | -0.29694E-01                       |
| V,T                | 0.29016E-01             | 0.53435E-01                    | 0.35975E-01                   | 0.33878E-01                        |
| W,T                | 0.24574E-01             | -0.29264E-01                   | -0.21519E-01                  | -0.16244E-01                       |
| WE                 | 0.11597E-00             | 0.87030E-01                    | 0.42736E-01                   |                                    |

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | 0.04626                 | 0.15016                        | 0.12421                       | 0.20204                            |
| U,W                           | -0.30201                | -0.28833                       | -0.20070                      | -0.34364                           |
| U,T                           | -0.77621                | -0.33218                       | -0.28230                      | -0.37992                           |
| V,W                           | -0.19835                | -0.25656                       | -0.25571                      | -0.22556                           |
| V,T                           | 0.04836                 | 0.42103                        | 0.47578                       | 0.39686                            |
| W,T                           | 0.05400                 | -0.28887                       | -0.35430                      | -0.24864                           |

RUN NO 88A 46M 6-18-63 0936-1052(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.23422<br>10E 00 | 0.18813<br>10E 00 | 0.74719<br>10E-01 | 0.19041<br>10E 00 | 0.75621<br>10E-01 | 0.60741<br>10E-01 |
| 0  | .124567           | -.200732          | -.282022          | -.255471          | .475652           | -.354301          |
| 1  | .120970           | -.177966          | -.238229          | -.210515          | .398896           | -.280218          |
| 2  | .116455           | -.135816          | -.182196          | -.136777          | .283596           | -.175644          |
| 3  | .105633           | -.091135          | -.147663          | -.074000          | .195296           | -.103817          |
| 4  | .087914           | -.058617          | -.123470          | -.023046          | .127626           | -.058041          |
| 5  | .075602           | -.040493          | -.095414          | .007256           | .068638           | -.029388          |
| 6  | .065201           | -.024414          | -.068267          | .018706           | .025749           | -.016587          |
| 7  | .054076           | -.011371          | -.045218          | .019845           | -.001229          | -.009749          |
| 8  | .033449           | -.004244          | -.031656          | .021436           | -.016922          | -.002292          |
| 9  | .015236           | -.000090          | -.018102          | .027944           | -.035939          | .010473           |
| 10 | .004283           | .008688           | -.001987          | .039282           | -.058261          | .026629           |
| 11 | -.011950          | .017558           | .007481           | .044008           | -.075364          | .040101           |
| 12 | -.027041          | .015735           | .017869           | .043023           | -.080834          | .048860           |
| 13 | -.037954          | .009731           | .023697           | .037069           | -.077063          | .054706           |
| 14 | -.046321          | .006868           | .031585           | .029422           | -.064932          | .051574           |
| 15 | -.051329          | .011968           | .041712           | .013578           | -.057123          | .040001           |
| 16 | -.053662          | .015113           | .053475           | -.001372          | -.054715          | .031937           |
| 17 | -.053149          | .020307           | .061224           | -.008162          | -.053789          | .027530           |
| 18 | -.053717          | .032065           | .066243           | -.006886          | -.052594          | .024783           |
| 19 | -.054109          | .032646           | .074854           | -.004213          | -.056765          | .027717           |
| 20 | -.051127          | .030535           | .087758           | .000918           | -.063268          | .038286           |
| 21 | -.042752          | .025174           | .097927           | .004848           | -.067596          | .045664           |
| 22 | -.042808          | .017023           | .104434           | .022687           | -.073029          | .052928           |
| 23 | -.051765          | .019879           | .102600           | .032533           | -.070758          | .049209           |
| 24 | -.053047          | .031905           | .097823           | .035265           | -.069437          | .047099           |
| 25 | -.038829          | .036857           | .097870           | .033518           | -.069616          | .049874           |
| 26 | -.024982          | .034734           | .094920           | .032193           | -.070042          | .060651           |
| 27 | -.016921          | .038609           | .082313           | .028065           | -.070573          | .064463           |
| 28 | -.011452          | .038663           | .064028           | .025055           | -.069931          | .060446           |
| 29 | -.009887          | .033769           | .050908           | .023048           | -.061662          | .047523           |
| 30 | -.014152          | .027104           | .038648           | .018202           | -.044075          | .031155           |
| 31 | -.019317          | .025717           | .022549           | .008064           | -.023960          | .010386           |
| 32 | -.017911          | .022161           | .006596           | -.002133          | -.012781          | -.000286          |
| 33 | -.012396          | .014805           | -.002217          | -.004485          | -.009831          | -.002927          |
| 34 | -.009741          | .008817           | -.008552          | .003156           | -.010340          | -.001647          |
| 35 | -.011300          | .007030           | -.021203          | .009351           | -.008883          | -.000415          |
| 36 | -.008053          | .005480           | -.026965          | .008027           | -.006750          | -.003154          |
| 37 | -.002863          | .001415           | -.022175          | -.000830          | -.000604          | -.010420          |
| 38 | -.000361          | -.004746          | -.017493          | -.006314          | .004713           | -.016749          |
| 39 | .007000           | -.006630          | -.012636          | -.012063          | .011859           | -.018071          |
| 40 | .020268           | -.008213          | -.006821          | -.023683          | .017796           | -.025776          |
| 41 | .025439           | -.010580          | -.004339          | -.033777          | .017188           | -.032116          |
| 42 | .019116           | -.010699          | -.013478          | -.035952          | .013489           | -.031710          |
| 43 | .009659           | -.001109          | -.028695          | -.024737          | .007685           | -.024293          |
| 44 | -.001087          | .013435           | -.037965          | -.008445          | .001437           | -.017531          |
| 45 | -.007044          | .020926           | -.037699          | -.000525          | -.001816          | -.017856          |
| 46 | -.008378          | .020414           | -.032013          | -.002611          | -.003162          | -.022216          |
| 47 | -.011009          | .021596           | -.021677          | .001526           | -.003577          | -.022852          |
| 48 | -.010898          | .020319           | -.015640          | .008541           | -.002375          | -.019740          |
| 49 | -.009067          | .009126           | -.011932          | .021411           | -.008315          | -.010210          |
| 50 | -.006504          | -.000841          | -.003766          | .025070           | -.012277          | -.002776          |
| 51 | -.002884          | -.003199          | .002880           | .026733           | -.008875          | .003167           |
| 52 | .002113           | -.006012          | .008506           | .028214           | -.000805          | .007897           |
| 53 | .010408           | -.007929          | .012674           | .024843           | .003273           | .008825           |
| 54 | .016976           | -.005586          | .015499           | .021954           | .004384           | .009305           |
| 55 | .019171           | -.01148           | .016644           | .017180           | .012687           | .006380           |
| 56 | .023637           | .006186           | .017553           | .003420           | .030113           | -.000361          |
| 57 | .031466           | .010556           | .018382           | -.004909          | .038954           | .006216           |
| 58 | .033493           | .003534           | .022594           | .007405           | .042374           | .020705           |
| 59 | .037058           | -.004429          | .024880           | .011982           | .037902           | .025982           |
| 60 | .037678           | -.008733          | .025451           | .020366           | .026816           | .027456           |

RUN NO 88A 46M 6-18-63 .0936-1052(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.23422<br>10E 00 | 0.18813<br>10E 00 | 0.74719<br>10E-01 | 0.19041<br>10E 00 | 0.75621<br>10E-01 | 0.60741<br>10E-01 |
| 1  | -.002025          | -.014497          | -.014539          | -.009423          | .044069           | -.031765          |
| 2  | .001376           | -.026958          | -.013177          | -.020993          | .068649           | -.044093          |
| 3  | .002888           | -.037709          | -.014049          | -.020603          | .079947           | -.050869          |
| 4  | .008696           | -.045059          | -.014654          | -.019171          | .086935           | -.054246          |
| 5  | .014817           | -.051258          | -.007101          | -.020053          | .090538           | -.049635          |
| 6  | .013156           | -.053053          | .000342           | -.024350          | .092727           | -.047873          |
| 7  | .010857           | -.047391          | .001821           | -.040372          | .096130           | -.042476          |
| 8  | .007718           | -.048017          | .003729           | -.054230          | .098530           | -.035732          |
| 9  | .016793           | -.053807          | .014085           | -.057534          | .096650           | -.034112          |
| 10 | .022928           | -.065020          | .026201           | -.066147          | .099722           | -.030334          |
| 11 | .017521           | -.069651          | .033995           | -.073935          | .099039           | -.031393          |
| 12 | .009955           | -.065330          | .037313           | -.072883          | .096871           | -.031450          |
| 13 | .004238           | -.059729          | .037232           | -.063449          | .096537           | -.032782          |
| 14 | -.001067          | -.055509          | .038046           | -.051510          | .096663           | -.036159          |
| 15 | -.007557          | -.052529          | .037686           | -.043619          | .093433           | -.038345          |
| 16 | -.006879          | -.048243          | .039638           | -.038903          | .087410           | -.040280          |
| 17 | -.002603          | -.048930          | .041231           | -.028248          | .075117           | -.042166          |
| 18 | .006634           | -.045609          | .040757           | -.018657          | .067326           | -.047801          |
| 19 | .015805           | -.031917          | .032369           | -.006137          | .057881           | -.049465          |
| 20 | .024520           | -.017155          | .029625           | .008454           | .044899           | -.051606          |
| 21 | .027259           | -.013068          | .028812           | .023346           | .026811           | -.054010          |
| 22 | .021927           | -.009454          | .027439           | .038144           | .005788           | -.051976          |
| 23 | .020760           | -.000498          | .022967           | .047163           | -.014192          | -.045290          |
| 24 | .019675           | .004949           | .020301           | .052614           | -.025817          | -.040979          |
| 25 | .018683           | .011836           | .010990           | .053694           | -.030053          | -.037692          |
| 26 | .012369           | .019586           | -.000774          | .054891           | -.034717          | -.024212          |
| 27 | -.000900          | .031455           | -.008885          | .043666           | -.036468          | -.002882          |
| 28 | -.005964          | .045315           | -.015525          | .029558           | -.037495          | .021216           |
| 29 | -.003180          | .053911           | -.025924          | .021480           | -.040472          | .037321           |
| 30 | .008296           | .056481           | -.029249          | .013808           | -.042908          | .047156           |
| 31 | .015915           | .059966           | -.034526          | -.001933          | -.037607          | .054738           |
| 32 | .019514           | .067834           | -.038850          | -.012697          | -.030327          | .056522           |
| 33 | .017811           | .069676           | -.035720          | -.013512          | -.023480          | .059850           |
| 34 | .018905           | .060743           | -.025639          | -.006749          | -.017745          | .057873           |
| 35 | .023397           | .056532           | -.018466          | -.008397          | -.010709          | .056763           |
| 36 | .026650           | .048997           | -.012059          | -.015502          | -.005664          | .056161           |
| 37 | .033795           | .037087           | -.005228          | -.016308          | -.001599          | .047207           |
| 38 | .040465           | .033839           | -.002761          | -.003789          | .001774           | .037412           |
| 39 | .037746           | .033753           | -.000520          | .006681           | .002026           | .033778           |
| 40 | .028096           | .036639           | -.006041          | .007092           | .002196           | .029625           |
| 41 | .019757           | .041140           | -.011884          | .001616           | .003061           | .025982           |
| 42 | .015247           | .042564           | -.011194          | -.003462          | .006507           | .026387           |
| 43 | .007232           | .036521           | -.013050          | -.005442          | .005515           | .024126           |
| 44 | -.001006          | .026063           | -.014218          | -.003705          | -.001161          | .020657           |
| 45 | -.009460          | .015642           | -.015533          | -.004507          | -.003896          | .021406           |
| 46 | -.020071          | .002581           | -.008500          | -.009656          | -.003597          | .021606           |
| 47 | -.025155          | -.015369          | .001901           | -.014618          | -.001668          | .018350           |
| 48 | -.025412          | -.028572          | .013155           | -.011543          | .001636           | .003119           |
| 49 | -.026318          | -.035310          | .018792           | -.004947          | .003170           | -.010353          |
| 50 | -.029919          | -.036476          | .018048           | -.002031          | .005404           | -.017125          |
| 51 | -.034044          | -.036815          | .013840           | .009376           | -.003722          | -.020467          |
| 52 | -.039108          | -.041093          | .016171           | .013167           | -.011041          | -.022548          |
| 53 | -.039524          | -.049354          | .019768           | .009795           | -.010778          | -.023064          |
| 54 | -.043063          | -.048783          | .020200           | .004572           | -.007428          | -.021689          |
| 55 | -.047150          | -.037396          | .015429           | .003022           | -.001044          | -.022549          |
| 56 | -.043977          | -.035143          | .014002           | .007705           | .003473           | -.023297          |
| 57 | -.039204          | -.036489          | .015384           | .010926           | .002559           | -.018046          |
| 58 | -.036201          | -.037379          | .016711           | .004240           | -.003245          | -.011638          |
| 59 | -.038185          | -.037157          | .020227           | -.000156          | -.011307          | -.006777          |
| 60 | -.039037          | -.032319          | .017819           | .003809           | -.017219          | -.005419          |

RUN NO 84A 46M 6-18-63 0936-1052(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.23143<br>10E 00 | 0.23705<br>10E 00 | 0.15294<br>10E 00 | 0.24124<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .833440           | .816396           | .770076           | .818165           |
| 2  | .630693           | .592359           | .492045           | .610507           |
| 3  | .485722           | .426390           | .307118           | .459181           |
| 4  | .367178           | .302759           | .196656           | .347821           |
| 5  | .266028           | .200645           | .128440           | .256473           |
| 6  | .186476           | .114484           | .070537           | .185131           |
| 7  | .124524           | .049120           | .018566           | .132722           |
| 8  | .065899           | .004056           | -.018300          | .088298           |
| 9  | .010310           | -.033393          | -.050846          | .042452           |
| 10 | -.036533          | -.076071          | -.091899          | -.006353          |
| 11 | -.080472          | -.116621          | -.122577          | -.049135          |
| 12 | -.116797          | -.144121          | -.139261          | -.084460          |
| 13 | -.138437          | -.164374          | -.151972          | -.105571          |
| 14 | -.166536          | -.174307          | -.165584          | -.113513          |
| 15 | -.205998          | -.186447          | -.166383          | -.119085          |
| 16 | -.237626          | -.192164          | -.151537          | -.126453          |
| 17 | -.257645          | -.195132          | -.126910          | -.137274          |
| 18 | -.270326          | -.195665          | -.111371          | -.148200          |
| 19 | -.279341          | -.191062          | -.103571          | -.163226          |
| 20 | -.290709          | -.190931          | -.101169          | -.182798          |
| 21 | -.295671          | -.195169          | -.108954          | -.192626          |
| 22 | -.295134          | -.202109          | -.116749          | -.204161          |
| 23 | -.290738          | -.197955          | -.122061          | -.207549          |
| 24 | -.281669          | -.190496          | -.127734          | -.207058          |
| 25 | -.272976          | -.179962          | -.142102          | -.211729          |
| 26 | -.252137          | -.172638          | -.166920          | -.210835          |
| 27 | -.217496          | -.161774          | -.177606          | -.200014          |
| 28 | -.172005          | -.144056          | -.165056          | -.179739          |
| 29 | -.132156          | -.118551          | -.138912          | -.156969          |
| 30 | -.094595          | -.092328          | -.101616          | -.130328          |
| 31 | -.051791          | -.061527          | -.061021          | -.095970          |
| 32 | -.017282          | -.041257          | -.036448          | -.072716          |
| 33 | .009675           | -.034086          | -.025409          | -.061697          |
| 34 | .034593           | -.028163          | -.022149          | -.054156          |
| 35 | .057198           | -.019202          | -.007850          | -.045507          |
| 36 | .074339           | -.011053          | .013732           | -.038087          |
| 37 | .083663           | -.001104          | .042094           | -.024004          |
| 38 | .086290           | .009823           | .054099           | -.016120          |
| 39 | .086422           | .026964           | .048982           | -.010357          |
| 40 | .085311           | .040746           | .053022           | .000085           |
| 41 | .081738           | .037638           | .062302           | .001697           |
| 42 | .090127           | .033732           | .064159           | .003588           |
| 43 | .098522           | .027837           | .054778           | .010005           |
| 44 | .094377           | .022798           | .035734           | .012552           |
| 45 | .083516           | .021138           | .017465           | .015789           |
| 46 | .071407           | .023414           | .017115           | .015879           |
| 47 | .056314           | .023081           | .021828           | .013104           |
| 48 | .045630           | .023637           | .025693           | .011654           |
| 49 | .043278           | .021708           | .030096           | .003651           |
| 50 | .037857           | .022705           | .028154           | -.002431          |
| 51 | .030836           | .026113           | .016649           | -.002472          |
| 52 | .026694           | .038677           | .008661           | .004560           |
| 53 | .019087           | .051128           | .014927           | .007390           |
| 54 | .004951           | .056813           | .025219           | .006596           |
| 55 | -.001639          | .067594           | .038321           | .011092           |
| 56 | -.005489          | .081356           | .038693           | .020452           |
| 57 | -.007147          | .090589           | .024196           | .018197           |
| 58 | -.007164          | .096054           | .005409           | .012630           |
| 59 | -.001595          | .090391           | .003512           | .011416           |
| 60 | .004108           | .072660           | .003668           | .013243           |

RUN NC 88A 46M 6-18-63 0936-1052(EST)  
61 PCINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02  | 10E-02   |
| 0     | .058072  | -.079063 | -.028901 | -.053355 | .032493 | -.022497 |
| 1     | .524971  | -.505629 | -.264485 | -.310007 | .306330 | -.157492 |
| 2     | .688379  | -.513028 | -.369896 | -.355422 | .401496 | -.212015 |
| 3     | .786937  | -.498375 | -.409995 | -.431917 | .463158 | -.250656 |
| 4     | .551537  | -.342407 | -.221602 | -.356793 | .365402 | -.175748 |
| 5     | .278390  | -.260519 | -.082136 | -.373690 | .291304 | -.138998 |
| 6     | .123267  | -.288469 | -.086965 | -.473395 | .289914 | -.154134 |
| 7-8   | .015767  | -.211951 | -.107702 | -.381715 | .222813 | -.118808 |
| 9-11  | -.005332 | -.148470 | -.046260 | -.169749 | .112042 | -.065911 |
| 12-15 | .022296  | -.070594 | -.028296 | -.186714 | .085016 | -.072540 |
| 16-20 | .004060  | -.049266 | -.021389 | -.075966 | .042360 | -.037435 |
| 21-27 | -.005508 | -.021849 | -.017485 | -.025604 | .026038 | -.020379 |
| 28-36 | -.000580 | -.000634 | -.010811 | -.023074 | .017267 | -.013315 |
| 37-47 | .002669  | -.004042 | -.005392 | -.012717 | .007487 | -.006824 |
| 48-50 | .002063  | -.003592 | -.002541 | -.003776 | .003746 | -.003192 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-03   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .289242  | -.121490 | .732937  | -.141617 | .228100  | -.087959 |
| 2     | .094094  | -.465162 | .978146  | -.254420 | .280499  | -.148439 |
| 3     | .000530  | -.547048 | .704548  | -.427654 | .313780  | -.112529 |
| 4     | .071744  | -.166821 | -.305658 | -.364769 | .186596  | .006225  |
| 5     | .022044  | .002396  | -.712693 | -.060514 | .035786  | .004374  |
| 6     | .038149  | -.024544 | -.418074 | .172504  | .001530  | -.059823 |
| 7-8   | .055003  | -.035556 | -.174108 | .076306  | .047836  | -.048768 |
| 9-11  | -.066020 | -.031541 | -.113771 | .008041  | .031224  | -.019268 |
| 12-15 | .022287  | -.017759 | -.040433 | -.038315 | .017013  | -.009456 |
| 16-20 | -.019031 | .015514  | -.076247 | -.013506 | .010341  | -.005230 |
| 21-27 | -.002581 | -.005323 | .010678  | -.004729 | .004611  | -.002578 |
| 28-36 | -.000781 | -.001548 | -.037360 | .003302  | .002271  | -.002340 |
| 37-47 | -.003315 | .000726  | -.025320 | .007274  | .000505  | -.002305 |
| 48-60 | -.000276 | .000041  | -.005430 | .000737  | -.000007 | .000363  |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .019529 | .014573 | .010350 | .042270 |
| 1     | .217708 | .202810 | .106210 | .316219 |
| 2     | .349837 | .302611 | .155181 | .357794 |
| 3     | .425140 | .353240 | .183730 | .354854 |
| 4     | .271117 | .260565 | .136210 | .229115 |
| 5     | .130477 | .177770 | .109480 | .149201 |
| 6     | .112322 | .150713 | .112325 | .136979 |
| 7-8   | .104676 | .115625 | .073377 | .110743 |
| 9-11  | .057337 | .070776 | .047167 | .059884 |
| 12-15 | .038902 | .049602 | .040837 | .049619 |
| 16-20 | .027466 | .028146 | .027233 | .027976 |
| 21-27 | .015980 | .019795 | .017092 | .018791 |
| 28-36 | .011577 | .012015 | .009638 | .012632 |
| 37-47 | .006766 | .007412 | .006173 | .007769 |
| 48-60 | .003998 | .004957 | .003796 | .005480 |

RUN NO 88A 46M 6-18-63 0936-1052(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.19190<br>10E 00 | 0.14684<br>10E 00 | 0.95257<br>10E-01 | 0.13167<br>10E 00 | 0.85415<br>10E-01 | 0.65359<br>10E-01 |
| 0  | .201973           | -.343585          | -.379701          | -.225519          | .396623           | -.248543          |
| 1  | .090469           | -.219592          | -.270496          | -.070542          | .171063           | -.099984          |
| 2  | .025640           | -.159233          | -.153076          | -.058515          | .125072           | -.054471          |
| 3  | .021019           | -.063020          | -.141515          | -.031095          | .077821           | -.030949          |
| 4  | -.001901          | -.020167          | -.124559          | -.017018          | .031929           | .002492           |
| 5  | -.031317          | .015830           | .076459           | .036953           | -.011950          | .044002           |
| 6  | -.011066          | .060578           | -.027708          | .075087           | -.028030          | .094365           |
| 7  | -.083160          | .084922           | -.012659          | .038969           | -.058443          | .078546           |
| 8  | -.071547          | .071102           | .022247           | .054106           | -.052047          | .074945           |
| 9  | -.067250          | .105470           | .023369           | .070752           | -.078378          | .057148           |
| 10 | -.035870          | .084467           | .093076           | .045952           | -.053269          | -.006505          |
| 11 | -.033526          | .041003           | .148046           | .058971           | -.069715          | .060514           |
| 12 | -.048171          | .034089           | .171651           | -.025813          | -.042086          | -.003026          |
| 13 | -.038944          | .097094           | .185714           | -.068380          | -.011966          | -.074767          |
| 14 | .002799           | .067784           | .195567           | -.016425          | -.034280          | -.022510          |
| 15 | .042489           | .014469           | .180209           | .033147           | -.060230          | .020657           |
| 16 | .023957           | -.007272          | .155233           | .064869           | -.039062          | .073442           |
| 17 | -.042008          | .020942           | .110275           | .050292           | -.007620          | .056662           |
| 18 | -.092763          | .056730           | .036109           | -.045616          | -.044637          | .017873           |
| 19 | -.035065          | .029323           | .031006           | .065939           | -.068934          | .035207           |
| 20 | .007940           | .030471           | -.008709          | .038032           | -.057429          | .021362           |
| 21 | .046472           | .013410           | -.017363          | .014653           | -.066550          | .023021           |
| 22 | .079114           | .002196           | -.008305          | -.087296          | .027273           | -.028370          |
| 23 | .088651           | -.009397          | -.026575          | -.091908          | .019021           | -.028430          |
| 24 | .051283           | -.052747          | -.036245          | -.043463          | -.014038          | -.009642          |
| 25 | .127122           | -.082746          | -.053567          | -.079511          | -.024510          | -.043188          |
| 26 | .148303           | -.073426          | -.045277          | -.107318          | -.012536          | -.061935          |
| 27 | .078399           | -.054802          | -.067762          | -.102780          | -.035102          | -.048716          |
| 28 | .032917           | -.042539          | -.083519          | -.062835          | -.043998          | -.031540          |
| 29 | .011159           | .028077           | -.078431          | .020527           | -.064011          | -.002872          |
| 30 | -.043022          | .051223           | -.090325          | .079844           | -.033103          | .009302           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02  | 10E-02   |
| 0     | -.039971 | -.047574 | -.072865 | .012569  | .042888 | .011157  |
| 1     | .021979  | -.569305 | -.805737 | -.119940 | .405221 | -.058442 |
| 2     | .414680  | -.780964 | -.925955 | -.297552 | .426909 | -.137337 |
| 3     | .563282  | -.844541 | -.644984 | -.324031 | .405556 | -.176015 |
| 4     | .475431  | -.681190 | -.112527 | -.356430 | .338237 | -.222172 |
| 5     | .412919  | -.491315 | -.042991 | -.399092 | .256232 | -.234202 |
| 6     | .097975  | -.287318 | -.182001 | -.112094 | .141730 | -.114467 |
| 7     | .060981  | -.236724 | -.178682 | .040804  | .104497 | -.015938 |
| 8     | .221953  | -.159197 | -.094467 | -.077701 | .109055 | -.025026 |
| 9-11  | .124777  | -.134359 | -.069059 | -.069551 | .089449 | -.025970 |
| 12-14 | .147429  | -.042922 | -.121328 | -.070814 | .074510 | -.071904 |
| 15-21 | .134786  | -.053194 | -.069345 | -.088608 | .080439 | -.038119 |
| 22-30 | .063686  | -.105806 | -.010116 | -.128136 | .110112 | -.053032 |

RUN NO 88A 46M 6-18-63 0936-1052(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.19190<br>10E 00 | 0.14684<br>10E 00 | 0.95257<br>10E-01 | 0.13167<br>10E 00 | 0.85415<br>10E-01 | 0.65359<br>10E-01 |
| 1  | .061659           | -.062044          | .051482           | -.101376          | .179325           | -.037966          |
| 2  | .094603           | -.026002          | .087750           | -.014510          | .204384           | -.065064          |
| 3  | .116515           | .029943           | .067398           | -.020145          | .206351           | -.017659          |
| 4  | .110822           | .009323           | .095878           | -.038379          | .249910           | -.048133          |
| 5  | .072649           | -.104349          | .128515           | -.028181          | .243262           | -.102265          |
| 6  | .062143           | -.104541          | .123097           | -.003489          | .221042           | -.118720          |
| 7  | .107120           | -.116941          | .116287           | -.040917          | .208895           | -.124142          |
| 8  | .137770           | -.058272          | .099935           | .046044           | .195304           | -.119631          |
| 9  | .111736           | -.059434          | .072221           | .026289           | .100221           | -.088494          |
| 10 | .088486           | -.040227          | .049818           | .022256           | .032160           | -.046841          |
| 11 | .011574           | -.012752          | .026467           | -.014952          | .013914           | -.011508          |
| 12 | .033679           | -.026826          | .018431           | .035467           | .022778           | .006571           |
| 13 | .056164           | .015517           | -.013285          | .004371           | .020876           | .045710           |
| 14 | .024323           | -.028450          | -.043774          | .000383           | -.008657          | .029479           |
| 15 | -.025309          | -.005156          | -.055194          | -.000211          | -.051861          | .033576           |
| 16 | -.105895          | .042256           | -.078068          | -.042927          | -.096032          | .070728           |
| 17 | -.087431          | .033303           | -.075142          | -.043671          | -.092445          | .071284           |
| 18 | -.043366          | .062007           | -.094238          | .005521           | -.091039          | .072884           |
| 19 | -.088316          | .122686           | -.130877          | .010970           | -.089651          | .103402           |
| 20 | -.092312          | .115212           | -.132277          | -.025601          | -.086793          | .138512           |
| 21 | -.077044          | .067413           | -.108771          | -.040440          | -.074251          | .107050           |
| 22 | -.059485          | .031114           | -.076368          | -.053046          | -.081024          | .063743           |
| 23 | .020762           | .012888           | -.020211          | -.047445          | .011546           | .049575           |
| 24 | .009913           | .033626           | .000929           | .016817           | .016093           | .000835           |
| 25 | -.010719          | -.006243          | .037787           | .015003           | -.019153          | -.007886          |
| 26 | .001758           | -.034158          | .050168           | -.003052          | -.015721          | -.016621          |
| 27 | .034763           | -.084900          | .101065           | .025477           | .007606           | -.079662          |
| 28 | .025518           | -.075803          | .107636           | .026259           | -.024443          | -.095994          |
| 29 | -.014011          | -.056723          | .089476           | -.000571          | -.002365          | -.095290          |
| 30 | .049429           | -.084568          | .091844           | .035961           | .038073           | -.079117          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02  | 10E-02   |
| 1     | .074186  | -.287835 | .207256  | -.073211 | .570806 | -.114148 |
| 2     | .100662  | -.494171 | .490503  | -.012729 | .779818 | -.295021 |
| 3     | .077268  | -.333031 | .452527  | -.099005 | .772379 | -.259580 |
| 4     | .014048  | .030759  | .112951  | -.193861 | .429942 | -.039266 |
| 5     | .009020  | .050645  | .049127  | -.154742 | .247706 | .030427  |
| 6     | .020033  | .132308  | .016366  | -.092873 | .148217 | .069834  |
| 7     | .015489  | .222127  | -.020867 | -.026063 | .035740 | .059206  |
| 8     | .018120  | .079542  | .016120  | -.033945 | .028597 | -.016776 |
| 9-11  | .018067  | -.102331 | .030454  | -.044173 | .120034 | -.041610 |
| 12-14 | -.012895 | .216350  | .037291  | -.114874 | .027837 | -.040500 |
| 15-21 | .004050  | -.042769 | .007536  | -.117395 | .062407 | -.000491 |
| 22-30 | -.001514 | -.019485 | -.019204 | -.066500 | .000080 | .018189  |



RUN NO 88A 46M 6-18-63 0936-1052(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.21401<br>10E 00 | 0.17207<br>10E 00 | 0.10075<br>10E 00 | 0.42399<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .486289           | .307739           | .283911           | .707036           |
| 2  | .146587           | .085413           | .139693           | .515808           |
| 3  | .145022           | .052959           | .032892           | .375558           |
| 4  | .123013           | .029915           | .029943           | .233245           |
| 5  | .017345           | -.017144          | -.026786          | .080970           |
| 6  | -.055397          | .008756           | -.111828          | -.047363          |
| 7  | -.125112          | -.113323          | -.147499          | -.149477          |
| 8  | -.168981          | -.143716          | -.168680          | -.210350          |
| 9  | -.104602          | -.166964          | -.103434          | -.270264          |
| 10 | -.146528          | -.120093          | -.042302          | -.277998          |
| 11 | -.236783          | -.092321          | -.120440          | -.334580          |
| 12 | -.215511          | -.071940          | -.087737          | -.333278          |
| 13 | -.197129          | -.058209          | -.042686          | -.323876          |
| 14 | -.199901          | -.048658          | -.080667          | -.352513          |
| 15 | -.104968          | -.001033          | -.042955          | -.331991          |
| 16 | -.074885          | -.045600          | -.051798          | -.295103          |
| 17 | -.091580          | .004380           | -.106035          | -.226506          |
| 18 | -.077512          | -.087576          | -.055780          | -.158667          |
| 19 | -.010715          | -.052610          | -.104180          | -.121563          |
| 20 | .026549           | -.046448          | -.087690          | -.038043          |
| 21 | .028854           | -.150547          | -.037274          | .018343           |
| 22 | .027529           | .047601           | .059645           | .120056           |
| 23 | .021800           | .077843           | .018344           | .160714           |
| 24 | .043674           | -.032715          | -.000476          | .161575           |
| 25 | .151809           | -.023956          | .096561           | .180329           |
| 26 | .125682           | .027663           | .139601           | .170372           |
| 27 | .081591           | -.048515          | .102070           | .152756           |
| 28 | .060976           | -.056839          | .071386           | .144776           |
| 29 | .051562           | -.043314          | -.040475          | .111609           |
| 30 | .009290           | -.041904          | -.056260          | .118149           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-02  | 10E-02  |
| 0     | .018933 | .014506 | .040856 | .051119 |
| 1     | .210989 | .124448 | .635104 | .749890 |
| 2     | .280800 | .140839 | .845337 | .982049 |
| 3     | .276128 | .153344 | .878295 | .838246 |
| 4     | .163786 | .134774 | .794964 | .398708 |
| 5     | .106302 | .095980 | .708010 | .268085 |
| 6     | .096564 | .055170 | .474443 | .196279 |
| 7     | .094970 | .054961 | .364963 | .115552 |
| 8     | .078764 | .068859 | .335022 | .082191 |
| 9-11  | .067553 | .079316 | .332766 | .072966 |
| 12-14 | .096522 | .061991 | .423775 | .070574 |
| 15-21 | .066430 | .061628 | .291673 | .054340 |
| 22-30 | .031654 | .055088 | .406958 | .050621 |

RUN NO 88A 15M 6-18-63 0936-1052(EST)  
 RUN NO 88A 46M 6-18-63 0936-1052(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .340092 | .202846 | .310422 | .010654 |
| 1     | .197197 | .472027 | .355124 | .214356 |
| 2     | .130442 | .454738 | .314080 | .170320 |
| 3     | .054409 | .345155 | .268253 | .089776 |
| 4     | .067434 | .159993 | .265038 | .108906 |
| 5     | .025398 | .092211 | .249816 | .161763 |
| 6     | .127030 | .115211 | .193604 | .203324 |
| 7-8   | .091464 | .121835 | .156027 | .121397 |
| 9-11  | .085996 | .130273 | .136739 | .081865 |
| 12-15 | .134811 | .094476 | .060305 | .088094 |
| 16-20 | .137521 | .146812 | .080524 | .099411 |
| 21-27 | .115362 | .115446 | .133419 | .133576 |
| 28-36 | .112730 | .113388 | .082384 | .088842 |
| 37-47 | .077904 | .094401 | .061035 | .115394 |
| 48-60 | .108691 | .121034 | .078597 | .100074 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .157785 | .945798 | .072357 | .650300 |
| 1     | .319549 | .497906 | .154585 | .263813 |
| 2     | .317676 | .380501 | .185969 | .329379 |
| 3     | .356996 | .455927 | .345320 | .381741 |
| 4     | .355282 | .611654 | .500017 | .281810 |
| 5     | .481972 | .662994 | .422741 | .184162 |
| 6     | .427627 | .312970 | .265082 | .035737 |
| 7     | .220746 | .270476 | .256526 | .254322 |
| 8     | .174863 | .348557 | .402723 | .305968 |
| 9-11  | .205665 | .574639 | .411079 | .341100 |
| 12-14 | .296148 | .440850 | .301871 | .081232 |
| 15-21 | .331613 | .321402 | .338328 | .259319 |
| 22-30 | .231005 | .124456 | .301778 | .243197 |

RUN NO 89A 46M 6-18-63 1336-1437(EST)

GROSS STATISTICS

CLEAR WIND SPEED 6.75 M/SEC SIGMA A 8.80 DEG  
UNSTABLE WIND DIRECTION 222 DEG SIGMA E 7.3 DEG  
SOLAR RAD. 1.17 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 30: POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.14138E 01             | 0.11438E 01                    | 0.73126E 00                   | 0.82235E 00                        |
| V                | 0.94921E 00             | 0.90907E 00                    | 0.80081E 00                   | 0.52361E 00                        |
| W                | 0.55719E 00             | 0.50859E 00                    | 0.41600E-00                   | 0.25222E-00                        |
| T                | 0.11721E-00             | 0.35034E-01                    | 0.16796E-01                   | 0.27346E-01                        |
| E                | 0.14601E 01             | 0.12809E 01                    | 0.97405E 00                   |                                    |

|                         | WITH NO<br>RUNNING MEAN | WITH 30: POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.17615                 | 0.15844                        | 0.12669                       | 0.13435                            |
| V                       | 0.14434                 | 0.14125                        | 0.13257                       | 0.10720                            |
| W                       | 0.11059                 | 0.10565                        | 0.09555                       | 0.07440                            |

|                    | WITH NO<br>RUNNING MEAN | WITH 30: POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | -0.59398E-01            | -0.28605E-01                   | -0.14751E-01                  | -0.13199E-01                       |
| U,W                | -0.38761E-00            | -0.29872E-00                   | -0.16698E-00                  | -0.23144E-00                       |
| U,T                | -0.18847E-00            | -0.11123E-00                   | -0.46289E-01                  | -0.93964E-01                       |
| V,W                | -0.95399E-01            | -0.12869E-00                   | -0.12632E-00                  | -0.61616E-01                       |
| V,T                | 0.41650E-01             | 0.55718E-01                    | 0.41739E-01                   | 0.37514E-01                        |
| W,T                | 0.54786E-01             | 0.18430E-01                    | -0.18590E-02                  | 0.24574E-01                        |
| WE                 | 0.26429E-00             | 0.19075E-00                    | 0.57109E-01                   |                                    |

|                               | WITH NO<br>RUNNING MEAN | WITH 30: POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | -0.05127                | -0.02805                       | -0.01928                      | -0.02011                           |
| U,W                           | -0.43672                | -0.39166                       | -0.30275                      | -0.50818                           |
| U,T                           | -0.46300                | -0.55563                       | -0.41769                      | -0.62659                           |
| V,W                           | -0.13118                | -0.18927                       | -0.21885                      | -0.16955                           |
| V,T                           | 0.12487                 | 0.31221                        | 0.35990                       | 0.31350                            |
| W,T                           | 0.21438                 | 0.13807                        | -0.02224                      | 0.29590                            |

RUN NO 89A 46M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,M               | U,T               | V,M               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.76528<br>10E 00 | 0.55166<br>10E 00 | 0.11085<br>10E 00 | 0.57733<br>10E 00 | 0.11601<br>10E 00 | 0.83626<br>10E-01 |
| 0  | -.019390          | -.302775          | -.417376          | -.218781          | .359807           | -.022143          |
| 1  | -.009024          | -.272095          | -.385338          | -.190341          | .319488           | .010534           |
| 2  | -.002057          | -.224116          | -.333387          | -.143162          | .256287           | .053643           |
| 3  | -.001327          | -.182603          | -.289451          | -.092376          | .206741           | .081914           |
| 4  | -.002066          | -.147566          | -.247619          | -.053324          | .162962           | .094332           |
| 5  | -.002651          | -.115297          | -.204939          | -.019641          | .123951           | .095421           |
| 6  | -.006021          | -.092995          | -.161616          | .009063           | .088827           | .099140           |
| 7  | -.012443          | -.070239          | -.126602          | .031343           | .062332           | .097455           |
| 8  | -.019050          | -.048521          | -.100382          | .044620           | .041610           | .086493           |
| 9  | -.021266          | -.032309          | -.080850          | .057480           | .023338           | .083332           |
| 10 | -.022052          | -.018860          | -.056336          | .069361           | .005928           | .074541           |
| 11 | -.022955          | -.001154          | -.029045          | .073385           | -.003677          | .058099           |
| 12 | -.021010          | .028626           | -.004979          | .073692           | -.013308          | .041399           |
| 13 | -.020277          | .055055           | .016011           | .068921           | -.024623          | .025027           |
| 14 | -.021518          | .075286           | .040386           | .058184           | -.041180          | .011051           |
| 15 | -.020784          | .088006           | .061548           | .043685           | -.054151          | -.004129          |
| 16 | -.013262          | .096673           | .077322           | .028371           | -.062410          | -.019903          |
| 17 | -.011671          | .099486           | .096075           | .022526           | -.067190          | -.037518          |
| 18 | -.002485          | .099335           | .111416           | .023947           | -.077376          | -.053447          |
| 19 | .006338           | .101736           | .124696           | .030274           | -.089344          | -.060466          |
| 20 | .014186           | .102994           | .129498           | .041971           | -.103977          | -.050365          |
| 21 | .018676           | .098679           | .133514           | .048103           | -.116780          | -.053836          |
| 22 | .018553           | .085512           | .139104           | .052148           | -.128030          | -.049767          |
| 23 | .010162           | .077817           | .139166           | .051402           | -.137455          | -.049512          |
| 24 | .009852           | .075291           | .138505           | .045682           | -.146968          | -.043246          |
| 25 | .018332           | .069887           | .139232           | .046762           | -.152537          | -.034380          |
| 26 | .018878           | .068595           | .137680           | .053442           | -.151576          | -.036407          |
| 27 | .016582           | .066791           | .138082           | .058176           | -.141307          | -.041318          |
| 28 | .015129           | .063634           | .140514           | .051752           | -.123715          | -.042660          |
| 29 | .017689           | .050990           | .141386           | .033410           | -.107716          | -.043227          |
| 30 | .022379           | .031857           | .134813           | .020119           | -.091439          | -.040761          |
| 31 | .024322           | .015799           | .121509           | .001512           | -.071922          | -.035431          |
| 32 | .032033           | .003591           | .104856           | -.024898          | -.052730          | -.030950          |
| 33 | .037060           | -.007875          | .084583           | -.044330          | -.034694          | -.028579          |
| 34 | .036802           | -.015872          | .062705           | -.060336          | -.020536          | -.029326          |
| 35 | .036233           | -.020896          | .039375           | -.077465          | -.003101          | -.033390          |
| 36 | .035723           | -.026556          | .020660           | -.091964          | .011309           | -.041840          |
| 37 | .033128           | -.029223          | .004618           | -.096345          | .020634           | -.045078          |
| 38 | .028914           | -.032376          | -.008624          | -.093044          | .023155           | -.039373          |
| 39 | .017061           | -.025718          | -.020241          | -.079515          | .023405           | -.029250          |
| 40 | .007164           | -.013220          | -.030593          | -.063506          | .019238           | -.024248          |
| 41 | .000128           | -.002838          | -.040452          | -.050843          | .013361           | -.020153          |
| 42 | -.005171          | .001908           | -.044803          | -.046105          | .010542           | -.010102          |
| 43 | -.009300          | .002455           | -.041516          | -.043095          | .005162           | -.002429          |
| 44 | -.016319          | -.005273          | -.035865          | -.036097          | .005233           | -.000277          |
| 45 | -.020996          | -.010374          | -.031974          | -.033358          | .010976           | -.001087          |
| 46 | -.023709          | -.014444          | -.022486          | -.021200          | .011919           | -.001642          |
| 47 | -.022574          | -.012905          | -.014866          | -.008044          | .013343           | .011026           |
| 48 | -.020939          | -.003299          | -.006739          | .007274           | .015672           | .014839           |
| 49 | -.018837          | .001965           | .005699           | .009878           | .020503           | .006776           |
| 50 | -.014964          | .007288           | .022179           | .008762           | .028942           | .007972           |
| 51 | -.012314          | .008750           | .039865           | .009508           | .036043           | .012748           |
| 52 | -.009152          | .012825           | .053301           | .023175           | .037291           | .012911           |
| 53 | -.008942          | .019324           | .060709           | .032445           | .033056           | .006688           |
| 54 | -.010279          | .025666           | .058350           | .023234           | .026956           | -.006834          |
| 55 | -.004832          | .035255           | .051474           | .013198           | .018903           | -.013044          |
| 56 | -.001157          | .048009           | .045281           | .003366           | .016491           | -.014149          |
| 57 | -.000556          | .066209           | .039820           | -.008588          | .022067           | -.018007          |
| 58 | -.001276          | .079472           | .033732           | -.013327          | .018844           | -.024320          |
| 59 | -.001670          | .081610           | .026878           | -.005159          | .013530           | -.018669          |
| 60 | -.005832          | .074873           | .022281           | .001248           | .007011           | -.014699          |

RUN NO 89A 46M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.76528<br>10E 00 | 0.55166<br>10E 00 | 0.11085<br>10E 00 | 0.57733<br>10E 00 | 0.11601<br>10E 00 | 0.83626<br>10E-01 |
| 1  | .028379           | -.037547          | -.018809          | -.004048          | .042425           | -.022244          |
| 2  | .054058           | -.066803          | -.018272          | .005971           | .067094           | -.033735          |
| 3  | .077145           | -.091672          | -.011919          | .017917           | .081714           | -.046809          |
| 4  | .097306           | -.112429          | -.005862          | .034941           | .094517           | -.062583          |
| 5  | .111028           | -.127853          | -.004683          | .043454           | .103934           | -.075309          |
| 6  | .118805           | -.128324          | -.007987          | .043881           | .111231           | -.081207          |
| 7  | .119650           | -.117837          | -.015019          | .043885           | .118370           | -.079362          |
| 8  | .118602           | -.106029          | -.022398          | .048994           | .119505           | -.074943          |
| 9  | .118380           | -.091007          | -.027658          | .057844           | .121647           | -.064395          |
| 10 | .111551           | -.086090          | -.034222          | .059207           | .120422           | -.056255          |
| 11 | .100544           | -.084645          | -.039864          | .058682           | .118568           | -.047718          |
| 12 | .089430           | -.082417          | -.042394          | .060881           | .112526           | -.036319          |
| 13 | .081935           | -.077471          | -.042960          | .068657           | .110175           | -.037244          |
| 14 | .073496           | -.076175          | -.043763          | .070528           | .107650           | -.042738          |
| 15 | .064398           | -.069287          | -.043687          | .070170           | .097887           | -.045537          |
| 16 | .059701           | -.061672          | -.039245          | .070454           | .085022           | -.035876          |
| 17 | .055026           | -.053987          | -.032183          | .065750           | .072984           | -.026077          |
| 18 | .045838           | -.044940          | -.026345          | .052216           | .070508           | -.020174          |
| 19 | .039348           | -.042449          | -.024796          | .041286           | .069920           | -.024471          |
| 20 | .030241           | -.037707          | -.021708          | .028648           | .060112           | -.033456          |
| 21 | .016670           | -.034618          | -.018282          | .008566           | .046785           | -.032269          |
| 22 | .007793           | -.039164          | -.013645          | -.005101          | .034777           | -.021077          |
| 23 | .003669           | -.043432          | -.010646          | -.014385          | .020516           | -.009730          |
| 24 | .003381           | -.039818          | -.015475          | -.017677          | .008352           | .001007           |
| 25 | .001166           | -.031088          | -.022261          | -.024266          | -.003519          | .011926           |
| 26 | -.006951          | -.020721          | -.028795          | -.034625          | -.015579          | .025269           |
| 27 | -.022349          | -.015625          | -.029417          | -.036036          | -.032377          | .031227           |
| 28 | -.035517          | -.005619          | -.028693          | -.031089          | -.047323          | .031434           |
| 29 | -.041807          | .008097           | -.028556          | -.030420          | -.059134          | .034874           |
| 30 | -.045370          | .021253           | -.026185          | -.036192          | -.066880          | .046133           |
| 31 | -.048960          | .031604           | -.029087          | -.040484          | -.071317          | .059400           |
| 32 | -.052642          | .038409           | -.023129          | -.044452          | -.077311          | .064251           |
| 33 | -.052747          | .046067           | -.009086          | -.038693          | -.086212          | .073000           |
| 34 | -.051943          | .056196           | .004115           | -.027997          | -.097511          | .073265           |
| 35 | -.044245          | .065632           | .013443           | -.017762          | -.097003          | .061976           |
| 36 | -.037541          | .073410           | .014695           | -.012803          | -.091662          | .059315           |
| 37 | -.037351          | .078989           | .017326           | -.021759          | -.086558          | .059289           |
| 38 | -.046031          | .076209           | .016120           | -.033300          | -.082317          | .058080           |
| 39 | -.051113          | .065755           | .019694           | -.036330          | -.079575          | .056232           |
| 40 | -.046008          | .053543           | .019867           | -.033949          | -.074867          | .054346           |
| 41 | -.041526          | .044291           | .017578           | -.030965          | -.071845          | .048817           |
| 42 | -.039263          | .037340           | .019029           | -.033249          | -.065885          | .039920           |
| 43 | -.035239          | .034468           | .014723           | -.041305          | -.050420          | .025817           |
| 44 | -.029962          | .034833           | .012550           | -.039307          | -.039120          | .013499           |
| 45 | -.025238          | .029358           | .011125           | -.035322          | -.024769          | .000050           |
| 46 | -.024964          | .021824           | .004038           | -.030878          | -.014781          | -.013317          |
| 47 | -.026981          | .016620           | .000522           | -.020946          | -.011311          | -.027959          |
| 48 | -.029760          | .011074           | -.006720          | -.008519          | -.013055          | -.033724          |
| 49 | -.038925          | .004840           | -.015940          | -.002645          | -.010943          | -.034839          |
| 50 | -.042129          | .004466           | -.023284          | .005026           | -.004233          | -.040997          |
| 51 | -.041245          | .009801           | -.022851          | .018860           | .000628           | -.051169          |
| 52 | -.039365          | .008761           | -.018800          | .032514           | .005555           | -.060548          |
| 53 | -.027657          | .004796           | -.019500          | .039422           | .009908           | -.063163          |
| 54 | -.011166          | -.000022          | -.017365          | .033516           | .019083           | -.052746          |
| 55 | .008791           | .002101           | -.010033          | .034339           | .029608           | -.044191          |
| 56 | .025759           | .001585           | -.003445          | .031543           | .035026           | -.037155          |
| 57 | .035416           | -.001117          | .000672           | .025672           | .035462           | -.031444          |
| 58 | .041582           | -.006201          | .004557           | .020881           | .036622           | -.034299          |
| 59 | .044460           | -.015982          | .003007           | .018255           | .033084           | -.037444          |
| 60 | .046663           | -.024939          | -.000152          | .022719           | .033099           | -.044008          |

RUN NO 89A 46M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.73125<br>10E 00 | 0.80089<br>10E 00 | 0.41618<br>10E 00 | 0.16804<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .866221           | .826247           | .750466           | .848564           |
| 2  | .694719           | .614677           | .465656           | .686191           |
| 3  | .558575           | .459156           | .278482           | .560439           |
| 4  | .442421           | .337981           | .165259           | .455196           |
| 5  | .347129           | .231067           | .103604           | .360799           |
| 6  | .271865           | .146482           | .070645           | .269730           |
| 7  | .212594           | .080187           | .037196           | .193434           |
| 8  | .150791           | .026273           | -.003939          | .141158           |
| 9  | .086132           | -.035568          | -.047906          | .101887           |
| 10 | .027721           | -.086344          | -.079000          | .059021           |
| 11 | -.026519          | -.120186          | -.093353          | .021231           |
| 12 | -.080572          | -.145397          | -.111643          | -.011569          |
| 13 | -.133449          | -.167163          | -.129479          | -.040516          |
| 14 | -.175141          | .177705           | -.139419          | -.073802          |
| 15 | -.207089          | -.183224          | -.150003          | -.105347          |
| 16 | -.232706          | -.190505          | -.150962          | -.136379          |
| 17 | -.252697          | -.194836          | -.141253          | -.160259          |
| 18 | -.266651          | -.202920          | -.136935          | -.185880          |
| 19 | -.276659          | -.206410          | -.146988          | -.216660          |
| 20 | -.280261          | -.205821          | -.161808          | -.242713          |
| 21 | -.281357          | -.210972          | -.171927          | -.266611          |
| 22 | -.288220          | -.215373          | -.166038          | -.283876          |
| 23 | -.290554          | -.219666          | -.158312          | -.299953          |
| 24 | -.288687          | -.220103          | -.154352          | -.308315          |
| 25 | -.284396          | -.208407          | -.161696          | -.310478          |
| 26 | -.273408          | -.200422          | -.166429          | -.309105          |
| 27 | -.256124          | -.196892          | -.163195          | -.306661          |
| 28 | -.241015          | -.187052          | -.160247          | -.291840          |
| 29 | -.215960          | -.173131          | -.143300          | -.265682          |
| 30 | -.178987          | -.158490          | -.104166          | -.234287          |
| 31 | -.139823          | -.135563          | -.057926          | -.195843          |
| 32 | -.112235          | -.111888          | -.025480          | -.161600          |
| 33 | -.081164          | -.089998          | -.003612          | -.132956          |
| 34 | -.048771          | -.067298          | .008551           | -.098569          |
| 35 | -.026641          | -.036003          | .023127           | -.060912          |
| 36 | -.011837          | .001495           | .055256           | -.030418          |
| 37 | .008441           | .030955           | .078559           | -.011251          |
| 38 | .031057           | .050012           | .087935           | -.002776          |
| 39 | .050737           | .066061           | .085879           | -.003780          |
| 40 | .065602           | .071862           | .081482           | -.006879          |
| 41 | .073697           | .060594           | .066641           | -.009684          |
| 42 | .076556           | .054866           | .051721           | -.015164          |
| 43 | .074758           | .045260           | .030440           | -.020594          |
| 44 | .075657           | .038604           | .034668           | -.022016          |
| 45 | .075148           | .041361           | .051152           | -.017657          |
| 46 | .069895           | .039642           | .060207           | -.010181          |
| 47 | .058361           | .040258           | .064190           | -.011435          |
| 48 | .042369           | .044008           | .053666           | -.010970          |
| 49 | .024159           | .043460           | .038934           | -.008983          |
| 50 | .008791           | .038586           | .019579           | -.014363          |
| 51 | -.002724          | .038812           | -.000215          | -.023157          |
| 52 | -.014638          | .038757           | -.009638          | -.030838          |
| 53 | -.030280          | .045650           | -.013015          | -.030905          |
| 54 | -.039463          | .058291           | -.014250          | -.022851          |
| 55 | -.044528          | .070666           | -.020596          | -.018675          |
| 56 | -.049662          | .082067           | -.026134          | -.015429          |
| 57 | -.051697          | .087886           | -.037448          | -.007025          |
| 58 | -.048391          | .081963           | -.036119          | .006096           |
| 59 | -.049259          | .078803           | -.025437          | .011476           |
| 60 | -.045389          | .069171           | -.026145          | .013692           |

KUN NO 89A 46M 6-18-63 1336-1437(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-02   | 10E-01   | 10E-01   | 10E-01   | 10E-02  | 10E-02   |
| 0     | -.026555 | -.031417 | -.012520 | .003294  | .036392 | .040085  |
| 1     | -.688058 | -.234683 | -.097301 | .010033  | .592407 | .299806  |
| 2     | -.708884 | -.300969 | -.109081 | -.096560 | .842282 | .231196  |
| 3     | .000245  | -.356344 | -.098347 | -.220733 | .821470 | .176168  |
| 4     | .530282  | -.237941 | -.044965 | -.158016 | .385588 | .022028  |
| 5     | .247391  | -.104837 | -.021992 | -.096879 | .161785 | -.067102 |
| 6     | .213273  | -.063886 | -.022694 | -.156490 | .237486 | -.124540 |
| 7-8   | -.023769 | -.040335 | -.011825 | -.113333 | .221244 | -.093291 |
| 9-11  | -.093084 | -.043597 | -.010199 | -.034714 | .098604 | -.036066 |
| 12-15 | -.091377 | -.026264 | -.004038 | -.028396 | .058042 | -.036431 |
| 16-20 | -.023448 | -.009247 | -.001503 | -.010946 | .034134 | -.026670 |
| 21-27 | -.033720 | -.008476 | -.001900 | -.006243 | .020613 | -.014545 |
| 28-36 | -.035799 | -.004126 | -.000969 | -.002863 | .014183 | -.007202 |
| 37-47 | -.017601 | -.002149 | -.000490 | -.001501 | .006775 | -.004344 |
| 48-60 | -.011057 | -.001091 | -.000164 | -.001677 | .002224 | -.002016 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-01   | 10E-02  | 10E-02   |
| 1     | .169785  | -.166490 | -.229742 | .065579  | .283066 | -.045845 |
| 2     | .306316  | -.234678 | -.171560 | .143956  | .588694 | -.205655 |
| 3     | .319353  | -.201588 | -.078517 | .150864  | .582441 | -.245062 |
| 4     | .183917  | -.092014 | -.007568 | .056355  | .210234 | -.083428 |
| 5     | .101131  | -.087916 | -.020559 | -.012520 | .080011 | -.053599 |
| 6     | .078284  | -.095877 | .019987  | -.037316 | .100565 | -.086057 |
| 7-8   | .041882  | -.040751 | .042750  | .002142  | .057435 | -.053513 |
| 9-11  | .008823  | -.027390 | -.018172 | .005720  | .023775 | -.003523 |
| 12-15 | -.000945 | .001631  | -.017750 | -.007405 | .019469 | .010382  |
| 16-20 | -.001178 | .003733  | -.017160 | -.007139 | .014571 | -.004190 |
| 21-27 | -.000409 | -.003445 | -.007704 | -.004283 | .006289 | -.002574 |
| 28-36 | .000303  | -.000983 | -.003720 | -.000036 | .003267 | -.002290 |
| 37-47 | .000898  | .000150  | -.001987 | -.000974 | .002081 | -.000943 |
| 48-60 | -.000249 | -.000238 | -.000805 | -.000852 | .000123 | -.000587 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E-01  | 10E-02  |
| 0     | .010450 | .004005 | .020213 | .030969 |
| 1     | .101270 | .073538 | .256208 | .284517 |
| 2     | .134219 | .113906 | .421016 | .324249 |
| 3     | .141231 | .127114 | .522179 | .291619 |
| 4     | .081929 | .084979 | .356193 | .148606 |
| 5     | .043252 | .059725 | .241576 | .075770 |
| 6     | .036012 | .055903 | .256730 | .086785 |
| 7-8   | .024199 | .036769 | .198983 | .072710 |
| 9-11  | .016990 | .021692 | .139695 | .040550 |
| 12-15 | .011989 | .014999 | .115619 | .022073 |
| 16-20 | .006664 | .009503 | .083195 | .013449 |
| 21-27 | .003730 | .005678 | .046026 | .010946 |
| 28-36 | .002882 | .004324 | .029365 | .006674 |
| 37-47 | .001618 | .002366 | .018761 | .005084 |
| 48-60 | .001013 | .001525 | .012206 | .003535 |

RUN NO 89A 46M 6-18-63 1336-1437(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.65565<br>10E 00 | 0.45505<br>10E 00 | 0.14984<br>10E 00 | 0.36347<br>10E 00 | 0.11969<br>10E 00 | 0.83069<br>10E-01 |
| 0  | -.020131          | -.508599          | -.627073          | -.169520          | .313429           | .295828           |
| 1  | -.037727          | -.315953          | -.471618          | .039057           | .144921           | .286559           |
| 2  | -.003547          | -.163857          | -.272434          | .027141           | .016888           | .138067           |
| 3  | .031962           | -.118827          | -.127388          | -.027900          | -.042757          | .097636           |
| 4  | .026926           | -.024876          | -.080882          | -.113646          | -.001817          | .021678           |
| 5  | .005783           | .013574           | .013275           | .001692           | -.009622          | .012216           |
| 6  | -.027438          | .108080           | .039767           | .021631           | .018268           | -.013094          |
| 7  | -.016519          | .055569           | .042910           | .062010           | .031067           | -.010712          |
| 8  | -.085778          | .074680           | .019407           | .073195           | .031333           | -.015949          |
| 9  | -.064229          | .099517           | .064666           | .064023           | -.029673          | .010669           |
| 10 | -.037940          | .148264           | .048506           | -.029034          | -.014756          | -.072553          |
| 11 | -.034063          | .141773           | .059046           | -.036038          | -.043840          | -.055760          |
| 12 | .014405           | .123856           | .098116           | .002979           | -.087880          | -.053673          |
| 13 | .087859           | .063979           | .128063           | .101727           | -.121469          | .010368           |
| 14 | .086690           | .016155           | .150525           | .101758           | -.106880          | -.043129          |
| 15 | .016433           | .009322           | .122489           | .046008           | -.077868          | -.044963          |
| 16 | -.029253          | -.005025          | .101500           | -.031884          | -.043220          | -.079550          |
| 17 | -.002890          | .010345           | .083868           | -.006788          | -.018275          | -.115249          |
| 18 | -.017098          | .030844           | .08048            | -.031270          | .029280           | -.147532          |
| 19 | .022058           | -.000827          | .096356           | .014932           | .041317           | -.136680          |
| 20 | .059334           | .014734           | .131306           | -.026207          | .014917           | -.103566          |
| 21 | .061912           | .048372           | .159127           | -.154203          | -.007998          | -.139475          |
| 22 | -.000944          | .089226           | .158725           | -.110932          | .021123           | -.141853          |
| 23 | .004416           | .113931           | .119856           | .011317           | .012715           | -.117902          |
| 24 | .057584           | .049006           | .097519           | -.013960          | -.033491          | -.066607          |
| 25 | -.018938          | .055529           | -.004171          | .005396           | .024231           | -.008102          |
| 26 | -.030897          | .022616           | -.064893          | -.019880          | .048489           | .019156           |
| 27 | -.050569          | .019938           | -.121462          | .053868           | .015841           | .045996           |
| 28 | -.010722          | .000465           | -.125032          | -.016078          | .049910           | .069468           |
| 29 | .029883           | -.048764          | -.165650          | -.017111          | .042993           | .121660           |
| 30 | .029133           | -.126750          | -.171671          | -.007998          | .009954           | .172298           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02  | 10E-02   |
| 0     | -.014964 | -.024533 | -.024617 | .058573  | .018165 | .064498  |
| 1     | -.087536 | -.275780 | -.187173 | .073272  | .309928 | .648853  |
| 2     | -.030429 | -.320626 | -.162620 | -.477199 | .424956 | .516552  |
| 3     | .054980  | -.366795 | -.119483 | -.691067 | .341928 | .294035  |
| 4     | .076935  | -.304568 | -.093755 | -.101116 | .057210 | .301117  |
| 5     | .026733  | -.155752 | -.077811 | -.050997 | .047542 | .277731  |
| 6     | -.084155 | -.102418 | -.072277 | -.191353 | .294430 | .153750  |
| 7     | -.153659 | -.124900 | -.067842 | .284151  | .382130 | .145925  |
| 8     | -.062032 | -.121511 | -.036089 | .651454  | .266707 | .165749  |
| 9-11  | -.010585 | -.044975 | -.025559 | -.073261 | .232966 | .063866  |
| 12-14 | .003422  | -.057458 | -.016528 | -.380475 | .137614 | .054015  |
| 15-21 | .012055  | -.046579 | -.009454 | -.514826 | .090318 | .014360  |
| 22-30 | .012270  | -.032033 | -.004960 | -.406532 | .071936 | -.045881 |



RUN NO 89A 46M 6-18-63 1336-1437(EST.  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.65565<br>10E 00 | 0.45505<br>10E 00 | 0.14984<br>10E 00 | 0.36347<br>10E 00 | 0.11969<br>10E 00 | 0.83069<br>10E-01 |
| 1  | .107668           | -.159011          | -.066243          | .098403           | .085324           | -.053602          |
| 2  | .031095           | -.121291          | -.109435          | .021301           | .077773           | -.021767          |
| 3  | -.002681          | -.092808          | -.118216          | -.023817          | .005330           | .003942           |
| 4  | -.040414          | -.029355          | -.111188          | -.012389          | -.005529          | .000572           |
| 5  | .011201           | -.065426          | -.099780          | .033706           | .064515           | -.060153          |
| 6  | .079102           | -.087851          | -.031964          | .052702           | .103819           | -.065638          |
| 7  | .070770           | -.091193          | -.049817          | .031057           | .113868           | -.033948          |
| 8  | .019916           | -.036103          | -.029780          | .005387           | .071208           | -.035485          |
| 9  | .008301           | -.007820          | -.041150          | .061155           | .089933           | -.064408          |
| 10 | -.007583          | -.021322          | -.062343          | .041631           | .002426           | -.049784          |
| 11 | .031660           | -.062346          | -.035681          | .000554           | .038757           | -.082608          |
| 12 | .092740           | -.049125          | -.018463          | .058354           | .067779           | -.070391          |
| 13 | .130854           | -.013423          | .045128           | .089325           | .130268           | -.110299          |
| 14 | .088678           | .035974           | .082655           | .061350           | .105281           | -.082059          |
| 15 | .087793           | .023189           | .065317           | .006566           | .017518           | -.009010          |
| 16 | .072394           | .016985           | .039730           | .037225           | -.010135          | .030831           |
| 17 | -.012485          | -.030712          | .023679           | -.028306          | -.026028          | .001469           |
| 18 | -.095057          | .011363           | .020877           | -.067646          | -.040585          | .017423           |
| 19 | -.069243          | .053029           | .022988           | -.034277          | -.069545          | .058395           |
| 20 | -.076992          | .053979           | .011901           | -.041420          | -.057637          | .067917           |
| 21 | -.061579          | -.003732          | -.002015          | -.018960          | -.073880          | .026913           |
| 22 | -.068886          | -.045468          | -.016936          | -.036936          | -.083177          | .026514           |
| 23 | -.063907          | -.058750          | -.004219          | -.010781          | -.078711          | .023552           |
| 24 | -.069504          | -.008990          | .023402           | -.134138          | -.095866          | .046094           |
| 25 | -.078400          | .040722           | .035253           | -.096032          | -.085478          | .027459           |
| 26 | .013168           | .045440           | .026128           | .029322           | -.031457          | -.004620          |
| 27 | .019479           | .050501           | .021772           | .071958           | -.014642          | -.021448          |
| 28 | -.049912          | .071737           | -.021459          | .005034           | .017360           | .027927           |
| 29 | -.093744          | .067908           | -.071418          | -.048159          | -.023108          | .054390           |
| 30 | .010323           | .030232           | -.031876          | -.049898          | -.019194          | .036330           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .201137  | -.140994 | -.327318 | .824076  | .513938  | -.304336 |
| 2     | .150335  | -.143917 | -.520696 | .711833  | .479935  | -.231281 |
| 3     | -.032612 | -.135284 | -.617964 | .037609  | .149610  | -.032920 |
| 4     | -.058146 | -.083195 | -.375528 | -.248167 | -.033798 | .089460  |
| 5     | .086575  | -.061552 | -.149170 | .119191  | .075104  | -.008264 |
| 6     | .054183  | -.072510 | -.198531 | .198867  | .037849  | -.060498 |
| 7     | -.064612 | -.057379 | -.266756 | -.040369 | -.081009 | -.000229 |
| 8     | -.046034 | -.054910 | -.154445 | -.105827 | -.075389 | .044557  |
| 9-11  | .110361  | -.070453 | .025954  | .328879  | .214915  | -.033294 |
| 12-14 | .085210  | -.063760 | -.056677 | .459226  | .113777  | -.070482 |
| 15-21 | .030509  | -.017423 | .000781  | .261856  | .019428  | -.016221 |
| 22-30 | .033915  | -.026473 | .008538  | .087780  | .013561  | -.024460 |

RUN NC 89A 464 6-18-63 1336-1437(EST)  
 301 PCINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.82084<br>10E 00 | 0.52371<br>10E 00 | 0.25227<br>10E 00 | 0.27354<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .559121           | .176107           | .327611           | .708546           |
| 2  | .227867           | -.096189          | .121434           | .420545           |
| 3  | .097158           | -.153173          | .030734           | .212752           |
| 4  | .055484           | -.052291          | .075265           | .124156           |
| 5  | -.057838          | -.041372          | .002139           | .041376           |
| 6  | -.141206          | .046968           | -.071432          | .019245           |
| 7  | -.126020          | -.008966          | -.081629          | -.007864          |
| 8  | -.123677          | -.041037          | -.133751          | -.049018          |
| 9  | -.146488          | -.066372          | -.224622          | -.132164          |
| 10 | -.096314          | -.021612          | -.157640          | -.179666          |
| 11 | -.107049          | -.007518          | -.136770          | -.223698          |
| 12 | -.200659          | -.057524          | -.008593          | -.235836          |
| 13 | -.203209          | -.099331          | -.138037          | -.280569          |
| 14 | -.094604          | -.050799          | -.107622          | -.287330          |
| 15 | -.037360          | -.024343          | -.056082          | -.255728          |
| 16 | -.013884          | -.096841          | .072125           | -.206556          |
| 17 | .010749           | -.082444          | -.030156          | -.160047          |
| 18 | -.011710          | .000430           | -.070036          | -.118258          |
| 19 | .012528           | -.050450          | -.024819          | -.087792          |
| 20 | -.019011          | .015177           | -.012656          | -.113700          |
| 21 | -.089989          | .102896           | .047781           | -.121252          |
| 22 | -.164462          | .004014           | .040884           | -.103493          |
| 23 | -.139093          | -.109356          | -.100875          | -.063611          |
| 24 | -.080720          | -.023408          | -.107325          | -.022411          |
| 25 | -.028102          | .051285           | -.140321          | .085963           |
| 26 | .013086           | .104408           | -.041674          | .156176           |
| 27 | .055176           | .031079           | -.058414          | .185683           |
| 28 | .076147           | .022403           | -.049022          | .212814           |
| 29 | .131332           | -.023336          | -.005738          | .257083           |
| 30 | .146872           | .048973           | -.017041          | .234239           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .010127 | .010167 | .016823 | .060748 |
| 1     | .085740 | .174375 | .182231 | .512538 |
| 2     | .094029 | .229339 | .222340 | .519650 |
| 3     | .102959 | .218122 | .259922 | .396770 |
| 4     | .085792 | .170142 | .207743 | .213501 |
| 5     | .055199 | .206562 | .126398 | .152444 |
| 6     | .052392 | .261498 | .091105 | .167249 |
| 7     | .054955 | .264197 | .077561 | .176725 |
| 8     | .034842 | .284193 | .092716 | .127220 |
| 9-11  | .024883 | .328292 | .117146 | .092583 |
| 12-14 | .027444 | .251336 | .080589 | .045653 |
| 15-21 | .018229 | .210042 | .081205 | .031923 |
| 22-30 | .012495 | .202258 | .087256 | .023652 |

RUN NO 89A 91M 6-18-63 1336-1437(EST)

GROSS STATISTICS

CLEAR  
UNSTABLE

WIND SPEED 7.55 M/SEC  
WIND DIRECTION 233 DEG  
SOLAR RAD. 1.17 LY/MIN

SIGMA A 6.6 DEG  
SIGMA E 6.0 DEG

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b>              |                         |                                |                               |                                    |
| U                             | 0.12273E 01             | 0.80555E 00                    | 0.58084E 00                   | 0.56132E 00                        |
| V                             | 0.70148E 00             | 0.63301E 00                    | 0.53068E 00                   | 0.35020E-00                        |
| W                             | 0.51501E 00             | 0.48111E-00                    | 0.41854E-00                   | 0.23931E-00                        |
| T                             | 0.11664E-00             | 0.25322E-01                    | 0.13576E-01                   | 0.18540E-01                        |
| E                             | 0.12219E 01             | 0.95999E 00                    | 0.76504E 00                   |                                    |
| <b>GUSTINESS RATIOS</b>       |                         |                                |                               |                                    |
| U                             | 0.14673                 | 0.11888                        | 0.10094                       | 0.09923                            |
| V                             | 0.11093                 | 0.10538                        | 0.09649                       | 0.07838                            |
| W                             | 0.09505                 | 0.09187                        | 0.08569                       | 0.06479                            |
| <b>COVARIANCES</b>            |                         |                                |                               |                                    |
| U,V                           | -0.26775E-01            | 0.36342E-01                    | 0.74042E-01                   | 0.26080E-01                        |
| U,W                           | -0.36202E-00            | -0.25495E-00                   | -0.17463E-00                  | -0.18818E-00                       |
| U,T                           | -0.17802E-00            | -0.37933E-01                   | -0.62317E-02                  | -0.33760E-01                       |
| V,W                           | -0.45536E-01            | -0.59834E-01                   | -0.83079E-01                  | -0.23796E-01                       |
| V,T                           | 0.26033E-01             | 0.33939E-01                    | 0.18008E-01                   | 0.26198E-01                        |
| W,T                           | 0.23433E-01             | -0.10342E-01                   | -0.20291E-01                  | 0.26238E-02                        |
| WE                            | 0.26573E-00             | 0.17086E-00                    | 0.92356E-01                   |                                    |
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | -0.02886                | 0.04809                        | 0.13336                       | 0.05882                            |
| U,W                           | -0.45535                | -0.40953                       | -0.35418                      | -0.51343                           |
| U,T                           | -0.47052                | -0.26559                       | -0.07018                      | -0.33094                           |
| V,W                           | -0.07576                | -0.10842                       | -0.17628                      | -0.08220                           |
| V,T                           | 0.09101                 | 0.26806                        | 0.21216                       | 0.32514                            |
| W,T                           | 0.09561                 | -0.09369                       | -0.26918                      | 0.03939                            |

RUN NC 89A 91M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.55527<br>10E 00 | 0.49312<br>10E 00 | 0.88830<br>10E-01 | 0.47129<br>10E 00 | 0.84898<br>10E-01 | 0.75395<br>10E-01 |
| 0  | .133401           | -.354109          | -.070054          | -.176099          | .212198           | -.269003          |
| 1  | .138087           | -.325488          | -.049485          | -.160723          | .196694           | -.228054          |
| 2  | .131859           | -.272439          | -.024968          | -.135848          | .169760           | -.158715          |
| 3  | .116195           | -.216325          | -.013695          | -.096410          | .135194           | -.092620          |
| 4  | .097666           | -.163935          | -.014436          | -.059271          | .093942           | -.032062          |
| 5  | .078244           | -.115300          | -.021436          | -.031038          | .060813           | .013226           |
| 6  | .056179           | -.071795          | -.031678          | -.011749          | .034362           | .047186           |
| 7  | .031431           | -.028986          | -.038477          | .007725           | .007868           | .066864           |
| 8  | .011348           | .008995           | -.038657          | .025710           | -.011112          | .072705           |
| 9  | -.003808          | .032610           | -.036469          | .039285           | -.029046          | .073382           |
| 10 | -.015060          | .047818           | -.026836          | .051220           | -.041979          | .069989           |
| 11 | -.024564          | .062215           | -.016541          | .054194           | -.048624          | .066847           |
| 12 | -.037489          | .078376           | -.009730          | .046177           | -.045151          | .055829           |
| 13 | -.045391          | .087119           | -.005746          | .038795           | -.035956          | .040663           |
| 14 | -.050837          | .094604           | -.006613          | .035479           | -.032728          | .031635           |
| 15 | -.050658          | .100282           | -.007929          | .028463           | -.038918          | .032296           |
| 16 | -.054570          | .100336           | -.007459          | .026813           | -.033738          | .037175           |
| 17 | -.059160          | .104439           | -.011834          | .027547           | -.041647          | .041005           |
| 18 | -.060251          | .101093           | -.016190          | .030099           | -.034213          | .041210           |
| 19 | -.063822          | .099115           | -.014363          | .037356           | -.031134          | .043706           |
| 20 | -.067805          | .098582           | -.010116          | .042741           | -.030903          | .044530           |
| 21 | -.072386          | .095738           | -.004929          | .043397           | -.030993          | .042730           |
| 22 | -.069753          | .088588           | .005319           | .048522           | -.036617          | .034496           |
| 23 | -.061962          | .082883           | .019594           | .058477           | -.046278          | .025365           |
| 24 | -.053350          | .076551           | .032960           | .064251           | -.053164          | .013056           |
| 25 | -.044509          | .063183           | .040340           | .062798           | -.058167          | .004316           |
| 26 | -.038917          | .047045           | .044729           | .062158           | -.060234          | -.000434          |
| 27 | -.035280          | .033115           | .042068           | .055875           | -.061843          | -.000224          |
| 28 | -.035320          | .027404           | .035484           | .042043           | -.054605          | .031179           |
| 29 | -.030170          | .036996           | .026981           | .022908           | -.040422          | .000968           |
| 30 | -.019873          | .028959           | .018798           | .006699           | -.029123          | -.002265          |
| 31 | -.013526          | .014685           | .014160           | -.005772          | -.024762          | -.009896          |
| 32 | -.013007          | .003685           | .013538           | -.014759          | -.020550          | -.017361          |
| 33 | -.011539          | -.001874          | .007482           | -.025032          | -.014014          | -.029672          |
| 34 | -.003512          | -.005035          | .001350           | -.036668          | -.008160          | -.045367          |
| 35 | .006201           | -.007067          | .004526           | -.041089          | -.004834          | -.056615          |
| 36 | .007700           | -.019482          | .013895           | -.039339          | -.000036          | -.058683          |
| 37 | .011192           | -.032251          | .027003           | -.040650          | .006805           | -.057961          |
| 38 | .015959           | -.038500          | .036543           | -.043159          | .010772           | -.051935          |
| 39 | .020709           | -.037548          | .035203           | -.040672          | .018379           | -.043020          |
| 40 | .025899           | -.030580          | .026289           | -.032787          | .028663           | -.030382          |
| 41 | .028744           | -.023553          | .020980           | -.019118          | .036120           | -.017688          |
| 42 | .023343           | -.015121          | .020249           | -.007094          | .039952           | -.009851          |
| 43 | .019195           | -.006581          | .018467           | .003113           | .037719           | .001689           |
| 44 | .019785           | .002921           | .018904           | .007430           | .027291           | .006766           |
| 45 | .019536           | .011822           | .013335           | .007760           | .014957           | .007493           |
| 46 | .013308           | .017040           | .004530           | .002428           | .012934           | .004422           |
| 47 | .006218           | .020364           | -.000492          | -.006388          | .015566           | .004614           |
| 48 | .001014           | .027414           | -.001502          | -.017879          | .019935           | .005449           |
| 49 | .005321           | .029658           | -.007600          | -.024212          | .022909           | .005346           |
| 50 | .017430           | .025870           | -.014020          | -.029103          | .022872           | .007387           |
| 51 | .024997           | .015435           | -.016416          | -.035931          | .023749           | .014530           |
| 52 | .027707           | .004987           | -.014014          | -.038177          | .024915           | .019162           |
| 53 | .018661           | .001787           | -.011382          | -.041083          | .027366           | .025437           |
| 54 | .012756           | -.004132          | -.005665          | -.041848          | .025156           | .032973           |
| 55 | .010707           | -.011421          | .002436           | -.036485          | .015879           | .036945           |
| 56 | .012240           | -.018745          | .012981           | -.035006          | .008850           | .037849           |
| 57 | .014738           | -.027914          | .023595           | -.029037          | -.000243          | .031764           |
| 58 | .011467           | -.035694          | .035354           | -.022683          | -.013212          | .021871           |
| 59 | .000083           | -.039611          | .042078           | -.009512          | -.025892          | .012115           |
| 60 | -.014232          | -.038431          | .039518           | .007417           | -.031173          | .003434           |

RUN NO 89A 91M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.55527<br>10E 00 | 0.49312<br>10E 00 | 0.88830<br>10E-01 | 0.47129<br>10E 00 | 0.84898<br>10E-01 | 0.75395<br>10E-01 |
| 1  | -.009524          | -.002048          | .000493           | -.020866          | .029221           | -.031366          |
| 2  | -.016855          | -.005440          | .001399           | -.037248          | .045115           | -.027662          |
| 3  | -.020948          | -.010049          | -.006222          | -.050945          | .063117           | -.016897          |
| 4  | -.020210          | -.014872          | -.012387          | -.060147          | .074822           | -.011149          |
| 5  | -.017252          | -.021852          | -.013673          | -.062362          | .068177           | -.003827          |
| 6  | -.017189          | -.030805          | -.018376          | -.054247          | .058581           | .002016           |
| 7  | -.020380          | -.033568          | -.025960          | -.046756          | .055771           | .006583           |
| 8  | -.017075          | -.028231          | -.030804          | -.038609          | .052696           | .015740           |
| 9  | -.009950          | -.019558          | -.031394          | -.022535          | .043517           | .023873           |
| 10 | -.001320          | -.017941          | -.030195          | -.005259          | .026616           | .030369           |
| 11 | .006173           | -.021186          | -.030276          | .008938           | .012629           | .032107           |
| 12 | .015515           | -.019865          | -.033808          | .015815           | .007871           | .034053           |
| 13 | .019273           | -.011938          | -.038925          | .013761           | .007705           | .034606           |
| 14 | .021007           | -.000014          | -.050291          | .016131           | .006579           | .039219           |
| 15 | .018382           | .010896           | -.059162          | .020931           | .003870           | .044870           |
| 16 | .016866           | .014767           | -.064542          | .028830           | -.001449          | .048962           |
| 17 | .018726           | .013461           | -.063510          | .033023           | -.007481          | .044588           |
| 18 | .021444           | .011361           | -.059250          | .037096           | -.005651          | .036117           |
| 19 | .017793           | .011730           | -.051410          | .037295           | -.001749          | .024655           |
| 20 | .009771           | .010884           | -.045881          | .034276           | .005657           | .019777           |
| 21 | -.002857          | .009500           | -.039415          | .024270           | .011262           | .016073           |
| 22 | -.014789          | .002853           | -.031654          | .006745           | .017899           | .011801           |
| 23 | -.026357          | -.002840          | -.021462          | -.005608          | .017843           | .004456           |
| 24 | -.035608          | .000489           | -.013484          | -.015811          | .009271           | -.003456          |
| 25 | -.041946          | .007202           | -.014796          | -.026124          | .004800           | -.011373          |
| 26 | -.044737          | .011087           | -.020405          | -.035577          | .004698           | -.008169          |
| 27 | -.047895          | .019012           | -.021075          | -.038905          | .006145           | -.000966          |
| 28 | -.048649          | .029771           | -.015993          | -.041709          | .007982           | .004805           |
| 29 | -.039179          | .032840           | -.014885          | -.042072          | .013417           | .013334           |
| 30 | -.021920          | .036850           | -.014724          | -.034473          | .014898           | .016506           |
| 31 | -.008776          | .030585           | -.009532          | -.023170          | .012622           | .011371           |
| 32 | -.002551          | .024524           | -.005603          | -.017341          | .007362           | .005109           |
| 33 | .005459           | .026349           | .001024           | -.009076          | .001090           | .000633           |
| 34 | .017076           | .022838           | .012959           | .001986           | -.000085          | -.002765          |
| 35 | .023253           | .010676           | .027261           | .016523           | .000182           | -.011769          |
| 36 | .026893           | -.005508          | .038099           | .027114           | .001913           | -.022323          |
| 37 | .027783           | -.015465          | .041639           | .033639           | .003065           | -.033184          |
| 38 | .021113           | -.018664          | .045463           | .034628           | -.003561          | -.037639          |
| 39 | .017084           | -.010967          | .048171           | .030795           | -.006495          | -.035246          |
| 40 | .016134           | -.003755          | .052075           | .030383           | -.004235          | -.030689          |
| 41 | .016411           | -.001059          | .052071           | .035093           | -.002504          | -.026516          |
| 42 | .016417           | -.006702          | .056767           | .038008           | -.006589          | -.028006          |
| 43 | .017028           | -.013344          | .059415           | .041728           | -.013587          | -.030519          |
| 44 | .023011           | -.014368          | .060031           | .050394           | -.018496          | -.033431          |
| 45 | .031147           | -.012120          | .057468           | .067963           | -.027585          | -.031670          |
| 46 | .039201           | -.012720          | .052000           | .076970           | -.037358          | -.029677          |
| 47 | .041696           | -.008910          | .043300           | .081048           | -.039337          | -.021968          |
| 48 | .041557           | -.003614          | .036916           | .078408           | -.032316          | -.013072          |
| 49 | .037024           | -.003554          | .038314           | .065812           | -.026035          | -.012287          |
| 50 | .029015           | -.011508          | .043676           | .049205           | -.022714          | -.019315          |
| 51 | .021356           | -.018755          | .045554           | .026864           | -.015960          | -.022898          |
| 52 | .017855           | -.022499          | .039677           | .007595           | -.012055          | -.017505          |
| 53 | .012799           | -.029813          | .033218           | -.003267          | -.013503          | -.012817          |
| 54 | .008495           | -.037764          | .026520           | -.007944          | -.014072          | -.009900          |
| 55 | .003085           | -.046816          | .022725           | -.014115          | -.015150          | -.007011          |
| 56 | -.001685          | -.048775          | .017949           | -.029697          | -.011820          | -.004344          |
| 57 | -.001515          | -.047100          | .013006           | -.042035          | -.002411          | -.004405          |
| 58 | -.003138          | -.048544          | .008850           | -.051177          | .006234           | -.000146          |
| 59 | -.008966          | -.047660          | .001633           | -.059059          | .013331           | .004322           |
| 60 | -.019207          | -.044101          | -.009779          | -.060442          | .007610           | .012302           |

RUN NO 89A 91M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.58099<br>10E 00 | 0.53069<br>10E 00 | 0.41854<br>10E 00 | 0.13582<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .867250           | .826716           | .795652           | .860844           |
| 2  | .694253           | .613367           | .537062           | .667280           |
| 3  | .550378           | .453839           | .336932           | .507436           |
| 4  | .431069           | .317348           | .183635           | .365133           |
| 5  | .321046           | .203480           | .074807           | .256579           |
| 6  | .232066           | .118870           | -.000315          | .168038           |
| 7  | .150093           | .051577           | -.060515          | .097155           |
| 8  | .075381           | -.015021          | -.105466          | .040137           |
| 9  | .017407           | -.070357          | -.131690          | -.004389          |
| 10 | -.036589          | -.115796          | -.141485          | -.043113          |
| 11 | -.083581          | -.150001          | -.143187          | -.075036          |
| 12 | -.122683          | -.168834          | -.157727          | -.099581          |
| 13 | -.153968          | -.181645          | -.167558          | -.118100          |
| 14 | -.178412          | -.184249          | -.176573          | -.133752          |
| 15 | -.194977          | -.186673          | -.172014          | -.153282          |
| 16 | -.217121          | -.182593          | -.162452          | -.173921          |
| 17 | -.241743          | -.183542          | -.155497          | -.189883          |
| 18 | -.264889          | -.187063          | -.152633          | -.199738          |
| 19 | -.282229          | -.187697          | -.154661          | -.210681          |
| 20 | -.294146          | -.178157          | -.163506          | -.215010          |
| 21 | -.295581          | -.166719          | -.167942          | -.216611          |
| 22 | -.295286          | -.168306          | -.165466          | -.214323          |
| 23 | -.298343          | -.190120          | -.150236          | -.210668          |
| 24 | -.297953          | -.201219          | -.129859          | -.208313          |
| 25 | -.287759          | -.210732          | -.118687          | -.200631          |
| 26 | -.270777          | -.214866          | -.120165          | -.190647          |
| 27 | -.252314          | -.206398          | -.118329          | -.184124          |
| 28 | -.234520          | -.186494          | -.115704          | -.181523          |
| 29 | -.213771          | -.167888          | -.100241          | -.175775          |
| 30 | -.182653          | -.146685          | -.061725          | -.158604          |
| 31 | -.136266          | -.119531          | -.007848          | -.133693          |
| 32 | -.098448          | -.093764          | .037926           | -.103918          |
| 33 | -.067675          | -.072094          | .073276           | -.074856          |
| 34 | -.037329          | -.044538          | .100393           | -.046446          |
| 35 | -.012968          | -.014306          | .122449           | -.025622          |
| 36 | .006830           | .014037           | .145497           | -.014664          |
| 37 | .019601           | .041199           | .152538           | -.004537          |
| 38 | .033596           | .066826           | .143593           | .006341           |
| 39 | .046751           | .096064           | .119669           | .021093           |
| 40 | .055051           | .116224           | .082006           | .035650           |
| 41 | .053787           | .112485           | .049449           | .050588           |
| 42 | .049298           | .097129           | .017405           | .060745           |
| 43 | .045211           | .077105           | .000211           | .062008           |
| 44 | .044446           | .068379           | -.002628          | .062198           |
| 45 | .052900           | .060878           | .000719           | .060418           |
| 46 | .067385           | .057050           | -.000118          | .054408           |
| 47 | .084510           | .044425           | -.005242          | .049275           |
| 48 | .091590           | .038364           | -.010045          | .040719           |
| 49 | .097394           | .042337           | -.013061          | .029277           |
| 50 | .094067           | .053338           | -.009366          | .021604           |
| 51 | .092937           | .065055           | -.013752          | .008927           |
| 52 | .089287           | .071496           | -.013187          | -.002462          |
| 53 | .081732           | .079458           | -.020845          | -.003899          |
| 54 | .071453           | .078459           | -.023660          | .000969           |
| 55 | .061914           | .068152           | -.020910          | .010798           |
| 56 | .051610           | .054928           | -.016405          | .018592           |
| 57 | .045737           | .041159           | -.020044          | .025100           |
| 58 | .036641           | .030405           | -.033690          | .029644           |
| 59 | .026890           | .007563           | -.033131          | .028077           |
| 60 | .022578           | -.011229          | -.032248          | .020422           |

RUN NO 89A 91M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-01   | 10E-02   | 10E-02   |
| 0     | .001623  | -.013265 | -.027194 | .001436  | .019569  | .000062  |
| 1     | .089434  | -.166828 | -.177041 | -.032709 | .182587  | -.006975 |
| 2     | .173583  | -.257178 | -.132884 | -.102716 | .279075  | -.089374 |
| 3     | .218111  | -.342270 | -.047572 | -.157341 | .321196  | -.234816 |
| 4     | .143122  | -.275692 | .013285  | -.111088 | .215046  | -.245582 |
| 5     | .072647  | -.169427 | .016856  | -.060405 | .178270  | -.181814 |
| 6     | .048409  | -.130514 | -.006136 | -.083839 | .191577  | -.193424 |
| 7-8   | .0284 1  | -.083497 | -.016596 | -.080062 | .122762  | -.178212 |
| 9-11  | .005565  | -.043551 | .008776  | -.019011 | .041495  | -.118007 |
| 12-15 | -.000378 | -.018136 | -.032343 | -.010934 | .011842  | -.043357 |
| 16-20 | -.002899 | -.009131 | -.020501 | -.008025 | .014668  | -.023291 |
| 21-27 | -.000283 | -.007071 | -.010308 | .000638  | -.001211 | -.011071 |
| 28-36 | -.002528 | -.001666 | -.005086 | .000485  | .000419  | -.005668 |
| 37-47 | -.001046 | -.001522 | -.002781 | -.001196 | .003438  | -.004382 |
| 48-60 | -.001033 | -.000652 | -.001980 | -.001379 | .000494  | -.001551 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-01   | 10E-02   | 10E-02   |
| 1     | -.171591 | .168772  | -.175769 | .004327  | .094724  | .078872  |
| 2     | -.152513 | -.107172 | -.210214 | -.020247 | .097200  | .104430  |
| 3     | .259478  | -.475533 | -.082679 | .000565  | .084529  | .052581  |
| 4     | .077706  | -.383328 | .026987  | -.042048 | .105323  | -.010151 |
| 5     | -.578858 | -.167446 | .017659  | -.101609 | .122130  | -.029570 |
| 6     | -.671518 | -.211867 | .031451  | -.075056 | .104765  | -.061114 |
| 7-8   | -.033636 | -.062215 | .002373  | -.018805 | .068728  | -.037762 |
| 9-11  | -.051604 | .082126  | -.003891 | -.018043 | .021894  | -.016355 |
| 12-15 | .009344  | .028706  | .011813  | .003458  | .007414  | -.015008 |
| 16-20 | -.052601 | .030771  | -.003338 | -.002390 | .008486  | -.010666 |
| 21-27 | .001108  | -.025723 | .004962  | .001852  | -.006667 | -.009611 |
| 28-36 | .009458  | .010587  | -.000424 | -.001555 | .004585  | -.006461 |
| 37-47 | -.003122 | -.002691 | -.002114 | .000175  | .003236  | -.003298 |
| 48-60 | -.002760 | .001038  | -.000109 | -.000423 | .000164* | -.000645 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .004329 | .025604 | .013852 | .018198 |
| 1     | .067017 | .422393 | .178850 | .159644 |
| 2     | .101722 | .698540 | .352876 | .205430 |
| 3     | .110541 | .819638 | .548546 | .218347 |
| 4     | .067237 | .559233 | .451206 | .143080 |
| 5     | .038086 | .423540 | .296277 | .098096 |
| 6     | .033191 | .424635 | .315686 | .088088 |
| 7-8   | .025810 | .265447 | .259538 | .064883 |
| 9-11  | .013886 | .148482 | .167632 | .042390 |
| 12-15 | .008234 | .097607 | .102446 | .022602 |
| 16-20 | .004960 | .063145 | .058853 | .013534 |
| 21-27 | .003388 | .036690 | .036811 | .008018 |
| 28-36 | .001995 | .027463 | .022225 | .004484 |
| 37-47 | .001245 | .016453 | .015106 | .002958 |
| 48-60 | .000852 | .009912 | .008811 | .001801 |

RUN NO 89A 91M 6-18-63 1336-1437(EST)  
 301 PCINT RUNNING MEAN: 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.44348<br>10E 00 | 0.36660<br>10E 00 | 0.10203<br>10E 00 | 0.28944<br>10E 00 | 0.80557<br>10E-01 | 0.66593<br>10E-01 |
| 0  | .058807           | -.513297          | -.330880          | -.082214          | .325214           | .039400           |
| 1  | -.077011          | -.213021          | -.296975          | .104260           | .194876           | .184482           |
| 2  | -.104791          | -.112250          | -.231197          | .136675           | .130410           | .146874           |
| 3  | -.046554          | -.135461          | -.163143          | .048306           | .065466           | .126486           |
| 4  | -.039096          | -.074643          | -.1 1717          | .027431           | .064715           | .082963           |
| 5  | -.020745          | -.021066          | -.078801          | .024396           | .036424           | .070111           |
| 6  | -.017801          | -.029461          | -.027465          | .050297           | -.001497          | .078742           |
| 7  | -.000718          | .037028           | -.005352          | .065818           | -.033565          | .041662           |
| 8  | -.010425          | .117792           | .061785           | .059310           | -.034565          | -.013908          |
| 9  | -.060729          | .110307           | .121014           | -.039023          | -.008831          | -.033111          |
| 10 | -.034279          | .119448           | .194095           | -.004557          | -.051909          | -.040493          |
| 11 | .002859           | .166146           | .177339           | -.069114          | -.070829          | -.078017          |
| 12 | .050000           | .142008           | .151142           | -.061397          | -.143111          | -.103510          |
| 13 | .048433           | .133649           | .123149           | -.069867          | -.143202          | -.106747          |
| 14 | .058183           | .103789           | .159841           | -.042036          | -.151185          | -.090558          |
| 15 | .115355           | .013487           | .186432           | -.087043          | -.150077          | -.106304          |
| 16 | .112839           | .007688           | .148883           | -.118218          | -.124957          | -.119081          |
| 17 | .085064           | .042462           | .121739           | -.090391          | -.044764          | -.125693          |
| 18 | .066729           | -.014671          | .048390           | -.054675          | -.025748          | -.085898          |
| 19 | .031194           | .021711           | .033237           | .027977           | -.048505          | -.043668          |
| 20 | .029492           | .015441           | .027499           | -.052577          | .008510           | -.078274          |
| 21 | .014061           | .020629           | .006228           | -.093429          | .048470           | -.046545          |
| 22 | -.033445          | .017289           | -.004472          | -.061346          | .099081           | -.069262          |
| 23 | -.086189          | -.017216          | -.063598          | .031899           | .066298           | -.036396          |
| 24 | -.099643          | .025914           | -.111955          | .061505           | .044978           | .000929           |
| 25 | -.091369          | .044030           | -.103552          | -.016906          | .063119           | .030493           |
| 26 | -.030738          | .025069           | -.123604          | .071047           | .081704           | .067041           |
| 27 | -.006958          | -.071909          | -.155267          | .028981           | .039265           | .135602           |
| 28 | -.031645          | -.006583          | -.150611          | .039769           | .018285           | .117265           |
| 29 | -.035266          | .049235           | -.114228          | .058079           | .006763           | .096639           |
| 30 | .013420           | -.056682          | -.103567          | .081651           | .012468           | .104542           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-01   | 10E-02  | 10E-02   |
| 0     | -.015693 | -.016185 | -.005939 | .008273  | .028213 | .041069  |
| 1     | -.137919 | -.214242 | -.083540 | .114407  | .413556 | .453859  |
| 2     | -.132901 | -.275790 | -.107291 | .108018  | .556488 | .431388  |
| 3     | -.023098 | -.281305 | -.083804 | .034424  | .420717 | .208111  |
| 4     | .052939  | -.159207 | -.028706 | -.024580 | .092931 | .010781  |
| 5     | -.026003 | -.042397 | -.010911 | -.017337 | .105167 | -.017991 |
| 6     | -.044687 | -.024574 | -.006099 | -.000461 | .194015 | -.011717 |
| 7     | -.005095 | -.058669 | -.005608 | .010668  | .153222 | -.001772 |
| 8     | .028252  | -.067887 | -.008757 | .007739  | .069352 | -.004936 |
| 9-11  | .042298  | -.055397 | -.009849 | -.013570 | .057049 | -.008972 |
| 12-14 | .016923  | -.051216 | -.000230 | -.041655 | .096310 | -.042278 |
| 15-21 | .043780  | -.070154 | -.000287 | -.037088 | .027776 | -.041387 |
| 22-30 | .028399  | -.043636 | -.000700 | -.022154 | .050166 | -.071223 |



RUN NO 89A 91M 6-18-63 1336-1437(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T              | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|
|    | 0.44348<br>10E 00 | 0.36660<br>10E 00 | 0.10203<br>10E 00 | 0.28944<br>10E 00 | .80557<br>10E-01 | 0.66593<br>10E-01 |
| 1  | .014633           | .010811           | -.050537          | .002587           | .054653          | .064087           |
| 2  | .061570           | .035670           | -.056183          | .091089           | .050944          | .065651           |
| 3  | .044396           | .024885           | -.018084          | .035009           | .073875          | .052825           |
| 4  | .103106           | .053837           | -.011174          | .091905           | .069536          | .056350           |
| 5  | .094756           | .045550           | -.007498          | .090929           | .055364          | .049055           |
| 6  | .063151           | .053273           | -.037055          | -.051949          | .081133          | .083739           |
| 7  | .016356           | .123322           | -.065872          | -.059664          | .071688          | .107340           |
| 8  | .056216           | .116296           | -.030616          | .016513           | .086294          | .086493           |
| 9  | .022128           | .066778           | .006522           | .050506           | .075173          | .021916           |
| 10 | .021380           | .050815           | -.031708          | .044435           | .011885          | .077193           |
| 11 | -.007061          | .071809           | -.031968          | -.006706          | .038605          | .053635           |
| 12 | .008623           | .045604           | .008534           | .040702           | .006413          | .008659           |
| 13 | .017150           | .031419           | .051024           | .065948           | .036946          | -.059379          |
| 14 | .104668           | .032533           | .105190           | .051336           | .086632          | -.093360          |
| 15 | .064081           | .009599           | .080676           | -.011084          | .055412          | -.080521          |
| 16 | .029096           | -.013577          | .060265           | -.057757          | .017660          | -.021843          |
| 17 | -.058139          | .008349           | .022996           | -.005711          | -.065947         | -.028049          |
| 18 | -.058644          | -.060274          | .038259           | -.005230          | -.061481         | -.059980          |
| 19 | -.056866          | -.007479          | .040373           | -.044537          | -.064750         | -.060410          |
| 20 | .058826           | -.051110          | .053802           | .073918           | -.059047         | -.059929          |
| 21 | .024451           | -.055525          | .016132           | .063468           | -.059789         | -.051709          |
| 22 | -.053299          | -.099082          | -.001255          | .022559           | -.067616         | -.058844          |
| 23 | -.072732          | -.056338          | .027028           | -.050095          | -.067603         | -.052639          |
| 24 | -.055903          | -.090676          | .018788           | -.061398          | -.087327         | -.007871          |
| 25 | -.015594          | -.112486          | -.040683          | -.056278          | -.075188         | .010319           |
| 26 | -.036871          | -.049401          | -.100002          | -.081534          | -.070828         | .066523           |
| 27 | -.078916          | -.041232          | -.079780          | -.106314          | -.064200         | .045383           |
| 28 | -.129397          | .014681           | -.073261          | -.077435          | -.071944         | .037477           |
| 29 | -.027835          | -.007346          | -.087017          | -.017421          | .035306          | .043550           |
| 30 | -.030190          | .016623           | -.121715          | -.037372          | .052257          | .078648           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .132381  | .140364  | .069495  | .554097  | .273120  | .095104  |
| 2     | .119819  | .142067  | -.146228 | .423319  | .308190  | .234409  |
| 3     | .078050  | .061588  | -.231049 | .259248  | .160409  | .233572  |
| 4     | .064681  | -.004765 | -.048776 | .232237  | .059530  | .061486  |
| 5     | .072729  | -.015412 | .053675  | .323008  | .091626  | -.024678 |
| 6     | .042636  | -.021335 | .009005  | .641497  | .041706  | -.022061 |
| 7     | -.021757 | -.009384 | -.091002 | .501747  | -.036307 | .048252  |
| 8     | -.034893 | .000480  | -.090688 | .043831  | .002299  | .071932  |
| 9-11  | -.009107 | .019445  | -.061367 | -.152296 | .056575  | .029820  |
| 12-14 | .001192  | -.011242 | -.062700 | -.165884 | .002586  | .037533  |
| 15-21 | .002055  | .002768  | -.010941 | .034411  | .007908  | .013565  |
| 22-30 | -.023176 | -.007495 | .016339  | -.213713 | .020602  | -.008422 |

RUN NO 89A 914 6-18-63 1336-1437(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.56170<br>10E 00 | 0.35014<br>10E 00 | 0.23927<br>10E 00 | 0.18534<br>10F-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .447773           | .244280           | .134937           | .674432           |
| 2  | .173943           | .039937           | .042166           | .438382           |
| 3  | .138001           | -.052440          | .087990           | .285714           |
| 4  | .137473           | .026446           | .119347           | .194259           |
| 5  | .106964           | .008497           | -.014387          | .078901           |
| 6  | -.021480          | -.034583          | -.031782          | -.065336          |
| 7  | -.101366          | -.075901          | .008304           | -.167514          |
| 8  | -.235356          | .027749           | -.058538          | -.231101          |
| 9  | -.296828          | -.088473          | .009866           | -.299447          |
| 10 | -.268815          | -.052619          | -.098626          | -.402978          |
| 11 | -.256719          | -.054537          | -.149178          | -.403243          |
| 12 | -.191266          | -.148004          | -.139686          | -.365556          |
| 13 | -.156428          | -.089683          | -.157637          | -.342997          |
| 14 | -.124030          | -.192064          | -.259819          | -.316920          |
| 15 | -.049088          | -.072522          | -.050663          | -.231514          |
| 16 | .005251           | -.047102          | -.005222          | -.123903          |
| 17 | -.004853          | -.062927          | -.100950          | -.087715          |
| 18 | -.041608          | -.028322          | -.002294          | -.020840          |
| 19 | -.022976          | -.014720          | -.124284          | .075124           |
| 20 | .096453           | .015305           | .044349           | .152717           |
| 21 | .052214           | .042086           | -.044998          | .149000           |
| 22 | -.075720          | -.069629          | -.036328          | .136990           |
| 23 | -.050186          | -.110686          | -.068066          | .197860           |
| 24 | -.021545          | -.061259          | -.008623          | .227254           |
| 25 | .027107           | -.027922          | .069132           | .201661           |
| 26 | -.026987          | .056014           | -.060275          | .175726           |
| 27 | .027486           | .007764           | .024727           | .102578           |
| 28 | -.054021          | .082560           | .069294           | .094581           |
| 29 | .005341           | .036880           | .011169           | .055460           |
| 30 | .106782           | .042880           | .049247           | .022181           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .045618 | .020072 | .014011 | .016925 |
| 1     | .527651 | .229994 | .181078 | .235064 |
| 2     | .718998 | .261242 | .207356 | .380775 |
| 3     | .823602 | .239206 | .171433 | .401801 |
| 4     | .539401 | .156918 | .084574 | .189764 |
| 5     | .195692 | .132702 | .051939 | .077907 |
| 6     | .077588 | .184167 | .081998 | .066280 |
| 7     | .109530 | .188602 | .107550 | .063805 |
| 8     | .184856 | .150802 | .082146 | .058357 |
| 9-11  | .258538 | .154627 | .061039 | .046854 |
| 12-14 | .209224 | .159008 | .094214 | .042347 |
| 15-21 | .157781 | .110164 | .115799 | .025769 |
| 22-30 | .130397 | .146536 | .109581 | .022862 |

RUN NO 89A 46M 6-18-63 1336-1437(EST)  
 RUN NO 89A 91M 6-18-63 1336-1437(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .220359 | .375105 | .429022 | .284506 |
| 1     | .260786 | .695128 | .574833 | .273075 |
| 2     | .207869 | .665150 | .528661 | .225042 |
| 3     | .187088 | .608149 | .435172 | .161685 |
| 4     | .190459 | .536662 | .335751 | .116547 |
| 5     | .206716 | .474777 | .263316 | .168917 |
| 6     | .222047 | .469364 | .183184 | .158464 |
| 7-8   | .119031 | .357166 | .216276 | .185244 |
| 9-11  | .109856 | .132717 | .183487 | .123129 |
| 12-15 | .180981 | .076132 | .145426 | .080529 |
| 16-20 | .101501 | .100705 | .211699 | .081275 |
| 21-27 | .118458 | .078530 | .137025 | .105902 |
| 28-36 | .107461 | .065054 | .150873 | .183046 |
| 37-47 | .119819 | .127191 | .089315 | .115962 |
| 48-60 | .088809 | .091473 | .079587 | .100900 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .628643 | .748273 | .849545 | .935677 |
| 1     | .744609 | .552958 | .910503 | .738064 |
| 2     | .679772 | .530272 | .798777 | .650684 |
| 3     | .426442 | .380290 | .684016 | .522344 |
| 4     | .367125 | .338592 | .629053 | .174359 |
| 5     | .327717 | .563519 | .391234 | .045997 |
| 6     | .149316 | .694076 | .398015 | .419417 |
| 7     | .212769 | .629482 | .512231 | .353329 |
| 8     | .249194 | .636042 | .492619 | .270920 |
| 9-11  | .204972 | .769768 | .646482 | .459744 |
| 12-14 | .155497 | .634469 | .596627 | .138077 |
| 15-21 | .237329 | .505605 | .416262 | .286549 |
| 22-30 | .285295 | .410224 | .376141 | .285698 |

RUN NO 90A 15M 6-18-63 1501-1601(EST)

GROSS STATISTICS

|                  |                        |                  |
|------------------|------------------------|------------------|
| I CU<br>UNSTABLE | WIND SPEED 4.16 M/SEC  | SIGMA A 16.3 DEG |
|                  | WIND DIRECTION 226 DEG | SIGMA E 12.7 DEG |
|                  | SOLAR RAD. 0.88 LY/MIN |                  |

|  |                         |                                |                               |                                    |
|--|-------------------------|--------------------------------|-------------------------------|------------------------------------|
|  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--|-------------------------|--------------------------------|-------------------------------|------------------------------------|

VARIANCES

|   |             |             |             |             |
|---|-------------|-------------|-------------|-------------|
| U | 0.22057E 01 | 0.19185E 01 | 0.14734E 01 | 0.12076E 01 |
| V | 0.11835E 01 | 0.10780E 01 | 0.93783E 00 | 0.54581E 00 |
| W | 0.58670E 00 | 0.58241E 00 | 0.52347E 00 | 0.20321E-00 |
| T | 0.13410E-00 | 0.68054E-01 | 0.37855E-01 | 0.49438E-01 |
| E | 0.19880E 01 | 0.17895E 01 | 0.14674E 01 |             |

GUSTINESS RATIOS

|   |         |         |         |         |
|---|---------|---------|---------|---------|
| U | 0.35701 | 0.33296 | 0.29179 | 0.26416 |
| V | 0.26151 | 0.24958 | 0.23279 | 0.17759 |
| W | 0.18413 | 0.18345 | 0.17392 | 0.10836 |

COVARIANCES

|     |              |              |              |              |
|-----|--------------|--------------|--------------|--------------|
| U,V | 0.94963E-01  | 0.15923E-00  | 0.10702E-00  | 0.15116E-00  |
| U,W | -0.51538E 00 | -0.44000E-00 | -0.38261E-00 | -0.24939E-00 |
| U,T | -0.35819E-00 | -0.26692E-00 | -0.17653E-00 | -0.18853E-00 |
| V,W | 0.59482E-01  | 0.52483E-01  | 0.51928E-01  | 0.21531E-01  |
| V,T | 0.53947E-01  | -0.23134E-02 | -0.18123E-02 | -0.97265E-02 |
| W,T | 0.10274E-00  | 0.73412E-01  | 0.62156E-01  | 0.40185E-01  |
| WE  | 0.48012E-01  | 0.10018E-00  | 0.12391E-00  |              |

NORMALIZED COVARIANCES

|     |          |          |          |          |
|-----|----------|----------|----------|----------|
| U,V | 0.05878  | 0.11072  | 0.09104  | 0.18620  |
| U,W | -0.45304 | -0.41626 | -0.43566 | -0.50345 |
| U,T | -0.65859 | -0.73873 | -0.74747 | -0.77160 |
| V,W | 0.07138  | 0.06624  | 0.07411  | 0.06465  |
| V,T | 0.13542  | -0.00854 | -0.00962 | -0.05921 |
| W,T | 0.36628  | 0.36875  | 0.44155  | 0.40092  |

RUN NO 90A 15M 6-18-63 1501-1601(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.11754<br>10E 01 | 0.87824<br>10E 00 | 0.23617<br>10E 00 | 0.70067<br>10E 00 | 0.18842<br>10E 00 | 0.14079<br>10E 00 |
| 0  | .091202           | -.435749          | -.747475          | .074049           | -.009549          | .441527           |
| 1  | .085842           | -.399798          | -.677322          | .066325           | -.023525          | .389369           |
| 2  | .078137           | -.322940          | -.553916          | .050238           | -.042035          | .299665           |
| 3  | .078691           | -.240752          | -.437777          | .035167           | -.059529          | .214883           |
| 4  | .085033           | -.176835          | -.341071          | .033696           | -.069708          | .149570           |
| 5  | .085605           | -.127076          | -.267144          | .027122           | -.072803          | .098967           |
| 6  | .084315           | -.076267          | -.197981          | .009265           | -.070015          | .053111           |
| 7  | .073570           | -.030436          | -.135162          | -.010115          | -.057018          | .016560           |
| 8  | .066984           | .010187           | -.077064          | -.012477          | -.043370          | -.015681          |
| 9  | .039937           | .031989           | -.027910          | -.014377          | -.031222          | -.029154          |
| 10 | .026486           | .047501           | .011712           | -.014651          | -.019695          | -.036254          |
| 11 | .017476           | .061225           | .035577           | -.021512          | -.009257          | -.042562          |
| 12 | .014977           | .067828           | .053046           | -.021561          | .001050           | -.044319          |
| 13 | .011404           | .077653           | .071715           | -.022852          | .004696           | -.043316          |
| 14 | .001400           | .078942           | .091318           | -.028949          | .001515           | -.044442          |
| 15 | -.008856          | .081352           | .115440           | -.040190          | -.000113          | -.053556          |
| 16 | -.016540          | .090213           | .138020           | -.056714          | .005218           | -.068277          |
| 17 | -.025982          | .093409           | .158542           | -.060508          | .013269           | -.081347          |
| 18 | -.027396          | .096552           | .178328           | -.059716          | .017438           | -.092544          |
| 19 | -.029603          | .101691           | .197064           | -.057965          | .019562           | -.100689          |
| 20 | -.031059          | .108854           | .215229           | -.053070          | .017397           | -.107656          |
| 21 | -.033841          | .118424           | .226492           | -.049512          | .014410           | -.114388          |
| 22 | -.045509          | .129395           | .231665           | -.047255          | .027238           | -.127290          |
| 23 | -.057415          | .136644           | .234298           | -.036426          | .044557           | -.140735          |
| 24 | -.064446          | .133908           | .227285           | -.019984          | .059025           | -.137143          |
| 25 | -.071352          | .118361           | .215615           | -.005987          | .069171           | -.116257          |
| 26 | -.080685          | .097616           | .201325           | -.004838          | .073433           | -.096045          |
| 27 | -.084015          | .081890           | .184569           | -.001798          | .071445           | -.079305          |
| 28 | -.087569          | .061068           | .170294           | .006553           | .067614           | -.062453          |
| 29 | -.093940          | .043215           | .151108           | .019126           | .070281           | -.044634          |
| 30 | -.091602          | .018642           | .123986           | .033517           | .068083           | -.028166          |
| 31 | -.081870          | -.000716          | .097033           | .042064           | .059739           | -.004848          |
| 32 | -.075222          | -.012549          | .074847           | .041550           | .047341           | .013382           |
| 33 | -.070299          | -.018885          | .061559           | .043030           | .040311           | .020204           |
| 34 | -.065284          | -.019858          | .055337           | .047719           | .041050           | .013446           |
| 35 | -.066916          | -.020183          | .054375           | .047383           | .046054           | .010090           |
| 36 | -.069407          | -.020047          | .047101           | .044476           | .045383           | .006971           |
| 37 | -.059108          | -.011985          | .039937           | .047531           | .037167           | .001818           |
| 38 | -.042949          | .002931           | .038703           | .050852           | .023327           | -.013667          |
| 39 | -.033092          | .022136           | .042554           | .051423           | .014178           | -.029631          |
| 40 | -.032168          | .036213           | .044208           | .054483           | .009717           | -.038557          |
| 41 | -.027065          | .038661           | .042116           | .052567           | .007721           | -.041513          |
| 42 | -.020900          | .032412           | .033638           | .047894           | .002838           | -.042304          |
| 43 | -.001183          | .021414           | .028285           | .035829           | -.008448          | -.030671          |
| 44 | .025455           | .001338           | .018830           | .023163           | -.026334          | -.007666          |
| 45 | .037314           | -.011834          | .000978           | .018609           | -.036330          | .012736           |
| 46 | .040059           | -.023072          | -.024017          | .014936           | -.040986          | .026411           |
| 47 | .038301           | -.027279          | -.045826          | .013978           | -.039225          | .042000           |
| 48 | .031019           | -.030596          | -.062280          | .015042           | -.028683          | .046815           |
| 49 | .026552           | -.030995          | -.072233          | .003171           | -.022889          | .045164           |
| 50 | .032607           | -.019752          | -.075967          | -.014629          | -.026357          | .039818           |
| 51 | .049430           | -.005264          | -.069533          | -.014884          | -.033358          | .030972           |
| 52 | .066155           | .004196           | -.058997          | -.016046          | -.043246          | .016777           |
| 53 | .079308           | .007214           | -.057353          | -.019633          | -.050977          | .003509           |
| 54 | .085379           | .008428           | -.060320          | -.016221          | -.053630          | -.001542          |
| 55 | .082470           | .003353           | -.066310          | -.017040          | -.044179          | .008584           |
| 56 | .073638           | -.005007          | -.073348          | -.020943          | -.037713          | .023113           |
| 57 | .060351           | -.021821          | -.073331          | -.019529          | -.037278          | .036017           |
| 58 | .047275           | -.024111          | -.067070          | -.016165          | -.037052          | .039922           |
| 59 | .039839           | -.025299          | -.059555          | -.014807          | -.033945          | .037832           |
| 60 | .033806           | -.025746          | -.052371          | -.009983          | -.027590          | .040228           |

RUN NO 90A 15M 6-18-63 1501-1601(EST)  
 61 PCINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.11754<br>10E 01 | 0.87824<br>10E 00 | 0.23617<br>10E 00 | 0.70067<br>10E 00 | 0.18842<br>10E 00 | 0.14079<br>10E 00 |
| 1  | .023248           | -.033476          | -.059056          | .048543           | .042804           | -.001392          |
| 2  | .046419           | -.048183          | -.089051          | .075814           | .070644           | .005432           |
| 3  | .055818           | -.052761          | -.103555          | .088021           | .081399           | .012061           |
| 4  | .053410           | -.048967          | -.112709          | .081648           | .076998           | .023476           |
| 5  | .046969           | -.049225          | -.124008          | .062821           | .069878           | .032006           |
| 6  | .037212           | -.049077          | -.136611          | .045727           | .059995           | .040867           |
| 7  | .027315           | -.042647          | -.150261          | .024766           | .043387           | .054545           |
| 8  | .024885           | -.034406          | -.158769          | .000481           | .023648           | .066841           |
| 9  | .022077           | -.028470          | -.156631          | -.023883          | .009052           | .073545           |
| 10 | .017808           | -.014090          | -.147574          | -.038469          | .003653           | .073578           |
| 11 | .010678           | -.003605          | -.136469          | -.042346          | .000096           | .062332           |
| 12 | -.003836          | -.001849          | -.129318          | -.039421          | -.008906          | .048598           |
| 13 | -.016593          | .000994           | -.123912          | -.034460          | -.014389          | .046170           |
| 14 | -.025642          | -.000629          | -.119805          | -.030042          | -.015392          | .041964           |
| 15 | -.022612          | -.003644          | -.110569          | -.028308          | -.017010          | .043894           |
| 16 | -.014936          | -.010135          | -.099630          | -.030388          | -.016058          | .046515           |
| 17 | -.003545          | -.010112          | -.082882          | -.028914          | -.011013          | .046495           |
| 18 | .004888           | -.010177          | -.068488          | -.028975          | -.005369          | .041333           |
| 19 | .001977           | -.017940          | -.057564          | -.027634          | -.005718          | .027633           |
| 20 | .003157           | -.021458          | -.047584          | -.024876          | -.003484          | .011859           |
| 21 | .006709           | -.025525          | -.036268          | -.016846          | -.002015          | .001610           |
| 22 | .007083           | -.028282          | -.022060          | -.009789          | -.002856          | -.005906          |
| 23 | .004096           | -.020800          | -.007996          | -.015177          | -.008294          | -.001991          |
| 24 | .002374           | -.001052          | .002992           | -.025989          | -.015054          | -.003779          |
| 25 | .000850           | .012565           | .011908           | -.040891          | -.025436          | -.006341          |
| 26 | -.003443          | .022372           | .018857           | -.052534          | -.023949          | -.006279          |
| 27 | -.005625          | .030243           | .021937           | -.047489          | -.037710          | -.014355          |
| 28 | -.014641          | .029054           | .023747           | -.038879          | -.043148          | -.014213          |
| 29 | -.021217          | .020586           | .023590           | -.032230          | -.047489          | -.013671          |
| 30 | -.022761          | .013493           | .023471           | -.020381          | -.043066          | -.017191          |
| 31 | -.024753          | .009670           | .025767           | -.005472          | -.033480          | -.018727          |
| 32 | -.019277          | .009284           | .026256           | .009933           | -.024901          | -.015840          |
| 33 | -.027634          | .009333           | .024651           | .013073           | -.015257          | -.001960          |
| 34 | .001350           | .011267           | .027962           | .017544           | -.005565          | .012087           |
| 35 | .006491           | .013570           | .032731           | .018109           | -.000874          | .013446           |
| 36 | .007662           | .006596           | .034817           | .018096           | .003092           | .009388           |
| 37 | .017992           | .006035           | .035354           | .027506           | .016039           | -.000381          |
| 38 | .029043           | .002083           | .034434           | .038002           | .034040           | -.005253          |
| 39 | .030170           | .005022           | .033455           | .045537           | .043256           | -.004762          |
| 40 | .021596           | .012223           | .031697           | .045134           | .045075           | -.008273          |
| 41 | .007150           | .013960           | .031639           | .036479           | .041687           | -.010399          |
| 42 | -.006557          | .012586           | .028587           | .023812           | .034225           | -.010415          |
| 43 | -.016804          | .010657           | .024750           | .012902           | .025441           | -.011733          |
| 44 | -.020842          | .011341           | .025523           | .010031           | .022197           | -.013238          |
| 45 | -.018560          | .012427           | .025345           | .016855           | .022995           | -.012796          |
| 46 | -.013336          | .014106           | .028613           | .027045           | .027744           | -.007831          |
| 47 | -.004978          | .010569           | .027889           | .037019           | .036886           | .002647           |
| 48 | .007029           | .012826           | .025083           | .036153           | .045546           | .015611           |
| 49 | .016151           | .010867           | .022045           | .034620           | .051026           | .020989           |
| 50 | .020405           | .009994           | .022898           | .036008           | .061859           | .020991           |
| 51 | .018743           | .012142           | .025635           | .038220           | .065802           | .015732           |
| 52 | .014252           | .015579           | .028242           | .038743           | .052974           | .010469           |
| 53 | .007464           | .021430           | .027526           | .031524           | .040327           | .009761           |
| 54 | .001421           | .025611           | .026453           | .008584           | .024250           | .014962           |
| 55 | -.005798          | .031895           | .025102           | -.023321          | .003617           | .024214           |
| 56 | -.010462          | .025447           | .018655           | -.054785          | -.008401          | .024899           |
| 57 | -.012543          | .019370           | .010533           | -.060374          | -.017054          | .022966           |
| 58 | -.014992          | .014374           | -.003474          | -.045314          | -.024144          | .020068           |
| 59 | -.013914          | .008580           | -.010965          | -.040370          | -.029000          | .010306           |
| 60 | -.014729          | -.004281          | -.017609          | -.032944          | -.037075          | -.007370          |

RUN NO 90A 15M 6-18-63 1501-1601(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.14732<br>10E 01 | 0.93774<br>10E 00 | 0.52354<br>10E 00 | 0.37860<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .852826           | .796973           | .684727           | .862219           |
| 2  | .670459           | .560746           | .373155           | .671848           |
| 3  | .521442           | .390781           | .175695           | .516078           |
| 4  | .401498           | .261393           | .064455           | .399931           |
| 5  | .306466           | .172080           | .016968           | .309597           |
| 6  | .224010           | .103733           | -.031554          | .232342           |
| 7  | .144359           | .036649           | -.073394          | .163243           |
| 8  | .075905           | -.024244          | -.091261          | .096056           |
| 9  | .016413           | -.065211          | -.097369          | .038359           |
| 10 | -.035957          | -.099118          | -.084804          | -.008314          |
| 11 | -.070705          | -.127136          | -.077733          | -.036275          |
| 12 | -.091078          | -.149013          | -.077569          | -.057054          |
| 13 | -.108927          | -.159388          | -.058887          | -.076242          |
| 14 | -.134695          | -.176079          | -.034821          | -.096840          |
| 15 | -.166831          | -.190686          | -.020959          | -.121491          |
| 16 | -.195514          | -.198247          | -.037270          | -.147938          |
| 17 | -.217524          | -.195039          | -.070494          | -.172215          |
| 18 | -.236736          | -.186079          | -.090617          | -.197613          |
| 19 | -.253877          | -.181078          | -.096677          | -.222682          |
| 20 | -.271323          | -.190896          | -.093987          | -.246749          |
| 21 | -.285795          | -.210929          | -.107037          | -.262325          |
| 22 | -.295153          | -.222049          | -.137053          | -.267164          |
| 23 | -.293312          | -.213675          | -.162156          | -.270050          |
| 24 | -.282561          | -.196374          | -.168840          | -.260727          |
| 25 | -.264451          | -.173755          | -.158474          | -.249139          |
| 26 | -.248290          | -.152795          | -.131830          | -.237798          |
| 27 | -.229664          | -.138669          | -.107666          | -.227497          |
| 28 | -.207790          | -.126728          | -.103309          | -.212654          |
| 29 | -.175874          | -.112197          | -.077700          | -.190600          |
| 30 | -.132355          | -.084992          | -.047231          | -.157143          |
| 31 | -.089227          | -.047667          | -.003042          | -.116917          |
| 32 | -.059147          | -.015177          | .024724           | -.091358          |
| 33 | -.041560          | .007384           | .023506           | -.077800          |
| 34 | -.034189          | .023997           | .019244           | -.074104          |
| 35 | -.026450          | .027239           | .016800           | -.073490          |
| 36 | -.019081          | .038220           | .016821           | -.067443          |
| 37 | -.016478          | .067932           | .021012           | -.062276          |
| 38 | -.026203          | .098552           | .010189           | -.060213          |
| 39 | -.039624          | .110204           | -.018852          | -.055642          |
| 40 | -.049189          | .104362           | -.031652          | -.050268          |
| 41 | -.050247          | .099741           | -.049811          | -.041463          |
| 42 | -.048664          | .081981           | -.050525          | -.035121          |
| 43 | -.035988          | .075837           | -.038861          | -.035467          |
| 44 | -.015563          | .072638           | -.024363          | -.029725          |
| 45 | .005311           | .054757           | .012638           | -.008393          |
| 46 | .026966           | .036311           | .058049           | .021120           |
| 47 | .050049           | .019489           | .085127           | .048693           |
| 48 | .066735           | .007547           | .077147           | .071888           |
| 49 | .080661           | -.004679          | .055259           | .081134           |
| 50 | .088219           | -.009415          | .035835           | .083149           |
| 51 | .081520           | -.011603          | .018925           | .074348           |
| 52 | .070380           | -.020956          | .004682           | .064602           |
| 53 | .066370           | -.031491          | -.004229          | .062427           |
| 54 | .063248           | -.038369          | -.023491          | .067698           |
| 55 | .062190           | -.036867          | -.024608          | .080579           |
| 56 | .070701           | -.031041          | -.009218          | .090582           |
| 57 | .072319           | -.027859          | .005526           | .089188           |
| 58 | .072001           | -.022912          | .016079           | .078532           |
| 59 | .072949           | -.021345          | .017114           | .072600           |
| 60 | .070808           | -.014887          | .051875           | .065816           |

RUN NC 90A 15M 6-18-63 1501-1601(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T     |
|-------|----------|----------|----------|----------|----------|---------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-01  |
| 0     | .007096  | -.029211 | -.023361 | -.002474 | .005010  | .004593 |
| 1     | .387293  | -.398605 | -.263440 | -.047515 | -.376406 | .062506 |
| 2     | .490723  | -.579890 | -.333682 | .038256  | -.536821 | .089006 |
| 3     | .271485  | -.692052 | -.325380 | .172184  | -.300024 | .100482 |
| 4     | .016288  | -.519657 | -.201776 | .135018  | .039051  | .071719 |
| 5     | .032700  | -.295753 | -.113760 | .028821  | .018415  | .039593 |
| 6     | .034546  | -.234102 | -.087785 | .004654  | -.023136 | .032885 |
| 7-8   | -.014320 | -.261407 | -.088299 | .021948  | .056215  | .045427 |
| 9-11  | -.023326 | -.091880 | -.042251 | .025798  | .114471  | .020000 |
| 12-15 | -.014237 | -.051270 | -.021934 | -.002198 | .059514  | .009368 |
| 16-20 | .018039  | -.033653 | -.016473 | .005278  | .020731  | .006768 |
| 21-27 | .005322  | -.018562 | -.006887 | .008042  | .002681  | .003765 |
| 28-36 | .003960  | -.001192 | -.003163 | -.000270 | .006662  | .001206 |
| 37-47 | .000544  | -.000237 | -.001757 | -.001040 | .002273  | .000591 |
| 48-60 | -.000193 | -.001860 | -.000891 | .000539  | .004389  | .000582 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-01   | 10E-01   | 10E-02   | 10E-02   |
| 1     | .016348  | -.393047 | -.101213 | -.082734 | -.064383 | .248605  |
| 2     | .037490  | -.872282 | -.126496 | -.071628 | -.000259 | .275234  |
| 3     | .083723  | -.969112 | -.124516 | .027404  | .257902  | .288016  |
| 4     | .102143  | -.656351 | -.076546 | .091707  | .268544  | .174936  |
| 5     | .092871  | -.489396 | -.036974 | .070952  | .154485  | .044692  |
| 6     | .116228  | -.731299 | -.017508 | .080704  | .235451  | -.036056 |
| 7-8   | .114294  | -.946444 | -.012566 | .120545  | .274062  | -.014835 |
| 9-11  | .018572  | -.131270 | -.005986 | .058332  | .098605  | -.037446 |
| 12-15 | .032736  | -.110062 | -.004242 | .017749  | .054897  | -.015736 |
| 16-20 | .003032  | -.159599 | -.007078 | .011194  | .014521  | .001880  |
| 21-27 | -.000949 | -.062135 | -.001990 | .003966  | .016806  | -.006461 |
| 28-36 | -.000871 | -.015245 | -.001201 | .000595  | -.002100 | -.000602 |
| 37-47 | -.003330 | -.021975 | -.000487 | .001972  | .000325  | -.001770 |
| 48-60 | .000033  | -.007950 | -.000176 | .000091  | .001059  | -.000936 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E-01  | 10E-02  |
| 0     | .013616 | .004987 | .015826 | .057214 |
| 1     | .182501 | .063497 | .254997 | .544741 |
| 2     | .247794 | .107293 | .382763 | .652095 |
| 3     | .257677 | .140842 | .446517 | .620806 |
| 4     | .167077 | .101481 | .338159 | .385039 |
| 5     | .091263 | .065045 | .250896 | .229038 |
| 6     | .071205 | .061390 | .288548 | .186907 |
| 7-8   | .072886 | .047373 | .355275 | .185515 |
| 9-11  | .036430 | .028417 | .208697 | .096669 |
| 12-15 | .020878 | .020440 | .144092 | .058349 |
| 16-20 | .016759 | .013659 | .113367 | .043884 |
| 21-27 | .008605 | .008226 | .081133 | .022592 |
| 28-36 | .005271 | .004883 | .043155 | .013038 |
| 37-47 | .003919 | .003751 | .033845 | .007495 |
| 48-60 | .002482 | .002174 | .023425 | .005176 |



RUN NO 90A 15M 6-18-63 1501-1601(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.81234<br>10E 00 | 0.49575<br>10E 00 | 0.24448<br>10E 00 | 0.33337<br>10E 00 | 0.16440<br>10E 00 | 0.10033<br>10E 00 |
| 0  | .186083           | -.503067          | -.771153          | .064586           | -.059163          | .400530           |
| 1  | .107396           | -.124095          | -.423552          | -.009812          | -.030050          | .130777           |
| 2  | -.026896          | .057478           | -.138826          | -.038422          | .042168           | -.005566          |
| 3  | -.098969          | .044437           | -.032423          | .085441           | .069229           | -.002950          |
| 4  | -.047229          | .072858           | .041936           | .074785           | .025650           | -.035796          |
| 5  | .050179           | .054436           | .040549           | -.003871          | -.022210          | -.019178          |
| 6  | .054347           | .032165           | .076768           | -.058604          | -.017713          | -.032170          |
| 7  | .012662           | .025796           | .129721           | -.064445          | .001900           | -.053830          |
| 8  | -.020145          | .057984           | .191998           | -.041225          | .043854           | -.077427          |
| 9  | -.084155          | .099996           | .208111           | .085416           | .070119           | -.079488          |
| 10 | -.030076          | .071041           | .182903           | .026918           | -.008881          | -.060976          |
| 11 | -.003915          | .006780           | .134877           | -.020834          | -.026131          | -.003611          |
| 12 | .017621           | -.069463          | .091886           | -.015465          | -.025759          | .034177           |
| 13 | .030036           | -.067758          | .098610           | -.102060          | -.060720          | .032161           |
| 14 | -.013940          | .014645           | .141305           | -.017697          | -.009907          | .007336           |
| 15 | -.038812          | -.041440          | .039398           | .058051           | .015705           | .017686           |
| 16 | .028052           | -.102577          | -.075605          | -.048801          | -.026078          | .049651           |
| 17 | -.001893          | -.012195          | -.069859          | -.033313          | -.019744          | -.006315          |
| 18 | .002387           | -.035414          | -.070933          | -.010328          | .007019           | .014279           |
| 19 | -.002764          | .014699           | -.029984          | .009632           | -.027758          | -.029467          |
| 20 | -.068801          | .042290           | .018621           | .080696           | .020051           | -.039847          |
| 21 | -.035630          | .059537           | .066552           | -.007837          | .001250           | -.036273          |
| 22 | .008716           | .089236           | .049622           | -.104226          | -.078428          | -.062110          |
| 23 | .003564           | -.009434          | -.048112          | .004959           | -.048224          | .017985           |
| 24 | .023175           | -.028459          | -.086440          | .016277           | -.039915          | .030834           |
| 25 | .004850           | .017451           | -.084343          | .028554           | -.025020          | -.012792          |
| 26 | .026604           | -.018709          | -.145905          | .036685           | -.033728          | .029506           |
| 27 | .044066           | .004633           | -.110893          | .046455           | -.002875          | .004034           |
| 28 | .094106           | .024243           | -.035777          | -.079094          | -.028221          | -.034577          |
| 29 | .050361           | .028245           | .048087           | .004368           | .021511           | -.012540          |
| 30 | -.030304          | .083102           | .107573           | .062512           | .057746           | -.052594          |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T     |
|-------|----------|----------|----------|----------|----------|---------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02  |
| 0     | .007462  | -.006667 | -.003196 | -.017126 | .004793  | .022207 |
| 1     | .069102  | -.030427 | -.101691 | .177006  | .168289  | .149256 |
| 2     | .078026  | -.042788 | -.196497 | .302175  | .100105  | .179876 |
| 3     | .079313  | -.134458 | -.271209 | .241677  | -.019978 | .305119 |
| 4     | .093020  | -.222739 | -.223560 | .082662  | -.096004 | .412200 |
| 5     | .066493  | -.166407 | -.127267 | .067439  | -.118786 | .313730 |
| 6     | .028616  | -.092060 | -.091876 | .163556  | .004526  | .146875 |
| 7     | .075333  | -.115470 | -.112590 | .005392  | .052010  | .135076 |
| 8     | .142959  | -.136848 | -.084187 | -.434554 | -.060090 | .166181 |
| 9-11  | .250965  | -.172180 | -.101534 | -.523257 | -.290060 | .241192 |
| 12-14 | .076417  | -.077998 | -.049557 | .464574  | -.084181 | .142227 |
| 15-21 | -.009644 | -.111247 | -.040683 | .421280  | .020074  | .150894 |
| 22-30 | .018386  | -.075865 | -.027152 | -.065334 | -.009391 | .107819 |

RUN NO 90A 15M 6-18-63 1501-1601(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| N  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.81234<br>10E 00 | 0.49575<br>10E 00 | 0.24448<br>10E 00 | 0.33337<br>10E 00 | 0.16440<br>10E 00 | 0.10033<br>10E 00 |
| 1  | .012865           | -.031047          | -.179299          | -.013586          | .032322           | .113557           |
| 2  | .013894           | .044878           | -.156811          | -.054533          | .040881           | .127672           |
| 3  | -.008075          | .093370           | -.135335          | -.022124          | .035183           | .142752           |
| 4  | .025628           | .086785           | -.119181          | .062599           | .100671           | .129251           |
| 5  | .011357           | .059754           | -.090794          | .018940           | .083916           | .094591           |
| 6  | .016000           | .018895           | -.105698          | .020015           | .056628           | .050633           |
| 7  | .003843           | -.048567          | -.083620          | -.004035          | .023678           | -.016442          |
| 8  | -.010722          | -.012092          | -.073840          | -.052742          | .009801           | .019578           |
| 9  | -.036550          | -.006055          | -.044189          | -.067339          | .009848           | -.003182          |
| 10 | .009040           | .027342           | -.000999          | -.041813          | .028643           | .002639           |
| 11 | .037268           | .027043           | .020790           | .005940           | .038473           | -.004246          |
| 12 | .072141           | .008926           | .039113           | .056534           | .081297           | -.018219          |
| 13 | .026291           | -.017788          | .016931           | .068512           | .030735           | -.016803          |
| 14 | -.026433          | -.031587          | .055943           | -.022375          | -.051888          | -.063439          |
| 15 | -.042026          | -.061295          | .096315           | .003247           | -.032967          | -.081995          |
| 16 | -.021054          | .015882           | .080211           | -.004713          | -.038151          | .003498           |
| 17 | -.029153          | .008116           | .034255           | -.053786          | -.059876          | .020700           |
| 18 | -.022783          | -.019088          | .025437           | .017801           | -.056648          | -.003290          |
| 19 | -.013132          | .013616           | -.013508          | .044635           | -.050726          | .019528           |
| 20 | -.038287          | .030191           | -.023561          | .006165           | -.030132          | .040573           |
| 21 | -.088617          | .037336           | -.005516          | -.031643          | -.044634          | .037390           |
| 22 | -.071163          | -.055705          | .009856           | -.010805          | -.068194          | -.056228          |
| 23 | -.015147          | -.050943          | .015897           | -.041818          | -.034698          | -.056962          |
| 24 | -.033491          | -.051362          | -.002353          | -.044717          | -.014725          | -.058588          |
| 25 | .052304           | -.047365          | -.013514          | .003299           | .034359           | -.057325          |
| 26 | .081878           | -.025509          | -.022890          | .035387           | .074898           | -.051221          |
| 27 | .049386           | -.028507          | -.030909          | .127482           | .055203           | -.045489          |
| 28 | .121429           | .029578           | -.022810          | .037160           | .077640           | -.025139          |
| 29 | .080502           | .020463           | -.033672          | .015863           | .018443           | .002366           |
| 30 | .026671           | -.000750          | -.014086          | -.020247          | -.005167          | .008668           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T     |
|-------|----------|----------|----------|----------|----------|---------|
|       | 10E-02   | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-02  |
| 1     | -.092923 | .284111  | -.049371 | -.097304 | .230965  | .126528 |
| 2     | .637489  | .563258  | -.092660 | -.084920 | .440255  | .236435 |
| 3     | .238925  | .740479  | -.131422 | -.109119 | .373338  | .356971 |
| 4     | -.358127 | .800810  | -.094857 | .043993  | .102197  | .383803 |
| 5     | .333574  | .573017  | -.042764 | .251413  | .149024  | .251042 |
| 6     | .581541  | .621715  | -.036153 | .186750  | .210759  | .205382 |
| 7     | .454191  | .746034  | -.046054 | -.127700 | .121077  | .244271 |
| 8     | -.330382 | .093696  | -.036418 | -.690239 | -.094098 | .130565 |
| 9-11  | -.143789 | -.628086 | -.039957 | -.295037 | -.099264 | .012983 |
| 12-14 | .143972  | -.304237 | -.018854 | -.082455 | .020060  | .018012 |
| 15-21 | .160189  | -.242411 | -.016622 | .195762  | .073432  | .036072 |
| 22-30 | -.256616 | -.060896 | -.006431 | -.068836 | -.057558 | .018238 |

RUN NO 90A 15M 6-18-63 1501-1601(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.12080<br>10E 01 | 0.54626<br>10E 00 | 0.20344<br>10E 00 | 0.49477<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .430366           | .193569           | .182637           | .652693           |
| 2  | .078385           | -.048745          | .034508           | .362453           |
| 3  | -.050834          | -.047132          | -.031600          | .192221           |
| 4  | -.098605          | -.009513          | -.075434          | .063316           |
| 5  | -.044338          | -.149573          | -.023092          | .002331           |
| 6  | -.034759          | -.038456          | -.044004          | -.091787          |
| 7  | -.085671          | -.084302          | -.087753          | -.177086          |
| 8  | -.199490          | -.004189          | -.107417          | -.244644          |
| 9  | -.246026          | .054937           | -.197613          | -.257979          |
| 10 | -.185656          | -.044653          | -.164315          | -.267930          |
| 11 | -.100624          | -.118967          | -.152993          | -.247550          |
| 12 | -.021661          | -.105861          | -.088712          | -.234455          |
| 13 | -.057690          | -.087873          | -.092101          | -.225500          |
| 14 | -.195398          | -.058331          | -.056477          | -.228287          |
| 15 | -.049321          | .012585           | .068616           | -.110146          |
| 16 | .122165           | -.032655          | .076081           | .004935           |
| 17 | .105800           | -.020829          | -.014655          | .007122           |
| 18 | .128965           | .047593           | .065903           | .014190           |
| 19 | .076541           | -.006453          | .025560           | -.026164          |
| 20 | -.012472          | .030462           | .071659           | -.056721          |
| 21 | -.105242          | -.092921          | .107115           | -.084486          |
| 22 | -.055253          | -.078659          | -.032985          | -.068839          |
| 23 | .053811           | .003393           | .036828           | .026378           |
| 24 | .092772           | .015262           | .102036           | .082304           |
| 25 | .057728           | -.094166          | .048729           | .107502           |
| 26 | .075758           | -.009925          | .052335           | .187262           |
| 27 | .059250           | .113116           | .020308           | .149475           |
| 28 | .019270           | -.004818          | -.101651          | .051553           |
| 29 | -.051004          | .086770           | .006499           | -.024780          |
| 30 | -.145165          | .016643           | -.058292          | -.067237          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .002689 | .015025 | .000003 | .042443 |
| 1     | .042209 | .204438 | .038875 | .559228 |
| 2     | .084341 | .260336 | .112551 | .781622 |
| 3     | .129446 | .301935 | .181809 | .860316 |
| 4     | .112803 | .270366 | .143905 | .607056 |
| 5     | .066359 | .235027 | .078727 | .324456 |
| 6     | .056816 | .304545 | .060772 | .225204 |
| 7     | .071119 | .368239 | .085287 | .266378 |
| 8     | .056952 | .303899 | .106219 | .184032 |
| 9-11  | .085078 | .183071 | .099322 | .171194 |
| 12-14 | .035566 | .268845 | .069847 | .105126 |
| 15-21 | .036339 | .252529 | .073971 | .072025 |
| 22-30 | .023300 | .188357 | .094942 | .058784 |

RUN NO 90A 46M 6-18-63 1501-1601(EST)

GROSS STATISTICS

I CU WIND SPEED 5.77 M/SEC SIGMA A 10.3 DEG  
 UNSTABLE WIND DIRECTION 226 DEG SIGMA E 7.4 DEG  
 SOLAR RAD. 0.88 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.13254E 01             | 0.10943E 01                    | 0.70889E 00                   | 0.81207E 00                        |
| V                | 0.10604E 01             | 0.93080E 00                    | 0.79081E 00                   | 0.55145E 00                        |
| W                | 0.52416E 00             | 0.51855E 00                    | 0.45776E-00                   | 0.24172E-00                        |
| T                | 0.96785E-01             | 0.21320E-01                    | 0.10491E-01                   | 0.16323E-01                        |
| E                | 0.14550E 01             | 0.12765E 01                    | 0.97874E 00                   |                                    |

|                         | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.19952                 | 0.18130                        | 0.14592                       | 0.15618                            |
| V                       | 0.17847                 | 0.16801                        | 0.15412                       | 0.12870                            |
| W                       | 0.12548                 | 0.12480                        | 0.11726                       | 0.08521                            |

|                    | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | -0.41523E-01            | 0.45417E-01                    | 0.76711E-01                   | 0.46079E-01                        |
| U,W                | -0.30259E-00            | -0.26873E-00                   | -0.17659E-00                  | -0.21119E-00                       |
| U,T                | -0.12399E-00            | -0.68710E-01                   | -0.31340E-01                  | -0.58096E-01                       |
| V,W                | -0.10492E-00            | -0.11016E-00                   | -0.12461E-00                  | -0.38596E-01                       |
| V,T                | 0.12680E-00             | 0.39642E-01                    | 0.26653E-01                   | 0.23932E-01                        |
| W,T                | -0.65413E-02            | -0.66409E-02                   | -0.16375E-01                  | 0.56727E-02                        |
| WE                 | 0.29837E-01             | 0.79401E-02                    | -0.17879E-01                  |                                    |

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | -0.03502                | 0.04479                        | 0.10245                       | 0.06886                            |
| U,W                           | -0.36304                | -0.35674                       | -0.31000                      | -0.47668                           |
| U,T                           | -0.34619                | -0.44984                       | -0.36342                      | -0.50460                           |
| V,W                           | -0.14073                | -0.15781                       | -0.20710                      | -0.10571                           |
| V,T                           | 0.39578                 | 0.28006                        | 0.29262                       | 0.25224                            |
| W,T                           | -0.02904                | -0.06316                       | -0.23630                      | 0.09031                            |

RUN NO 90A 46M 6-18-63 1501-1601(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.74873<br>10E 00 | 0.56967<br>10E 00 | 0.86240<br>10E-01 | 0.60165<br>10E 00 | 0.91081<br>10E-01 | 0.68299<br>10E-01 |
| 0  | .102243           | -.309995          | -.363320          | -.207083          | .292805           | -.236332          |
| 1  | .104006           | -.283263          | -.327238          | -.176054          | .250797           | -.186821          |
| 2  | .102789           | -.241647          | -.275169          | -.122077          | .179839           | -.114617          |
| 3  | .093663           | -.203707          | -.231479          | -.073632          | .123477           | -.057954          |
| 4  | .085911           | -.178161          | -.196110          | -.040715          | .080980           | -.016686          |
| 5  | .081459           | -.159255          | -.162292          | -.021442          | .046134           | .020724           |
| 6  | .070805           | -.139503          | -.137198          | -.001364          | .016467           | .055532           |
| 7  | .053656           | -.114683          | -.118145          | .017743           | -.005136          | .077053           |
| 8  | .033801           | -.081464          | -.098869          | .022946           | -.011433          | .087498           |
| 9  | .014746           | -.053179          | -.071916          | .016324           | -.011602          | .090614           |
| 10 | .001791           | -.032029          | -.044550          | .007668           | -.015367          | .093920           |
| 11 | -.009443          | -.015420          | -.020749          | .012214           | -.024853          | .097594           |
| 12 | -.015836          | -.003937          | .001570           | .022002           | -.030852          | .097095           |
| 13 | -.023015          | .007507           | .027232           | .032981           | -.032475          | .090509           |
| 14 | -.033077          | .017417           | .045553           | .045483           | -.037657          | .085547           |
| 15 | -.043256          | .031958           | .057885           | .058328           | -.040239          | .075733           |
| 16 | -.051402          | .048444           | .066904           | .070662           | -.042255          | .059677           |
| 17 | -.065427          | .063995           | .070203           | .081628           | -.041608          | .043400           |
| 18 | -.079283          | .081006           | .074781           | .088460           | -.040997          | .032139           |
| 19 | -.088480          | .097507           | .084626           | .082160           | -.042227          | .027147           |
| 20 | -.092643          | .112684           | .093682           | .068438           | -.038619          | .017922           |
| 21 | -.097625          | .124164           | .098284           | .052478           | -.033758          | .006842           |
| 22 | -.099460          | .131585           | .105814           | .038192           | -.022997          | .000757           |
| 23 | -.104201          | .135176           | .114339           | .036509           | -.017820          | -.000594          |
| 24 | -.107347          | .133661           | .120898           | .039056           | -.022588          | -.003056          |
| 25 | -.100518          | .133520           | .130721           | .034581           | -.025612          | -.005719          |
| 26 | -.087031          | .137375           | .137332           | .023541           | -.022503          | -.013391          |
| 27 | -.071952          | .134959           | .138154           | .017328           | -.014867          | -.015278          |
| 28 | -.055824          | .126785           | .131975           | .012496           | -.016760          | -.014049          |
| 29 | -.042387          | .120238           | .121981           | .008753           | -.028879          | -.015702          |
| 30 | -.031543          | .110530           | .104145           | .000756           | -.040362          | -.022393          |
| 31 | -.019866          | .103000           | .086951           | -.006890          | -.040492          | -.033224          |
| 32 | -.005824          | .097013           | .071768           | -.016581          | -.036605          | -.047993          |
| 33 | .011888           | .086276           | .057505           | -.023556          | -.036927          | -.051783          |
| 34 | .026723           | .069028           | .046744           | -.026468          | -.037123          | -.048367          |
| 35 | .035637           | .048790           | .039257           | -.030551          | -.033282          | -.050823          |
| 36 | .047577           | .025273           | .029207           | -.034091          | -.028735          | -.055602          |
| 37 | .063289           | .013440           | .021686           | -.035582          | -.027020          | -.059687          |
| 38 | .073495           | .016203           | .012026           | -.034149          | -.025960          | -.058068          |
| 39 | .074845           | .017124           | .007759           | -.033114          | -.023345          | -.058438          |
| 40 | .068703           | .010661           | .003101           | -.033126          | -.017239          | -.054296          |
| 41 | .064939           | -.000059          | -.004768          | -.034446          | -.009329          | -.046925          |
| 42 | .061432           | -.007805          | -.012022          | -.030540          | -.007206          | -.034628          |
| 43 | .061300           | -.018720          | -.013685          | -.028175          | -.009257          | -.022844          |
| 44 | .060433           | -.025134          | -.016618          | -.029328          | -.005671          | -.013395          |
| 45 | .054521           | -.031069          | -.020529          | -.035756          | .002533           | -.003585          |
| 46 | .047094           | -.042340          | -.018538          | -.036361          | .001673           | .001980           |
| 47 | .045781           | -.055244          | -.012173          | -.031648          | -.003190          | .001096           |
| 48 | .043343           | -.064410          | -.005974          | -.027167          | -.007959          | -.002524          |
| 49 | .039092           | -.060582          | -.006000          | -.026223          | -.008489          | -.005863          |
| 50 | .030668           | -.053459          | -.007128          | -.018944          | -.009363          | -.003567          |
| 51 | .021029           | -.053929          | -.004067          | -.009556          | -.007621          | .001205           |
| 52 | .011267           | -.052412          | .000794           | .002769           | -.012442          | .002101           |
| 53 | .011603           | -.049468          | .004714           | .008508           | -.017772          | -.002224          |
| 54 | .008217           | -.044992          | .004153           | .009455           | -.021926          | -.001293          |
| 55 | .000561           | -.041056          | .002756           | .011765           | -.025645          | -.002950          |
| 56 | -.002073          | -.031182          | .002605           | .012022           | -.026841          | -.004398          |
| 57 | -.006053          | -.016069          | -.000974          | .011954           | -.025905          | -.006657          |
| 58 | -.009868          | -.009211          | .003547           | .016831           | -.025647          | -.006193          |
| 59 | -.011433          | -.005207          | .008498           | .021663           | -.023348          | -.001510          |
| 60 | -.015195          | -.004250          | .011519           | .029811           | -.018691          | .010271           |

RUN NO 90A 48M 6-18-63 1501-1601(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.74873<br>10E 00 | 0.56967<br>10E 00 | 0.86240<br>10E-01 | 0.60165<br>10E 00 | 0.91081<br>10E-01 | 0.69299<br>10E-01 |
| 1  | .016822           | -.033246          | .000299           | .030179           | .026731           | -.049763          |
| 2  | .033842           | -.051094          | .006838           | .041740           | .032679           | -.062497          |
| 3  | .041893           | -.055924          | .009972           | .037680           | .036682           | -.055481          |
| 4  | .046585           | -.056380          | .010461           | .026530           | .043929           | -.047919          |
| 5  | .048174           | -.060835          | .013753           | .014878           | .050121           | -.044003          |
| 6  | .048055           | -.069778          | .018519           | .014766           | .058652           | -.048462          |
| 7  | .053502           | -.075082          | .019484           | .028997           | .059230           | -.053500          |
| 8  | .063647           | -.070015          | .021137           | .041363           | .053616           | -.049204          |
| 9  | .067659           | -.061109          | .020296           | .038626           | .051748           | -.045262          |
| 10 | .062931           | -.055289          | .017357           | .030701           | .051304           | -.042733          |
| 11 | .057124           | -.043828          | .008163           | .019624           | .060066           | -.035690          |
| 12 | .048656           | -.033992          | -.004685          | .011871           | .065037           | -.027517          |
| 13 | .040221           | -.023190          | -.017177          | .001558           | .066949           | -.016749          |
| 14 | .029767           | -.011956          | -.027164          | -.010636          | .069955           | -.007202          |
| 15 | .020447           | -.003043          | -.035342          | -.019078          | .070100           | -.002701          |
| 16 | .012266           | .001697           | -.044444          | -.021339          | .066295           | .000571           |
| 17 | .004520           | -.004233          | -.051247          | -.022006          | .059630           | .011233           |
| 18 | -.002662          | -.005918          | -.058897          | -.017436          | .048571           | .022981           |
| 19 | -.002498          | -.001183          | -.062723          | -.016040          | .037488           | .036144           |
| 20 | .002111           | .003023           | -.062805          | -.010593          | .028316           | .048021           |
| 21 | .011469           | .000753           | -.058900          | -.001185          | .027371           | .053358           |
| 22 | .022901           | -.006613          | -.053307          | .005686           | .029824           | .046658           |
| 23 | .026886           | -.010653          | -.050575          | .011555           | .028756           | .038031           |
| 24 | .029894           | -.016018          | -.050597          | .016498           | .020722           | .033600           |
| 25 | .033792           | -.013166          | -.048601          | .016097           | .009534           | .035282           |
| 26 | .033747           | -.001336          | -.044240          | .017359           | .001088           | .035920           |
| 27 | .030351           | .004235           | -.038227          | .017553           | .002030           | .029762           |
| 28 | .023970           | .009603           | -.031052          | .010911           | .005823           | .029196           |
| 29 | .011919           | .013804           | -.034079          | .000262           | .004682           | .033283           |
| 30 | -.000551          | .017660           | -.039686          | -.017516          | -.000436          | .038846           |
| 31 | -.008169          | .011795           | -.040366          | -.027549          | -.007349          | .043804           |
| 32 | -.009502          | .001821           | -.038820          | -.026164          | -.012504          | .043289           |
| 33 | -.006015          | -.006234          | -.036560          | -.028413          | -.021534          | .042824           |
| 34 | -.006085          | -.004762          | -.032984          | -.024875          | -.034382          | .038804           |
| 35 | -.013813          | -.005030          | -.028985          | -.020049          | -.040720          | .036523           |
| 36 | -.018353          | -.000935          | -.023409          | -.011077          | -.039233          | .035704           |
| 37 | -.014337          | -.001682          | -.010659          | -.012943          | -.027601          | .028656           |
| 38 | .001679           | .002917           | .001299           | -.010498          | -.014504          | .020760           |
| 39 | .016410           | .002867           | .008394           | -.008462          | -.002003          | .010111           |
| 40 | .023248           | .002978           | .021897           | -.000338          | .008800           | -.003729          |
| 41 | .026076           | .002368           | .034413           | .007133           | .017686           | -.014457          |
| 42 | .026955           | -.002250          | .046284           | .012796           | .029784           | -.022702          |
| 43 | .029254           | -.009490          | .062075           | .015975           | .036315           | -.032119          |
| 44 | .028456           | -.006491          | .077178           | .021333           | .035162           | -.043132          |
| 45 | .019610           | -.001432          | .085895           | .028068           | .032851           | -.060659          |
| 46 | .010287           | -.000522          | .088082           | .040145           | .029332           | -.076693          |
| 47 | .003854           | .000201           | .088008           | .053012           | .018519           | -.087805          |
| 48 | .004250           | -.000124          | .090942           | .062177           | .013834           | -.094474          |
| 49 | .009595           | -.003936          | .092047           | .063100           | .013821           | -.100077          |
| 50 | .013534           | -.005329          | .086098           | .055432           | .015462           | -.098184          |
| 51 | .008260           | -.001137          | .075686           | .042458           | .018425           | -.088192          |
| 52 | .004733           | .005348           | .067858           | .037490           | .015223           | -.075056          |
| 53 | .007706           | .009774           | .064459           | .036600           | .007452           | -.064041          |
| 54 | .004635           | .013141           | .057828           | .031241           | .001769           | -.048390          |
| 55 | -.001617          | .010583           | .047355           | .025875           | .000731           | -.037420          |
| 56 | -.008964          | .009996           | .034386           | .010189           | .003771           | -.029501          |
| 57 | -.016485          | .009554           | .018903           | -.001886          | .006496           | -.020269          |
| 58 | -.017630          | .005460           | .010349           | -.009562          | .009684           | -.015224          |
| 59 | -.017055          | .002996           | .007656           | -.014384          | .010772           | -.017400          |
| 60 | -.019007          | .004004           | .005190           | -.015090          | .006947           | -.010810          |

RUN NO 90A 46M 6-18-63 1501-1601(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.70893<br>10E 00 | 0.79075<br>10E 00 | 0.45777<br>10E 00 | 0.10491<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .868341           | .838005           | .785606           | .839520           |
| 2  | .701691           | .630611           | .512177           | .647090           |
| 3  | .569455           | .473036           | .324925           | .510779           |
| 4  | .464387           | .349993           | .213018           | .409094           |
| 5  | .374269           | .249388           | .135076           | .316842           |
| 6  | .296486           | .158089           | .067823           | .228670           |
| 7  | .226561           | .074295           | .007262           | .155942           |
| 8  | .157175           | .014538           | -.041402          | .100941           |
| 9  | .095614           | -.027384          | -.073259          | .054043           |
| 10 | .038697           | -.055192          | -.101221          | .005828           |
| 11 | -.012762          | -.088101          | -.121259          | -.037257          |
| 12 | -.058694          | -.128952          | -.132811          | -.076231          |
| 13 | -.102583          | -.156713          | -.142257          | -.105038          |
| 14 | -.138012          | -.175686          | -.147561          | -.122970          |
| 15 | -.166268          | -.195655          | -.145955          | -.141764          |
| 16 | -.194905          | -.207090          | -.140496          | -.150028          |
| 17 | -.226025          | -.217086          | -.143633          | -.153935          |
| 18 | -.254517          | -.233871          | -.153947          | -.158229          |
| 19 | -.286177          | -.250862          | -.160110          | -.170829          |
| 20 | -.312917          | -.260643          | -.157657          | -.181704          |
| 21 | -.329303          | -.264681          | -.142208          | -.192027          |
| 22 | -.332111          | -.258209          | -.130810          | -.203474          |
| 23 | -.328573          | -.246781          | -.129729          | -.213518          |
| 24 | -.323765          | -.242173          | -.141202          | -.219978          |
| 25 | -.314305          | -.232803          | -.150425          | -.225791          |
| 26 | -.303044          | -.213597          | -.145377          | -.226147          |
| 27 | -.282116          | -.183019          | -.150666          | -.224867          |
| 28 | -.254564          | -.149948          | -.165399          | -.220128          |
| 29 | -.224155          | -.125611          | -.165748          | -.208580          |
| 30 | -.190639          | -.099696          | -.141021          | -.183432          |
| 31 | -.153867          | -.062324          | -.097062          | -.147600          |
| 32 | -.124783          | -.035101          | -.057842          | -.110512          |
| 33 | -.095615          | -.010928          | -.034707          | -.079987          |
| 34 | -.068336          | .015360           | -.017492          | -.061108          |
| 35 | -.037075          | .043458           | -.000742          | -.043492          |
| 36 | -.005318          | .068792           | .022841           | -.032766          |
| 37 | .015090           | .083063           | .036777           | -.021792          |
| 38 | .027005           | .090008           | .033090           | -.018802          |
| 39 | .025364           | .101815           | .032685           | -.016292          |
| 40 | .027907           | .113747           | .034387           | -.009573          |
| 41 | .038481           | .120895           | .040851           | -.002384          |
| 42 | .043201           | .115349           | .046049           | -.003243          |
| 43 | .042616           | .093281           | .040115           | -.009199          |
| 44 | .051572           | .073894           | .031479           | -.017724          |
| 45 | .057182           | .058391           | .037156           | -.024820          |
| 46 | .061451           | .038017           | .047742           | -.035294          |
| 47 | .063705           | .021676           | .058728           | -.046533          |
| 48 | .064876           | .010867           | .063543           | -.048969          |
| 49 | .060739           | .007921           | .060235           | -.042649          |
| 50 | .050860           | .004956           | .049939           | -.039521          |
| 51 | .044056           | .002671           | .049653           | -.038699          |
| 52 | .031131           | -.010746          | .052841           | -.042600          |
| 53 | .015952           | -.029141          | .052576           | -.048470          |
| 54 | .002162           | -.043281          | .043281           | -.001566          |
| 55 | -.007004          | -.058194          | .038688           | .011074           |
| 56 | -.012278          | -.077168          | .034287           | .012367           |
| 57 | -.017872          | -.093005          | .031991           | .016244           |
| 58 | -.026796          | -.098499          | .038229           | .010577           |
| 59 | -.035129          | -.093523          | .034320           | .004232           |
| 60 | -.033016          | -.092249          | .021188           | -.002697          |

RUN NO 90A 46M 6-18-63 1501-1601(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-01   | 10E-02  | 10E-02   |
| 0     | -.004681 | -.030898 | -.077773 | .002217  | .032251 | .023419  |
| 1     | .069367  | -.363630 | -.640458 | -.022744 | .291246 | .127887  |
| 2     | .255044  | -.459867 | -.715099 | -.122462 | .313622 | .007958  |
| 3     | .349346  | -.383386 | -.620489 | -.219463 | .307527 | -.181902 |
| 4     | .130901  | -.147315 | -.290258 | -.166351 | .268953 | -.245882 |
| 5     | -.017830 | -.066571 | -.148382 | -.084741 | .249403 | -.709931 |
| 6     | .010594  | -.069621 | -.150336 | -.054655 | .194683 | -.198534 |
| 7-8   | .024894  | -.058893 | -.084961 | -.056004 | .132704 | -.127822 |
| 9-11  | -.008392 | -.022109 | -.050015 | -.076273 | .113494 | -.072337 |
| 12-15 | -.007502 | -.013722 | -.048315 | -.024020 | .057059 | -.045513 |
| 16-20 | .005099  | -.019989 | -.021681 | -.013913 | .024710 | -.019485 |
| 21-27 | -.000242 | -.006830 | -.010665 | -.014956 | .024934 | -.018967 |
| 28-36 | -.002689 | -.002784 | -.010384 | -.001217 | .007893 | -.009492 |
| 37-47 | -.000437 | -.001108 | -.003609 | -.002242 | .004795 | -.004062 |
| 48-60 | .000102  | -.001675 | -.002813 | -.001021 | .001355 | -.002868 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .164537  | -.751973 | -.214031 | .123002  | .256318  | .068582  |
| 2     | .124602  | -.817738 | -.118998 | .194296  | .235753  | -.019524 |
| 3     | .116087  | -.990746 | .090180  | .486235  | .211505  | -.157544 |
| 4     | .088193  | -.933776 | .113123  | .337542  | .076581  | -.125492 |
| 5     | .078680  | -.771436 | .063811  | .520889  | .008114  | -.078342 |
| 6     | .080077  | -.642465 | .058197  | .709776  | .030134  | -.064453 |
| 7-8   | -.009027 | -.309444 | -.022553 | .048947  | .005504  | -.009034 |
| 9-11  | .001425  | -.009094 | -.011410 | -.006073 | .030026  | -.028423 |
| 12-15 | .011127  | -.072516 | .000761  | .190606  | -.001637 | -.016988 |
| 16-20 | .006771  | -.076949 | .001379  | .170565  | .005945  | -.018925 |
| 21-27 | -.003307 | -.063423 | -.000307 | .015802  | .011056  | -.013777 |
| 28-36 | -.001101 | -.000782 | -.002491 | .016784  | .003282  | -.002953 |
| 37-47 | -.001495 | -.003280 | -.001507 | .004407  | .003628  | -.002558 |
| 48-60 | -.000370 | -.002675 | -.000301 | -.001627 | -.000112 | -.000038 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E-01  | 10E-02  |
| 0     | .010729 | .006955 | .019392 | .019309 |
| 1     | .106036 | .070995 | .308895 | .155360 |
| 2     | .137802 | .110456 | .491427 | .171558 |
| 3     | .138737 | .137649 | .574123 | .164426 |
| 4     | .075755 | .091149 | .418492 | .103834 |
| 5     | .035990 | .050986 | .331763 | .066693 |
| 6     | .031282 | .047310 | .326876 | .064245 |
| 7-8   | .027067 | .038408 | .232233 | .043470 |
| 9-11  | .014928 | .023214 | .160652 | .024392 |
| 12-15 | .010264 | .013773 | .105205 | .017239 |
| 16-20 | .006458 | .007944 | .075609 | .010073 |
| 21-27 | .004051 | .006652 | .052685 | .008246 |
| 28-36 | .002488 | .003243 | .026525 | .004899 |
| 37-47 | .001537 | .002190 | .015539 | .002847 |
| 48-60 | .001048 | .001249 | .009951 | .001884 |



RUN NO 90A 46M 6-18-63 1501-1601(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.66931<br>10E 00 | 0.44309<br>10E 00 | 0.11512<br>10E 00 | 0.36518<br>10E 00 | 0.94876<br>10E-01 | 0.62809<br>10E-01 |
| 0  | .068846           | -.476636          | -.504654          | -.105692          | .252240           | .090316           |
| 1  | -.004704          | -.273731          | -.344523          | .063482           | .114682           | .213415           |
| 2  | -.056230          | -.042354          | -.190291          | .081083           | .058164           | .121296           |
| 3  | -.036522          | .065926           | -.074093          | .007912           | .024386           | .038279           |
| 4  | .017230           | .092376           | -.027543          | -.014794          | .007311           | -.017928          |
| 5  | .002101           | .096661           | .023733           | -.004750          | .022904           | -.048688          |
| 6  | .007491           | .089206           | .060691           | .002167           | .004569           | -.045219          |
| 7  | .003512           | .077427           | .075487           | .001488           | .028733           | -.062144          |
| 8  | .026941           | .050938           | .085569           | -.038359          | .014119           | -.059881          |
| 9  | .011527           | .032508           | .094536           | -.013231          | -.048901          | -.071871          |
| 10 | -.003015          | .049200           | .099951           | .018179           | -.074552          | -.040994          |
| 11 | -.026302          | .067146           | .107250           | -.024183          | -.018261          | -.038361          |
| 12 | -.028947          | .003673           | .118561           | -.041863          | -.035156          | .013122           |
| 13 | -.061947          | .007826           | .129795           | .023957           | -.065281          | .007295           |
| 14 | -.033165          | .014722           | .109321           | .046899           | -.082437          | .001597           |
| 15 | .044609           | -.059115          | .105662           | .003384           | -.029615          | .004463           |
| 16 | .047123           | -.037163          | .084475           | -.069819          | .002190           | -.034585          |
| 17 | -.003554          | .013260           | .102749           | -.010432          | -.042311          | -.065171          |
| 18 | -.000576          | -.020878          | .115281           | .045424           | -.068973          | -.048389          |
| 19 | -.021539          | -.007427          | .098710           | .072812           | -.067371          | .010255           |
| 20 | -.049819          | -.013115          | .023879           | .041570           | -.058371          | .031873           |
| 21 | -.021533          | .023595           | -.001301          | -.008043          | -.021096          | .003959           |
| 22 | -.010992          | .044487           | -.008417          | -.056041          | .011401           | -.009100          |
| 23 | .057487           | .003002           | -.076719          | -.104957          | .048247           | .022599           |
| 24 | .077918           | -.053512          | -.129853          | -.077811          | .030825           | .014334           |
| 25 | .078260           | -.095522          | -.116294          | -.036576          | .009311           | -.003514          |
| 26 | .112649           | -.034896          | -.046518          | -.031455          | -.014521          | -.060070          |
| 27 | .047425           | .065128           | -.036856          | -.038954          | .006463           | -.109192          |
| 28 | .007388           | .082743           | .001333           | -.039600          | .026488           | -.079349          |
| 29 | .022530           | .105050           | .056264           | .048678           | .001877           | -.049091          |
| 30 | -.008232          | .122187           | .008510           | .063025           | .030327           | -.048288          |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-02   | 10E-01   | 10E-01   | 10E-02   | 10E-02  | 10E-02   |
| 0     | -.120692 | -.006749 | -.002100 | .033120  | .029639 | .012369  |
| 1     | -.356606 | -.060935 | -.070951 | .256710  | .329345 | .138693  |
| 2     | .093594  | -.114518 | -.100219 | .163918  | .346381 | .177873  |
| 3     | -.059472 | -.204316 | -.089092 | .316156  | .237860 | .223855  |
| 4     | -.301666 | -.241118 | -.057131 | .297495  | .117041 | .221536  |
| 5     | -.379025 | -.211516 | -.052521 | .022996  | .098709 | .199307  |
| 6     | -.267340 | -.178298 | -.039032 | .124466  | .073331 | .113394  |
| 7     | .734215  | -.190912 | -.032050 | -.068129 | .127637 | .027193  |
| 8     | .710474  | -.172076 | -.029545 | -.180357 | .171903 | .045164  |
| 9-11  | .225690  | -.109237 | -.017597 | -.160684 | .122541 | .022384  |
| 12-14 | .582185  | -.081026 | -.013120 | -.241089 | .017817 | -.030752 |
| 15-21 | .378679  | -.040860 | -.006853 | -.454206 | .060216 | -.039145 |
| 22-30 | .093630  | -.016668 | -.005879 | -.296792 | .071896 | -.066562 |

RUN NC 90A 46M 6-18-63 1501-1601(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.66931<br>10E 00 | 0.44309<br>10E 00 | 0.11512<br>10E 00 | 0.36518<br>10E 00 | 0.94876<br>10E-01 | 0.62809<br>10E-01 |
| 1  | .125004           | -.094449          | -.003143          | .071594           | .130396           | -.045290          |
| 2  | .149068           | -.059061          | -.043611          | .065113           | .174276           | .021401           |
| 3  | .180281           | -.069065          | -.026725          | .085545           | .181348           | .019882           |
| 4  | .185144           | -.049685          | .028355           | .101046           | .182619           | -.040217          |
| 5  | .138778           | -.046868          | .079924           | .136212           | .160806           | -.090660          |
| 6  | .056103           | -.036689          | .043245           | .013006           | .095088           | -.041313          |
| 7  | .034335           | -.008442          | .003737           | -.051729          | .055730           | .034004           |
| 8  | -.025495          | -.008201          | .003354           | -.059881          | .038782           | .053767           |
| 9  | .020415           | -.010166          | -.021045          | -.020306          | .076891           | .043932           |
| 10 | .030997           | .045712           | -.026866          | -.093637          | .049147           | .093270           |
| 11 | .041832           | .026963           | .001919           | -.060378          | .023315           | .038125           |
| 12 | .034734           | -.015364          | .024914           | .035474           | .045531           | -.024451          |
| 13 | -.001275          | -.016279          | .038447           | .063408           | -.005910          | -.049427          |
| 14 | -.061858          | -.025506          | .002299           | -.055087          | -.015322          | -.040459          |
| 15 | -.123712          | -.034414          | .017321           | -.108821          | -.043816          | -.033644          |
| 16 | -.093731          | -.007069          | .010918           | -.025547          | -.079119          | -.006585          |
| 17 | -.041539          | .013759           | .024727           | .010791           | -.034737          | .000752           |
| 18 | -.077934          | .021880           | .045254           | .020271           | -.046837          | -.012577          |
| 19 | -.115920          | .045949           | -.006035          | -.033805          | -.040140          | .011535           |
| 20 | -.098011          | .019602           | -.078157          | .036457           | -.041988          | -.007912          |
| 21 | .023322           | -.012851          | -.095043          | .028908           | -.006864          | .007843           |
| 22 | .024703           | .021887           | -.109530          | .071778           | -.036986          | .030297           |
| 23 | .024905           | .044432           | -.099924          | .090257           | -.009768          | .001295           |
| 24 | .039229           | -.005630          | -.059774          | -.018098          | .039294           | -.002626          |
| 25 | .055134           | -.029853          | -.039995          | .023608           | .029786           | -.044257          |
| 26 | .061072           | -.012264          | -.042680          | .052578           | .000512           | .006842           |
| 27 | .032881           | -.017557          | -.002068          | .051085           | .004632           | -.018528          |
| 28 | .062712           | .007776           | .039096           | .025647           | .061060           | -.044702          |
| 29 | .067688           | -.003130          | .091048           | -.005268          | -.009127          | -.040416          |
| 30 | -.023680          | .040703           | .087895           | -.063590          | -.059836          | -.033897          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-01   | 10E-02  | 10E-02   |
| 1     | .097000  | -.458531 | .059955  | -.011150 | .374380 | .004666  |
| 2     | .272164  | -.599158 | .114354  | .016713  | .495327 | .013994  |
| 3     | .360507  | -.655636 | -.002339 | .090125  | .529654 | -.005939 |
| 4     | .215528  | -.732417 | .039311  | .111106  | .343972 | -.077010 |
| 5     | .197592  | -.904348 | .086207  | .098369  | .270684 | -.121604 |
| 6     | .252968  | -.584509 | -.083964 | .093268  | .278469 | -.047823 |
| 7     | .181693  | -.113557 | -.130326 | .042133  | .221381 | .068658  |
| 8     | .068643  | -.107820 | -.150535 | -.026789 | .116036 | .118969  |
| 9-11  | -.018189 | -.338378 | -.081776 | -.015401 | .020567 | .025817  |
| 12-14 | .013793  | -.143345 | .018535  | -.007355 | .031960 | -.036968 |
| 15-21 | .034845  | -.206624 | .043981  | .021069  | .032859 | -.043119 |
| 22-30 | .013072  | -.188227 | .018347  | .014516  | .005643 | -.019289 |

RUN NC 90A 46M 6-18-63 1501-1601(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.81213<br>10E 00 | 0.55161<br>10E 00 | 0.24175<br>10E 00 | 0.16318<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .554101           | .316218           | .184323           | .654262           |
| 2  | .187538           | -.044726          | -.021244          | .408416           |
| 3  | .030703           | -.053218          | -.098207          | .234077           |
| 4  | -.055188          | -.052496          | -.112285          | .128832           |
| 5  | -.110010          | -.115302          | -.064515          | .023663           |
| 6  | -.128156          | -.184514          | -.108492          | -.010031          |
| 7  | -.115745          | -.032567          | -.120423          | -.040808          |
| 8  | -.127368          | .044534           | -.050490          | -.077120          |
| 9  | -.123362          | -.090244          | .004150           | -.108759          |
| 10 | -.142823          | -.105156          | -.064143          | -.144933          |
| 11 | -.169535          | -.077938          | -.050161          | -.182632          |
| 12 | -.139108          | -.116590          | -.035365          | -.229838          |
| 13 | -.160798          | -.167913          | -.037159          | -.233948          |
| 14 | -.154500          | -.181013          | -.064983          | -.205916          |
| 15 | -.079846          | -.009792          | .057206           | -.212379          |
| 16 | -.032450          | .106184           | .077675           | -.161275          |
| 17 | -.084234          | .060952           | .048777           | -.162301          |
| 18 | -.043767          | .078792           | .062648           | -.158921          |
| 19 | .000303           | .071590           | .015698           | -.151049          |
| 20 | .023968           | .084525           | -.044705          | -.100494          |
| 21 | -.001405          | .009306           | -.029867          | -.037371          |
| 22 | -.028634          | -.046076          | -.027481          | .017282           |
| 23 | .025293           | .081911           | -.020763          | .050200           |
| 24 | .117544           | .036735           | .056147           | .102275           |
| 25 | .196711           | -.055633          | .004817           | .070887           |
| 26 | .131834           | -.041462          | -.052116          | -.005310          |
| 27 | .018097           | .035805           | -.083534          | .019347           |
| 28 | -.045364          | .001487           | -.107941          | -.014813          |
| 29 | -.126386          | -.095579          | -.109142          | -.070826          |
| 30 | -.092049          | -.097661          | -.042957          | .015280           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .033235 | .011046 | .006200 | .040288 |
| 1     | .578337 | .151810 | .048127 | .290025 |
| 2     | .882450 | .301540 | .075633 | .287775 |
| 3     | .983480 | .446851 | .137144 | .228321 |
| 4     | .755118 | .335135 | .156196 | .131233 |
| 5     | .631249 | .242004 | .130866 | .108985 |
| 6     | .587717 | .368148 | .132929 | .095407 |
| 7     | .581152 | .455321 | .156545 | .087649 |
| 8     | .472307 | .339698 | .129834 | .075778 |
| 9-11  | .329857 | .222123 | .103817 | .042478 |
| 12-14 | .243601 | .212319 | .112851 | .031082 |
| 15-21 | .180595 | .222579 | .085405 | .024424 |
| 22-30 | .110745 | .154822 | .105514 | .021435 |

RUN NO 90A 15M 6-18-63 1501-1601(EST)  
 RUN NO 90A 46M 6-18-63 1501-1601(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .389065 | .242417 | .695524 | .141680 |
| 1     | .407322 | .577664 | .367978 | .181762 |
| 2     | .346700 | .619324 | .187711 | .159098 |
| 3     | .252736 | .624378 | .153507 | .125588 |
| 4     | .145480 | .524253 | .294672 | .111645 |
| 5     | .113959 | .230890 | .241284 | .207428 |
| 6     | .033469 | .075281 | .101191 | .127401 |
| 7-8   | .084099 | .159116 | .149900 | .142622 |
| 9-11  | .195002 | .198467 | .222945 | .126478 |
| 12-15 | .087542 | .114444 | .250464 | .176295 |
| 16-20 | .064411 | .075463 | .154725 | .042750 |
| 21-27 | .111525 | .126975 | .145640 | .091104 |
| 28-36 | .094826 | .111755 | .135549 | .150958 |
| 37-47 | .131385 | .132448 | .091395 | .064640 |
| 48-60 | .107173 | .089916 | .089051 | .160088 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 02  | 10E 00  |
| 0     | .378715 | .182030 | .167270 | .686565 |
| 1     | .407485 | .561422 | .002415 | .510449 |
| 2     | .602267 | .601138 | .003329 | .356537 |
| 3     | .619428 | .622270 | .005033 | .406936 |
| 4     | .679173 | .589034 | .006242 | .495138 |
| 5     | .668433 | .574629 | .006453 | .567317 |
| 6     | .564013 | .602306 | .006052 | .293370 |
| 7     | .535844 | .674885 | .006349 | .031241 |
| 8     | .350973 | .662555 | .006047 | .053043 |
| 9-11  | .365968 | .607736 | .003503 | .109853 |
| 12-14 | .365355 | .747671 | .002403 | .232782 |
| 15-21 | .231971 | .505256 | .004137 | .238802 |
| 22-30 | .211600 | .397127 | .002904 | .259322 |

RUN NO 908 46M 6-18-63 1615-17.4(EST)

GROSS STATISTICS

CLEAR WIND SPEED 6.75 M/SEC SIGMA A 9.00 DEG  
 TRANSITIONAL WIND DIRECTION 236 DEG SIGMA E 6.8 DEG  
 SOLAR RAD. 0.50 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.18275E 01             | 0.15500E 01                    | 0.84702E 00                   | 0.11836E 01                        |
| V                | 0.10147E 01             | 0.95661E 00                    | 0.84405E 00                   | 0.49146E-00                        |
| W                | 0.51687E 00             | 0.51351E 00                    | 0.45616E-00                   | 0.24206E-00                        |
| T                | 0.93347E-01             | 0.63246E-02                    | 0.28472E-02                   | 0.47534E 02                        |
| E                | 0.16795E 01             | 0.15102E 01                    | 0.10736E 01                   |                                    |

|                         | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.20027                 | 0.18445                        | 0.13635                       | 0.16118                            |
| V                       | 0.14922                 | 0.14490                        | 0.13611                       | 0.10386                            |
| W                       | 0.10651                 | 0.10616                        | 0.10006                       | 0.07289                            |

|                    | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | 0.87931E-01             | 0.51468E-01                    | 0.13405E-01                   | 0.24760E-01                        |
| U,W                | -0.45066E-00            | -0.43217E-00                   | -0.26657E-00                  | -0.34348E-00                       |
| U,T                | -0.13208E-00            | -0.51384E-01                   | -0.16229E-01                  | -0.43429E-01                       |
| V,W                | -0.69375E-01            | -0.59222E-01                   | -0.48840E-01                  | -0.15515E-01                       |
| V,T                | 0.44716E-01             | 0.34188E-02                    | -0.14687E-03                  | 0.42966E-02                        |
| W,T                | 0.12281E-03             | 0.24260E-02                    | -0.87123E-02                  | 0.93743E-02                        |
| WE                 | 0.11195E-00             | 0.11586E-00                    | 0.99586E-02                   |                                    |

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | 0.06457                 | 0.04227                        | 0.01585                       | 0.03246                            |
| U,W                           | -0.46369                | -0.48441                       | -0.42885                      | -0.64169                           |
| U,T                           | -0.31979                | -0.51896                       | -0.33046                      | -0.57899                           |
| V,W                           | -0.09580                | -0.08450                       | -0.07871                      | -0.04498                           |
| V,T                           | 0.14529                 | 0.04395                        | -0.00300                      | 0.08890                            |
| W,T                           | 0.00056                 | 0.04257                        | -0.24175                      | 0.27636                            |

RUN NO 908 46M 6-18-63 1615-1714(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.84567<br>10E 00 | 0.62173<br>10E 00 | 0.49110<br>10E-01 | 0.62073<br>10E 00 | 0.49031<br>10E-01 | 0.36047<br>10E-01 |
| 0  | .015900           | -.428838          | -.310464          | -.078494          | -.003064          | -.241664          |
| 1  | .010390           | -.396148          | -.289554          | -.062045          | -.000329          | -.147588          |
| 2  | .001012           | -.342095          | -.232276          | -.035844          | .002097           | -.038920          |
| 3  | -.006896          | -.283460          | -.190137          | -.011736          | .009718           | .019561           |
| 4  | -.010898          | -.229259          | -.159621          | .006840           | .007702           | .042687           |
| 5  | -.014503          | -.185898          | -.132728          | .014295           | -.000310          | .055360           |
| 6  | -.017731          | -.143836          | -.110101          | .021252           | -.012980          | .062460           |
| 7  | -.012536          | -.103437          | -.087146          | .017568           | -.016935          | .060705           |
| 8  | -.005366          | -.065457          | -.062375          | .009414           | -.013536          | .064695           |
| 9  | -.001691          | -.031418          | -.038043          | .003055           | -.005810          | .063417           |
| 10 | .003474           | -.008486          | -.019013          | -.003581          | .000987           | .054330           |
| 11 | .013849           | .008896           | -.008548          | -.005597          | -.001146          | .051637           |
| 12 | .021552           | .032736           | -.002685          | -.006959          | -.009526          | .040295           |
| 13 | .024227           | .056914           | -.001180          | -.006670          | -.020748          | .029677           |
| 14 | .024173           | .079735           | -.002827          | -.002670          | -.026477          | .024468           |
| 15 | .027771           | .092787           | .010114           | .001128           | -.022892          | .022154           |
| 16 | .032528           | .094993           | .029247           | .003751           | -.016646          | .030745           |
| 17 | .035818           | .095435           | .046084           | .002920           | -.007344          | .033049           |
| 18 | .027687           | .095541           | .053748           | .002126           | -.002383          | .025935           |
| 19 | .020020           | .098867           | .061354           | -.000170          | -.004228          | .022949           |
| 20 | .017298           | .102043           | .068378           | -.012895          | .006919           | .012008           |
| 21 | .012563           | .106576           | .082526           | -.024115          | .024933           | .010087           |
| 22 | .004726           | .111512           | .100246           | -.028682          | .041025           | .011189           |
| 23 | -.004623          | .116208           | .104736           | -.028968          | .051397           | .007757           |
| 24 | -.015521          | .128619           | .097033           | -.021584          | .053014           | .012337           |
| 25 | -.024624          | .140317           | .080896           | -.008357          | .042601           | .014119           |
| 26 | -.028565          | .146039           | .064136           | -.000409          | .030171           | .011430           |
| 27 | -.026896          | .140026           | .056015           | .004496           | .021460           | .009682           |
| 28 | -.026727          | .126980           | .055012           | .015176           | .019917           | .004153           |
| 29 | -.035646          | .114072           | .052169           | .025800           | .022323           | .002368           |
| 30 | -.041588          | .095104           | .049526           | .030595           | .019178           | -.004244          |
| 31 | -.039776          | .070448           | .047526           | .024717           | .015426           | -.015644          |
| 32 | -.027830          | .051695           | .042872           | .021029           | .017693           | -.031034          |
| 33 | -.014183          | .043377           | .037168           | .019183           | .016303           | -.039672          |
| 34 | -.011078          | .035065           | .031986           | .026692           | .007586           | -.030097          |
| 35 | -.010730          | .023687           | .029195           | .042301           | -.000248          | -.025733          |
| 36 | -.005912          | .013469           | .026634           | .049491           | -.008062          | -.020170          |
| 37 | -.003820          | .008333           | .023422           | .055367           | -.014211          | -.014370          |
| 38 | .002047           | .006111           | .017477           | .042356           | -.024003          | -.014209          |
| 39 | .007299           | .008504           | .016884           | .027265           | -.037875          | -.025841          |
| 40 | .005425           | .008218           | .024768           | .020037           | -.044117          | -.030204          |
| 41 | .005514           | .001217           | .029688           | .012988           | -.042224          | -.028515          |
| 42 | .008329           | -.009610          | .032515           | .007499           | -.038994          | -.035807          |
| 43 | .009215           | -.021775          | .037740           | -.001753          | -.034489          | -.053240          |
| 44 | .011002           | -.025430          | .042568           | -.006836          | -.032266          | -.061594          |
| 45 | .010534           | -.013564          | .031454           | -.000102          | -.030628          | -.066138          |
| 46 | .006861           | .002881           | .015384           | .005390           | -.036786          | -.073437          |
| 47 | .000786           | .011323           | .002562           | .002506           | -.043357          | -.063268          |
| 48 | -.005516          | .007469           | .000829           | -.000571          | -.040712          | -.042449          |
| 49 | -.008756          | .003295           | .004405           | -.005952          | -.037020          | -.024758          |
| 50 | -.008163          | .000654           | .008275           | -.013553          | -.031955          | -.009083          |
| 51 | -.002138          | .001357           | .004698           | -.020715          | -.031066          | .004362           |
| 52 | .004792           | .011056           | -.004946          | -.031077          | -.025947          | .011703           |
| 53 | .013681           | .022339           | -.012153          | -.033141          | -.018595          | .009887           |
| 54 | .017699           | .027011           | -.010482          | -.025980          | -.008746          | .014160           |
| 55 | .010285           | .018683           | -.000290          | -.020837          | .001850           | .020877           |
| 56 | .001064           | .005767           | .012339           | -.019482          | .016635           | .034125           |
| 57 | .002641           | .001924           | .022675           | -.017208          | .023100           | .038165           |
| 58 | .007546           | .002736           | .028313           | -.013372          | .017323           | .031277           |
| 59 | .012908           | -.005434          | .033220           | -.017894          | .014204           | .022536           |
| 60 | .018661           | -.018295          | .037958           | -.023579          | .023561           | .018187           |

RUN NO 90B 46M 6-18-63 1615-1714(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.84567<br>10E 00 | 0.62173<br>10E 00 | 0.49110<br>10E-01 | 0.62073<br>10E 00 | 0.49031<br>10E-01 | 0.36047<br>10E-01 |
| 1  | .009475           | -.020943          | -.028240          | .004681           | .020626           | -.022925          |
| 2  | .024243           | -.031304          | -.044618          | .013992           | .024904           | -.008945          |
| 3  | .037781           | -.035640          | -.057233          | .018268           | .025090           | .007133           |
| 4  | .050410           | -.040037          | -.076471          | .025323           | .022423           | .023448           |
| 5  | .059359           | -.045259          | -.088485          | .035011           | .013436           | .024893           |
| 6  | .064735           | -.049250          | -.095562          | .047999           | .003408           | .020747           |
| 7  | .064012           | -.054449          | -.101413          | .051524           | -.001673          | .015290           |
| 8  | .055762           | -.054127          | -.108495          | .052287           | -.004808          | .015117           |
| 9  | .039841           | -.047524          | -.118796          | .049057           | -.007592          | .022047           |
| 10 | .022312           | -.037052          | -.125641          | .046455           | -.006620          | .031679           |
| 11 | .010802           | -.026522          | -.133493          | .048978           | -.009733          | .042465           |
| 12 | .001824           | -.026167          | -.128030          | .042014           | -.012903          | .053821           |
| 13 | -.003378          | -.030488          | -.113141          | .018563           | .001139           | .062779           |
| 14 | .000345           | -.029186          | -.103833          | .002293           | .016594           | .063695           |
| 15 | .005777           | -.021210          | -.097765          | -.001992          | .030010           | .063096           |
| 16 | .006861           | -.005666          | -.099394          | .000805           | .030161           | .067848           |
| 17 | .010349           | .007299           | -.100109          | .006735           | .027873           | .067234           |
| 18 | .017474           | .009900           | -.095779          | .016775           | .023420           | .059008           |
| 19 | .025375           | .001376           | -.083647          | .023317           | .027776           | .049471           |
| 20 | .033502           | -.006384          | -.080170          | .023382           | .030665           | .043629           |
| 21 | .037843           | -.017691          | -.080770          | .019828           | .021793           | .042709           |
| 22 | .039376           | -.027941          | -.073426          | .023189           | .011292           | .037849           |
| 23 | .036880           | -.028443          | -.064406          | .025331           | .008906           | .036395           |
| 24 | .029971           | -.023878          | -.049041          | .026001           | .012395           | .038450           |
| 25 | .027159           | -.013044          | -.039019          | .025410           | .011943           | .041446           |
| 26 | .022846           | -.000143          | -.030765          | .022777           | .006382           | .040939           |
| 27 | .023635           | .010359           | -.025617          | .023452           | -.000904          | .033917           |
| 28 | .031735           | .013728           | -.015694          | .022452           | .000274           | .022153           |
| 29 | .042796           | .011510           | -.003149          | .023963           | .009461           | .006088           |
| 30 | .051643           | .003803           | .009729           | .022039           | .016122           | -.005004          |
| 31 | .054479           | -.004527          | .023192           | .020692           | .019533           | -.010113          |
| 32 | .042747           | -.011938          | .029101           | .012171           | .023056           | -.012666          |
| 33 | .031489           | -.021664          | .028797           | -.004618          | .028721           | -.021695          |
| 34 | .021263           | -.021750          | .019563           | -.016413          | .034381           | -.028541          |
| 35 | .013110           | -.017630          | .013416           | -.026438          | .040791           | -.040175          |
| 36 | .006146           | -.007415          | .008518           | -.025511          | .038620           | -.042974          |
| 37 | -.001189          | -.003281          | .000207           | -.012218          | .028807           | -.043384          |
| 38 | -.005033          | -.002355          | -.006068          | .007288           | .009687           | -.036841          |
| 39 | -.004744          | .008070           | -.010045          | .011749           | -.005640          | -.025929          |
| 40 | -.003503          | .011977           | -.010227          | .004730           | -.009511          | -.016064          |
| 41 | -.008011          | .011949           | -.010290          | -.001327          | -.014766          | -.015750          |
| 42 | -.016165          | .009999           | -.013287          | -.006649          | -.024215          | -.014742          |
| 43 | -.029089          | .012993           | -.017633          | -.014061          | -.031417          | -.013692          |
| 44 | -.042742          | .017837           | -.017242          | -.024684          | -.030911          | -.008277          |
| 45 | -.055306          | .021857           | -.013094          | -.033372          | -.023710          | -.006274          |
| 46 | -.062687          | .025218           | -.009679          | -.046329          | -.014966          | -.007839          |
| 47 | -.069184          | .025537           | -.003717          | -.062712          | -.004803          | -.017174          |
| 48 | -.071689          | .024921           | .004785           | -.062349          | -.000444          | -.012939          |
| 49 | -.072134          | .027173           | .007746           | -.054043          | -.003763          | -.004836          |
| 50 | -.075367          | .029749           | .013612           | -.048268          | -.005959          | .001656           |
| 51 | -.074539          | .031336           | .018571           | -.042022          | -.005414          | .001588           |
| 52 | -.060320          | .026915           | .022870           | -.027357          | -.007993          | .010350           |
| 53 | -.034828          | .016020           | .028644           | -.007920          | -.008377          | .015969           |
| 54 | -.007357          | .009107           | .031917           | .008427           | -.005780          | .011785           |
| 55 | .011959           | .008375           | .035466           | .008424           | .003831           | .003547           |
| 56 | .024029           | .010073           | .034732           | .009674           | .014203           | .008085           |
| 57 | .025706           | .008530           | .032097           | .004575           | .021843           | .011905           |
| 58 | .023168           | .006528           | .028580           | .006724           | .015314           | .007501           |
| 59 | .021673           | .007393           | .023658           | .014755           | .006184           | .005688           |
| 60 | .025576           | .007296           | .024039           | .014328           | .008972           | .008494           |

RUN NC 90B 46M 6-18-63 1615-1714(EST)  
 61 PCINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTO-COVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.84703<br>10E 00 | 0.84431<br>10E 00 | 0.45636<br>10E 00 | 0.28473<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .864488           | .804108           | .758765           | .769743           |
| 2  | .692093           | .557344           | .484276           | .539448           |
| 3  | .557320           | .381238           | .308507           | .388038           |
| 4  | .445701           | .251640           | .200005           | .291624           |
| 5  | .352144           | .150892           | .121201           | .222706           |
| 6  | .272037           | .073126           | .061108           | .172808           |
| 7  | .199929           | .016651           | .029105           | .124776           |
| 8  | .132458           | -.030051          | -.004073          | .074977           |
| 9  | .072725           | -.071927          | -.044926          | .043902           |
| 10 | .025402           | -.106391          | -.061018          | .019861           |
| 11 | -.011835          | -.122607          | -.068964          | -.007436          |
| 12 | -.048213          | -.128750          | -.085485          | -.026930          |
| 13 | -.081181          | -.135952          | -.109253          | -.037975          |
| 14 | -.109146          | -.152294          | -.131395          | -.055417          |
| 15 | -.139514          | -.163742          | -.152621          | -.082467          |
| 16 | -.169198          | -.164023          | -.160949          | -.115244          |
| 17 | -.189837          | -.167550          | -.156725          | -.139236          |
| 18 | -.200117          | -.173688          | -.149879          | -.152604          |
| 19 | -.208341          | -.180894          | -.158386          | -.156300          |
| 20 | -.218967          | -.187561          | -.151114          | -.159799          |
| 21 | -.234379          | -.189645          | -.155464          | -.184737          |
| 22 | -.257382          | -.191673          | -.157627          | -.212156          |
| 23 | -.274350          | -.204353          | -.164062          | -.221750          |
| 24 | -.279129          | -.222917          | -.182432          | -.223361          |
| 25 | -.272413          | -.223465          | -.187082          | -.216304          |
| 26 | -.260017          | -.204319          | -.189816          | -.200464          |
| 27 | -.243539          | -.172837          | -.182951          | -.178786          |
| 28 | -.226338          | -.138982          | -.163087          | -.155716          |
| 29 | -.204229          | -.107022          | -.142710          | -.145433          |
| 30 | -.175123          | -.068456          | -.106727          | -.134132          |
| 31 | -.136615          | .017723           | -.070451          | -.103316          |
| 32 | -.104330          | .08868            | -.047624          | -.064423          |
| 33 | -.082088          | .05772            | -.027437          | -.028816          |
| 34 | -.067485          | .068292           | -.012670          | -.030622          |
| 35 | -.053768          | .076386           | -.003486          | -.021812          |
| 36 | -.042235          | .073379           | .002702           | -.013637          |
| 37 | -.030603          | .048841           | .010835           | -.005978          |
| 38 | -.013006          | .015356           | .024917           | -.002954          |
| 39 | .001559           | .004175           | .042931           | -.003047          |
| 40 | .010395           | .005719           | .042441           | -.012023          |
| 41 | .015993           | .023612           | .044783           | -.023476          |
| 42 | .021991           | .044791           | .061395           | -.026552          |
| 43 | .019937           | .052841           | .089866           | -.030806          |
| 44 | .013461           | .061613           | .092392           | -.031774          |
| 45 | .014679           | .071783           | .075579           | -.016040          |
| 46 | .013404           | .068929           | .067848           | .010280           |
| 47 | .014409           | .063086           | .061723           | .013452           |
| 48 | .013999           | .055316           | .055163           | .001353           |
| 49 | .010291           | .047257           | .051567           | -.014096          |
| 50 | .003568           | .040882           | .044757           | -.039486          |
| 51 | .000138           | .030502           | .031530           | -.052181          |
| 52 | -.008354          | .021765           | .010950           | -.047031          |
| 53 | -.015050          | .008159           | -.014895          | -.027487          |
| 54 | -.021285          | -.001609          | -.032176          | -.027164          |
| 55 | -.030856          | .000643           | -.038458          | -.033363          |
| 56 | -.038307          | -.008802          | -.039808          | -.045478          |
| 57 | -.045501          | -.021949          | -.037334          | -.045764          |
| 58 | -.048226          | -.036912          | -.026033          | -.034081          |
| 59 | -.041893          | -.048954          | .002770           | -.032594          |
| 60 | -.035178          | -.065675          | .022434           | -.034272          |



RUN NO 90B 46M 6-18-63 1615-1714(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 0     | .027960  | -.052031 | -.053365 | -.028030 | .016310  | .149430  |
| 1     | .391197  | -.464611 | -.332161 | -.526595 | .042619  | .657069  |
| 2     | .276727  | -.548494 | -.309942 | -.371721 | -.316568 | .055112  |
| 3     | -.394623 | -.532137 | -.264586 | .107801  | -.257154 | -.497143 |
| 4     | -.912021 | -.312526 | -.156361 | -.065888 | .398260  | -.516679 |
| 5     | -.342067 | -.183520 | -.078302 | -.581021 | .407644  | -.547716 |
| 6     | .460930  | -.168935 | -.062091 | -.446455 | .049743  | -.602640 |
| 7-8   | .400651  | -.101419 | -.074058 | -.203501 | -.142127 | -.623383 |
| 9-11  | .184187  | -.046595 | -.029505 | -.464511 | .095981  | -.489090 |
| 12-15 | .084444  | -.027100 | -.018909 | -.171105 | -.032751 | -.308531 |
| 16-20 | .013893  | -.015894 | -.020522 | -.065234 | -.107377 | -.280633 |
| 21-27 | .021041  | -.007540 | -.008438 | -.051755 | .017485  | -.181253 |
| 28-36 | .032764  | -.002963 | -.006098 | -.020878 | .012036  | -.109601 |
| 37-47 | -.005722 | -.002743 | -.002644 | -.011106 | -.000094 | -.051773 |
| 48-60 | .004720  | -.001528 | -.001600 | -.006933 | -.007607 | -.038125 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-01   | 10E-03   | 10E-03   |
| 1     | .194827  | -.857176 | -.288869 | .108711  | .622312  | .931016  |
| 2     | .128852  | -.831479 | -.244563 | .097347  | .276746  | .879901  |
| 3     | .023908  | -.699780 | -.187148 | .031990  | -.062450 | .433596  |
| 4     | .060132  | -.702529 | -.077183 | .042295  | -.041937 | -.174870 |
| 5     | .112749  | -.597032 | -.014541 | .056026  | -.027309 | -.194140 |
| 6     | .089374  | -.390825 | -.026419 | .048673  | -.116816 | -.049684 |
| 7-8   | .066710  | -.246920 | -.009925 | .001662  | .319847  | -.095244 |
| 9-11  | -.009576 | .022058  | .000873  | -.021364 | .196832  | .085804  |
| 12-15 | -.013333 | .008346  | -.008392 | .004095  | .035327  | -.047318 |
| 16-20 | .001734  | -.106878 | .002962  | -.004136 | .068743  | -.094366 |
| 21-27 | -.001077 | -.008332 | -.002780 | .004421  | .005193  | -.057086 |
| 28-36 | -.000903 | -.017048 | -.002918 | -.001515 | .011751  | -.022154 |
| 37-47 | -.001228 | -.001297 | -.000454 | -.001114 | .011817  | -.015432 |
| 48-60 | -.000425 | -.003686 | .000592  | -.001285 | .005300  | -.012483 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E-01  | 10E-03  |
| 0     | .017556 | .004670 | .022322 | .049416 |
| 1     | .134770 | .057842 | .319526 | .362440 |
| 2     | .152742 | .095285 | .502589 | .394132 |
| 3     | .147582 | .121552 | .578829 | .383307 |
| 4     | .086445 | .087944 | .382544 | .234372 |
| 5     | .049081 | .054835 | .274636 | .130890 |
| 6     | .044589 | .052701 | .274911 | .131051 |
| 7-8   | .035323 | .051155 | .223177 | .131200 |
| 9-11  | .018919 | .027112 | .162833 | .083625 |
| 12-15 | .011850 | .017634 | .111913 | .056757 |
| 16-20 | .008346 | .012368 | .080331 | .045336 |
| 21-27 | .004794 | .007349 | .049520 | .029135 |
| 28-36 | .003148 | .004814 | .035809 | .018216 |
| 37-47 | .001964 | .002845 | .018123 | .012796 |
| 48-60 | .001187 | .001660 | .012972 | .009594 |

RUN NO 908 46M 6-18-63 1615-1714(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.76296<br>10E 00 | 0.53551<br>10E 00 | 0.75031<br>10E-01 | 0.34507<br>10E 00 | 0.48349<br>10E-01 | 0.33935<br>10E-01 |
| 0  | .032453           | -.641404          | -.578811          | -.044960          | .088865           | .276241           |
| 1  | .084586           | -.358121          | -.452583          | -.039845          | .058290           | .335009           |
| 2  | .057606           | -.156688          | -.314584          | -.026797          | .082200           | .259105           |
| 3  | .001993           | -.023321          | -.193599          | .043239           | .049367           | .152630           |
| 4  | .008651           | .062596           | -.071654          | .045104           | .009014           | .052671           |
| 5  | -.020297          | .122525           | .007150           | .020432           | -.032151          | -.014721          |
| 6  | -.017608          | .106723           | .083838           | -.007699          | .008993           | -.051766          |
| 7  | -.039734          | .125360           | .116182           | -.000865          | -.008777          | -.100108          |
| 8  | -.001570          | .121047           | .137347           | .040538           | -.108205          | -.149034          |
| 9  | -.030200          | .155649           | .154373           | -.005901          | -.100495          | -.167156          |
| 10 | -.019847          | .084275           | .196402           | -.064919          | -.097053          | -.161777          |
| 11 | .030013           | .048462           | .193776           | -.010129          | -.107700          | -.157649          |
| 12 | .046434           | .051437           | .168261           | -.050397          | -.085503          | -.153969          |
| 13 | .029212           | .056855           | .114455           | -.001402          | -.047032          | -.158681          |
| 14 | -.005440          | .053146           | .098139           | -.020986          | .019309           | -.135567          |
| 15 | -.065583          | .061047           | .086201           | -.003587          | .048311           | -.069667          |
| 16 | -.039916          | .081786           | .042863           | .033169           | .030375           | -.015523          |
| 17 | .017211           | .081581           | .048020           | .054305           | .022841           | -.000872          |
| 18 | .034439           | -.057940          | .039815           | -.003456          | .035905           | .035944           |
| 19 | .006982           | -.113871          | .042082           | -.004584          | .058980           | .048412           |
| 20 | .002428           | -.005889          | .047486           | -.038955          | .088547           | .033386           |
| 21 | -.004133          | .040018           | .032674           | -.026239          | .087701           | .012022           |
| 22 | -.008265          | .016183           | -.002040          | .034646           | .039428           | .040117           |
| 23 | -.069221          | -.032401          | -.018077          | .099612           | .077888           | .056152           |
| 24 | -.081946          | -.036902          | -.024212          | .111221           | .073487           | .046059           |
| 25 | -.035626          | -.032101          | .004137           | .035022           | .038592           | .012168           |
| 26 | .026161           | -.006600          | .013420           | -.005152          | -.036541          | .000500           |
| 27 | .007125           | -.019222          | -.025457          | -.077291          | .016288           | .024733           |
| 28 | .016862           | -.019197          | -.055612          | -.045869          | .001986           | .025866           |
| 29 | .021144           | -.086650          | -.071639          | .017766           | -.083603          | .031914           |
| 30 | -.010438          | -.058647          | -.105018          | .001082           | -.105797          | .026469           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 0     | .019130  | -.002189 | -.062702 | -.021094 | -.005579 | .003928  |
| 1     | .099903  | -.185016 | -.681991 | -.134244 | -.020420 | .162757  |
| 2     | .067500  | -.337282 | -.852755 | .068325  | .098135  | .288215  |
| 3     | .080470  | -.446488 | -.889840 | .091530  | .206892  | .340274  |
| 4     | .108273  | -.399805 | -.625424 | -.211813 | .114361  | .198673  |
| 5     | .105218  | -.343265 | -.356878 | -.421606 | -.001615 | .078036  |
| 6     | .097785  | -.300908 | -.209423 | -.514720 | -.036768 | .056712  |
| 7     | .007384  | -.208555 | -.189338 | -.154419 | -.012579 | .050265  |
| 8     | -.048416 | -.133775 | -.173660 | -.055992 | .037099  | .019170  |
| 9-11  | .031430  | -.149217 | -.067957 | -.260850 | .007722  | .007629  |
| 12-14 | -.018207 | -.066353 | -.053122 | -.008971 | -.029512 | -.020155 |
| 15-21 | -.032104 | -.068437 | -.031323 | .104348  | .010813  | -.013344 |
| 22-30 | -.026448 | -.058890 | -.030460 | -.018829 | .010167  | -.018493 |

RUN NO 908 46M 6-18-63 1615-1714(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.76296<br>10E 00 | 0.53551<br>10E 00 | 0.75031<br>10E-01 | 0.34507<br>10E 00 | 0.48349<br>10E-01 | 0.33935<br>10E-01 |
| 1  | .041138           | -.075457          | -.158730          | .064371           | .002727           | .069022           |
| 2  | -.003546          | -.052533          | -.232858          | .023812           | -.013122          | .120535           |
| 3  | -.028136          | -.074966          | -.234841          | .020262           | -.035137          | .100833           |
| 4  | -.083106          | -.058747          | -.231617          | -.044992          | -.063385          | .069907           |
| 5  | -.125775          | -.032881          | -.192418          | -.110707          | -.074708          | .053151           |
| 6  | -.109059          | -.045381          | -.141073          | -.049083          | -.085127          | .016915           |
| 7  | -.110203          | -.062661          | -.095735          | -.049693          | -.110102          | -.020889          |
| 8  | -.146382          | -.049204          | -.074455          | -.088051          | -.094545          | -.032244          |
| 9  | -.069821          | -.031503          | -.033130          | -.047034          | .001241           | -.038880          |
| 10 | .024729           | .021310           | -.008734          | .062341           | .076517           | .021328           |
| 11 | .109049           | -.018593          | .064562           | .088428           | .078805           | -.019756          |
| 12 | .107954           | -.028193          | .105416           | .063592           | .065950           | -.061108          |
| 13 | .089109           | -.003431          | .101860           | .080435           | .046333           | -.061609          |
| 14 | .102628           | .023708           | .115123           | .047058           | .036865           | -.042614          |
| 15 | .097569           | .093746           | .076920           | .082919           | .002915           | .024751           |
| 16 | .065159           | .059003           | .068161           | .043297           | .017342           | -.009336          |
| 17 | .029232           | .042477           | .063752           | .007494           | .004683           | -.007974          |
| 18 | -.018568          | .008815           | .062237           | -.049307          | -.019822          | -.038014          |
| 19 | -.021257          | -.019611          | .029252           | -.081338          | -.027970          | -.025780          |
| 20 | -.001517          | .002968           | -.027715          | -.042052          | -.031267          | .038181           |
| 21 | .052734           | -.009672          | -.050853          | -.014207          | -.037402          | .076590           |
| 22 | .009954           | -.015001          | -.041634          | -.004896          | -.069175          | .011736           |
| 23 | -.033353          | .009056           | -.059996          | -.044344          | -.071343          | -.000695          |
| 24 | -.073412          | .025763           | -.089967          | -.048721          | -.087186          | -.012442          |
| 25 | -.041078          | -.030623          | -.088112          | .015809           | -.043025          | -.027815          |
| 26 | -.058951          | -.027636          | -.082805          | -.070405          | -.019855          | -.012765          |
| 27 | -.096682          | -.027244          | -.074669          | -.039899          | -.049508          | .030909           |
| 28 | -.062790          | .002861           | -.055378          | .040178           | .023822           | .032406           |
| 29 | -.071751          | .011019           | -.032556          | .019339           | .048520           | .015745           |
| 30 | .015230           | -.029142          | -.002321          | .000665           | .076350           | -.038784          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-03   |
| 1     | -.012367 | -.064793 | -.165392 | .093531  | -.046813 | -.088794 |
| 2     | -.194344 | -.113336 | -.376982 | -.223680 | -.061426 | .241115  |
| 3     | -.370517 | -.142846 | -.653938 | -.910459 | -.154968 | .791472  |
| 4     | -.211687 | -.072598 | -.513171 | -.682416 | -.131183 | .967969  |
| 5     | .082933  | -.017328 | -.259088 | .389226  | -.007518 | .741014  |
| 6     | .224618  | -.042883 | -.170697 | .848667  | .073564  | .641674  |
| 7     | .145451  | -.057422 | -.141885 | .568336  | .095038  | .537261  |
| 8     | .035203  | -.013061 | -.136829 | .378318  | .043064  | .412556  |
| 9-11  | .011703  | -.044496 | -.052696 | .188026  | -.026244 | .031637  |
| 12-14 | .067750  | .008774  | -.033923 | .286127  | .027331  | .243882  |
| 15-21 | .008167  | -.019074 | -.020021 | .041685  | -.002452 | -.047105 |
| 22-30 | .018751  | -.019258 | .009115  | .083389  | .002018  | -.047121 |

RUN NC 908 46M 6-18-63 1615-1714(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTO-COVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.11840<br>10E 01 | 0.49164<br>10E 00 | 0.24220<br>10E 00 | 0.47548<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .626900           | .189800           | .262524           | .747945           |
| 2  | .326036           | -.019734          | -.018040          | .524019           |
| 3  | .119071           | -.013927          | -.052543          | .349598           |
| 4  | -.044532          | -.040373          | -.039777          | .200759           |
| 5  | -.140044          | -.048026          | -.104111          | .069061           |
| 6  | -.200008          | -.122751          | -.073532          | -.050276          |
| 7  | -.230259          | -.090666          | -.082458          | -.117009          |
| 8  | -.250973          | -.029969          | -.070014          | -.175330          |
| 9  | -.244651          | -.016023          | -.174849          | -.258624          |
| 10 | -.195249          | -.011735          | -.084055          | -.338264          |
| 11 | -.155698          | -.140253          | -.043033          | -.362102          |
| 12 | -.113955          | -.190048          | -.050693          | -.351481          |
| 13 | -.061711          | -.086597          | -.087999          | -.272302          |
| 14 | -.069077          | -.121622          | -.061309          | -.198642          |
| 15 | -.078213          | -.076526          | -.071773          | -.147292          |
| 16 | -.041983          | -.035492          | -.100203          | -.091685          |
| 17 | -.059644          | .092205           | -.061461          | -.034952          |
| 18 | .009012           | .088599           | .156172           | -.011852          |
| 19 | .067831           | .038247           | .175927           | -.004538          |
| 20 | .024754           | .042362           | -.012457          | -.008859          |
| 21 | -.011594          | .084312           | .013032           | .012487           |
| 22 | .018379           | .038688           | .044222           | .020577           |
| 23 | .055893           | -.071894          | -.004731          | .053193           |
| 24 | .058440           | -.026179          | .013358           | .050643           |
| 25 | .009661           | .014448           | .053016           | .022315           |
| 26 | -.015189          | .043810           | -.009720          | -.034078          |
| 27 | .020385           | .101784           | -.026024          | -.065877          |
| 28 | .025728           | -.016388          | -.001634          | -.053276          |
| 29 | .083324           | .037516           | .040912           | -.042951          |
| 30 | .081816           | .012023           | -.023716          | .002995           |

POWER SPECTRUM

| K     | U       | V       | W       | T        |
|-------|---------|---------|---------|----------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-03   |
| 0     | .006348 | .007519 | .001582 | .115572  |
| 1     | .087484 | .146605 | .064314 | .045087  |
| 2     | .138363 | .273775 | .134068 | .0971666 |
| 3     | .183143 | .360285 | .190160 | .0984107 |
| 4     | .161920 | .243825 | .152088 | .0569437 |
| 5     | .122603 | .179272 | .128160 | .0238537 |
| 6     | .088085 | .288227 | .146003 | .165756  |
| 7     | .059811 | .322239 | .122521 | .201576  |
| 8     | .046998 | .219753 | .092898 | .191572  |
| 9-11  | .040673 | .157753 | .126109 | .084320  |
| 12-14 | .023794 | .253052 | .092736 | .073569  |
| 15-21 | .018135 | .186604 | .094725 | .047272  |
| 22-30 | .016337 | .208479 | .081909 | .042236  |

RUN NO 90B 91M 6-18-63 1615-1714(EST)

GROSS STATISTICS

CLEAR WIND SPEED 8.60 M/SEC SIGMA A 6.20 DEG  
 TRANSITIONAL WIND DIRECTION 242 DEG SIGMA E 4.9 DEG  
 SOLAR RAD. 0.50 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.15720E 01             | 0.11316E 01                    | 0.70162E 00                   | 0.78040E 00                        |
| V                | 0.78520E 00             | 0.75629E 00                    | 0.68486E 00                   | 0.36509E-00                        |
| W                | 0.45828E-00             | 0.44569E-00                    | 0.39975E-00                   | 0.17933E-00                        |
| T                | 0.72700E-01             | 0.11622E-01                    | 0.10247E-01                   | 0.71410E-02                        |
| E                | 0.14077E 01             | 0.11668E 01                    | 0.89311E 00                   |                                    |

|                         |         |         |         |         |
|-------------------------|---------|---------|---------|---------|
| <b>GUSTINESS RATIOS</b> |         |         |         |         |
| U                       | 0.14579 | 0.12269 | 0.09740 | 0.10272 |
| V                       | 0.10304 | 0.10112 | 0.09623 | 0.07026 |
| W                       | 0.07872 | 0.07763 | 0.07352 | 0.04924 |

|                    |              |              |              |              |
|--------------------|--------------|--------------|--------------|--------------|
| <b>COVARIANCES</b> |              |              |              |              |
| U,V                | 0.10102E-00  | 0.49032E-01  | 0.41534E-01  | 0.42346E-01  |
| U,W                | -0.31044E-00 | -0.30119E-00 | -0.20316E-00 | -0.20465E-00 |
| U,T                | -0.67920E-01 | 0.74513E-02  | 0.11081E-01  | 0.46083E-02  |
| V,W                | -0.95265E-01 | -0.99220E-01 | -0.90469E-01 | -0.32846E-01 |
| V,T                | 0.44199E-01  | 0.21110E-01  | 0.18521E-01  | 0.12247E-01  |
| W,T                | -0.16866E-01 | -0.22743E-01 | -0.24708E-01 | -0.79055E-02 |
| WE                 | 0.23076E-00  | 0.15696E-00  | 0.79997E-01  |              |

|                               |          |          |          |          |
|-------------------------------|----------|----------|----------|----------|
| <b>NORMALIZED COVARIANCES</b> |          |          |          |          |
| U,V                           | 0.09093  | 0.05300  | 0.05992  | 0.07933  |
| U,W                           | -0.36575 | -0.42412 | -0.38361 | -0.54705 |
| U,T                           | -0.20091 | 0.06497  | 0.13068  | 0.06173  |
| V,W                           | -0.15881 | -0.17090 | -0.17290 | -0.12837 |
| V,T                           | 0.18499  | 0.22516  | 0.22108  | 0.23985  |
| W,T                           | -0.09240 | -0.31600 | -0.38605 | -0.22092 |

RUN NO 908 91M 6-18-63 1615-1714(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.69329<br>10E 00 | 0.52964<br>10E 00 | 0.84805<br>10E-01 | 0.52333<br>10E 00 | 0.83795<br>10E-01 | 0.64015<br>10E-01 |
| 0  | .060089           | -.383482          | .130992           | -.172766          | .220947           | -.386048          |
| 1  | .061343           | -.343229          | .131940           | -.137550          | .192009           | -.314467          |
| 2  | .053516           | -.279829          | .121514           | -.074588          | .144642           | -.217725          |
| 3  | .044411           | -.217912          | .104662           | -.033623          | .110666           | -.147280          |
| 4  | .036635           | -.159421          | .091807           | -.010455          | .083293           | -.087903          |
| 5  | .028181           | -.115983          | .058833           | .012864           | .054845           | -.038339          |
| 6  | .019573           | -.083625          | .038466           | .029159           | .029909           | -.005371          |
| 7  | .017014           | -.060573          | .021237           | .042501           | -.000493          | .019479           |
| 8  | .016473           | -.038223          | .006143           | .049028           | -.022130          | .034100           |
| 9  | .014990           | -.016736          | -.007168          | .042027           | -.031256          | .049373           |
| 10 | .011182           | -.001723          | -.018500          | .028648           | -.034520          | .068241           |
| 11 | .011263           | .010987           | -.031484          | .014475           | -.031765          | .082114           |
| 12 | .011216           | .030126           | -.045297          | .009755           | -.025092          | .091825           |
| 13 | .005079           | .056986           | -.054718          | .004146           | -.016574          | .100208           |
| 14 | -.007846          | .079346           | -.060444          | .001864           | -.007338          | .096616           |
| 15 | -.014503          | .090798           | -.064594          | .002202           | -.002922          | .091097           |
| 16 | -.018554          | .096506           | -.066256          | .002290           | .000465           | .092822           |
| 17 | -.019847          | .103662           | -.066963          | .004817           | -.003835          | .098487           |
| 18 | -.015889          | .104209           | -.065751          | .005631           | -.012107          | .104054           |
| 19 | -.013054          | .104575           | -.067774          | .001157           | -.018218          | .102033           |
| 20 | -.013127          | .104860           | -.070132          | -.006395          | -.026162          | .093000           |
| 21 | -.017155          | .106072           | -.068601          | -.007691          | -.036614          | .084997           |
| 22 | -.021953          | .102715           | -.063987          | -.005064          | -.044364          | .079796           |
| 23 | -.025556          | .092499           | -.055752          | -.001593          | -.050518          | .074216           |
| 24 | -.028170          | .082976           | -.050580          | .006506           | -.056665          | .069101           |
| 25 | -.025404          | .076493           | -.048632          | .020208           | -.064821          | .064165           |
| 26 | -.022213          | .066010           | -.041062          | .028714           | -.075363          | .050012           |
| 27 | -.020165          | .058906           | -.034100          | .036394           | -.083094          | .036735           |
| 28 | -.023856          | .053123           | -.030817          | .041938           | -.084148          | .022297           |
| 29 | -.030422          | .043750           | -.023130          | .050352           | -.077344          | .005487           |
| 30 | -.036684          | .032029           | -.013470          | .044755           | -.065856          | -.011069          |
| 31 | -.048456          | .021583           | -.007472          | .032526           | -.053466          | -.026080          |
| 32 | -.053111          | .011802           | -.001208          | .017055           | -.043604          | -.035467          |
| 33 | -.052075          | -.000658          | .008217           | .012973           | -.039526          | -.040465          |
| 34 | -.051779          | -.008269          | .019123           | .014558           | -.034485          | -.046098          |
| 35 | -.045822          | -.006597          | .029235           | .004430           | -.024208          | -.057165          |
| 36 | -.034400          | .002525           | .037713           | -.006189          | -.012435          | -.069340          |
| 37 | -.019211          | .004208           | .048888           | -.009427          | -.005717          | -.078457          |
| 38 | -.006521          | -.001907          | .052012           | -.003251          | -.005677          | -.082229          |
| 39 | .002834           | -.004660          | .065957           | -.002630          | -.008166          | -.079171          |
| 40 | .015293           | -.009962          | .065314           | -.006429          | -.010555          | -.080364          |
| 41 | .032002           | -.014547          | .069635           | -.020574          | -.013000          | -.084637          |
| 42 | .045471           | -.016523          | .073490           | -.025062          | -.016537          | -.085427          |
| 43 | .053457           | -.018488          | .073363           | -.031761          | -.015660          | -.080789          |
| 44 | .050204           | -.012430          | .070803           | -.044509          | -.009024          | -.067042          |
| 45 | .038430           | -.003124          | .065462           | -.043301          | .000180           | -.053444          |
| 46 | .029545           | .001896           | .054499           | -.025199          | .009417           | -.034360          |
| 47 | .020333           | .008666           | .040672           | -.010323          | .016666           | -.018195          |
| 48 | .005836           | .020083           | .029623           | -.003524          | .018292           | -.007943          |
| 49 | -.004619          | .028066           | .022632           | .001833           | .019915           | .007884           |
| 50 | -.007577          | .028891           | .015468           | .010747           | .026284           | .020495           |
| 51 | -.007067          | .031793           | .006915           | .012048           | .040975           | .027215           |
| 52 | -.007688          | .029539           | .000795           | .003321           | .053179           | .030775           |
| 53 | -.006315          | .030362           | -.003971          | -.013895          | .059577           | .037306           |
| 54 | -.005415          | .036547           | -.013502          | -.034375          | .059478           | .042964           |
| 55 | -.004045          | .042257           | -.025103          | -.042947          | .063503           | .047573           |
| 56 | .002623           | .047121           | -.036863          | -.045660          | .067563           | .045888           |
| 57 | .014311           | .045211           | -.039737          | -.039250          | .074635           | .039102           |
| 58 | .021547           | .040262           | -.035173          | -.024279          | .073785           | .031901           |
| 59 | .022246           | .031846           | -.026039          | .000258           | .070899           | .036062           |
| 60 | .021595           | .023994           | -.020302          | .012464           | .068331           | .032202           |

RUN NO 908 91M 6-18-63 1615-1714(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.69329<br>10E 00 | 0.52964<br>10E 00 | 0.84805<br>10E-01 | 0.52333<br>10E 00 | 0.83795<br>10E-01 | 0.64015<br>10E-01 |
| 1  | .007139           | -.014572          | .011493           | -.014559          | .035648           | -.035877          |
| 2  | .005287           | -.020715          | .021656           | -.029657          | .046352           | -.034966          |
| 3  | .002603           | -.015548          | .027301           | -.039613          | .048617           | -.027442          |
| 4  | -.003173          | -.016064          | .029231           | -.039986          | .052149           | -.025128          |
| 5  | -.011159          | -.019559          | .028572           | -.039382          | .055515           | -.016908          |
| 6  | -.015652          | -.025586          | .028860           | -.032528          | .057502           | -.004935          |
| 7  | -.025595          | -.033756          | .032487           | -.033484          | .061473           | -.002454          |
| 8  | -.041534          | -.038514          | .031731           | -.043575          | .066152           | -.003183          |
| 9  | -.054075          | -.042627          | .031303           | -.056969          | .072999           | -.002847          |
| 10 | -.063333          | -.040733          | .027082           | -.067509          | .083097           | .001828           |
| 11 | -.069339          | -.042385          | .020876           | -.065102          | .087210           | .006618           |
| 12 | -.068206          | -.050108          | .017367           | -.063281          | .087004           | .008045           |
| 13 | -.068111          | -.053602          | .011976           | -.068443          | .088164           | .014203           |
| 14 | -.070354          | -.047679          | .002668           | -.067812          | .086163           | .017250           |
| 15 | -.075385          | -.039930          | -.007060          | -.063496          | .078197           | .018077           |
| 16 | -.074435          | -.034968          | -.014924          | -.060886          | .069117           | .018961           |
| 17 | -.065407          | -.033113          | -.016142          | -.049342          | .056636           | .017038           |
| 18 | -.051721          | -.030359          | -.017431          | -.030334          | .044299           | .017453           |
| 19 | -.034008          | -.020411          | -.021633          | -.020552          | .032135           | .019067           |
| 20 | -.014071          | -.012330          | -.022420          | -.011350          | .016008           | .010945           |
| 21 | .004976           | -.006342          | -.021839          | .006131           | -.005033          | .007404           |
| 22 | .020416           | .001507           | -.021320          | .020297           | -.025068          | .008617           |
| 23 | .028357           | .005576           | -.026665          | .035114           | -.047071          | .016109           |
| 24 | .038804           | .007527           | -.038475          | .052871           | -.059578          | .017796           |
| 25 | .048127           | .007192           | -.048355          | .065685           | -.066186          | .017997           |
| 26 | .054249           | .006332           | -.056545          | .068447           | -.070710          | .020534           |
| 27 | .056540           | .003937           | -.059659          | .064924           | -.070940          | .019070           |
| 28 | .057438           | .003270           | -.056345          | .061779           | -.065959          | .015234           |
| 29 | .056270           | .000491           | -.049550          | .062076           | -.059245          | .008820           |
| 30 | .050863           | .001666           | -.045444          | .055816           | -.048806          | .000715           |
| 31 | .051542           | .004358           | -.038160          | .048712           | -.043217          | -.003360          |
| 32 | .052814           | .007052           | -.030796          | .047962           | -.043530          | -.002808          |
| 33 | .050977           | .002368           | -.023098          | .047799           | -.037602          | -.001963          |
| 34 | .051133           | .001487           | -.015310          | .050719           | -.033853          | .000501           |
| 35 | .049564           | .010857           | -.007254          | .055169           | -.032006          | .001544           |
| 36 | .046817           | .024939           | -.001443          | .057390           | -.029939          | .001479           |
| 37 | .041615           | .032579           | .001264           | .054491           | -.024565          | .004252           |
| 38 | .036659           | .031179           | .003125           | .049138           | -.020467          | .008354           |
| 39 | .031951           | .029732           | .002329           | .041022           | -.018253          | .012858           |
| 40 | .035354           | .021600           | -.000019          | .041822           | -.015476          | .012772           |
| 41 | .034298           | .013642           | -.000857          | .043218           | -.012013          | .006792           |
| 42 | .022846           | .008464           | -.006590          | .028004           | -.001583          | .005600           |
| 43 | .000839           | .009447           | -.016116          | .003724           | .011912           | .001645           |
| 44 | -.022784          | .017164           | -.018187          | -.020916          | .028486           | -.011839          |
| 45 | -.042077          | .019072           | -.016810          | -.044643          | .041147           | -.021527          |
| 46 | -.055259          | .021472           | -.016586          | -.072989          | .049585           | -.018694          |
| 47 | -.068074          | .017930           | -.009370          | -.091678          | .050058           | -.010560          |
| 48 | -.077951          | .011602           | .000631           | -.097701          | .045375           | -.001903          |
| 49 | -.077649          | .003289           | .008284           | -.083841          | .033830           | .003080           |
| 50 | -.076326          | .007622           | .017341           | -.065069          | .017627           | .005204           |
| 51 | -.070333          | -.014949          | .022986           | -.046106          | .002101           | .005255           |
| 52 | -.062899          | -.020127          | .025709           | -.037835          | -.007055          | .002359           |
| 53 | -.055772          | -.023864          | .032502           | -.034643          | -.010084          | .000976           |
| 54 | -.053379          | -.020000          | .038060           | -.036191          | -.008567          | -.001588          |
| 55 | -.046115          | -.011341          | .040222           | -.039545          | -.006689          | -.005594          |
| 56 | -.035452          | -.000190          | .038763           | -.038581          | -.005412          | -.008451          |
| 57 | -.024033          | .008809           | .038574           | -.033397          | -.002389          | -.018103          |
| 58 | -.010920          | .013875           | .038190           | -.033378          | .005050           | -.025118          |
| 59 | .002687           | .010926           | .041770           | -.035483          | .013833           | -.027617          |
| 60 | .016736           | .005140           | .045842           | -.027851          | .016338           | -.028027          |

RUN NO 908 91M 6-18-63 1615-1714(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.70166<br>10E 00 | 0.68503<br>10E 00 | 0.39980<br>10E 00 | 0.10250<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .859545           | .805974           | .728707           | .869731           |
| 2  | .671734           | .557650           | .439697           | .685685           |
| 3  | .517137           | .366456           | .258829           | .530975           |
| 4  | .389639           | .225802           | .128286           | .401767           |
| 5  | .282912           | .125560           | .041562           | .287241           |
| 6  | .199677           | .041915           | -.003763          | .192882           |
| 7  | .143957           | -.028050          | -.014100          | .113119           |
| 8  | .093179           | -.079957          | -.026768          | .048417           |
| 9  | .039778           | -.108057          | -.045019          | -.007875          |
| 10 | -.007321          | -.130561          | -.067888          | -.056858          |
| 11 | -.046062          | -.140311          | -.089545          | -.098515          |
| 12 | -.077401          | -.144769          | -.117092          | -.132840          |
| 13 | -.102864          | -.140610          | -.140773          | -.162035          |
| 14 | -.124182          | -.126813          | -.153682          | -.186343          |
| 15 | -.144768          | -.115693          | -.164521          | -.208486          |
| 16 | -.168807          | -.120320          | -.166684          | -.235677          |
| 17 | -.198638          | -.130605          | -.161621          | -.266189          |
| 18 | -.215099          | -.142390          | -.152470          | -.290268          |
| 19 | -.222624          | -.157996          | -.138629          | -.309468          |
| 20 | -.223929          | -.177038          | -.118917          | -.325357          |
| 21 | -.225743          | -.186056          | -.115480          | -.332745          |
| 22 | -.224312          | -.188201          | -.123575          | -.331631          |
| 23 | -.216225          | -.189717          | -.122119          | -.318971          |
| 24 | -.203860          | -.182396          | -.127541          | -.299831          |
| 25 | -.196885          | -.180288          | -.125079          | -.282910          |
| 26 | -.188647          | -.180940          | -.105573          | -.262810          |
| 27 | -.177543          | -.167533          | -.085900          | -.239833          |
| 28 | -.171697          | -.142188          | -.075663          | -.211031          |
| 29 | -.166959          | -.110437          | -.058379          | -.171100          |
| 30 | -.150219          | -.075322          | -.033648          | -.123991          |
| 31 | -.132386          | -.042087          | -.014633          | -.073027          |
| 32 | -.126509          | -.009247          | -.008179          | -.031780          |
| 33 | -.121223          | .018387           | -.006671          | .007094           |
| 34 | -.105918          | .036313           | .001823           | .046881           |
| 35 | -.092991          | .040703           | .017363           | .083381           |
| 36 | -.086338          | .042516           | .019956           | .114340           |
| 37 | -.076466          | .042181           | .019457           | .132082           |
| 38 | -.065146          | .031908           | .035418           | .133565           |
| 39 | -.048957          | .028327           | .055231           | .129261           |
| 40 | -.035595          | .018266           | .080465           | .125831           |
| 41 | -.032576          | .012738           | .102633           | .118324           |
| 42 | -.036263          | .013854           | .100688           | .109600           |
| 43 | -.034286          | .020016           | .092378           | .098330           |
| 44 | -.026355          | .023737           | .070728           | .084220           |
| 45 | -.011125          | .031292           | .039017           | .073013           |
| 46 | -.001602          | .031508           | .016233           | .065344           |
| 47 | -.002953          | .026016           | .002496           | .059007           |
| 48 | -.011492          | .030262           | .007394           | .046683           |
| 49 | -.014306          | .028907           | -.001911          | .031179           |
| 50 | -.011368          | .026881           | -.020912          | .019352           |
| 51 | -.010370          | .034210           | -.035949          | .010419           |
| 52 | -.007965          | .052668           | -.035042          | -.000655          |
| 53 | -.007134          | .066536           | -.027662          | -.013682          |
| 54 | -.004097          | .068727           | -.017457          | -.029936          |
| 55 | .009530           | .066391           | -.019123          | -.040095          |
| 56 | .023086           | .053134           | -.026874          | -.039681          |
| 57 | .035324           | .039748           | -.031583          | -.030457          |
| 58 | .044355           | .042782           | -.037633          | -.023388          |
| 59 | .060616           | .045758           | -.044574          | -.020462          |
| 60 | .069990           | .047494           | -.042050          | -.017666          |



RUN NO 908 91M 6-18-63 1615-1714(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-01   | 10E-02  | 10E-02   |
| 0     | .004817  | -.034325 | .001704  | -.000123 | .006209 | .000578  |
| 1     | .092692  | -.267844 | .041773  | -.028577 | .218986 | -.034375 |
| 2     | .128063  | -.327132 | .212632  | -.058702 | .300788 | -.207698 |
| 3     | .090226  | -.377390 | .356055  | -.058542 | .243966 | -.411918 |
| 4     | .012683  | -.268892 | .214324  | -.034226 | .126633 | -.327265 |
| 5     | .034647  | -.144309 | .103360  | -.068325 | .133549 | -.194315 |
| 6     | .034220  | -.096662 | .087546  | -.104335 | .191460 | -.178735 |
| 7-8   | -.000298 | -.077816 | .036466  | -.073303 | .151462 | -.139692 |
| 9-11  | .016900  | -.063132 | .018410  | -.058057 | .046887 | -.087527 |
| 12-15 | .004804  | -.035843 | .008716  | -.017640 | .014809 | -.057881 |
| 16-20 | .001663  | -.014052 | -.003912 | -.016346 | .019967 | -.030735 |
| 21-27 | -.001258 | -.005978 | -.001420 | -.013727 | .015064 | -.019753 |
| 28-36 | .000243  | -.005080 | -.001176 | -.005918 | .006325 | -.013892 |
| 37-47 | -.001140 | -.003287 | -.000983 | -.001183 | .003684 | -.008175 |
| 48-60 | -.000916 | -.001518 | -.001497 | -.000033 | .000595 | -.003527 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-01   | 10E-02   | 10E-03   |
| 1     | -.020644 | -.634777 | -.119307 | .005904  | .071675  | .522157  |
| 2     | -.135135 | -.880796 | .009861  | -.100567 | .209254  | .233381  |
| 3     | -.204817 | -.799584 | .125983  | -.172906 | .323856  | -.117812 |
| 4     | -.050508 | -.366309 | .117400  | -.066948 | .179414  | -.322013 |
| 5     | .060689  | -.114786 | .042665  | .012534  | -.003772 | -.350990 |
| 6     | .074272  | .130487  | .009519  | .025338  | -.048141 | -.289213 |
| 7-8   | .033758  | .108597  | .029256  | .001055  | .007699  | -.271624 |
| 9-11  | .004956  | -.041162 | -.007142 | -.013080 | .025896  | -.136095 |
| 12-15 | .004686  | -.049705 | .009351  | -.010438 | .020595  | -.189668 |
| 16-20 | .000519  | -.044442 | .003550  | -.003460 | .009520  | -.112417 |
| 21-27 | .002704  | -.028135 | -.000528 | .003475  | .007331  | -.047775 |
| 28-36 | .000132  | -.018694 | -.000050 | .000453  | .004650  | -.080853 |
| 37-47 | .002008  | .005019  | -.000102 | .000382  | .002028  | -.022157 |
| 48-60 | -.000152 | .004259  | .000226  | -.000791 | .000464  | -.005748 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .009785 | .024248 | .018344 | .006748 |
| 1     | .098520 | .438451 | .197138 | .095071 |
| 2     | .114785 | .726661 | .328862 | .163373 |
| 3     | .110519 | .901889 | .448818 | .205011 |
| 4     | .075067 | .677066 | .356147 | .126753 |
| 5     | .050021 | .473972 | .261681 | .059445 |
| 6     | .037943 | .489827 | .237038 | .057519 |
| 7-8   | .029508 | .458457 | .185683 | .050201 |
| 9-11  | .020600 | .236381 | .157668 | .028509 |
| 12-15 | .011936 | .145697 | .123038 | .015460 |
| 16-20 | .007021 | .096634 | .070680 | .009307 |
| 21-27 | .003755 | .063388 | .043825 | .005662 |
| 28-36 | .002827 | .032334 | .034576 | .003506 |
| 37-47 | .001473 | .022560 | .021134 | .001997 |
| 48-60 | .001001 | .014235 | .013442 | .001187 |

RUN NO 908 91M 6-18-63 1615-1714(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.53383<br>10E 00 | 0.37403<br>10E 00 | 0.74672<br>10E-01 | 0.25572<br>10E 00 | 0.51051<br>10E-01 | 0.35769<br>10E-01 |
| 0  | .079325           | -.547142          | .061714           | -.128448          | .239889           | -.221013          |
| 1  | .020582           | -.297377          | -.018984          | .014112           | .066052           | .049454           |
| 2  | -.006080          | -.069502          | -.069020          | -.023047          | .006888           | .071632           |
| 3  | -.033913          | -.019465          | -.019759          | .034200           | -.036702          | -.016698          |
| 4  | .017032           | .037609           | .031755           | -.038923          | -.054814          | -.071588          |
| 5  | .013062           | .121233           | -.022138          | -.045113          | -.002360          | .011674           |
| 6  | .041167           | .111354           | -.068762          | -.008683          | .021432           | .041400           |
| 7  | .017922           | .057259           | -.054374          | .057053           | -.075565          | .022618           |
| 8  | .028808           | .032778           | -.071681          | .021651           | -.117395          | .080194           |
| 9  | .073587           | -.003910          | -.025584          | -.030606          | -.047118          | .037067           |
| 10 | .008752           | .047861           | .028152           | .002191           | -.018557          | .013077           |
| 11 | -.018144          | .002600           | .069076           | .063795           | -.007866          | -.044155          |
| 12 | .006248           | .029970           | .032551           | -.009434          | .013322           | .021626           |
| 13 | -.013615          | .061322           | .030933           | -.074531          | -.011840          | -.038653          |
| 14 | .017288           | .061193           | .035704           | .011196           | .027668           | -.049264          |
| 15 | .030374           | .111694           | -.012383          | -.006189          | .093607           | -.007356          |
| 16 | -.033980          | .185350           | -.050100          | .031488           | .008145           | .061330           |
| 17 | -.097111          | .165209           | -.034001          | .052439           | -.018875          | .057043           |
| 18 | -.047560          | .064367           | .056008           | -.027372          | .042639           | -.051914          |
| 19 | -.058983          | -.023789          | .092240           | .046521           | .074987           | -.062958          |
| 20 | -.123975          | .001759           | .005634           | .077156           | .060467           | .001993           |
| 21 | -.156776          | .049409           | -.032982          | .070646           | .045166           | -.000848          |
| 22 | -.078225          | -.029264          | -.008977          | .020436           | .018079           | -.073159          |
| 23 | -.031432          | -.015569          | .019344           | .059079           | -.024311          | -.015866          |
| 24 | .065972           | -.039373          | .078316           | -.012867          | -.038479          | .004011           |
| 25 | .087374           | -.116215          | .055920           | -.017807          | -.013639          | -.054247          |
| 26 | .038669           | -.031096          | -.046816          | -.049227          | -.016493          | .018499           |
| 27 | .056705           | -.053619          | -.041352          | -.065150          | -.056526          | .060297           |
| 28 | .082331           | -.100706          | .022786           | -.020323          | -.003976          | .024195           |
| 29 | .089174           | -.096969          | .040695           | -.026871          | .022623           | -.014503          |
| 30 | .058971           | -.112153          | .006388           | -.035590          | -.066530          | -.031357          |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-03   |
| 0     | .008499  | .000225  | -.028025 | -.006197 | .002603  | .031994  |
| 1     | .112509  | -.149667 | -.141422 | -.288575 | -.021427 | .198306  |
| 2     | .046832  | -.211989 | -.078506 | -.207238 | .019384  | -.040348 |
| 3     | -.066065 | -.175045 | -.004397 | -.052399 | .125211  | -.323322 |
| 4     | -.019483 | -.147672 | .065441  | -.200491 | .142311  | -.363131 |
| 5     | .020505  | -.223665 | .106815  | -.151377 | .087001  | -.357333 |
| 6     | -.011380 | -.225950 | .058415  | .090325  | .053944  | -.047720 |
| 7     | .047863  | -.143220 | -.060797 | .074418  | .021521  | .401795  |
| 8     | .061663  | -.095707 | -.119949 | .010730  | .042734  | .302538  |
| 9-11  | .019285  | -.069208 | .021142  | -.107409 | .094585  | -.215350 |
| 12-14 | .048256  | -.065611 | .085341  | -.404796 | .058254  | -.605932 |
| 15-21 | .010714  | -.063152 | .052646  | .005016  | .031410  | -.646302 |
| 22-30 | .008875  | -.017683 | .012746  | -.299604 | .040910  | -.477424 |

RUN NO 90B 91M 6-18-63 1615-1714(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.53383<br>10E 00 | 0.37403<br>10E 00 | 0.74672<br>10E-01 | 0.25572<br>10E 00 | 0.51051<br>10E-01 | 0.35769<br>10E-01 |
| 1  | -.045867          | -.048685          | .015034           | -.068398          | .111965           | .017442           |
| 2  | .009402           | -.017543          | -.032256          | .047836           | .055284           | .020916           |
| 3  | .065614           | -.005772          | -.027316          | .082893           | .019623           | .029918           |
| 4  | .032870           | .038851           | .032840           | .013453           | .066759           | -.011287          |
| 5  | .00374            | .020914           | .073178           | -.057836          | .068289           | -.037318          |
| 6  | .066022           | .034750           | .136851           | -.008011          | .046638           | -.082007          |
| 7  | .053709           | .031859           | .119336           | .012884           | .072697           | -.053085          |
| 8  | .076474           | .005242           | .049555           | .067380           | -.010210          | -.022627          |
| 9  | .006780           | .004244           | .009884           | .029160           | -.051623          | -.021686          |
| 10 | -.030126          | .034069           | -.029538          | .015107           | .030643           | -.008909          |
| 11 | -.045548          | .046314           | -.049451          | .073030           | -.048842          | .053206           |
| 12 | -.043851          | -.017909          | -.029918          | .068134           | -.035122          | .086880           |
| 13 | .015577           | -.012100          | -.021399          | -.003759          | .005083           | .011078           |
| 14 | -.021478          | -.052350          | -.039351          | .013786           | -.063771          | -.043454          |
| 15 | -.047304          | -.049461          | -.053418          | -.020675          | -.065227          | -.110239          |
| 16 | -.041142          | -.052093          | .011070           | -.072223          | -.006046          | -.083186          |
| 17 | -.042584          | -.007043          | .001988           | -.053350          | -.050874          | -.009318          |
| 18 | -.007128          | .017419           | -.056626          | .004718           | -.018068          | .004123           |
| 19 | -.063872          | -.013963          | -.102242          | -.037034          | .075451           | .069033           |
| 20 | -.051634          | -.033682          | -.137484          | .001931           | .091590           | .069925           |
| 21 | -.004518          | -.004485          | -.154195          | -.051410          | .072799           | .105573           |
| 22 | .099008           | -.025294          | -.134888          | -.042767          | .033622           | .067058           |
| 23 | .047814           | -.040410          | -.025734          | -.075130          | .034432           | -.043596          |
| 24 | .057015           | -.031715          | .050386           | -.010569          | -.082317          | -.057763          |
| 25 | -.014417          | .012853           | .054350           | -.040636          | -.038754          | -.052275          |
| 26 | -.003557          | .033136           | -.014835          | .013957           | -.079144          | -.034538          |
| 27 | -.020698          | .066880           | -.024921          | -.017930          | -.076455          | .032912           |
| 28 | -.040247          | .024248           | -.000173          | .037617           | -.014820          | .038236           |
| 29 | -.030071          | -.008429          | -.032050          | -.019066          | .038522           | .068024           |
| 30 | .016571           | -.047526          | -.031052          | -.045145          | .022522           | .042477           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | -.000245 | -.004999 | -.023015 | .226299  | .022201  | -.034312 |
| 2     | .065305  | .355613  | .185027  | .382360  | .052752  | -.035037 |
| 3     | .115237  | .383049  | .185114  | .116204  | .130713  | -.016872 |
| 4     | .049465  | -.022064 | .058976  | -.213136 | .130604  | -.016722 |
| 5     | -.007668 | -.298666 | .003286  | -.102304 | .031308  | -.021787 |
| 6     | -.022309 | -.247377 | -.161309 | .196266  | .032180  | .064282  |
| 7     | -.059349 | .005375  | -.208042 | .351459  | .034671  | .100639  |
| 8     | -.025013 | -.168961 | -.078383 | .161823  | -.019113 | .010390  |
| 9-11  | .021466  | -.330379 | .011355  | .068875  | .030613  | .033515  |
| 12-14 | -.060000 | -.070523 | .03576   | -.375035 | .057084  | -.020305 |
| 15-21 | -.031811 | -.070347 | .029152  | -.277327 | .049593  | .002011  |
| 22-30 | -.001349 | -.127211 | .000907  | -.071168 | -.007374 | .008103  |

RUN NO 908 91M 6-18-63 (A'S 17.2 EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.78082<br>10E 00 | 0.36497<br>10E 00 | 0.17917<br>10E 00 | 0.71411<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .550244           | .146554           | .175338           | .418210           |
| 2  | .242927           | -.047052          | .011082           | .013777           |
| 3  | .073850           | -.048936          | -.049948          | .017609           |
| 4  | -.027714          | -.093491          | .014705           | .021048           |
| 5  | -.083080          | -.084367          | -.109027          | -.019055          |
| 6  | -.068942          | -.022283          | -.131194          | -.040999          |
| 7  | -.098429          | -.139276          | -.066339          | -.032187          |
| 8  | -.116347          | -.066130          | -.007769          | -.028390          |
| 9  | -.152299          | .014651           | .023093           | -.043817          |
| 10 | -.167573          | -.127372          | -.047664          | -.001551          |
| 11 | -.146961          | -.215324          | .041260           | .002935           |
| 12 | -.160336          | -.073707          | -.104426          | -.113315          |
| 13 | -.122810          | -.045273          | -.324700          | -.198806          |
| 14 | -.117385          | .007014           | -.039885          | -.128881          |
| 15 | -.130087          | .050863           | -.133979          | -.077578          |
| 16 | -.138037          | .107376           | -.183395          | -.075768          |
| 17 | -.123994          | .065432           | -.164347          | .013171           |
| 18 | -.036221          | .133651           | -.015186          | .082939           |
| 19 | .041930           | .021669           | .043419           | .010705           |
| 20 | .040893           | -.003015          | -.004466          | -.067625          |
| 21 | .050059           | .030089           | -.066418          | -.040951          |
| 22 | .054416           | -.029840          | .029201           | .008621           |
| 23 | .056393           | -.079394          | .005804           | -.053516          |
| 24 | .046844           | -.018568          | -.049182          | -.091238          |
| 25 | .016568           | -.012878          | .125657           | -.041030          |
| 26 | -.002649          | .020599           | .043550           | -.042340          |
| 27 | .028212           | .044536           | .048599           | -.032495          |
| 28 | .063496           | -.082190          | .013484           | .086755           |
| 29 | .050393           | -.041164          | .015451           | .095324           |
| 30 | -.009370          | -.150575          | .084600           | .007851           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-03  |
| 0     | .074341 | .002505 | .003821 | .114915 |
| 1     | .712937 | .047892 | .081236 | .644737 |
| 2     | .932953 | .125277 | .101925 | .582477 |
| 3     | .984115 | .250259 | .086867 | .550196 |
| 4     | .686609 | .238681 | .076348 | .395827 |
| 5     | .580204 | .126444 | .112514 | .342619 |
| 6     | .551535 | .135859 | .124378 | .480637 |
| 7     | .439251 | .217791 | .089755 | .492374 |
| 8     | .412732 | .217273 | .063777 | .313219 |
| 9-11  | .327095 | .144986 | .058980 | .328815 |
| 12-14 | .194385 | .183661 | .083359 | .315048 |
| 15-17 | .159669 | .153520 | .070592 | .250626 |
| 18-20 | .132085 | .152214 | .079983 | .124436 |

RUN NO 908 46M 6-18-63 161F-1714(EST)  
 RUN NO 908 91M 6-18-63 161S-1714(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .570848 | .074211 | .591739 | .177834 |
| 1     | .457791 | .448953 | .514427 | .274398 |
| 2     | .324759 | .425709 | .446046 | .282753 |
| 3     | .263623 | .380970 | .415259 | .241443 |
| 4     | .274131 | .368464 | .382321 | .224304 |
| 5     | .232085 | .381643 | .307228 | .287934 |
| 6     | .083705 | .300576 | .318368 | .291743 |
| 7-8   | .056070 | .296147 | .191076 | .192496 |
| 9-11  | .195457 | .226280 | .182347 | .114290 |
| 12-15 | .101269 | .069358 | .192093 | .078484 |
| 16-20 | .069806 | .135710 | .125896 | .092311 |
| 21-27 | .112335 | .089584 | .182605 | .092926 |
| 28-36 | .086165 | .088653 | .086040 | .112717 |
| 37-47 | .104680 | .087164 | .109515 | .121645 |
| 48-60 | .149613 | .105502 | .089910 | .094837 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .908775 | .622954 | .287857 | .856502 |
| 1     | .791956 | .212805 | .813458 | .482192 |
| 2     | .695776 | .346254 | .792060 | .309132 |
| 3     | .687253 | .458740 | .698241 | .244251 |
| 4     | .740343 | .513700 | .592116 | .317892 |
| 5     | .810708 | .363319 | .598281 | .120589 |
| 6     | .656261 | .373413 | .559697 | .263759 |
| 7     | .426185 | .489022 | .474798 | .339065 |
| 8     | .571139 | .592481 | .503909 | .326002 |
| 9-11  | .413724 | .527861 | .538382 | .411994 |
| 12-14 | .261482 | .415280 | .354186 | .472089 |
| 15-21 | .341864 | .293313 | .365270 | .270823 |
| 22-30 | .279991 | .241192 | .422115 | .190432 |

RUN NO 90C 15M 6-18-63 1721-1836(EST)

GROSS STATISTICS

CLEAR WIND SPEED 4.84 M/SEC SIGMA A 10.9 DEG  
TRANSITIONAL WIND DIRECTION 237 DEG SIGMA E 7.5 DEG  
SOLAR RAD. 0.22 LY/MIN

|           | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-----------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| VARIANCES |                         |                                |                               |                                    |
| U         | 0.13780E 01             | 0.11451E 01                    | 0.80530E 00                   | 0.75942E 00                        |
| V         | 0.73502E 00             | 0.70700E 00                    | 0.65231E 00                   | 0.30318E-00                        |
| W         | 0.31513E-00             | 0.30597E-00                    | 0.29408E-00                   | 0.95614E-01                        |
| T         | 0.23112E-00             | 0.32441E-02                    | 0.25160E-02                   | 0.17877E-02                        |
| E         | 0.12141E 01             | 0.10790E 01                    | 0.87585E 00                   |                                    |

GUSTINESS RATIOS

|   |         |         |         |         |
|---|---------|---------|---------|---------|
| U | 0.24254 | 0.22109 | 0.18541 | 0.18005 |
| V | 0.17714 | 0.17373 | 0.16687 | 0.11376 |
| W | 0.11598 | 0.11429 | 0.11204 | 0.06389 |

COVARIANCES

|     |              |              |              |              |
|-----|--------------|--------------|--------------|--------------|
| U,V | 0.11542E-00  | 0.96185E-01  | 0.50909E-01  | 0.89129E-01  |
| U,W | -0.19347E-00 | -0.18347E-00 | -0.14724E-00 | -0.10960E-00 |
| U,T | 0.10775E-00  | -0.16091E-01 | -0.13135E-01 | -0.88734E-02 |
| V,W | 0.31281E-01  | 0.21148E-01  | 0.26541E-01  | 0.11829E-01  |
| V,T | -0.23099E-01 | 0.19070E-01  | 0.17793E-01  | 0.82560E-02  |
| W,T | -0.16180E-01 | -0.23486E-02 | -0.31500E-02 | 0.56873E-03  |
| WE  | 0.69731E-01  | 0.74506E-01  | 0.56818E-01  |              |

NORMALIZED COVARIANCES

|     |          |          |          |          |
|-----|----------|----------|----------|----------|
| U,V | 0.11469  | 0.10690  | 0.07024  | 0.18575  |
| U,W | -0.29360 | -0.30996 | -0.30256 | -0.40672 |
| U,T | 0.19093  | -0.26401 | -0.29182 | -0.24083 |
| V,W | 0.06500  | 0.04547  | 0.06060  | 0.06947  |
| V,T | -0.05604 | 0.39820  | 0.43922  | 0.35463  |
| W,T | -0.05995 | -0.07455 | -0.11580 | 0.04350  |

RUN NO 90C 15M 6-18-63 1721-1836(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.72486<br>10E 00 | 0.48677<br>10E 00 | 0.45020<br>10E-01 | 0.43803<br>10E 00 | 0.40512<br>10E-01 | 0.27205<br>10E-01 |
| 0  | .070092           | -.302508          | -.291749          | .060387           | .439393           | -.115746          |
| 1  | .066235           | -.273188          | -.230947          | .051265           | .359166           | -.051516          |
| 2  | .054095           | -.213580          | -.159363          | .038684           | .247127           | .009087           |
| 3  | .046226           | -.149692          | -.122115          | .035313           | .163493           | .030126           |
| 4  | .042899           | -.101454          | -.100835          | .042829           | .099732           | .035826           |
| 5  | .040940           | -.063120          | -.083779          | .038967           | .054189           | .039821           |
| 6  | .043986           | -.035065          | -.062462          | .027955           | .012612           | .029174           |
| 7  | .046672           | -.009068          | -.039378          | .013069           | -.023975          | .018205           |
| 8  | .044910           | .005216           | -.024356          | .006507           | -.042760          | .016975           |
| 9  | .043950           | .015640           | -.010562          | .006652           | -.053904          | .029626           |
| 10 | .039316           | .025119           | -.004275          | .002070           | -.052467          | .033565           |
| 11 | .025220           | .032614           | -.001555          | -.001818          | -.052730          | .027933           |
| 12 | .008966           | .035794           | .002712           | -.013005          | -.058116          | .017144           |
| 13 | -.002548          | .043830           | .009511           | -.020326          | -.069892          | .005534           |
| 14 | -.011971          | .048055           | .017434           | -.021996          | -.076278          | .001237           |
| 15 | -.024464          | .059329           | .016741           | -.021103          | -.072238          | -.001784          |
| 16 | -.040772          | .068378           | .019829           | -.018990          | -.072148          | -.006034          |
| 17 | -.054310          | .070351           | .028935           | -.020526          | -.073215          | -.007155          |
| 18 | -.050935          | .071741           | .043371           | -.020748          | -.078758          | -.008806          |
| 19 | -.039664          | .072527           | .063225           | -.028522          | -.085150          | -.003757          |
| 20 | -.029855          | .071082           | .079081           | -.027184          | -.086237          | .004298           |
| 21 | -.023906          | .072941           | .088225           | -.024718          | -.083279          | .002489           |
| 22 | -.024142          | .072698           | .092071           | -.015730          | -.084446          | -.007149          |
| 23 | -.026015          | .074831           | .090881           | -.015367          | -.084854          | -.010882          |
| 24 | -.025509          | .081471           | .091177           | -.030476          | -.082592          | -.013861          |
| 25 | -.022276          | .080400           | .085143           | -.035750          | -.074211          | -.012392          |
| 26 | -.013784          | .071002           | .081145           | -.040192          | -.068625          | -.016530          |
| 27 | -.007120          | .053340           | .079846           | -.041489          | -.060267          | -.015545          |
| 28 | -.003477          | .038141           | .074163           | -.039602          | -.056291          | -.013175          |
| 29 | -.004271          | .024214           | .067782           | -.041606          | -.055470          | -.010304          |
| 30 | -.004978          | .018348           | .059237           | -.038388          | -.045173          | -.004477          |
| 31 | -.004213          | .018336           | .043331           | -.038167          | -.020715          | -.010299          |
| 32 | -.008194          | .016416           | .033548           | -.031655          | .000422           | -.016043          |
| 33 | -.012943          | .004446           | .029827           | -.015108          | .017374           | -.007009          |
| 34 | -.020687          | .001030           | .020140           | -.002565          | .035402           | -.008357          |
| 35 | -.024983          | -.000076          | .012293           | .000746           | .040665           | -.015981          |
| 36 | -.031623          | .002751           | .006160           | .007713           | .043080           | -.013148          |
| 37 | -.036583          | .002883           | -.002076          | .021603           | .049799           | -.005949          |
| 38 | -.037566          | -.002317          | -.004974          | .038715           | .048897           | .006733           |
| 39 | -.038705          | -.003823          | -.004887          | .049329           | .049732           | -.003733          |
| 40 | -.041785          | -.006389          | -.005303          | .050184           | .050795           | -.013195          |
| 41 | -.039333          | -.013971          | -.006637          | .044315           | .048601           | -.017499          |
| 42 | -.032072          | -.022736          | -.012119          | .025639           | .052173           | -.022762          |
| 43 | -.024516          | -.035892          | -.017168          | .013743           | .051531           | -.008481          |
| 44 | -.022539          | -.038647          | -.017169          | .022690           | .052741           | .010510           |
| 45 | -.021704          | -.037733          | -.018660          | .033193           | .051201           | .014361           |
| 46 | -.020449          | -.034091          | -.017048          | .036264           | .051545           | .005518           |
| 47 | -.021670          | -.032215          | -.020780          | .025391           | .054452           | .002284           |
| 48 | -.019993          | -.030016          | -.020261          | .014606           | .056281           | .000138           |
| 49 | -.019787          | -.021207          | -.019542          | .010845           | .056274           | .008546           |
| 50 | -.020946          | -.007737          | -.024147          | .008372           | .050674           | .003294           |
| 51 | -.019024          | .002461           | -.022211          | .010141           | .038675           | .006560           |
| 52 | -.014878          | .002243           | -.015475          | .004902           | .027756           | .013649           |
| 53 | -.008945          | -.001593          | -.007201          | -.004497          | .011975           | .014536           |
| 54 | -.003752          | -.006293          | -.002123          | -.00761           | -.006270          | .008025           |
| 55 | -.002991          | -.004862          | -.001266          | .003089           | .020319           | -.003023          |
| 56 | -.003678          | -.001114          | .000106           | -.003754          | -.028799          | -.015642          |
| 57 | -.009772          | -.005408          | .005322           | -.008035          | -.029456          | -.019942          |
| 58 | -.008779          | -.005793          | .012255           | -.007861          | -.029134          | -.024220          |
| 59 | .004111           | -.004496          | .021556           | .001092           | -.037599          | -.023051          |
| 60 | .015478           | -.003088          | .028921           | .004921           | -.046778          | -.012295          |

RUN NO 90C 15M 6-18-63 1721-1836(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.72486<br>10E 00 | 0.48677<br>10E 00 | 0.45020<br>10E-01 | 0.43803<br>10E 00 | 0.40512<br>10E-01 | 0.27205<br>10E-01 |
| 1  | .003888           | -.039184          | -.011525          | .013220           | .052502           | -.046631          |
| 2  | .003102           | -.047577          | -.013950          | .013596           | .066838           | -.042052          |
| 3  | -.008325          | -.047182          | -.024902          | .001665           | .067314           | -.030812          |
| 4  | -.011262          | -.044027          | -.035188          | -.005486          | .065334           | -.020591          |
| 5  | -.009128          | -.033506          | -.045037          | -.010601          | .063697           | -.001509          |
| 6  | -.011570          | -.032912          | -.051834          | -.014125          | .062746           | .003795           |
| 7  | -.018206          | -.033408          | -.056883          | -.012068          | .054473           | .003172           |
| 8  | -.021692          | -.031651          | -.057779          | -.014356          | .044260           | .005726           |
| 9  | -.026131          | -.032998          | -.055993          | -.009989          | .027113           | .009676           |
| 10 | -.025673          | -.030150          | -.055292          | -.007395          | .011278           | .017423           |
| 11 | -.017452          | -.014256          | -.059104          | -.016006          | .009342           | .030420           |
| 12 | -.011782          | -.004203          | -.063491          | -.022701          | .016699           | .040862           |
| 13 | -.010617          | -.002167          | -.061535          | -.027245          | .030781           | .035682           |
| 14 | -.010195          | .002330           | -.057341          | -.033389          | .036389           | .034158           |
| 15 | -.014245          | .005156           | -.056910          | -.041075          | .030679           | .037725           |
| 16 | -.016745          | .012423           | -.050112          | -.038378          | .029183           | .037779           |
| 17 | -.013870          | .009276           | -.042468          | -.017562          | .029403           | .015924           |
| 18 | -.011033          | -.001685          | -.031072          | .001917           | .028179           | -.011319          |
| 19 | -.015164          | -.012034          | -.022944          | .004813           | .023971           | -.021825          |
| 20 | -.027543          | -.010411          | -.019111          | -.004681          | .018259           | -.012956          |
| 21 | -.037935          | -.015128          | -.012375          | -.012089          | .011320           | -.002055          |
| 22 | -.043372          | -.024602          | -.006348          | -.014788          | .001861           | -.005206          |
| 23 | -.043938          | -.023659          | -.001727          | -.011053          | -.011034          | -.011016          |
| 24 | -.037002          | -.022491          | .004832           | -.013595          | -.019271          | -.013893          |
| 25 | -.034912          | -.014588          | .007538           | -.010807          | -.028427          | -.007409          |
| 26 | -.031228          | -.004081          | .006383           | -.013880          | -.039469          | .000215           |
| 27 | -.028251          | .000114           | .007584           | -.007551          | -.046483          | .000715           |
| 28 | -.022936          | .002395           | .010630           | .003024           | -.049488          | -.009123          |
| 29 | -.017964          | .005763           | .016650           | .006558           | -.056238          | -.013690          |
| 30 | -.018441          | .002422           | .026812           | -.005038          | -.054094          | -.009687          |
| 31 | -.016219          | -.003509          | .032161           | -.013783          | -.049828          | -.005266          |
| 32 | -.013247          | -.001021          | .031372           | -.019314          | -.049323          | -.005777          |
| 33 | -.011940          | .005263           | .022601           | -.010887          | -.053179          | -.007408          |
| 34 | -.015060          | .008175           | .018966           | .003318           | -.057956          | .001244           |
| 35 | -.010897          | .005333           | .020816           | .014792           | -.059510          | .002805           |
| 36 | -.002890          | .000418           | .021229           | .016959           | -.051816          | .000305           |
| 37 | .007037           | -.003835          | .021015           | .017033           | -.037899          | .000265           |
| 38 | .014958           | -.007072          | .023710           | .007003           | -.021653          | .002324           |
| 39 | .017515           | -.014929          | .024544           | -.009848          | -.010390          | .004264           |
| 40 | .014182           | -.017057          | .022009           | -.020867          | -.004171          | .006805           |
| 41 | .009995           | -.008532          | .018376           | -.025542          | .003491           | .015548           |
| 42 | .006366           | .008690           | .011543           | -.024000          | .013455           | .026526           |
| 43 | .013913           | .017952           | .010261           | -.011491          | .018365           | .016649           |
| 44 | .021364           | .023820           | .008184           | -.004301          | .024496           | .004492           |
| 45 | .027449           | .021856           | .003674           | .000154           | .033885           | .002644           |
| 46 | .031403           | -.022116          | .002467           | -.002429          | .043729           | .009853           |
| 47 | .035250           | .015883           | .002014           | -.001031          | .049715           | .010493           |
| 48 | .038274           | .016500           | -.003214          | .006335           | .055120           | .007521           |
| 49 | .039107           | .022443           | -.008204          | .014559           | .053004           | .005060           |
| 50 | .039602           | .027310           | -.008316          | .019178           | .051140           | -.000246          |
| 51 | .041293           | .019985           | -.001839          | .029472           | .049599           | -.008721          |
| 52 | .042750           | .004434           | .001487           | .037981           | .046826           | -.013168          |
| 53 | .044272           | -.002021          | .004135           | .041011           | .047168           | -.010912          |
| 54 | .046872           | .011522           | -.007125          | .041615           | .042511           | .006007           |
| 55 | .049107           | .025274           | -.012222          | .042530           | .036939           | .016218           |
| 56 | .046386           | .031333           | -.012247          | .042739           | .033568           | .017296           |
| 57 | .041195           | .028952           | -.008940          | .035119           | .035315           | .017649           |
| 58 | .031494           | .020066           | -.007191          | .031353           | .030857           | .003046           |
| 59 | .020841           | .010224           | -.004729          | .038442           | .018002           | -.017432          |
| 60 | .013040           | .003488           | -.003157          | .036706           | .009640           | -.012342          |



RUN NO 90C 15M 6-18-63 1721-1836(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.80553<br>10E 00 | 0.65228<br>10E 00 | 0.29415<br>10E 00 | 0.25162<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .838102           | .776632           | .625329           | .760301           |
| 2  | .643792           | .510999           | .291296           | .504611           |
| 3  | .495141           | .326919           | .114008           | .354084           |
| 4  | .393931           | .198310           | .041300           | .256208           |
| 5  | .317825           | .108027           | -.018028          | .186204           |
| 6  | .247983           | .031925           | -.035223          | .127915           |
| 7  | .180814           | -.024839          | -.061250          | .069524           |
| 8  | .119177           | -.065532          | -.066928          | .029627           |
| 9  | .058570           | -.093008          | -.091387          | -.002825          |
| 10 | .002528           | -.094139          | -.093451          | -.023265          |
| 11 | -.036152          | -.102675          | -.088133          | -.035055          |
| 12 | -.066982          | -.115110          | -.083225          | -.050069          |
| 13 | -.096489          | -.128642          | -.073535          | -.073288          |
| 14 | -.129427          | -.133218          | -.073105          | -.100158          |
| 15 | -.155052          | -.127186          | -.076842          | -.115573          |
| 16 | -.185910          | -.127241          | -.085720          | -.129344          |
| 17 | -.213972          | -.138360          | -.090426          | -.148710          |
| 18 | -.232960          | -.158240          | -.087350          | -.176963          |
| 19 | -.258846          | -.169110          | -.097225          | -.208729          |
| 20 | -.279106          | -.166522          | -.102857          | -.231795          |
| 21 | -.292641          | -.160415          | -.094875          | -.238917          |
| 22 | -.308077          | -.157991          | -.075528          | -.231316          |
| 23 | -.313234          | -.164920          | -.066091          | -.225932          |
| 24 | -.306470          | -.169422          | -.077718          | -.224861          |
| 25 | -.291002          | -.163948          | -.091579          | -.207836          |
| 26 | -.270568          | -.163559          | -.081322          | -.191553          |
| 27 | -.245139          | -.148904          | -.079284          | -.170712          |
| 28 | -.215148          | -.136386          | -.074708          | -.148878          |
| 29 | -.183032          | -.127172          | -.065041          | -.135967          |
| 30 | -.144219          | -.100085          | -.068258          | -.115253          |
| 31 | -.114640          | -.052093          | -.033131          | -.076999          |
| 32 | -.093161          | -.019683          | -.003202          | -.050827          |
| 33 | -.077463          | .003159           | .020348           | -.030455          |
| 34 | -.067512          | .026515           | .047457           | -.009547          |
| 35 | -.054881          | .034703           | .056114           | .001205           |
| 36 | -.041506          | .041988           | .045831           | .004534           |
| 37 | -.032957          | .046145           | .019639           | .022273           |
| 38 | -.020766          | .046340           | .003906           | .027959           |
| 39 | -.004501          | .041181           | .014450           | .045070           |
| 40 | .009979           | .036954           | .017605           | .054262           |
| 41 | .026129           | .032903           | .021238           | .062288           |
| 42 | .046310           | .031158           | .032359           | .075621           |
| 43 | .055269           | .025692           | .032393           | .066123           |
| 44 | .053699           | .033494           | .025848           | .051340           |
| 45 | .048968           | .050228           | .041840           | .039626           |
| 46 | .049009           | .055776           | .056634           | .043203           |
| 47 | .051234           | .056678           | .056603           | .052878           |
| 48 | .054742           | .058140           | .038458           | .053531           |
| 49 | .047200           | .053952           | .020951           | .045873           |
| 50 | .039269           | .046026           | .013284           | .039950           |
| 51 | .026541           | .035984           | -.008903          | .026560           |
| 52 | .017599           | .018437           | -.034713          | -.000856          |
| 53 | .012173           | .002254           | -.042616          | -.023035          |
| 54 | .004615           | -.007763          | -.031161          | -.028576          |
| 55 | .002391           | -.012360          | -.007334          | -.033026          |
| 56 | .001770           | -.015989          | .011988           | -.036703          |
| 57 | -.004398          | -.014400          | .024579           | -.038289          |
| 58 | -.007407          | -.017946          | .042723           | -.039574          |
| 59 | -.007523          | -.019631          | .054608           | -.040630          |
| 60 | -.009291          | -.013067          | .043731           | -.051010          |

RUN NO 90C 15M 6-18-63 1721-1836(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02  | 10E-03   |
| 0     | .011425  | -.009804 | -.016123 | -.013176 | .008155 | .025502  |
| 1     | .155452  | -.131494 | -.167889 | .231134  | .084313 | .198158  |
| 2     | .148356  | -.210237 | -.217189 | .668123  | .181312 | .164221  |
| 3     | .116381  | -.251797 | -.204268 | .765501  | .257824 | .029723  |
| 4     | .086950  | -.174946 | -.095117 | .211437  | .182604 | -.106585 |
| 5     | .021248  | -.113018 | -.045683 | .116127  | .126221 | -.153289 |
| 6     | -.045628 | -.093131 | -.059679 | .290188  | .129821 | -.184967 |
| 7-8   | -.027546 | -.089210 | -.068776 | -.013906 | .111049 | -.188420 |
| 9-11  | .016447  | -.052305 | -.032127 | .012337  | .070356 | -.130503 |
| 12-15 | .010409  | -.025787 | -.022491 | .000864  | .037708 | -.146208 |
| 16-20 | .006711  | -.015111 | -.018184 | -.011688 | .021006 | -.145714 |
| 21-27 | .003170  | -.006934 | -.015896 | .077089  | .017815 | -.064713 |
| 28-36 | .000288  | -.001264 | -.008859 | .013327  | .008320 | -.070121 |
| 37-47 | -.000348 | -.000465 | -.005468 | -.000151 | .005503 | -.036880 |
| 48-60 | -.000657 | -.000813 | -.002272 | .002691  | .002373 | -.000491 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-03   |
| 1     | -.126244 | -.407715 | -.069151 | -.479613 | -.001418 | .108530  |
| 2     | -.083862 | -.398880 | -.101464 | -.343451 | .055438  | .117944  |
| 3     | -.001358 | -.321498 | -.103765 | -.209885 | .100304  | .174214  |
| 4     | .011616  | -.342355 | -.048114 | -.071859 | .040934  | .082030  |
| 5     | -.017757 | -.395496 | -.011413 | .068545  | .007319  | -.111532 |
| 6     | -.025474 | -.468893 | -.000719 | .067239  | .034036  | -.208874 |
| 7-8   | -.002879 | -.321039 | .002128  | .126237  | .043820  | -.225166 |
| 9-11  | .015088  | -.039288 | -.003867 | -.042730 | .025351  | -.043174 |
| 12-15 | .001546  | -.147833 | .003701  | .113540  | .004822  | -.109043 |
| 16-20 | -.001388 | -.111999 | .001372  | .013998  | .010027  | -.078409 |
| 21-27 | .006340  | -.033612 | -.001107 | .038427  | .005326  | -.032017 |
| 28-36 | .002252  | -.024906 | -.000974 | .014096  | .003589  | -.031653 |
| 37-47 | -.002083 | -.028006 | -.001139 | -.001326 | .001648  | -.023360 |
| 48-60 | -.001054 | .000763  | -.000901 | .000478  | .000096  | -.005285 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-03  |
| 0     | .008808 | .024782 | .006344 | .023728 |
| 1     | .104696 | .396548 | .094402 | .229529 |
| 2     | .140547 | .660956 | .167427 | .320147 |
| 3     | .143010 | .819919 | .227656 | .354444 |
| 4     | .082655 | .597403 | .187069 | .215217 |
| 5     | .042846 | .426456 | .152857 | .120809 |
| 6     | .035277 | .434393 | .160628 | .118305 |
| 7-8   | .034444 | .384046 | .151052 | .121900 |
| 9-11  | .018379 | .247653 | .120781 | .081937 |
| 12-15 | .013396 | .148922 | .085623 | .053371 |
| 16-20 | .010298 | .096324 | .071327 | .038974 |
| 21-27 | .005777 | .072055 | .050289 | .029415 |
| 28-36 | .003365 | .041434 | .034732 | .018138 |
| 37-47 | .002251 | .025523 | .022931 | .012491 |
| 48-60 | .001569 | .016299 | .016621 | .007094 |

RUN NO 90C 15M 6-18-63 1721-1836(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.48009<br>10E 00 | 0.26954<br>10E 00 | 0.36873<br>10E-01 | 0.17029<br>10E 00 | 0.23296<br>10E-01 | 0.13079<br>10E-01 |
| 0  | .185650           | -.406613          | -.240647          | .069462           | .354398           | .043485           |
| 1  | .125716           | -.118320          | -.105255          | -.002613          | .041369           | .063762           |
| 2  | .043694           | -.022703          | -.003402          | -.054212          | -.067866          | .029903           |
| 3  | .043802           | -.023047          | .068393           | -.074002          | -.059551          | -.032620          |
| 4  | -.011724          | .012588           | .044791           | .054474           | -.011195          | -.014935          |
| 5  | .004046           | .046154           | .041636           | .049263           | -.048631          | .003483           |
| 6  | .047297           | .035279           | .085020           | -.028901          | -.129800          | -.055193          |
| 7  | .086781           | .095282           | .056283           | .004678           | -.111238          | -.038305          |
| 8  | .018074           | .055587           | .003995           | .023325           | .015561           | .021650           |
| 9  | -.098473          | .022805           | .005204           | -.046407          | .048671           | -.023255          |
| 10 | -.079947          | .152185           | .063699           | -.037512          | -.018069          | -.078546          |
| 11 | -.056201          | .166462           | .080465           | .079794           | .007297           | -.056428          |
| 12 | -.085864          | .090099           | .035904           | .101388           | .045377           | .006916           |
| 13 | -.126922          | .054225           | -.024789          | .097722           | .033024           | .006788           |
| 14 | -.092480          | -.034434          | -.055729          | -.051977          | -.003339          | .015144           |
| 15 | -.039081          | -.039656          | -.060572          | -.024791          | .031196           | .049643           |
| 16 | .004565           | -.041272          | -.038652          | .039854           | .046094           | .094371           |
| 17 | .028810           | -.065763          | -.011804          | .007581           | .051720           | -.006093          |
| 18 | .033485           | -.052175          | .009406           | -.040831          | -.006057          | -.069675          |
| 19 | .029632           | -.058087          | .042132           | .023882           | -.032382          | -.025598          |
| 20 | .003077           | -.110407          | -.012424          | -.096008          | .008347           | -.035939          |
| 21 | -.034685          | -.127713          | -.050952          | -.062481          | -.025339          | .047649           |
| 22 | -.011471          | -.055255          | -.082961          | -.042690          | -.073257          | .037291           |
| 23 | .068756           | -.047094          | -.040583          | -.010228          | -.065182          | .062806           |
| 24 | .030070           | .016147           | -.017659          | .030333           | .020163           | .064639           |
| 25 | -.032080          | .035891           | -.016875          | .010961           | .027429           | .026677           |
| 26 | -.031423          | .013530           | -.037618          | -.056230          | -.010495          | -.011195          |
| 27 | -.019036          | .090397           | -.009560          | -.000733          | .025077           | .018221           |
| 28 | -.001898          | .055373           | .011219           | -.036857          | .023977           | .000002           |
| 29 | -.042078          | .077156           | -.001702          | .057452           | -.013602          | -.033536          |
| 30 | -.011685          | .069498           | .023613           | .029082           | -.009763          | -.057146          |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 0     | .013154  | .000996  | .007582  | .029000  | -.047099 | -.016291 |
| 1     | .133245  | -.001685 | .032582  | .069327  | -.173166 | -.063274 |
| 2     | .173696  | -.071785 | -.022072 | -.117328 | -.094644 | .058956  |
| 3     | .162082  | -.156162 | -.087583 | -.181269 | .210752  | .181349  |
| 4     | .031773  | -.106060 | -.107828 | .046565  | .662796  | .211094  |
| 5     | -.041180 | -.032735 | -.084176 | .107372  | .687194  | .131530  |
| 6     | .018634  | -.031963 | -.049763 | -.059808 | .581700  | -.032242 |
| 7     | .097511  | -.053412 | -.069624 | -.131756 | .539341  | .057293  |
| 8     | .093844  | -.077339 | -.110307 | -.100702 | .299445  | .217935  |
| 9-11  | .069110  | -.027924 | -.034170 | .257310  | .197499  | .016915  |
| 12-14 | -.034647 | -.054510 | -.059516 | .126795  | .637324  | .033114  |
| 15-21 | .032281  | -.043394 | -.011422 | .027877  | .371714  | -.060074 |
| 22-30 | .001731  | -.031010 | -.021530 | .080676  | .338399  | -.000828 |

RUN NO 90C 15M 6-18-63 1721-1836(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.48009<br>10E 00 | 0.26954<br>10E 00 | 0.36873<br>10E-01 | 0.17029<br>10E 00 | 0.23296<br>10E-01 | 0.13079<br>10E-01 |
| 1  | -.037680          | -.018244          | -.085727          | -.060059          | .049216           | .056893           |
| 2  | -.070110          | .000639           | -.068419          | -.078856          | .005372           | .042274           |
| 3  | -.082271          | -.025587          | -.062537          | -.068419          | -.044799          | .028171           |
| 4  | -.008704          | .011726           | -.043693          | -.009189          | -.008674          | .029419           |
| 5  | .014061           | .039493           | -.028466          | -.001352          | .049314           | -.002134          |
| 6  | -.007551          | .006053           | -.020327          | .031664           | .005445           | -.035168          |
| 7  | -.017359          | -.030447          | .008109           | .013598           | -.041062          | -.070858          |
| 8  | -.078077          | -.019408          | -.002722          | -.037239          | -.051413          | -.020834          |
| 9  | -.066149          | -.046509          | -.027853          | -.024269          | -.035955          | .001095           |
| 10 | -.036981          | -.061378          | -.018135          | .015518           | -.046476          | -.042209          |
| 11 | -.058818          | -.024608          | -.014097          | -.023260          | -.004253          | -.061051          |
| 12 | -.012040          | .025326           | -.002241          | .004913           | .097287           | -.016121          |
| 13 | .021872           | .058552           | .044675           | .077893           | .049120           | -.004581          |
| 14 | .042618           | .003364           | .076971           | .022004           | .073175           | -.022068          |
| 15 | .084064           | .038914           | .082208           | .046982           | .044331           | -.004739          |
| 16 | .020419           | .047198           | .048295           | .025223           | .001942           | .026126           |
| 17 | .000656           | .004940           | .067378           | -.012156          | .031701           | .066016           |
| 18 | .036749           | .004533           | .077153           | -.003262          | .010262           | .036636           |
| 19 | .059100           | .059494           | .056696           | -.027680          | .023135           | .079290           |
| 20 | .005369           | .050864           | .006078           | -.032399          | -.019936          | .065867           |
| 21 | -.056877          | .023166           | -.029412          | -.077246          | -.084958          | .058484           |
| 22 | -.013678          | -.034305          | -.000337          | -.053965          | -.018203          | .006705           |
| 23 | -.021575          | .002016           | -.037757          | .023281           | -.026014          | -.036759          |
| 24 | .015777           | -.044954          | -.057964          | .042410           | -.035564          | -.019015          |
| 25 | -.065278          | -.078356          | -.070426          | .009922           | .033515           | .024982           |
| 26 | -.054078          | -.098598          | -.018663          | -.004940          | .002213           | -.039284          |
| 27 | .026509           | -.058134          | .003890           | .023778           | -.020134          | -.043212          |
| 28 | -.001377          | -.055389          | .006405           | .045021           | -.072374          | -.084531          |
| 29 | -.050997          | -.045217          | -.010037          | -.042830          | .033095           | -.023435          |
| 30 | -.015241          | .024849           | -.009229          | -.048016          | .094888           | .010410           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-03   | 10E-02   | 10E-03   | 10E-03   |
| 1     | -.590291 | .049955  | .263216  | -.009545 | .137615  | -.059462 |
| 2     | -.055200 | -.170817 | -.475632 | -.056896 | -.059425 | -.148877 |
| 3     | -.894544 | -.206864 | -.945262 | -.219765 | -.290447 | -.013113 |
| 4     | -.055718 | .191139  | -.351964 | -.215390 | -.038764 | .227778  |
| 5     | .261253  | .251549  | -.138375 | -.040344 | .345831  | .159279  |
| 6     | -.334188 | .084579  | -.554521 | -.151471 | .239756  | .100661  |
| 7     | -.831068 | -.159216 | -.612418 | -.329779 | -.055302 | .163259  |
| 8     | -.877214 | -.369337 | -.432778 | -.285380 | -.247232 | .126318  |
| 9-11  | -.348791 | -.070000 | -.113642 | -.124725 | .012373  | .034489  |
| 12-14 | .179169  | -.015823 | -.184000 | .008187  | .203012  | -.015087 |
| 15-21 | .144136  | .011954  | -.127444 | .014368  | .109776  | .056962  |
| 22-30 | -.137242 | -.071334 | -.078601 | -.051917 | .011584  | .006119  |

RUN NO 90C 15M 6-18-63 1721-1836(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.75990<br>10E 00 | 0.30331<br>10E 00 | 0.95605<br>10E-01 | 0.17892<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .526370           | .148347           | .013810           | .447216           |
| 2  | .180007           | -.124243          | -.022589          | .095599           |
| 3  | .055854           | -.114155          | -.016368          | -.008762          |
| 4  | -.007576          | -.050094          | -.051839          | -.013795          |
| 5  | -.054302          | -.015787          | -.069081          | -.093043          |
| 6  | -.095330          | -.085604          | -.024799          | -.147774          |
| 7  | -.106752          | .001923           | -.130269          | -.072254          |
| 8  | -.131924          | .045248           | -.065352          | .025364           |
| 9  | -.204070          | -.107333          | .000585           | -.028450          |
| 10 | -.360152          | -.140603          | -.153240          | -.137974          |
| 11 | -.342390          | -.024021          | .002405           | -.174170          |
| 12 | -.210441          | .089526           | .027842           | -.156806          |
| 13 | -.112940          | -.032948          | -.111578          | -.092344          |
| 14 | -.053591          | -.133939          | -.000304          | -.034694          |
| 15 | -.008120          | -.009776          | -.059752          | .012635           |
| 16 | .011335           | -.043421          | .010159           | .059054           |
| 17 | .028021           | .100797           | .095299           | .021438           |
| 18 | .103572           | .089747           | -.005894          | -.053238          |
| 19 | .094011           | .000794           | .040754           | -.078590          |
| 20 | .111695           | -.013947          | .053174           | .003097           |
| 21 | .104511           | -.088232          | .042210           | -.014074          |
| 22 | .108490           | -.089639          | .018482           | -.004037          |
| 23 | .111550           | -.027779          | .063578           | .018328           |
| 24 | .043136           | .084025           | -.036063          | .079496           |
| 25 | -.019119          | .055420           | -.009419          | .054844           |
| 26 | -.040348          | -.018302          | .034902           | .014823           |
| 27 | -.123449          | .086870           | -.118044          | -.026413          |
| 28 | -.155931          | -.033010          | .040938           | -.022837          |
| 29 | -.137729          | -.041843          | -.053534          | -.016678          |
| 30 | -.108228          | -.004011          | -.036502          | -.012088          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-02  | 10E-03  |
| 0     | .003931 | .009056 | .018905 | .020305 |
| 1     | .043755 | .074094 | .150034 | .125470 |
| 2     | .082553 | .097976 | .304702 | .143373 |
| 3     | .117561 | .133340 | .507347 | .167904 |
| 4     | .079287 | .135244 | .458429 | .143922 |
| 5     | .035986 | .112164 | .382531 | .110127 |
| 6     | .029554 | .130258 | .399853 | .102812 |
| 7     | .040721 | .162442 | .365533 | .136179 |
| 8     | .053602 | .138883 | .309549 | .135841 |
| 9-11  | .032716 | .182108 | .370044 | .057519 |
| 12-14 | .025204 | .127506 | .365670 | .075732 |
| 15-21 | .018025 | .136125 | .467864 | .050118 |
| 22-30 | .011733 | .126509 | .539624 | .037165 |

RUN NO 90C 46M 6-18-63 1721-1836(EST)

GROSS STATISTICS

CLEAR WIND SPEED 6.72 M/SEC SIGMA A 8.10 DEG  
 TRANSITIONAL WIND DIRECTION 239 DEG SIGMA E 5.8 DEG  
 SOLAR RAD. 0.22 LY/MIN

|                  | WITH 10<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.14405E 01             | 0.11907E 01                    | 0.92004E 00                   | 0.80321E 00                        |
| V                | 0.87833E 00             | 0.78064E 00                    | 0.73780E 00                   | 0.32535E-00                        |
| W                | 0.41025E-00             | 0.40541E-00                    | 0.39466E-00                   | 0.15134E-00                        |
| T                | 0.15386E-00             | 0.35726E-02                    | 0.27923E-02                   | 0.20753E-02                        |
| E                | 0.13646E 01             | 0.11884E 01                    | 0.10263E 01                   |                                    |

|                         | WITH 10<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.17860                 | 0.16238                        | 0.14274                       | 0.13337                            |
| V                       | 0.13946                 | 0.13148                        | 0.12782                       | 0.08488                            |
| W                       | 0.09531                 | 0.09475                        | 0.09349                       | 0.05789                            |

|                    | WITH 10<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | -0.91852E-02            | 0.16574E-01                    | 0.22742E-01                   | 0.20967E-01                        |
| U,W                | -0.35372E-00            | -0.36459E-00                   | -0.32062E-00                  | -0.22051E-00                       |
| U,T                | 0.81131E-01             | 0.20031E-01                    | 0.16793E-01                   | 0.14529E-01                        |
| V,W                | -0.33002E-01            | -0.37044E-01                   | -0.45118E-01                  | -0.91154E-02                       |
| V,T                | -0.65599E-01            | 0.39312E-02                    | 0.42400E-02                   | 0.23837E-02                        |
| W,T                | -0.10376E-01            | -0.18178E-01                   | -0.18185E-01                  | -0.75021E-02                       |
| WE                 | -0.10295E-01            | 0.24541E-01                    | -0.11705E-01                  |                                    |

|                               | WITH 10<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | -0.00817                | 0.01719                        | 0.02760                       | 0.04102                            |
| U,W                           | -0.46012                | -0.52476                       | -0.53208                      | -0.63244                           |
| U,T                           | 0.17233                 | 0.30713                        | 0.33131                       | 0.35585                            |
| V,W                           | -0.05498                | -0.06585                       | -0.08361                      | -0.04108                           |
| V,T                           | -0.17844                | 0.07444                        | 0.09342                       | 0.09174                            |
| W,T                           | -0.04130                | -0.47766                       | -0.56780                      | -0.42331                           |

RUN NO 90C 40M 6-18-63 1721-1836(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.82380<br>10E 00 | 0.60263<br>10E 00 | 0.50698<br>10E-01 | 0.53956<br>10E 00 | 0.45392<br>10E-01 | 0.33205<br>10E-01 |
| 0  | .027458           | -.532099          | .331339           | -.083608          | .093634           | -.547693          |
| 1  | .033330           | -.478260          | .320147           | -.066508          | .096580           | -.438388          |
| 2  | .038607           | -.392222          | .283804           | -.040537          | .084318           | -.300460          |
| 3  | .034206           | -.310567          | .239685           | -.018467          | .066505           | -.203916          |
| 4  | .024599           | -.238684          | .194848           | .001366           | .052142           | -.137990          |
| 5  | .017330           | -.177502          | .151060           | .009461           | .043751           | -.084337          |
| 6  | .011830           | -.126104          | .114586           | .005924           | .036621           | -.047144          |
| 7  | .015686           | -.074702          | .080823           | .001757           | .033426           | -.014080          |
| 8  | .021898           | -.026111          | .050730           | -.004162          | .024909           | .015086           |
| 9  | .021901           | .015773           | .021448           | -.011663          | .010650           | .038917           |
| 10 | .022724           | .050401           | .000776           | -.016548          | -.000257          | .047911           |
| 11 | .018894           | .080560           | -.019538          | -.015039          | -.009317          | .063326           |
| 12 | .015891           | .105246           | -.042471          | -.003105          | -.018220          | .086157           |
| 13 | .010999           | .120070           | -.062215          | .010461           | -.026542          | .100206           |
| 14 | .005038           | .125485           | -.075629          | .014315           | -.029649          | .101487           |
| 15 | .000173           | .123520           | -.090607          | .013838           | -.031199          | .099426           |
| 16 | -.007659          | .123283           | -.099412          | .004302           | -.026161          | .095189           |
| 17 | -.016364          | .124997           | -.105869          | .004776           | -.020883          | .091032           |
| 18 | -.021526          | .133560           | -.111787          | .015986           | -.023834          | .088680           |
| 19 | -.028371          | .146065           | -.114740          | .027753           | -.032661          | .086520           |
| 20 | -.034924          | .151481           | -.123311          | .030917           | -.050968          | .093827           |
| 21 | -.037516          | .162563           | -.133423          | .029408           | -.064098          | .102976           |
| 22 | -.038707          | .171000           | -.142716          | .032502           | -.066773          | .107361           |
| 23 | -.037610          | .176769           | -.150613          | .035906           | -.064985          | .108968           |
| 24 | -.036365          | .180358           | -.154639          | .040878           | -.066662          | .111691           |
| 25 | -.035896          | .179054           | -.157182          | .039494           | -.063312          | .122565           |
| 26 | -.030794          | .169091           | -.158517          | .034053           | -.061758          | .140467           |
| 27 | -.030736          | .154382           | -.147960          | .030008           | -.055332          | .137097           |
| 28 | -.031449          | .129425           | -.125512          | .025377           | -.047846          | .114332           |
| 29 | -.028013          | .107436           | -.103225          | .012061           | -.036621          | .087132           |
| 30 | -.020747          | .087598           | -.080858          | -.000422          | -.019377          | .061647           |
| 31 | -.014876          | .068401           | -.062168          | -.004541          | -.013136          | .039731           |
| 32 | -.011462          | .044686           | -.040088          | -.008901          | -.009553          | .023003           |
| 33 | -.011632          | .016665           | -.018728          | -.010230          | -.007046          | .003991           |
| 34 | -.010146          | -.006997          | -.001892          | -.007508          | -.007019          | -.012988          |
| 35 | -.009520          | -.022869          | .010674           | -.006573          | -.001965          | -.026164          |
| 36 | -.009343          | -.037281          | .020298           | -.005258          | .002881           | -.029085          |
| 37 | -.008436          | -.056832          | .027961           | -.001260          | .008204           | -.027272          |
| 38 | -.005307          | -.073090          | .034318           | -.006001          | .020103           | -.031058          |
| 39 | .002555           | -.085490          | .040189           | -.011924          | .024556           | -.038548          |
| 40 | .011823           | -.096406          | .049551           | -.018983          | .025527           | -.047845          |
| 41 | .016214           | -.104942          | .058911           | -.020825          | .032566           | -.058857          |
| 42 | .014078           | -.103608          | .068684           | -.023837          | .038502           | -.070266          |
| 43 | .010972           | -.096408          | .073865           | -.016418          | .035865           | -.076877          |
| 44 | .011254           | -.090379          | .075159           | -.016326          | .037914           | -.077657          |
| 45 | .009937           | -.091166          | .075174           | -.018625          | .043603           | -.088197          |
| 46 | .015417           | -.089116          | .078741           | -.021166          | .047384           | -.096244          |
| 47 | .023441           | -.081575          | .081216           | -.028076          | .046808           | -.088130          |
| 48 | .027833           | -.070491          | .079268           | -.036840          | .045202           | -.071639          |
| 49 | .029977           | -.056020          | .072715           | -.050466          | .052444           | -.052813          |
| 50 | .029381           | -.037776          | .059921           | -.055382          | .056405           | -.032456          |
| 51 | .023040           | -.022437          | .042202           | -.045338          | .054449           | -.017923          |
| 52 | .020944           | -.016463          | .031333           | -.032152          | .043541           | -.014007          |
| 53 | .016803           | -.014771          | .031313           | -.019240          | .030014           | -.022288          |
| 54 | .004962           | -.008206          | .033548           | -.006687          | .017515           | -.020449          |
| 55 | -.003960          | .000213           | .030653           | .004768           | .008630           | -.013269          |
| 56 | -.010709          | .005483           | .023391           | .020060           | .006090           | -.009679          |
| 57 | -.011474          | .013846           | .009329           | .031714           | .001753           | -.005882          |
| 58 | -.009405          | .031321           | -.001733          | .041161           | -.008350          | -.003515          |
| 59 | -.005222          | .053001           | -.015676          | .037689           | -.015422          | .008282           |
| 60 | -.004751          | .076397           | -.032514          | .033899           | -.018774          | .022453           |

RUN NO 90C 46M 6-18-63 1721-1836(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.82380<br>10E 00 | 0.60263<br>10E 00 | 0.50698<br>10E-01 | 0.53956<br>10E 00 | 0.45392<br>10E-01 | 0.33205<br>10E-01 |
| 1  | -.006492          | .002210           | .001290           | -.006003          | .022863           | -.042103          |
| 2  | -.006364          | .000108           | .003503           | -.002109          | .032615           | -.048385          |
| 3  | -.008784          | .001178           | .004372           | .001157           | .031184           | -.056763          |
| 4  | -.011173          | .009953           | -.001380          | .002044           | .033991           | -.057580          |
| 5  | -.016128          | .016299           | -.003973          | .000367           | .036839           | -.064225          |
| 6  | -.022896          | .023243           | -.001956          | -.008176          | .040037           | -.067142          |
| 7  | -.028114          | .031458           | -.003304          | -.010330          | .038184           | -.060694          |
| 8  | -.029132          | .035855           | -.010542          | -.004790          | .026337           | -.053629          |
| 9  | -.029198          | .036579           | -.008804          | -.003112          | .010645           | -.049509          |
| 10 | -.026043          | .037006           | -.007526          | .000202           | -.003596          | -.049434          |
| 11 | -.025174          | .036519           | -.005189          | .012362           | -.010838          | -.051604          |
| 12 | -.027886          | .035455           | -.002076          | .023334           | -.012535          | -.049415          |
| 13 | -.031382          | .028249           | .003156           | .025105           | -.009695          | -.043762          |
| 14 | -.026986          | .019844           | .005246           | .028391           | -.005955          | -.030721          |
| 15 | -.019307          | .014797           | .001903           | .025163           | .003273           | -.017277          |
| 16 | -.016830          | .014235           | .001752           | .015040           | .008263           | -.012822          |
| 17 | -.016634          | .016554           | .001808           | .016163           | .014794           | -.012503          |
| 18 | -.015870          | .014973           | -.000014          | .025604           | .013065           | -.016845          |
| 19 | -.018794          | .011038           | -.005024          | .022576           | .014674           | -.016757          |
| 20 | -.019607          | .004740           | -.004890          | .011129           | .016494           | -.012641          |
| 21 | -.016124          | .002532           | -.003645          | -.002655          | .023850           | -.008378          |
| 22 | -.013755          | -.005144          | .001204           | -.006250          | .021568           | -.006553          |
| 23 | -.017309          | -.012250          | .012603           | -.006165          | .019222           | -.002817          |
| 24 | -.013498          | -.019877          | .026497           | -.006979          | .010556           | .003022           |
| 25 | -.007469          | -.029077          | .039662           | -.006983          | .001893           | .007097           |
| 26 | .001512           | -.030598          | .042577           | -.009474          | .005935           | .011402           |
| 27 | .007665           | -.027393          | .040388           | -.008529          | .011045           | .018190           |
| 28 | .016181           | -.024136          | .043644           | .001220           | .003490           | .022658           |
| 29 | .029318           | -.014959          | .048108           | .010517           | -.007472          | .019454           |
| 30 | .035133           | -.009772          | .045907           | .012206           | -.018556          | .021212           |
| 31 | .040400           | -.011242          | .037501           | .008730           | -.021047          | .030991           |
| 32 | .042367           | -.007745          | .026790           | .004908           | -.024928          | .039892           |
| 33 | .039028           | -.004465          | .023298           | -.000093          | -.030168          | .042292           |
| 34 | .031308           | -.010082          | .024482           | -.008316          | -.038938          | .035591           |
| 35 | .023891           | -.013510          | .024766           | -.018401          | -.040181          | .024580           |
| 36 | .023896           | -.021484          | .022233           | -.020286          | -.036339          | .015727           |
| 37 | .026330           | -.026324          | .012230           | -.023730          | -.024057          | .010464           |
| 38 | .030030           | -.023397          | .005402           | -.012196          | -.019586          | .004582           |
| 39 | .036144           | -.015975          | .002440           | -.002036          | -.018089          | .000179           |
| 40 | .039308           | -.007700          | -.001053          | .003874           | -.013544          | -.001141          |
| 41 | .037745           | -.001400          | -.005170          | .013327           | -.015572          | .001211           |
| 42 | .028140           | -.002192          | -.007887          | .026558           | -.018971          | .002553           |
| 43 | .014688           | -.002122          | -.010098          | .025453           | -.015753          | .000954           |
| 44 | .010332           | -.000494          | -.017099          | .017780           | -.004396          | -.001980          |
| 45 | .010236           | .000777           | -.020692          | .008959           | .004200           | -.005530          |
| 46 | .008785           | .006251           | -.024913          | -.002767          | .009900           | -.009819          |
| 47 | .008495           | .016926           | -.030510          | -.016604          | .018673           | -.017012          |
| 48 | .001017           | .021631           | -.031383          | -.013596          | .014042           | -.017530          |
| 49 | -.010178          | .024209           | -.034198          | -.007363          | .013918           | -.015425          |
| 50 | -.019883          | .031565           | -.044217          | -.001924          | .016087           | -.004521          |
| 51 | -.030717          | .040481           | -.057181          | -.017723          | .027046           | .000441           |
| 52 | -.036230          | .045577           | -.068995          | -.036448          | .042823           | .004104           |
| 53 | -.037458          | .044320           | -.072105          | -.036410          | .045943           | .005316           |
| 54 | -.036479          | .036734           | -.069640          | -.024774          | .043358           | .001012           |
| 55 | -.038038          | .031567           | -.065629          | -.010446          | .036403           | .003318           |
| 56 | -.038188          | .028023           | -.058746          | -.001323          | .029569           | .004579           |
| 57 | -.040636          | .019260           | -.045441          | .003160           | .023284           | .002127           |
| 58 | -.040938          | .007984           | -.030093          | .007315           | .021552           | -.001355          |
| 59 | -.040492          | -.003671          | -.012996          | -.001841          | .021535           | -.009339          |
| 60 | -.040447          | -.008393          | -.002181          | -.003790          | .023636           | -.015965          |



RUN NO 90C 46M 6-18-63 1721-1836(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.92010<br>10E 00 | 0.73758<br>10E 00 | 0.39470<br>10E 00 | 0.27935<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .870051           | .754122           | .736249           | .794223           |
| 2  | .701513           | .472335           | .457674           | .579051           |
| 3  | .568142           | .293228           | .278047           | .429806           |
| 4  | .460940           | .173032           | .158661           | .318015           |
| 5  | .367943           | .087124           | .084511           | .221669           |
| 6  | .283052           | .020200           | .038102           | .148369           |
| 7  | .201349           | -.049281          | -.017544          | .089498           |
| 8  | .123292           | -.097175          | -.062660          | .041526           |
| 9  | .051172           | -.111504          | -.091528          | -.004843          |
| 10 | -.011216          | -.112602          | -.105007          | -.035594          |
| 11 | -.064043          | -.114789          | -.131118          | -.067704          |
| 12 | -.119490          | -.120721          | -.160313          | -.106164          |
| 13 | -.165724          | -.138015          | -.173662          | -.139985          |
| 14 | -.203663          | -.144585          | -.159416          | -.164471          |
| 15 | -.230475          | -.138382          | -.141230          | -.177535          |
| 16 | -.250731          | -.128648          | -.130304          | -.178909          |
| 17 | -.261061          | -.124978          | -.125271          | -.183426          |
| 18 | -.277589          | -.141392          | -.132605          | -.179760          |
| 19 | -.297024          | -.155496          | -.142177          | -.184388          |
| 20 | -.309961          | -.151708          | -.147452          | -.200885          |
| 21 | -.321548          | -.148840          | -.148846          | -.215139          |
| 22 | -.327795          | -.160038          | -.151486          | -.228808          |
| 23 | -.331648          | -.165253          | -.153669          | -.240822          |
| 24 | -.328505          | -.152331          | -.157495          | -.242281          |
| 25 | -.315466          | -.143488          | -.170229          | -.246708          |
| 26 | -.294231          | -.133500          | -.180558          | -.261055          |
| 27 | -.271338          | -.123912          | -.173405          | -.259032          |
| 28 | -.241495          | -.118886          | -.132625          | -.235283          |
| 29 | -.214624          | -.112960          | -.088923          | -.201879          |
| 30 | -.186957          | -.090326          | -.052376          | -.166183          |
| 31 | -.153937          | -.054856          | -.016774          | -.121491          |
| 32 | -.115255          | -.019683          | -.000430          | -.080565          |
| 33 | -.074590          | .018083           | .026016           | -.041957          |
| 34 | -.033406          | .052183           | .038144           | -.014550          |
| 35 | .07192            | .075982           | .043470           | .012385           |
| 36 | .044687           | .089131           | .048641           | .030678           |
| 37 | .073935           | .094582           | .061531           | .037786           |
| 38 | .093616           | .085121           | .088822           | .041087           |
| 39 | .100554           | .071400           | .110794           | .049113           |
| 40 | .103481           | .059953           | .106177           | .057484           |
| 41 | .114920           | .047858           | .097057           | .072271           |
| 42 | .121717           | .037147           | .092450           | .082201           |
| 43 | .118841           | .026678           | .096882           | .084520           |
| 44 | .113935           | .013461           | .092232           | .087005           |
| 45 | .110847           | .024887           | .093018           | .099351           |
| 46 | .104597           | .024786           | .087855           | .107942           |
| 47 | .097327           | .014757           | .072656           | .102229           |
| 48 | .089123           | .019922           | .054005           | .090410           |
| 49 | .077284           | .030905           | .033243           | .079039           |
| 50 | .059431           | .032190           | .013192           | .070390           |
| 51 | .042016           | .026590           | .000410           | .062714           |
| 52 | .031756           | .022769           | .000398           | .058469           |
| 53 | .029615           | .018654           | .013141           | .054349           |
| 54 | .026192           | .010516           | .018525           | .039510           |
| 55 | .008581           | .002017           | .009152           | .022355           |
| 56 | -.008788          | -.003610          | -.008229          | .018103           |
| 57 | -.024212          | -.002148          | -.022182          | .017253           |
| 58 | -.039629          | -.003531          | -.035874          | .022258           |
| 59 | -.056937          | -.010666          | -.057208          | .014893           |
| 60 | -.069896          | -.022474          | -.068545          | -.003774          |

RUN NO 90C 46M 6-18-63 1721-1836(EST)  
61 PCINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 0     | .000542  | -.021330 | .014654  | .012159  | -.000601 | -.005540 |
| 1     | .071986  | -.301895 | .225311  | -.123244 | .045143  | -.110210 |
| 2     | .124463  | -.552219 | .389136  | -.577010 | .114738  | -.217499 |
| 3     | .102720  | -.675942 | .430444  | -.721002 | .129587  | -.270494 |
| 4     | .006368  | -.395975 | .11518   | -.221071 | .049224  | -.171770 |
| 5     | -.028673 | -.231035 | .095827  | .034570  | .015321  | -.123754 |
| 6     | -.021214 | -.239561 | .101015  | -.046924 | .021279  | -.131821 |
| 7-8   | .011405  | -.162281 | .075194  | -.318118 | .024686  | -.098895 |
| 9-11  | .015832  | -.052886 | .025157  | -.241260 | -.003178 | -.053859 |
| 12-15 | .004422  | -.047581 | .014972  | -.268641 | .012543  | -.042714 |
| 16-20 | -.008046 | -.024273 | .005117  | -.025186 | .002328  | -.025209 |
| 21-27 | -.005986 | -.013967 | .001175  | -.040643 | -.001526 | -.017763 |
| 28-36 | -.001983 | -.006913 | .000771  | -.021833 | -.000926 | -.010733 |
| 37-47 | -.001029 | -.004228 | -.000680 | -.019024 | -.001589 | -.005632 |
| 48-60 | -.000331 | -.002365 | -.000679 | -.003799 | -.000858 | -.003637 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-03   | 10E-02   | 10E-03   | 10E-03   |
| 1     | -.025053 | .149816  | .557610  | .254528  | .097622  | -.322994 |
| 2     | -.105992 | .536046  | .060369  | .251389  | .342888  | -.571949 |
| 3     | -.103206 | .831994  | -.441115 | .183672  | .324186  | -.741259 |
| 4     | -.007819 | .442805  | -.101205 | -.022610 | .001954  | -.470913 |
| 5     | .003787  | .093181  | .198902  | -.217341 | .182226  | -.256087 |
| 6     | -.017059 | -.109547 | .059781  | -.228532 | .465112  | -.285943 |
| 7-8   | -.004589 | -.064792 | -.112181 | -.129416 | .348928  | -.168181 |
| 9-11  | .007211  | -.163457 | .124501  | .097642  | .094417  | -.078089 |
| 12-15 | .002140  | .003850  | -.010378 | .050873  | -.041464 | -.077566 |
| 16-20 | -.001631 | -.019719 | .000729  | -.051314 | .060980  | -.009292 |
| 21-27 | -.001913 | .015452  | .012491  | -.027003 | .037833  | -.050557 |
| 28-36 | -.000743 | .018226  | -.019260 | .003360  | .011608  | -.021234 |
| 37-47 | -.001748 | .007339  | .006900  | -.022957 | .001784  | -.021302 |
| 48-60 | -.000836 | -.003255 | .003006  | .000154  | -.002117 | -.011625 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-00  | 10E-01  | 10E-01  | 10E-03  |
| 0     | .009476 | .017895 | .010137 | .019231 |
| 1     | .111523 | .352987 | .169147 | .257924 |
| 2     | .170217 | .656146 | .350707 | .401394 |
| 3     | .190252 | .888126 | .486799 | .442061 |
| 4     | .108326 | .673974 | .350442 | .260735 |
| 5     | .055507 | .472542 | .252560 | .166578 |
| 6     | .049828 | .510346 | .271672 | .174183 |
| 7-8   | .033342 | .434151 | .219831 | .129365 |
| 9-11  | .017607 | .279448 | .124818 | .076456 |
| 12-15 | .013292 | .173656 | .106654 | .056879 |
| 16-20 | .008341 | .117078 | .067824 | .033220 |
| 21-27 | .005404 | .092825 | .049829 | .023861 |
| 28-36 | .003261 | .052431 | .028523 | .017354 |
| 37-47 | .001932 | .034519 | .021307 | .011241 |
| 48-60 | .001224 | .020317 | .013179 | .007715 |

RUN NO 30C 46M 6-18-63 1721-1836(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.51106<br>10E 00 | 0.34883<br>10E 00 | 0.40829<br>10E-01 | 0.22187<br>10E 00 | 0.25969<br>10E-01 | 0.17725<br>10E-01 |
| 0  | .041027           | -.632128          | .355842           | -.041084          | .091792           | -.423240          |
| 1  | .016774           | -.148973          | .135748           | -.010298          | .044415           | -.022520          |
| 2  | -.027729          | .051288           | .007845           | .052048           | .003353           | .046280           |
| 3  | -.010161          | .099868           | -.028927          | .000486           | .025982           | .081830           |
| 4  | .009514           | -.016909          | .025297           | -.060895          | .035572           | -.004013          |
| 5  | .037229           | .042297           | .010546           | -.047720          | .039964           | -.005637          |
| 6  | .004473           | .118764           | -.026875          | .064743           | -.012335          | .039290           |
| 7  | .014441           | .095520           | -.041782          | -.008322          | -.006093          | .062970           |
| 8  | .012464           | -.024229          | .012149           | .005111           | -.009656          | -.032638          |
| 9  | .014963           | -.068769          | .053027           | -.018495          | .032895           | -.094174          |
| 10 | -.010293          | .077270           | -.046731          | .028528           | .000210           | .031318           |
| 11 | -.007887          | .136706           | -.076413          | .022211           | -.001962          | .085791           |
| 12 | -.005059          | .066192           | -.056556          | -.011543          | .015523           | .030637           |
| 13 | -.045479          | .009854           | -.031747          | -.009134          | .025751           | -.020290          |
| 14 | -.061014          | .064020           | -.077184          | .029911           | -.027043          | .012352           |
| 15 | -.055580          | -.019860          | -.084947          | .100074           | -.083911          | .036212           |
| 16 | -.037508          | -.042760          | -.038883          | .002708           | -.029189          | .036669           |
| 17 | -.013154          | -.045087          | -.026600          | .020078           | -.001021          | .009448           |
| 18 | .000394           | -.007530          | -.034582          | .001556           | -.008352          | .001828           |
| 19 | .034968           | -.022095          | -.061771          | -.020467          | -.029762          | -.021455          |
| 20 | .004965           | .006443           | -.047339          | -.007765          | -.058775          | .033136           |
| 21 | .035044           | -.029656          | .004575           | -.034576          | .036928           | -.011795          |
| 22 | .034478           | -.062756          | .057772           | .000338           | .006457           | .013649           |
| 23 | .076910           | -.030031          | .052860           | -.097263          | .011978           | .012783           |
| 24 | .008620           | .016002           | .066344           | .016815           | -.028777          | -.020020          |
| 25 | .005228           | .007653           | .055334           | .028060           | -.052654          | -.038920          |
| 26 | .052058           | .009841           | .023106           | -.079310          | -.001069          | -.033473          |
| 27 | .081327           | -.020390          | .012034           | -.078134          | -.015518          | .005861           |
| 28 | -.051140          | .035371           | .019635           | .056194           | -.065828          | .048587           |
| 29 | -.016500          | .065770           | .028561           | .010918           | -.028093          | -.021958          |
| 30 | .000558           | -.011473          | .030894           | .028542           | -.002400          | .012891           |

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-02  | 10E-02   | 10E-03   | 10E-03   |
| 0     | -.009346 | -.001266 | .006420 | .022679  | .105781  | .003679  |
| 1     | .154915  | -.035449 | .111035 | -.009475 | .554802  | -.144037 |
| 2     | .462827  | -.088476 | .145446 | -.153778 | .347428  | -.278246 |
| 3     | .152142  | -.144743 | .106782 | -.083455 | .126125  | -.217723 |
| 4     | -.539611 | -.123872 | .049154 | .107590  | .046585  | -.179728 |
| 5     | -.239551 | -.097407 | .072818 | .027656  | .163636  | -.250190 |
| 6     | .239544  | -.120632 | .086679 | -.028543 | .161240  | -.359525 |
| 7     | .159357  | -.156097 | .097481 | .104969  | -.026788 | -.435564 |
| 8     | -.007467 | -.146034 | .089897 | .150526  | -.091257 | -.404137 |
| 9-11  | .265526  | -.071146 | .054654 | -.025113 | .081674  | -.253570 |
| 12-14 | .280462  | -.158359 | .099840 | -.263549 | .223796  | -.618512 |
| 15-21 | .084860  | -.075806 | .036379 | -.073118 | .058942  | -.259474 |
| 22-30 | -.020274 | -.075347 | .034156 | .017370  | .027379  | -.396933 |

RUN NO 90C 46M 6-18-63 1721-1836(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.51106<br>10E 00 | 0.34883<br>10E 00 | 0.40829<br>10E-01 | 0.22187<br>10E 00 | 0.25969<br>10E-01 | 0.17725<br>10E-01 |
| 1  | -.028135          | .031268           | -.003109          | .004714           | .039099           | -.061260          |
| 2  | -.015869          | .008287           | -.013662          | .017671           | .048487           | -.000108          |
| 3  | .009420           | .019438           | .013347           | .023238           | .020613           | -.018955          |
| 4  | .015733           | .020134           | -.031105          | -.044168          | .040218           | .005670           |
| 5  | -.012093          | .038092           | -.062819          | .006256           | .050406           | -.015486          |
| 6  | -.062165          | .016785           | -.047010          | -.057416          | .075424           | .006092           |
| 7  | .025670           | -.018591          | .005279           | .024228           | -.001295          | .008902           |
| 8  | .001382           | -.008839          | .029906           | -.010107          | -.001937          | -.014074          |
| 9  | .007866           | .022740           | .012643           | -.025948          | .011816           | -.013359          |
| 10 | .053353           | .021313           | .027161           | .040231           | .021746           | -.017785          |
| 11 | .030914           | .045600           | .019806           | .032174           | .011723           | .030495           |
| 12 | -.046390          | .021863           | .012219           | -.040161          | .090109           | .017957           |
| 13 | -.080039          | .012298           | .019457           | -.037602          | .041550           | .012311           |
| 14 | .006118           | .008685           | .029853           | .017661           | .022374           | -.000725          |
| 15 | .003027           | -.006806          | .033191           | .031099           | .029542           | .007892           |
| 16 | .000115           | -.036340          | .013947           | -.036471          | -.000836          | .046606           |
| 17 | -.032167          | .029208           | -.058346          | .028964           | -.011219          | .055986           |
| 18 | -.034340          | .027152           | -.051651          | .030431           | .029966           | .052823           |
| 19 | -.031655          | -.008840          | -.044669          | -.020690          | .052783           | .038458           |
| 20 | -.029763          | .007492           | -.055821          | -.081678          | .060171           | .047217           |
| 21 | .031773           | -.023690          | -.077187          | .002056           | .002913           | .090376           |
| 22 | .030308           | -.019375          | -.029969          | -.001215          | .068615           | -.001432          |
| 23 | .011657           | -.050187          | .014933           | .025080           | .068623           | -.032334          |
| 24 | -.009741          | -.054939          | -.005046          | -.010608          | .103816           | -.030542          |
| 25 | -.038707          | -.059151          | -.004651          | -.061966          | .104653           | -.009210          |
| 26 | .002406           | .025863           | -.021916          | .027031           | .029244           | -.031752          |
| 27 | .044065           | .006023           | -.036305          | .054141           | -.064694          | -.021387          |
| 28 | .054463           | .008868           | -.029138          | .015747           | -.055113          | -.011531          |
| 29 | -.022429          | .011095           | -.034481          | -.005260          | -.002171          | .053469           |
| 30 | .039669           | .033003           | .034195           | .031020           | -.009065          | .006690           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-03   | 10E-02   | 10E-03   | 10E-03   |
| 1     | -.345620 | .370388  | -.121893 | -.085732 | .826286  | .181834  |
| 2     | -.001642 | .324445  | .078453  | -.039624 | .316431  | -.092346 |
| 3     | .101344  | .107671  | -.375429 | -.065978 | .253597  | -.143100 |
| 4     | -.225838 | .069497  | -.649603 | -.051652 | .188754  | .020941  |
| 5     | -.351672 | .115335  | -.131879 | .014949  | .202342  | -.038309 |
| 6     | -.105789 | .181705  | .112593  | .018034  | .305688  | -.077915 |
| 7     | .130065  | .294971  | .028937  | .096190  | .095719  | -.025104 |
| 8     | .382082  | .034358  | .297012  | .215556  | -.125826 | -.095490 |
| 9-11  | -.278155 | -.119612 | .208619  | .041835  | .013494  | -.073905 |
| 12-14 | -.159678 | .131609  | -.193730 | .069794  | .162557  | -.066400 |
| 15-21 | -.016697 | .050468  | -.028997 | -.074753 | .017552  | -.071403 |
| 22-30 | -.023788 | .107794  | .086727  | .090096  | -.067538 | -.092370 |

RUN NO 90C 40M 6-18-63 1721-1836(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.80350<br>10E 00 | 0.32506<br>10E 00 | 0.15144<br>10E 00 | 0.20747<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .407191           | .003984           | .023711           | .477927           |
| 2  | .031785           | -.071643          | -.093939          | .215467           |
| 3  | -.063325          | -.083879          | -.127579          | .149044           |
| 4  | -.002909          | .019215           | .026947           | .129195           |
| 5  | -.074267          | -.031106          | -.045877          | .068525           |
| 6  | -.162016          | .007737           | -.105403          | -.014608          |
| 7  | -.142244          | -.003515          | -.130353          | -.045147          |
| 8  | -.070506          | -.044825          | .040773           | -.053298          |
| 9  | -.065341          | -.017018          | .124398           | -.024827          |
| 10 | -.168554          | -.068251          | -.032964          | -.113400          |
| 11 | -.149014          | -.082609          | -.187059          | -.205281          |
| 12 | -.066378          | .021523           | -.088593          | -.158121          |
| 13 | -.083674          | .019296           | -.007414          | -.141298          |
| 14 | -.119120          | -.032297          | -.035887          | -.188707          |
| 15 | -.044587          | -.061517          | .035070           | -.217741          |
| 16 | .025509           | .078306           | .007834           | -.173973          |
| 17 | .054149           | -.005441          | .046526           | -.079014          |
| 18 | -.004756          | -.004018          | .029338           | -.016384          |
| 19 | -.024278          | .033010           | .109466           | .007976           |
| 20 | .030930           | -.022076          | -.098492          | .049726           |
| 21 | .083031           | -.006633          | .025603           | .073796           |
| 22 | .103262           | .039651           | .045843           | .027308           |
| 23 | .084060           | -.008691          | .032072           | .012552           |
| 24 | .009516           | .028563           | -.040576          | .036376           |
| 25 | -.078563          | -.090050          | .003097           | .012537           |
| 26 | -.046111          | -.085592          | .033872           | -.035695          |
| 27 | .024811           | -.073723          | .016700           | -.031280          |
| 28 | .021674           | .072644           | -.071476          | -.142882          |
| 29 | -.009849          | -.057717          | -.119800          | -.060785          |
| 30 | -.029050          | -.013466          | -.028475          | -.033912          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-03  |
| 0     | .021522 | .020935 | .002324 | .048057 |
| 1     | .320974 | .097841 | .019218 | .282041 |
| 2     | .571687 | .093268 | .037412 | .276788 |
| 3     | .786295 | .122272 | .061329 | .238963 |
| 4     | .641565 | .113579 | .054933 | .116763 |
| 5     | .508641 | .091812 | .045131 | .091144 |
| 6     | .496239 | .094712 | .063118 | .116466 |
| 7     | .485965 | .110930 | .086507 | .095250 |
| 8     | .461225 | .136036 | .077627 | .073086 |
| 9-11  | .350625 | .153044 | .041148 | .066673 |
| 12-14 | .392132 | .147491 | .105651 | .085103 |
| 15-21 | .239535 | .153655 | .063502 | .051716 |
| 22-30 | .170412 | .186485 | .083522 | .044087 |

RUN NO 90C 15M 6-18-63 1721-1836(EST)  
 RUN NO 90C 46M 6-18-63 1721-1836(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .189760 | .143505 | .073802 | .231491 |
| 1     | .236383 | .462691 | .165442 | .418453 |
| 2     | .268810 | .495033 | .342744 | .462077 |
| 3     | .269773 | .510732 | .336287 | .432480 |
| 4     | .188702 | .531583 | .159301 | .337706 |
| 5     | .114333 | .490512 | .057139 | .278393 |
| 6     | .091970 | .435101 | .195403 | .287736 |
| 7-8   | .154122 | .259870 | .125905 | .250827 |
| 9-11  | .075346 | .100934 | .190735 | .223651 |
| 12-15 | .052654 | .150588 | .164700 | .125090 |
| 16-20 | .130675 | .119952 | .069610 | .039657 |
| 21-27 | .113881 | .101403 | .083541 | .059150 |
| 28-36 | .107979 | .114678 | .130946 | .118188 |
| 37-47 | .097450 | .126072 | .060109 | .078087 |
| 48-60 | .067654 | .096765 | .079790 | .110456 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .490595 | .647118 | .070484 | .757289 |
| 1     | .477977 | .408059 | .488069 | .699380 |
| 2     | .580637 | .172146 | .452306 | .603588 |
| 3     | .641805 | .073169 | .350598 | .550439 |
| 4     | .582948 | .104567 | .230698 | .401980 |
| 5     | .383456 | .381162 | .416918 | .266947 |
| 6     | .308759 | .591408 | .416707 | .368332 |
| 7     | .272191 | .621238 | .111914 | .397349 |
| 8     | .346017 | .445061 | .229173 | .308161 |
| 9-11  | .329704 | .412060 | .294109 | .352769 |
| 12-14 | .398445 | .525513 | .559520 | .552562 |
| 15-21 | .262708 | .444658 | .282601 | .362872 |
| 22-30 | .269022 | .350798 | .265166 | .216910 |

RUN NO 900 46M 6-18-63 1840-1956(EST)

GROSS STATISTICS

CLEAR WIND SPEED 6.14 M/SEC SIGMA A 9.20 DEG  
 STABLE WIND DIRECTION 238 DEG SIGMA E 4.6 DEG  
 SOLAR RAD. 0.02 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.10983E 01             | 0.69996E 00                    | 0.54285E 00                   | 0.44028E-00                        |
| V                | 0.96863E 00             | 0.54735E 00                    | 0.47523E-00                   | 0.26606E-00                        |
| W                | 0.23672E-00             | 0.23415E-00                    | 0.21206E-00                   | 0.79528E-01                        |
| T                | 0.43058E-00             | 0.40477E-02                    | 0.25255E-02                   | 0.26512E-02                        |
| E                | 0.11518E 01             | 0.74087E 00                    | 0.61507E 00                   |                                    |

| <b>GUSTINESS RATIOS</b> |         |         |         |         |
|-------------------------|---------|---------|---------|---------|
| U                       | 0.17069 | 0.13626 | 0.12000 | 0.10807 |
| V                       | 0.16029 | 0.12049 | 0.11228 | 0.08401 |
| W                       | 0.07924 | 0.07881 | 0.07500 | 0.04593 |

| <b>COVARIANCES</b> |              |              |              |              |
|--------------------|--------------|--------------|--------------|--------------|
| U,V                | 0.22963E-00  | -0.80825E-02 | -0.40974E-02 | 0.44262E-02  |
| U,W                | -0.19553E-00 | -0.19356E-00 | -0.14862E-00 | -0.11010E-00 |
| U,T                | -0.36521E-01 | 0.24867E-01  | 0.15680E-01  | 0.18796E-01  |
| V,W                | 0.25394E-01  | -0.11875E-02 | -0.23593E-02 | 0.35920E-02  |
| V,T                | -0.13349E-00 | -0.24508E-02 | -0.28314E-02 | -0.11538E-02 |
| W,T                | -0.22184E-01 | -0.11529E-01 | -0.94455E-02 | -0.55912E-02 |
| WE                 | -0.33772E-02 | 0.24893E-01  | 0.11263E-01  |              |

| <b>NORMALIZED COVARIANCES</b> |          |          |          |          |
|-------------------------------|----------|----------|----------|----------|
| U,V                           | 0.22263  | -0.01306 | -0.00807 | 0.01293  |
| U,W                           | -0.38348 | -0.47811 | -0.43803 | -0.58836 |
| U,T                           | -0.05311 | 0.46719  | 0.42348  | 0.55015  |
| V,W                           | 0.05303  | -0.00332 | -0.00743 | 0.02469  |
| V,T                           | -0.20669 | -0.05207 | -0.08173 | -0.04344 |
| W,T                           | -0.06949 | -0.37447 | -0.40816 | -0.38505 |

RUN NO 90D 46M 6-18-63 1840-1956(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.50789<br>10E 00 | 0.33936<br>10E 00 | 0.37029<br>10E-01 | 0.31752<br>10E 00 | 0.34646<br>10E-01 | 0.23149<br>10E-01 |
| 0  | -.008021          | -.437970          | .423151           | -.007422          | -.081588          | -.408131          |
| 1  | -.006308          | -.368272          | .400434           | .001891           | -.070875          | -.327866          |
| 2  | -.005315          | -.264831          | .346122           | .020090           | -.061438          | -.203271          |
| 3  | -.002586          | -.177709          | .281686           | .036414           | -.053123          | -.110452          |
| 4  | .001235           | -.116936          | .221767           | .040818           | -.039192          | -.054415          |
| 5  | .000461           | -.075476          | .167500           | .039510           | -.028226          | -.020455          |
| 6  | .006514           | -.039053          | .120069           | .026692           | -.022954          | .001143           |
| 7  | .012434           | -.007646          | .082012           | .014634           | -.020920          | .017847           |
| 8  | .007623           | .015135           | .042347           | .008578           | -.016600          | .028226           |
| 9  | .000938           | .037231           | .008061           | .008599           | -.014588          | .034188           |
| 10 | -.010026          | .050740           | -.019452          | .013192           | -.017365          | .032033           |
| 11 | -.013389          | .064765           | -.045029          | .009279           | -.012282          | .032763           |
| 12 | -.008456          | .069813           | -.067034          | -.000182          | -.003444          | .034171           |
| 13 | -.000147          | .066063           | -.080624          | -.013018          | .001978           | .039665           |
| 14 | .006174           | .060866           | -.086887          | -.015636          | .008836           | .041922           |
| 15 | .004618           | .063669           | -.098836          | -.010593          | .015895           | .048178           |
| 16 | .001685           | .066814           | -.109227          | -.007983          | .021627           | .047721           |
| 17 | -.002300          | .062623           | -.112052          | -.007667          | .022745           | .040603           |
| 18 | -.007680          | .061455           | -.114966          | -.006973          | .022664           | .032392           |
| 19 | -.013796          | .060899           | -.112718          | -.007862          | .025962           | .028910           |
| 20 | -.013974          | .062139           | -.104899          | -.014853          | .035764           | .030909           |
| 21 | -.007493          | .060848           | -.100315          | -.023077          | .043090           | .026645           |
| 22 | -.002765          | .058135           | -.099383          | -.017672          | .034325           | .030549           |
| 23 | -.009072          | .054863           | -.098697          | -.011465          | .029206           | .033619           |
| 24 | -.016540          | .052211           | -.093382          | -.005828          | .029314           | .031671           |
| 25 | -.019016          | .044423           | -.094429          | -.003578          | .032466           | .029211           |
| 26 | -.015095          | .032250           | -.095609          | -.009608          | .036395           | .035727           |
| 27 | -.007736          | .021120           | -.090716          | -.013902          | .035765           | .044952           |
| 28 | -.002737          | .022098           | -.087849          | -.008751          | .033183           | .049698           |
| 29 | -.000005          | .032116           | -.082355          | -.009360          | .029479           | .049229           |
| 30 | .005005           | .035102           | -.077998          | -.012858          | .025555           | .043253           |
| 31 | .011945           | .032706           | -.073520          | -.022179          | .031782           | .030088           |
| 32 | .025517           | .032506           | -.064298          | -.035361          | .037634           | .024266           |
| 33 | .035513           | .028919           | -.052976          | -.038342          | .034980           | .027897           |
| 34 | .040519           | .024794           | -.041226          | -.026568          | .024057           | .023477           |
| 35 | .042903           | .019631           | -.025184          | -.012873          | .015232           | .012258           |
| 36 | .043703           | .010491           | -.015343          | .002095           | .006392           | .001095           |
| 37 | .036755           | .005024           | -.011266          | .016601           | -.001381          | -.008881          |
| 38 | .026981           | -.002364          | .001899           | .017080           | -.007359          | -.008027          |
| 39 | .014694           | .003961           | .010699           | .012081           | -.012196          | .001867           |
| 40 | .006123           | .020156           | .009945           | .010242           | -.018262          | .011586           |
| 41 | .003395           | .036859           | .009286           | .005504           | -.021872          | .019452           |
| 42 | -.006540          | .039824           | .011532           | -.001931          | -.019119          | .015197           |
| 43 | -.013069          | .035361           | .011749           | -.005215          | -.013953          | .011817           |
| 44 | -.009660          | .026001           | .009372           | -.001708          | -.012276          | .009688           |
| 45 | -.002057          | .015438           | .008874           | -.005888          | -.011475          | .010211           |
| 46 | .004741           | .003614           | .007953           | -.030293          | -.010135          | .008963           |
| 47 | .009466           | -.000280          | .003523           | -.047326          | -.004169          | .005013           |
| 48 | .005369           | -.000739          | -.005042          | -.041407          | .000144           | .007704           |
| 49 | -.000130          | -.001335          | -.017130          | -.033494          | .001720           | .008865           |
| 50 | -.004902          | .003966           | -.024237          | -.020906          | -.001787          | .002250           |
| 51 | -.014118          | .010186           | -.023689          | -.003587          | -.004642          | -.003166          |
| 52 | -.018765          | .019248           | -.022443          | .000888           | -.005424          | .003857           |
| 53 | -.024288          | .025532           | -.020135          | .006549           | -.007617          | .015922           |
| 54 | -.038992          | .024912           | -.020214          | .020198           | -.012468          | .018005           |
| 55 | -.043463          | .019310           | -.017558          | .031844           | -.017566          | .021618           |
| 56 | -.033423          | .010749           | -.011886          | .037138           | -.017662          | .022785           |
| 57 | -.020185          | .013686           | -.008514          | .032903           | -.010174          | .021960           |
| 58 | -.018624          | .018156           | -.005750          | .034701           | -.002394          | .020976           |
| 59 | -.025254          | .012160           | .001412           | .043142           | .006823           | .022019           |
| 60 | -.031641          | -.004493          | .010289           | .042275           | .009799           | .026804           |



RUN NO 90D 46M 6-18-63 1840-1956(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.50789<br>10E 00 | 0.33936<br>10E 00 | 0.37029<br>10E-01 | 0.31752<br>10E 00 | 0.34646<br>10E-01 | 0.23149<br>10E-01 |
| 1  | .005609           | -.018885          | .048984           | .005127           | -.003817          | -.043428          |
| 2  | .015455           | -.029103          | .086060           | .011110           | -.003727          | -.052158          |
| 3  | .017535           | -.029365          | .107581           | .006335           | -.000547          | -.057833          |
| 4  | .013197           | -.019536          | .116576           | .000782           | .003806           | -.060186          |
| 5  | .015554           | -.011247          | .120078           | .007752           | .005974           | -.063680          |
| 6  | .023793           | -.010913          | .121159           | .025041           | .004463           | -.064755          |
| 7  | .027104           | -.013160          | .117436           | .035794           | .000255           | -.059942          |
| 8  | .019279           | -.016767          | .110969           | .030552           | -.000030          | -.045578          |
| 9  | .006774           | -.019011          | .104423           | .020409           | -.000683          | -.037063          |
| 10 | -.000944          | -.016196          | .101657           | .009881           | .008136           | -.030431          |
| 11 | -.001590          | -.017909          | .104934           | .000038           | .026368           | -.031940          |
| 12 | -.002380          | -.022129          | .106072           | -.002597          | .036456           | -.030714          |
| 13 | .001935           | -.028129          | .107942           | -.000022          | .038819           | -.028083          |
| 14 | .007999           | -.031199          | .103848           | .000039           | .038075           | -.023788          |
| 15 | .014674           | -.025287          | .098240           | -.001608          | .035257           | -.017070          |
| 16 | .018834           | -.022848          | .087603           | .003542           | .031169           | -.013625          |
| 17 | .025633           | -.024343          | .078630           | .019566           | .019745           | -.016564          |
| 18 | .025528           | -.022837          | .073812           | .029712           | .006220           | -.016477          |
| 19 | .021015           | -.021174          | .066834           | .029413           | -.005788          | -.011075          |
| 20 | .015510           | -.015282          | .063787           | .023506           | -.008929          | -.020050          |
| 21 | .015287           | .002917           | .058521           | .007589           | -.008256          | -.029344          |
| 22 | .016970           | .021772           | .053416           | -.003619          | -.007907          | -.042105          |
| 23 | .017110           | .039737           | .042784           | -.008450          | -.009238          | -.052641          |
| 24 | .011916           | .042717           | .029640           | -.012979          | -.007695          | -.045263          |
| 25 | -.004632          | .038530           | .017235           | -.015732          | -.011676          | -.031985          |
| 26 | -.021870          | .038313           | .012915           | -.020426          | -.018841          | -.026515          |
| 27 | -.028741          | .037693           | .008042           | -.018752          | -.017514          | -.024274          |
| 28 | -.030073          | .036030           | .003974           | -.017865          | -.011756          | -.015408          |
| 29 | -.033431          | .032511           | .004163           | -.022442          | -.008384          | -.009441          |
| 30 | -.033941          | .024520           | .002222           | -.026727          | -.006495          | -.008436          |
| 31 | -.037255          | .016691           | .000229           | -.030452          | -.008703          | -.007630          |
| 32 | -.033435          | .009819           | -.006273          | -.027408          | -.008911          | -.007000          |
| 33 | -.030910          | .003709           | -.017159          | -.027231          | -.007707          | -.002658          |
| 34 | -.027392          | .002866           | -.026559          | -.025812          | -.007628          | -.001871          |
| 35 | -.029414          | .013550           | -.038971          | -.029641          | -.004333          | .001099           |
| 36 | -.028493          | .015742           | -.047379          | -.026408          | .003155           | .006121           |
| 37 | -.024595          | .010924           | -.047007          | -.017579          | .006343           | .009765           |
| 38 | -.018550          | .012292           | -.041918          | -.008727          | .008775           | .007440           |
| 39 | -.015525          | .015815           | -.034729          | -.005853          | .003628           | -.001064          |
| 40 | -.006112          | .016861           | -.033288          | .007682           | -.002370          | -.000710          |
| 41 | .005044           | .012962           | -.030318          | .015674           | -.001233          | -.001320          |
| 42 | .013955           | .008110           | -.025205          | .016852           | .003691           | -.009166          |
| 43 | .017186           | .006221           | -.019703          | .017088           | .007923           | -.023935          |
| 44 | .019976           | .002939           | -.017772          | .019345           | .009492           | -.026296          |
| 45 | .025952           | -.001345          | -.020266          | .021111           | .010020           | -.010540          |
| 46 | .027847           | -.003141          | -.028713          | .013820           | .011720           | .011662           |
| 47 | .025725           | -.008074          | -.041200          | .009626           | .014736           | .034441           |
| 48 | .017459           | -.014875          | -.048490          | .003345           | .017300           | .052470           |
| 49 | .008108           | -.020572          | -.049634          | .000385           | .012588           | .059686           |
| 50 | -.002192          | -.026307          | -.048656          | -.001045          | .012654           | .053757           |
| 51 | -.002811          | -.026865          | -.049278          | -.002026          | .015884           | .050031           |
| 52 | .002719           | -.020272          | -.052991          | .004170           | .025551           | .047229           |
| 53 | .004069           | -.014638          | -.052521          | .010668           | .030522           | .037249           |
| 54 | .001772           | -.012265          | -.050267          | .010046           | .030389           | .032898           |
| 55 | -.002288          | -.017335          | -.045795          | .003415           | .026541           | .036443           |
| 56 | -.005516          | -.024933          | -.037722          | .002238           | .020047           | .034827           |
| 57 | -.009539          | -.027673          | -.033744          | .007056           | .006013           | .038536           |
| 58 | -.010079          | -.029184          | -.029481          | .005737           | .000184           | .032793           |
| 59 | -.010667          | -.028284          | -.024191          | .008938           | -.000425          | .021935           |
| 60 | -.013130          | -.019873          | -.010894          | .011594           | -.004596          | .007784           |

RUN NO 90D 48M 6-18-63 1840-1956(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.54283<br>10E 00 | 0.47521<br>10E 00 | 0.21216<br>10E 00 | 0.25259<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .844740           | .763700           | .670106           | .820905           |
| 2  | .654794           | .499718           | .317864           | .604199           |
| 3  | .509088           | .324439           | .116707           | .435835           |
| 4  | .378977           | .206927           | .022774           | .315188           |
| 5  | .273209           | .118118           | -.017836          | .230698           |
| 6  | .186466           | .051271           | -.042038          | .161939           |
| 7  | .106433           | -.012163          | -.067669          | .103640           |
| 8  | .042026           | -.062056          | -.087437          | .053736           |
| 9  | -.016540          | -.096722          | -.094538          | .008629           |
| 10 | -.064055          | -.111893          | -.082777          | -.027610          |
| 11 | -.096694          | -.117123          | -.076163          | -.059830          |
| 12 | -.120723          | -.117166          | -.078880          | -.084621          |
| 13 | -.141491          | -.113742          | -.085587          | -.105561          |
| 14 | -.164215          | -.113783          | -.081562          | -.132812          |
| 15 | -.181741          | -.123125          | -.081578          | -.153475          |
| 16 | -.192510          | -.135992          | -.067649          | -.164486          |
| 17 | -.205058          | -.146130          | -.062065          | -.163625          |
| 18 | -.217024          | -.160350          | -.065780          | -.167837          |
| 19 | -.224103          | -.180725          | -.063857          | -.175765          |
| 20 | -.232802          | -.187985          | -.059923          | -.177447          |
| 21 | -.240335          | -.192265          | -.058271          | -.169802          |
| 22 | -.247410          | -.195292          | -.065900          | -.163424          |
| 23 | -.245089          | -.196129          | -.059768          | -.165647          |
| 24 | -.236490          | -.181993          | -.064884          | -.173360          |
| 25 | -.230062          | -.158348          | -.072746          | -.184265          |
| 26 | -.223531          | -.134391          | -.079043          | -.193284          |
| 27 | -.203738          | -.115806          | -.087468          | -.197221          |
| 28 | -.182017          | -.105171          | -.095780          | -.193953          |
| 29 | -.166530          | -.090948          | -.105869          | -.183552          |
| 30 | -.144281          | -.072523          | -.077366          | -.174153          |
| 31 | -.109138          | -.043273          | -.026198          | -.157224          |
| 32 | -.086835          | -.015554          | -.005798          | -.146860          |
| 33 | -.064859          | .006849           | -.000962          | -.132221          |
| 34 | -.046815          | .020566           | .002860           | -.110846          |
| 35 | -.028507          | .035396           | .000526           | -.093673          |
| 36 | -.008359          | .046165           | .010715           | -.069172          |
| 37 | .010355           | .061736           | .006168           | -.040522          |
| 38 | .027024           | .067937           | .001508           | -.017484          |
| 39 | .044011           | .070752           | -.015527          | -.000465          |
| 40 | .056119           | .072994           | -.035535          | .008663           |
| 41 | .058669           | .064999           | -.032657          | .012008           |
| 42 | .051273           | .057485           | -.014209          | .009859           |
| 43 | .047971           | .050578           | .011644           | .008484           |
| 44 | .044829           | .039682           | .022094           | .002221           |
| 45 | .040466           | .020223           | .026341           | -.011270          |
| 46 | .041883           | .000053           | .020359           | -.016112          |
| 47 | .044795           | -.007574          | .016647           | -.013527          |
| 48 | .046179           | -.001856          | .018545           | -.006744          |
| 49 | .044643           | .001337           | .025019           | .001489           |
| 50 | .035206           | .000685           | .026867           | .011022           |
| 51 | .027901           | -.009322          | .027386           | .013815           |
| 52 | .023313           | -.011771          | .010412           | .009823           |
| 53 | .020291           | -.012799          | .006921           | .005030           |
| 54 | .020892           | -.006087          | .013404           | .006948           |
| 55 | .030579           | -.000351          | .015752           | .006942           |
| 56 | .040982           | .009097           | .024647           | .014309           |
| 57 | .041147           | .020942           | .023045           | .021968           |
| 58 | .034966           | .035775           | .005635           | .028956           |
| 59 | .032382           | .039650           | -.009176          | .041811           |
| 60 | .029897           | .034223           | -.012423          | .060285           |

RUN NO 90D 46M 6-18-63 1840-1956(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 0     | .008485  | -.014792 | .024164  | .005479  | -.018161 | -.077118 |
| 1     | -.164114 | -.139626 | .236914  | .258276  | -.466323 | -.715859 |
| 2     | -.081913 | -.164364 | .294089  | .297302  | -.691498 | -.834971 |
| 3     | .212774  | -.185027 | .308910  | .233017  | -.616746 | -.897257 |
| 4     | .082863  | -.166454 | .213200  | .096058  | -.208735 | -.768507 |
| 5     | -.239568 | -.133781 | .144043  | .020511  | -.087022 | -.703148 |
| 6     | -.081251 | -.107353 | .113109  | .033458  | -.122327 | -.703982 |
| 7-8   | .049669  | -.080983 | .057743  | -.112345 | -.057490 | -.527243 |
| 9-11  | -.089513 | -.048041 | .034119  | -.077316 | -.105659 | -.423128 |
| 12-15 | -.035768 | -.031536 | .015751  | -.066695 | -.050496 | -.270585 |
| 16-20 | .040352  | -.021283 | .008466  | -.075760 | -.004729 | -.177032 |
| 21-27 | -.017333 | -.012060 | .002464  | -.000392 | -.005161 | -.098469 |
| 28-36 | .008856  | -.004870 | .001225  | -.009192 | -.008853 | -.046728 |
| 37-47 | -.008345 | -.002916 | -.000656 | .001257  | -.009950 | -.021550 |
| 48-60 | .000096  | -.002005 | .000340  | -.001477 | -.005575 | -.011483 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 1     | -.007715 | .074387  | .170764  | -.038632 | .125741  | -.540248 |
| 2     | .336446  | -.235880 | .183075  | .159548  | .179109  | -.415348 |
| 3     | .483876  | -.457959 | .145012  | .292593  | .280530  | -.256261 |
| 4     | -.007078 | -.241080 | .075745  | .077314  | .122798  | -.202722 |
| 5     | -.193861 | .049912  | .047056  | -.065236 | -.108059 | -.230524 |
| 6     | .186392  | .161289  | .040345  | .086039  | -.210933 | -.299019 |
| 7-8   | .275617  | -.094380 | .029501  | .120616  | -.116723 | -.153203 |
| 9-11  | .026827  | -.081594 | .021786  | -.067762 | .088359  | -.076353 |
| 12-15 | -.065636 | -.079737 | .008847  | -.029608 | -.017897 | -.032309 |
| 16-20 | .041577  | -.050942 | .003540  | .035406  | -.037954 | -.022558 |
| 21-27 | .031501  | .000752  | .001693  | .027949  | .005857  | -.035212 |
| 28-36 | -.027946 | .002527  | -.000051 | -.016052 | .000020  | -.015059 |
| 37-47 | -.008374 | -.003649 | .000038  | -.004027 | -.003405 | -.013344 |
| 48-60 | .000813  | .000231  | .000043  | -.000792 | -.001688 | -.005767 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-03  |
| 0     | .050471 | .019209 | .005926 | .026478 |
| 1     | .588063 | .283456 | .086144 | .300178 |
| 2     | .833031 | .473157 | .126323 | .368346 |
| 3     | .917475 | .614008 | .150307 | .356258 |
| 4     | .602574 | .451645 | .131468 | .235838 |
| 5     | .386017 | .294411 | .122822 | .179548 |
| 6     | .343085 | .298629 | .129353 | .163062 |
| 7-8   | .257250 | .277874 | .115035 | .102951 |
| 9-11  | .141662 | .168844 | .090532 | .078495 |
| 12-15 | .085244 | .101395 | .067516 | .050265 |
| 16-20 | .056313 | .079538 | .051284 | .033750 |
| 21-27 | .033117 | .052061 | .035810 | .019756 |
| 28-36 | .023152 | .032496 | .020635 | .011522 |
| 37-47 | .017047 | .020787 | .013070 | .007780 |
| 48-60 | .008403 | .013605 | .008616 | .005400 |

RUN NO 900 46M 6-18-63 1840-1956(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.34229<br>10E 00 | 0.18718<br>10E 00 | 0.34151<br>10E-01 | 0.14550<br>10E 00 | 0.26545<br>10E-01 | 0.14516<br>10E-01 |
| 0  | .012931           | -.588168          | .550385           | .024688           | -.043464          | -.385160          |
| 1  | -.004323          | -.181110          | .275684           | .024221           | -.002105          | -.103285          |
| 2  | -.045001          | -.055666          | .088730           | .035037           | .015633           | -.035109          |
| 3  | -.019950          | .027454           | .016633           | -.000110          | .039611           | .032384           |
| 4  | .016602           | .085525           | -.023601          | .018989           | .026518           | .062104           |
| 5  | -.005597          | .123417           | -.082064          | -.014046          | -.003698          | .077577           |
| 6  | -.029607          | .074548           | -.073600          | .062037           | -.026860          | .065483           |
| 7  | .064239           | .008771           | -.067560          | -.037841          | -.005680          | -.002823          |
| 8  | -.032523          | -.016060          | -.094857          | .020582           | -.102430          | .004490           |
| 9  | -.014512          | .062934           | -.100606          | -.019309          | -.023265          | .023627           |
| 10 | .070352           | .036202           | -.143135          | -.030830          | .017707           | .064476           |
| 11 | .098839           | .069908           | -.159390          | -.052175          | .013535           | .081276           |
| 12 | .025759           | .004316           | -.151886          | -.013287          | .010086           | .016456           |
| 13 | -.002818          | .048371           | -.131872          | -.028098          | -.024718          | .035387           |
| 14 | -.044481          | .009814           | -.077396          | -.000293          | -.043418          | .001464           |
| 15 | -.026980          | .049253           | -.058339          | .003589           | -.035947          | .031573           |
| 16 | -.031278          | -.037037          | .002532           | .034079           | -.006204          | -.048946          |
| 17 | -.002869          | -.030590          | .014316           | .026576           | -.003734          | -.072984          |
| 18 | -.007801          | -.000169          | .005586           | -.015593          | -.000286          | -.032604          |
| 19 | -.031346          | .027910           | .044956           | -.059742          | -.029295          | -.036773          |
| 20 | -.023605          | .017042           | .081982           | .005819           | .004372           | -.033616          |
| 21 | .070324           | .004126           | .087456           | -.015787          | .089309           | -.021400          |
| 22 | .042935           | .021173           | .097706           | -.016025          | .037072           | .020456           |
| 23 | .010157           | .074162           | .116593           | -.054945          | .021253           | -.008402          |
| 24 | -.050718          | .005966           | .126737           | .027680           | -.019298          | -.022966          |
| 25 | -.028709          | -.084786          | .158319           | .021496           | -.011964          | -.082454          |
| 26 | -.019437          | -.044418          | .115253           | .052704           | .015324           | -.046755          |
| 27 | .015310           | .025798           | .057720           | -.009372          | .055901           | .055774           |
| 28 | -.057640          | .002541           | .038544           | .016846           | .023772           | .013667           |
| 29 | -.089058          | .022686           | .003653           | .049526           | .012098           | .074376           |
| 30 | -.067508          | -.021254          | -.005442          | .058404           | .002362           | .029368           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 0     | .023435  | -.040307 | -.008952 | .007204  | -.082720 | -.012049 |
| 1     | .014798  | -.432886 | .051921  | .117380  | -.143794 | -.061509 |
| 2     | -.164662 | -.584206 | .210449  | .137418  | .149379  | -.244781 |
| 3     | -.364521 | -.777682 | .284753  | .125834  | .211375  | -.487351 |
| 4     | -.281714 | -.825678 | .169822  | .076513  | .074000  | -.428052 |
| 5     | .182892  | -.744434 | .108403  | -.048931 | .099619  | -.288937 |
| 6     | .327477  | -.776533 | .111750  | -.089700 | .020567  | -.359153 |
| 7     | -.060471 | -.892854 | .132621  | .043121  | -.289911 | -.492061 |
| 8     | -.230238 | -.766721 | .125937  | .090684  | -.394881 | -.421638 |
| 9-11  | .198185  | -.455469 | .070685  | .018670  | -.090285 | -.224215 |
| 12-14 | -.025925 | -.215840 | .056848  | -.009010 | -.112391 | -.127637 |
| 15-21 | .126277  | -.368268 | .050817  | -.009672 | .004410  | -.182066 |
| 22-30 | -.028547 | -.397529 | .030790  | -.005041 | -.081774 | -.225779 |

RUN NO 90D 46M 6-18-63 1840-1956(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.34229<br>10E 00 | 0.18718<br>10E 00 | 0.34151<br>10E-01 | 0.14550<br>10E 00 | 0.26545<br>10E-01 | 0.14516<br>10E-01 |
| 1  | -.047169          | -.025422          | .133899           | .000187           | .081258           | -.0118455         |
| 2  | -.001615          | .003673           | .121074           | .002626           | .161961           | -.034241          |
| 3  | -.084783          | .040911           | .065797           | -.053003          | .162610           | -.072421          |
| 4  | -.057429          | .014169           | -.001755          | -.001004          | .211608           | -.011697          |
| 5  | -.008439          | -.040746          | -.049858          | .085038           | .196466           | .066353           |
| 6  | -.032560          | -.084279          | -.051295          | .068537           | .186239           | .109338           |
| 7  | -.043163          | -.032744          | -.047100          | .010314           | .227188           | .063242           |
| 8  | -.010815          | -.032641          | -.050536          | .042166           | .201346           | .071103           |
| 9  | -.047228          | -.031959          | -.041839          | .021771           | .142903           | .043187           |
| 10 | -.001595          | .007272           | -.054068          | .092801           | .116896           | .020606           |
| 11 | -.008545          | -.021610          | -.013665          | .024325           | .131927           | .054573           |
| 12 | .004417           | -.016028          | .016837           | -.014869          | .135620           | .028424           |
| 13 | .057098           | -.020668          | .000048           | .025832           | .046029           | .017701           |
| 14 | .081605           | .044892           | -.010712          | .022006           | -.036540          | -.021463          |
| 15 | .055630           | .030100           | -.002632          | .039097           | -.047283          | -.021554          |
| 16 | .085756           | .047018           | -.006546          | .036561           | -.068904          | .021780           |
| 17 | .090747           | .049300           | -.000689          | -.025323          | -.084009          | -.008033          |
| 18 | .113007           | .045612           | -.021675          | -.044829          | -.065118          | -.024159          |
| 19 | .095930           | -.010130          | -.010558          | -.029165          | -.056510          | -.023556          |
| 20 | .081707           | .039535           | .015527           | -.033802          | -.102634          | -.056809          |
| 21 | .056663           | .034985           | .011937           | -.027585          | -.084171          | -.064936          |
| 22 | .067467           | .033904           | .021400           | -.024364          | -.082290          | -.063615          |
| 23 | .057542           | .049586           | .040894           | -.062806          | .023430           | -.040150          |
| 24 | -.011629          | -.009331          | .004583           | -.011942          | .055028           | -.011182          |
| 25 | -.127368          | -.022093          | -.008670          | -.066860          | .106703           | -.000741          |
| 26 | -.127299          | -.006109          | -.004477          | -.036272          | .087443           | -.041473          |
| 27 | -.086369          | -.020025          | -.019518          | -.031935          | .065269           | -.006348          |
| 28 | -.057602          | -.071198          | .000874           | .010592           | .102337           | .054402           |
| 29 | -.045286          | -.110622          | -.013109          | .001372           | .103725           | .081344           |
| 30 | -.008759          | -.080109          | -.036110          | .043396           | .076133           | .079175           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-03   | 10E-02   | 10E-02   | 10E-03   |
| 1     | .504716  | -.053187 | -.450767 | .285952  | .233990  | .246791  |
| 2     | -.677846 | -.264095 | -.294395 | .273228  | .247795  | .289314  |
| 3     | -.955092 | -.217595 | .048775  | .071708  | .196368  | .074284  |
| 4     | -.121538 | .065232  | .430038  | -.069594 | .055910  | -.187828 |
| 5     | -.056731 | .156436  | .743459  | -.063317 | .021984  | -.276929 |
| 6     | -.185087 | .133057  | .941192  | -.107127 | .030700  | -.360952 |
| 7     | -.222520 | .112136  | .792538  | -.142916 | .025888  | -.340172 |
| 8     | -.220986 | .155950  | .623871  | -.084328 | .012618  | -.273502 |
| 9-11  | .003533  | -.050942 | .565304  | -.075131 | .012910  | -.148221 |
| 12-14 | .098237  | -.153100 | .218503  | .172547  | -.006502 | .005117  |
| 15-21 | -.114417 | -.029273 | .124756  | .001544  | .005346  | -.047277 |
| 22-30 | -.224977 | -.007465 | .060620  | -.053156 | -.011293 | -.017909 |

RUN NO 90D 46M 6-18-63 1840-1956(EST)  
 301 PCINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| H  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.44036<br>10E 03 | 0.26606<br>10E 00 | 0.79566<br>10E-01 | 0.26485<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .387876           | .298173           | .105686           | .573194           |
| 2  | .045020           | .106237           | .072727           | .315856           |
| 3  | -.042838          | .135431           | -.025840          | .196542           |
| 4  | -.066167          | .123808           | -.048485          | .104899           |
| 5  | -.124980          | .051104           | -.029041          | .082680           |
| 6  | -.114534          | -.013758          | -.051493          | .048085           |
| 7  | -.115769          | -.064836          | -.022501          | .034581           |
| 8  | -.111623          | -.029301          | -.010526          | -.062208          |
| 9  | -.076021          | -.067754          | -.081366          | -.149203          |
| 10 | -.009775          | -.134612          | -.076980          | -.214334          |
| 11 | -.047645          | -.071204          | -.162912          | -.214177          |
| 12 | -.098411          | -.096902          | -.087182          | -.213941          |
| 13 | -.090142          | -.164734          | -.141918          | -.243451          |
| 14 | -.039149          | -.128849          | -.072196          | -.207650          |
| 15 | -.020659          | -.129237          | -.110780          | -.187051          |
| 16 | .029167           | -.122883          | .021284           | -.085985          |
| 17 | .003852           | -.072452          | -.058072          | -.017819          |
| 18 | -.051224          | -.070668          | .041081           | -.045712          |
| 19 | -.012448          | -.033035          | -.033463          | .022849           |
| 20 | -.002082          | -.018739          | .002082           | .104620           |
| 21 | .003428           | .031638           | .010914           | .133141           |
| 22 | .049790           | .051768           | -.011998          | .141821           |
| 23 | .035638           | .051593           | -.070598          | .157714           |
| 24 | .030932           | .035372           | .084185           | .128417           |
| 25 | .045035           | -.011079          | .099919           | .110206           |
| 26 | .013190           | .083445           | .090402           | .081048           |
| 27 | .028733           | .028931           | -.023410          | .039394           |
| 28 | .067502           | .042367           | .055432           | .031540           |
| 29 | -.007384          | -.007185          | -.021924          | -.078045          |
| 30 | -.050091          | -.005136          | .001574           | -.090536          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-02  | 10E-03  |
| 0     | .025562 | .045253 | .007914 | .080942 |
| 1     | .198184 | .279162 | .320331 | .396056 |
| 2     | .274817 | .279758 | .501952 | .413096 |
| 3     | .358840 | .236298 | .529154 | .386190 |
| 4     | .350394 | .130854 | .348529 | .169720 |
| 5     | .329175 | .109653 | .258902 | .094907 |
| 6     | .305686 | .107993 | .327256 | .118873 |
| 7     | .290339 | .086624 | .427344 | .131075 |
| 8     | .244779 | .076508 | .387434 | .133485 |
| 9-11  | .188569 | .087212 | .297187 | .105502 |
| 12-14 | .180213 | .103992 | .269446 | .051294 |
| 15-21 | .137923 | .102696 | .285742 | .054379 |
| 22-30 | .104622 | .089520 | .457689 | .045726 |

RUN NO 90D 91M 6-18-63 1840-1950(EST)

GROSS STATISTICS

CLEAR WIND SPEED 8.75 M/SEC SIGMA A 5.70 DEG  
STABLE WIND DIRECTION 243 DEG SIGMA E 3.0 DEG  
SOLAR RAD. 0.02 LY/MIN

|           | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-----------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| VARIANCES |                         |                                |                               |                                    |
| U         | 0.13551E 01             | 0.56336E 00                    | 0.43827E-00                   | 0.36575E-00                        |
| V         | 0.72747E 00             | 0.44036E-00                    | 0.31497E-00                   | 0.23909E-00                        |
| W         | 0.20176E-00             | 0.19169E-00                    | 0.17914E-00                   | 0.65746E-01                        |
| T         | 0.44232E-00             | 0.18417E-01                    | 0.12177E-01                   | 0.14374E-01                        |
| E         | 0.11422E 01             | 0.59773E 00                    | 0.46620E-00                   |                                    |

|                  |         |         |         |         |
|------------------|---------|---------|---------|---------|
| GUSTINESS RATIOS |         |         |         |         |
| U                | 0.13304 | 0.08578 | 0.07566 | 0.06912 |
| V                | 0.09748 | 0.07584 | 0.06414 | 0.05588 |
| W                | 0.05133 | 0.05004 | 0.04837 | 0.02930 |

|             |              |              |              |              |
|-------------|--------------|--------------|--------------|--------------|
| COVARIANCES |              |              |              |              |
| U,V         | 0.37231E-00  | 0.53733E-01  | 0.35882E-02  | 0.52284E-01  |
| U,W         | -0.19280E-00 | -0.15013E-00 | -0.12569E-00 | -0.88059E-01 |
| U,T         | -0.19243E-00 | 0.52850E-01  | 0.34556E-01  | 0.42279E-01  |
| V,W         | -0.14764E-02 | 0.92207E-02  | 0.10375E-01  | 0.37390E-02  |
| V,T         | 0.26991E-01  | 0.17193E-01  | 0.17800E-02  | 0.15862E-01  |
| W,T         | -0.18577E-01 | -0.19927E-01 | -0.18193E-01 | -0.11823E-01 |
| WE          | -0.87444E-02 | 0.27451E-01  | 0.11687E-01  |              |

|                        |          |          |          |          |
|------------------------|----------|----------|----------|----------|
| NORMALIZED COVARIANCES |          |          |          |          |
| U,V                    | 0.37499  | 0.10788  | 0.00966  | 0.17681  |
| U,W                    | -0.36873 | -0.45685 | -0.44856 | -0.56786 |
| U,T                    | -0.24856 | 0.51886  | 0.47301  | 0.58310  |
| V,W                    | -0.00385 | 0.03174  | 0.04368  | 0.02982  |
| V,T                    | 0.04758  | 0.19091  | 0.02874  | 0.27058  |
| W,T                    | -0.06219 | -0.33537 | -0.38952 | -0.38461 |

RUN NO 900 91M 6-18-63 1840-1956(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.37158<br>10E 00 | 0.28021<br>10E 00 | 0.73035<br>10E-01 | 0.23756<br>10E 00 | 0.61918<br>10E-01 | 0.46692<br>10E-01 |
| 0  | .009569           | -.448443          | .472934           | .043699           | .028830           | -.389669          |
| 1  | .015086           | -.378023          | .447273           | .046735           | .024049           | -.332993          |
| 2  | .015045           | -.273195          | .388959           | .044894           | .015311           | -.247027          |
| 3  | .018458           | -.181825          | .319154           | .020690           | .010672           | -.176131          |
| 4  | .017330           | -.109305          | .256847           | -.006336          | .003530           | -.121882          |
| 5  | .019128           | -.055583          | .202767           | -.030156          | -.005222          | -.081408          |
| 6  | .023651           | -.016740          | .153045           | -.037608          | -.006368          | -.047800          |
| 7  | .023431           | .008261           | .109286           | -.035593          | -.000268          | -.017007          |
| 8  | .025273           | .022964           | .067004           | -.028858          | .007226           | .005272           |
| 9  | .018441           | .029818           | .025432           | -.027049          | .013232           | .025653           |
| 10 | .011922           | .036888           | -.010476          | -.031996          | .015695           | .043132           |
| 11 | .008341           | .040694           | -.040355          | -.038931          | .013360           | .055180           |
| 12 | .006790           | .055361           | -.064780          | -.031957          | .007416           | .060798           |
| 13 | -.000749          | .058515           | -.077529          | -.012268          | -.000776          | .055626           |
| 14 | -.010186          | .050824           | -.082525          | -.002740          | -.000422          | .049941           |
| 15 | -.013595          | .048931           | -.084388          | -.002827          | .000274           | .042511           |
| 16 | -.007699          | .055056           | -.089414          | -.002308          | -.002140          | .041522           |
| 17 | -.001694          | .056426           | -.096324          | .005003           | -.004476          | .050098           |
| 18 | -.006572          | .060390           | -.106828          | .014624           | -.005917          | .058378           |
| 19 | -.013778          | .054621           | -.114710          | .014580           | -.009573          | .064128           |
| 20 | -.015834          | .058195           | -.118966          | .014207           | -.010533          | .070070           |
| 21 | -.012577          | .064025           | -.125764          | .014036           | -.004273          | .076339           |
| 22 | -.008073          | .065833           | -.132971          | .020181           | -.000978          | .082050           |
| 23 | -.002903          | .076281           | -.139902          | .024822           | -.000115          | .091715           |
| 24 | .001365           | .085096           | -.147387          | .029137           | .001894           | .105737           |
| 25 | .003647           | .085115           | -.152598          | .021065           | .002704           | .114227           |
| 26 | .004801           | .081157           | -.153104          | .013141           | -.000927          | .107847           |
| 27 | .006409           | .070445           | -.149777          | .007066           | -.005682          | .090302           |
| 28 | -.001249          | .064161           | -.146073          | .003428           | -.010552          | .073516           |
| 29 | -.010387          | .060788           | -.140907          | -.002862          | -.011881          | .069085           |
| 30 | -.018194          | .054407           | -.129401          | -.009951          | -.010831          | .061342           |
| 31 | -.027724          | .046279           | -.118637          | -.006696          | -.008597          | .051256           |
| 32 | -.038424          | .039871           | -.114853          | .008498           | -.003251          | .047780           |
| 33 | -.043573          | .037762           | -.105627          | .019420           | -.002294          | .043532           |
| 34 | -.040594          | .039168           | -.089972          | .018807           | -.003569          | .033579           |
| 35 | -.034024          | .037792           | -.074717          | .015417           | -.008916          | .020700           |
| 36 | -.024040          | .028271           | -.063424          | .010691           | -.015045          | .003145           |
| 37 | -.019134          | .013608           | -.053034          | .010166           | -.012874          | -.011066          |
| 38 | -.017474          | .003125           | -.040864          | .019183           | -.013366          | -.015305          |
| 39 | -.013664          | -.004841          | -.025622          | .019295           | -.019995          | -.009785          |
| 40 | -.011205          | -.011404          | -.009244          | .017983           | -.025067          | -.007248          |
| 41 | -.004186          | -.016309          | .003302           | .014903           | -.028802          | -.014133          |
| 42 | .002591           | -.021104          | .008357           | .024804           | -.026180          | -.017610          |
| 43 | .005134           | -.011378          | .011098           | .024359           | -.016047          | -.015861          |
| 44 | .007189           | .000809           | .015312           | .014687           | -.006237          | -.012151          |
| 45 | .012043           | .012317           | .020851           | .000159           | .001473           | -.011815          |
| 46 | .017168           | .018567           | .028275           | -.015454          | .011602           | -.010947          |
| 47 | .022278           | .019070           | .037306           | -.032745          | .023431           | -.009298          |
| 48 | .029021           | .012682           | .048647           | -.054266          | .028112           | -.011218          |
| 49 | .032885           | .003304           | .056403           | -.053128          | .022220           | -.020070          |
| 50 | .026228           | -.008447          | .058805           | -.048207          | .012493           | -.026083          |
| 51 | .012246           | -.021320          | .057142           | -.029985          | .006435           | -.029490          |
| 52 | .001825           | -.026093          | .056374           | -.014612          | -.001085          | -.029619          |
| 53 | -.009727          | -.032294          | .056643           | -.004744          | -.003792          | -.025905          |
| 54 | -.015586          | -.040700          | .052963           | .008357           | -.006402          | -.023061          |
| 55 | -.017177          | -.036867          | .048455           | .010322           | -.007347          | -.024610          |
| 56 | -.016341          | -.034056          | .047735           | .008256           | -.005903          | -.023908          |
| 57 | -.014291          | -.030272          | .047437           | .003997           | -.004385          | -.020263          |
| 58 | -.010370          | -.031946          | .044622           | -.007126          | .003728           | -.015930          |
| 59 | -.003547          | -.032503          | .040564           | -.023318          | .012640           | -.015411          |
| 60 | -.002249          | -.029537          | .035763           | -.019253          | .018716           | -.019351          |



RUN NO 90D 91M 6-18-63 1840-1956(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.37158<br>10E 00 | 0.28021<br>10E 00 | 0.73035<br>10E-01 | 0.23756<br>10E 00 | 0.61918<br>10E-01 | 0.46692<br>10E-01 |
| 1  | -.008171          | -.002772          | .041853           | .001345           | .019925           | -.065058          |
| 2  | -.016556          | -.000211          | .064145           | .017862           | .022206           | -.087693          |
| 3  | -.026604          | .010148           | .074966           | .019808           | .020232           | -.095443          |
| 4  | -.031476          | .010774           | .083498           | .014294           | .018996           | -.088654          |
| 5  | -.034058          | -.003468          | .089590           | .010688           | .021925           | -.079487          |
| 6  | -.038785          | -.021832          | .097668           | -.001485          | .027980           | -.069215          |
| 7  | -.040024          | -.028741          | .100903           | -.016938          | .036356           | -.058320          |
| 8  | -.037371          | -.017192          | .102175           | -.026702          | .042743           | -.056479          |
| 9  | -.034751          | -.000898          | .103207           | -.020398          | .042735           | -.058557          |
| 10 | -.029358          | .005659           | .102971           | -.017742          | .0380 2           | -.057571          |
| 11 | -.025275          | .006946           | .103308           | -.014004          | .034239           | -.054311          |
| 12 | -.024245          | .000140           | .103203           | -.003445          | .027471           | -.046087          |
| 13 | -.015057          | -.009774          | .097597           | .006278           | .017020           | -.039475          |
| 14 | -.009403          | -.021548          | .089591           | .003678           | .014679           | -.031220          |
| 15 | -.011726          | -.021500          | .080691           | -.000633          | .021413           | -.024774          |
| 16 | -.017600          | -.008018          | .072962           | -.011213          | .031766           | -.026344          |
| 17 | -.020628          | -.000112          | .064298           | -.014299          | .037782           | -.032793          |
| 18 | -.017130          | -.002364          | .054734           | .000178           | .033173           | -.034927          |
| 19 | -.019663          | -.011699          | .046513           | .010091           | .028761           | -.031222          |
| 20 | -.024364          | -.014516          | .041235           | .010545           | .030250           | -.031914          |
| 21 | -.027225          | -.014737          | .036213           | .002997           | .035949           | -.031078          |
| 22 | -.029644          | -.016544          | .034780           | -.006487          | .037592           | -.023840          |
| 23 | -.030928          | -.022852          | .031453           | -.007630          | .031896           | -.011576          |
| 24 | -.023217          | -.026353          | .023936           | -.008719          | .023311           | .006520           |
| 25 | -.009420          | -.023540          | .012488           | -.000194          | .016304           | .024102           |
| 26 | .006012           | -.016679          | .000221           | .019192           | .009602           | .032556           |
| 27 | .011384           | -.004562          | -.011516          | .037096           | .003947           | .035172           |
| 28 | .009882           | .003681           | -.021040          | .037768           | .003349           | .032943           |
| 29 | .009034           | .009653           | -.028271          | .022543           | .010099           | .031542           |
| 30 | .016409           | .023345           | -.034236          | .012525           | .008045           | .030972           |
| 31 | .023239           | .031889           | -.037850          | .008129           | .000394           | .030667           |
| 32 | .040594           | .033351           | -.041607          | .019483           | -.009124          | .023464           |
| 33 | .055112           | .027461           | -.048810          | .031109           | -.014144          | .018590           |
| 34 | .060194           | .031127           | -.058228          | .036839           | -.019958          | .022335           |
| 35 | .059487           | .033955           | -.066376          | .034713           | -.026070          | .030489           |
| 36 | .060134           | .031164           | -.069834          | .029931           | -.032719          | .034002           |
| 37 | .056389           | .022526           | -.073916          | .025592           | -.036971          | .029216           |
| 38 | .047795           | .014803           | -.073936          | .025114           | -.037895          | .026898           |
| 39 | .033583           | .009485           | -.067066          | .022189           | -.038868          | .021623           |
| 40 | .020214           | .010582           | -.056831          | .014072           | -.037883          | .012479           |
| 41 | .011175           | .008651           | -.047727          | -.001926          | -.033749          | .007200           |
| 42 | .005130           | -.001229          | -.037201          | -.023213          | -.029291          | .000726           |
| 43 | -.007688          | -.017064          | -.023905          | -.038296          | -.026967          | -.003232          |
| 44 | -.023730          | -.020308          | -.011780          | -.047513          | -.025373          | .001501           |
| 45 | -.033688          | -.025071          | -.004968          | -.051150          | -.022448          | .009616           |
| 46 | -.032377          | -.027112          | -.004999          | -.049818          | -.020834          | .010214           |
| 47 | -.025998          | -.022824          | -.008432          | -.041342          | -.019960          | .011758           |
| 48 | -.018989          | -.010317          | -.012665          | -.023285          | -.016463          | .012367           |
| 49 | -.014341          | -.004783          | -.013296          | -.005214          | -.012687          | .010808           |
| 50 | -.012940          | -.007127          | -.008826          | .004538           | -.012912          | .008255           |
| 51 | -.014531          | .003788           | -.002618          | .006166           | -.010655          | .004950           |
| 52 | -.009836          | .007428           | .002116           | .002552           | -.006570          | -.006709          |
| 53 | -.003731          | .010315           | .004499           | .001943           | -.006459          | -.016273          |
| 54 | .003410           | .011370           | .010388           | .001666           | -.012934          | -.019718          |
| 55 | .007760           | .006073           | .018352           | -.002105          | -.014686          | -.020957          |
| 56 | .002731           | -.004540          | .027800           | -.003280          | -.011041          | -.020515          |
| 57 | -.014575          | -.004758          | .034669           | .006249           | -.007534          | -.018728          |
| 58 | -.025645          | .001471           | .039212           | .012127           | -.004224          | -.016789          |
| 59 | -.033995          | .000220           | .046957           | .010554           | .000879           | -.021030          |
| 60 | -.034974          | -.002674          | .050575           | .005810           | .008937           | -.026226          |

RUN NO 90D 91M 6-18-63 1840-1956(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTO-COVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.43830<br>10E 00 | 0.31502<br>10E 00 | 0.17914<br>10E 00 | 0.12170<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .844355           | .746183           | .648470           | .898200           |
| 2  | .648125           | .452887           | .327868           | .747695           |
| 3  | .493318           | .256688           | .161585           | .621002           |
| 4  | .373077           | .133892           | .068450           | .513595           |
| 5  | .270878           | .047940           | -.002855          | .422291           |
| 6  | .173357           | -.011164          | -.070440          | .342032           |
| 7  | .090325           | -.056466          | -.113878          | .265581           |
| 8  | .024077           | -.103431          | -.122821          | .190053           |
| 9  | -.027607          | -.132748          | -.117586          | .117615           |
| 10 | -.069084          | -.138073          | -.103053          | .047797           |
| 11 | -.106710          | -.122802          | -.098806          | -.015222          |
| 12 | -.139155          | -.099786          | -.108743          | -.066008          |
| 13 | -.157585          | -.082837          | -.098405          | -.104435          |
| 14 | -.167354          | -.078198          | -.062915          | -.133719          |
| 15 | -.165280          | -.096441          | -.041349          | -.157968          |
| 16 | -.178980          | -.106951          | -.035470          | -.191304          |
| 17 | -.198681          | -.109484          | -.035536          | -.231171          |
| 18 | -.211865          | -.115785          | -.038323          | -.268363          |
| 19 | -.215008          | -.131952          | -.030071          | -.297914          |
| 20 | -.220517          | -.144736          | -.031661          | -.320021          |
| 21 | -.228539          | -.146994          | -.047344          | -.341996          |
| 22 | -.231686          | -.152028          | -.054237          | -.363789          |
| 23 | -.232452          | -.149014          | -.097759          | -.383619          |
| 24 | -.235984          | -.140692          | -.125417          | -.401182          |
| 25 | -.229592          | -.116868          | -.125122          | -.408005          |
| 26 | -.209460          | -.088112          | -.107966          | -.400580          |
| 27 | -.195558          | -.067690          | -.071855          | -.386960          |
| 28 | -.181757          | -.071858          | -.052579          | -.363912          |
| 29 | -.168239          | -.065664          | -.048606          | -.333682          |
| 30 | -.142464          | -.039971          | -.040755          | -.297473          |
| 31 | -.107612          | -.011391          | -.019123          | -.259216          |
| 32 | -.085576          | .001727           | -.008968          | -.224600          |
| 33 | -.066862          | .003572           | -.012902          | -.195997          |
| 34 | -.048413          | .014692           | -.024051          | -.167665          |
| 35 | -.029621          | .035162           | -.011630          | -.136688          |
| 36 | -.015575          | .046320           | .015212           | -.102304          |
| 37 | -.001573          | .049575           | .034038           | -.068832          |
| 38 | .017730           | .043028           | .035728           | -.036745          |
| 39 | .032403           | .042923           | .027652           | -.009860          |
| 40 | .045364           | .043657           | .009226           | .013015           |
| 41 | .055976           | .041169           | .009791           | .038841           |
| 42 | .063388           | .037578           | .014146           | .062490           |
| 43 | .066158           | .042461           | .002573           | .079052           |
| 44 | .051587           | .052994           | -.029743          | .092748           |
| 45 | .033724           | .057259           | -.025226          | .109393           |
| 46 | .019646           | .057514           | -.025707          | .123499           |
| 47 | .015839           | .051475           | -.023843          | .133793           |
| 48 | .021849           | .041181           | -.007108          | .140654           |
| 49 | .026930           | .022007           | .008565           | .147150           |
| 50 | .028673           | -.008281          | .011720           | .152460           |
| 51 | .024525           | -.036328          | .018577           | .160447           |
| 52 | .022387           | -.051894          | .021463           | .164625           |
| 53 | .022984           | -.063706          | .012266           | .161921           |
| 54 | .019950           | -.060028          | .012753           | .151699           |
| 55 | .016912           | -.052882          | .000205           | .137951           |
| 56 | .014238           | -.035006          | -.016745          | .124121           |
| 57 | .012979           | -.022060          | -.026122          | .111388           |
| 58 | .012083           | .000799           | -.014094          | .100445           |
| 59 | .014006           | .004863           | -.008103          | .089812           |
| 60 | .014015           | .003171           | -.003062          | .079449           |

RUN NO 900 91M 6-18-63 1840-1956(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-03   | 10E-02   |
| 0     | .020890  | -.007692 | .042064  | .007804  | .018587  | -.007372 |
| 1     | .323618  | -.112315 | .583709  | -.086285 | .334094  | -.172235 |
| 2     | .345859  | -.151385 | .751728  | -.119489 | .304585  | -.260451 |
| 3     | .144618  | -.157785 | .677424  | .010861  | .101213  | -.272247 |
| 4     | .025811  | -.115340 | .389466  | .144079  | .067036  | -.171698 |
| 5     | .121302  | -.095481 | .288884  | .226492  | .084660  | -.128778 |
| 6     | -.055264 | -.097183 | .248875  | .313492  | -.059095 | -.143691 |
| 7-8   | -.153068 | -.077744 | .144299  | .158672  | .045472  | -.115845 |
| 9-11  | -.024193 | -.047886 | .050325  | .109180  | .185503  | -.046608 |
| 12-15 | .022460  | -.030050 | .038879  | .045009  | .108397  | -.034556 |
| 16-20 | -.002315 | -.013948 | .018484  | -.007646 | -.035230 | -.023254 |
| 21-27 | -.015578 | -.009286 | .006603  | -.030920 | .008259  | -.013527 |
| 28-36 | .000647  | -.004324 | .001698  | -.012719 | .024171  | -.005733 |
| 37-47 | .000385  | -.002543 | -.000290 | -.004430 | .001824  | -.004081 |
| 48-60 | -.011502 | -.001735 | .000733  | .002497  | -.001267 | -.001658 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | -.204845 | -.073619 | .205833  | .110795  | .089360  | -.058854 |
| 2     | -.528484 | -.161217 | .314061  | -.038332 | .112009  | -.105461 |
| 3     | -.535350 | -.128859 | .291312  | -.163257 | .063998  | -.122469 |
| 4     | -.037913 | .095556  | .118588  | -.004690 | .004986  | -.072463 |
| 5     | -.066305 | .070159  | .066002  | .070407  | .018651  | -.039304 |
| 6     | -.359219 | -.125940 | .066064  | -.021363 | .028221  | -.046391 |
| 7-8   | -.104341 | -.001375 | .021487  | .060963  | .013794  | -.053976 |
| 9-11  | .029229  | .006539  | .019901  | .097818  | -.009155 | -.021708 |
| 12-15 | .002331  | .090936  | .013768  | .051274  | .005040  | -.028129 |
| 16-20 | .003110  | -.032886 | .008533  | -.026664 | .009298  | -.009283 |
| 21-27 | -.002009 | -.040452 | .006597  | -.009670 | .004621  | -.005538 |
| 28-36 | .010950  | .008185  | .002135  | -.011489 | .002653  | -.003567 |
| 37-47 | -.001561 | .002460  | .001624  | -.012935 | .001089  | -.002420 |
| 48-60 | .001000  | .001920  | -.000505 | -.000029 | .000474  | -.001017 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .036502 | .014289 | .006299 | .011359 |
| 1     | .460531 | .149853 | .072127 | .198171 |
| 2     | .655122 | .246312 | .101733 | .278508 |
| 3     | .722213 | .335188 | .125787 | .252545 |
| 4     | .483344 | .268385 | .111095 | .116493 |
| 5     | .321997 | .202438 | .104265 | .063913 |
| 6     | .291234 | .204541 | .123537 | .061337 |
| 7-8   | .215396 | .203619 | .114779 | .046031 |
| 9-11  | .113390 | .127903 | .067026 | .020032 |
| 12-15 | .069728 | .074096 | .050831 | .015223 |
| 16-20 | .044165 | .063923 | .034291 | .009928 |
| 21-27 | .033445 | .035801 | .031857 | .005475 |
| 28-36 | .017221 | .023480 | .019411 | .003078 |
| 37-47 | .011251 | .013366 | .013167 | .001867 |
| 48-60 | .007580 | .009635 | .009275 | .000952 |

RUN NC 900 91M 6-18-63 1840-1956(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.29571<br>10E 00 | 0.15502<br>10E 00 | 0.72507<br>10E-01 | 0.12533<br>10E 00 | 0.58619<br>10E-01 | 0.30731<br>10E-01 |
| 0  | .176811           | -.568030          | .583102           | -.029833          | .270595           | -.384733          |
| 1  | .183760           | -.123152          | .251719           | -.053442          | .265067           | -.027529          |
| 2  | .146786           | -.056187          | .107657           | -.009650          | .213904           | .037240           |
| 3  | .126067           | .058059           | -.016016          | -.026637          | .201881           | .086879           |
| 4  | .088753           | .035106           | -.024173          | -.005273          | .155501           | .040456           |
| 5  | .103918           | .059898           | .010603           | -.019997          | .119420           | -.000096          |
| 6  | .041366           | -.025577          | .020583           | -.036701          | .051622           | -.050798          |
| 7  | .019106           | .002173           | -.003444          | .000488           | -.008918          | -.033498          |
| 8  | -.058373          | .021243           | -.075276          | .044895           | -.106705          | .006890           |
| 9  | -.117543          | .036530           | -.077607          | .047754           | -.181032          | .043101           |
| 10 | -.131259          | .013359           | -.083322          | .015412           | -.194530          | .038961           |
| 11 | -.087832          | .050360           | -.115519          | -.004970          | -.172717          | -.002454          |
| 12 | -.157524          | .074853           | -.138917          | .051124           | -.198343          | .030615           |
| 13 | -.109636          | .115004           | -.198381          | .016016           | -.217011          | .062122           |
| 14 | -.052553          | .066330           | -.211486          | -.060225          | -.209689          | .043442           |
| 15 | -.057168          | -.08951           | -.143085          | .012514           | -.189028          | .026143           |
| 16 | -.100846          | .050315           | -.067866          | .019578           | -.143403          | .003044           |
| 17 | -.072773          | .007278           | -.093684          | -.009775          | -.109039          | .011271           |
| 18 | -.066663          | .086895           | -.121652          | -.002114          | -.092451          | .072714           |
| 19 | -.070559          | -.060655          | -.017235          | .054522           | -.043958          | .000410           |
| 20 | -.051394          | -.026841          | .055044           | .057479           | .023065           | .007753           |
| 21 | -.032831          | -.056261          | .133296           | .088715           | .030039           | -.043387          |
| 22 | .016282           | -.027456          | .140770           | .039511           | .085528           | -.066233          |
| 23 | .057043           | .032540           | .087691           | -.008722          | .147492           | -.023262          |
| 24 | .046222           | .060982           | .050450           | -.049303          | .173352           | .021780           |
| 25 | .076759           | .026616           | .087319           | -.044074          | .187196           | .028565           |
| 26 | .075180           | .038986           | .153599           | -.017235          | .144834           | -.044585          |
| 27 | .093328           | .031502           | .180503           | -.055861          | .167520           | -.074867          |
| 28 | .072496           | -.045815          | .209102           | -.021187          | .149728           | -.096917          |
| 29 | .127552           | .008519           | .103033           | -.057633          | .166402           | -.023794          |
| 30 | .108920           | .013368           | .051647           | -.059412          | .101915           | -.018940          |

LOSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-03   |
| 0     | .013338  | -.057595 | -.011116 | .015259  | .013704  | .037445  |
| 1     | .174115  | -.442890 | .301432  | -.081385 | .433135  | -.221866 |
| 2     | .209927  | -.538025 | .578055  | -.112752 | .667945  | -.502856 |
| 3     | .157271  | -.615158 | .495726  | -.067871 | .531872  | -.406519 |
| 4     | .053562  | -.410760 | .150312  | -.083778 | .113532  | -.121656 |
| 5     | .000127  | -.316365 | .170594  | .006554  | -.005194 | -.222458 |
| 6     | -.033665 | -.491597 | .272644  | .135377  | -.036264 | -.420447 |
| 7     | -.014419 | -.595616 | .258878  | .048037  | -.038674 | -.574470 |
| 8     | .018717  | -.589058 | .254431  | -.000525 | -.013047 | -.832379 |
| 9-11  | .016528  | -.411355 | .235505  | -.043158 | .039497  | -.907253 |
| 12-14 | -.000663 | -.244757 | .114554  | .003035  | -.010143 | -.418287 |
| 15-21 | -.004316 | -.282284 | .084932  | .017669  | .009855  | -.460263 |
| 22-30 | -.001650 | -.401773 | .121099  | .111515  | -.008821 | -.625574 |

RUN NO 900 91M 6-18-63 1840-1956(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.29571<br>10E 00 | 0.15502<br>10E 00 | 0.72507<br>10E-01 | 0.12533<br>10E 00 | 0.58619<br>10E-01 | 0.30731<br>10E-01 |
| 1  | -.054047          | -.024105          | .092396           | .003822           | .087008           | -.072788          |
| 2  | -.040720          | -.026693          | .084477           | .070204           | .110472           | -.060558          |
| 3  | -.032251          | .013605           | .026764           | .065061           | .144765           | -.001515          |
| 4  | -.018818          | .026886           | -.019059          | .032724           | .136988           | -.002376          |
| 5  | -.047300          | -.046605          | -.008887          | .032762           | .152249           | .017017           |
| 6  | -.055338          | -.001930          | .013623           | .008403           | .191665           | -.020365          |
| 7  | -.025034          | .015766           | -.009855          | .009676           | .210820           | .006779           |
| 8  | .026390           | -.011946          | -.017858          | .029132           | .140102           | -.002414          |
| 9  | .041756           | -.031691          | -.023101          | .032720           | .072982           | .041157           |
| 10 | .066576           | .060835           | .029225           | .088404           | .004163           | -.023361          |
| 11 | .027894           | .022360           | .045866           | .056621           | -.045666          | -.016980          |
| 12 | .042368           | -.030707          | .044275           | .024379           | .051247           | -.014325          |
| 13 | .070050           | -.028908          | .000122           | .027825           | .004098           | .014164           |
| 14 | .064447           | -.019541          | -.010368          | .028600           | -.069410          | .024107           |
| 15 | .096786           | .014044           | -.008355          | .017173           | -.103182          | .022188           |
| 16 | .146181           | .035319           | .031915           | .051375           | -.102499          | -.041937          |
| 17 | .127518           | .029953           | .038281           | .065530           | -.101902          | -.045219          |
| 18 | .137864           | .036954           | .032341           | .059156           | -.128114          | -.055840          |
| 19 | .139615           | -.002335          | .035854           | .020491           | -.152354          | -.041642          |
| 20 | .120086           | -.011347          | .039310           | .030783           | -.134304          | .006486           |
| 21 | .082609           | .005306           | -.003856          | .000556           | -.112277          | .029217           |
| 22 | .022100           | .005222           | -.002676          | -.014087          | -.068092          | .019951           |
| 23 | -.002420          | .025949           | .013746           | -.007679          | -.023286          | -.027729          |
| 24 | -.052374          | -.002721          | -.034378          | -.056981          | .048225           | .030638           |
| 25 | -.078274          | .014973           | -.064521          | -.041960          | .085237           | .030270           |
| 26 | -.094622          | -.021508          | -.049452          | -.020592          | .089149           | .050353           |
| 27 | -.078172          | -.017987          | -.045812          | -.053380          | .103946           | .048386           |
| 28 | -.152849          | -.008281          | -.044884          | -.042557          | .158715           | .050988           |
| 29 | -.150261          | -.013193          | -.043745          | -.049537          | .138180           | .055298           |
| 30 | -.110486          | .024565           | -.023115          | -.049970          | .121776           | -.029184          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-01   | 10E-03   | 10E-02  | 10E-02   | 10E-02   | 10E-03   |
| 1     | .126238  | .324699  | .093533 | .457004  | .202958  | -.178350 |
| 2     | -.027410 | -.369556 | .026177 | .218083  | .414473  | -.033642 |
| 3     | -.091834 | -.417744 | .000233 | .052375  | .412696  | -.028520 |
| 4     | -.025883 | -.039532 | .047930 | .080662  | .134596  | -.252005 |
| 5     | -.024026 | -.363716 | .057555 | .078094  | .058575  | -.193121 |
| 6     | -.028738 | -.626417 | .089054 | .081590  | .031384  | -.124009 |
| 7     | .006775  | .153897  | .128768 | .168923  | -.022462 | -.329362 |
| 8     | .014672  | .859756  | .090239 | .149664  | -.018706 | -.346734 |
| 9-11  | -.013222 | -.880376 | .064182 | -.018772 | .060496  | -.205779 |
| 12-14 | -.021382 | -.312522 | .085577 | -.002785 | .000727  | -.272982 |
| 15-21 | -.001307 | -.024508 | .005326 | -.054834 | .006936  | -.076358 |
| 22-30 | -.008094 | -.333917 | .003170 | -.021914 | .016726  | .090778  |

RUN NO 900 91M 6-18-63 1840-1956(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.36577<br>10E 00 | 0.23907<br>10E 00 | 0.65705<br>10E-01 | 0.14373<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .362695           | .521696           | .055130           | .492856           |
| 2  | .106159           | .440196           | .048060           | .140881           |
| 3  | .007799           | .336974           | -.070539          | -.021111          |
| 4  | .001266           | .344350           | -.088138          | .040551           |
| 5  | -.055543          | .164249           | -.142629          | .100073           |
| 6  | -.000573          | .068082           | -.022670          | .052013           |
| 7  | -.016454          | -.019712          | -.058434          | -.038207          |
| 8  | -.044198          | -.080797          | .030990           | -.171505          |
| 9  | -.017951          | -.235534          | -.052708          | -.211615          |
| 10 | -.072315          | -.305111          | -.052468          | -.204807          |
| 11 | -.156314          | -.351041          | .000970           | -.186766          |
| 12 | -.130511          | -.363881          | -.098844          | -.210196          |
| 13 | -.251125          | -.393079          | -.110054          | -.293371          |
| 14 | -.172165          | -.395875          | -.071414          | -.301438          |
| 15 | -.051100          | -.365384          | -.023641          | -.201884          |
| 16 | .007501           | -.258899          | .023170           | -.066284          |
| 17 | -.122397          | -.238009          | .065774           | -.038355          |
| 18 | -.111719          | -.171334          | -.057450          | -.096818          |
| 19 | .012943           | -.124427          | .128748           | -.059417          |
| 20 | .038727           | .006608           | .029155           | .042004           |
| 21 | .077139           | .007955           | .087722           | .219722           |
| 22 | .063179           | .137209           | .057209           | .273511           |
| 23 | -.008229          | .213258           | -.000418          | .172639           |
| 24 | -.047546          | .223723           | -.068695          | .069389           |
| 25 | -.011265          | .188303           | -.022132          | .081874           |
| 26 | .049971           | .202055           | -.027180          | .218755           |
| 27 | .001438           | .219200           | -.020823          | .270944           |
| 28 | .148675           | .240202           | -.067585          | .195841           |
| 29 | .089562           | .118553           | -.064390          | .042725           |
| 30 | .047408           | .078064           | -.045669          | .002130           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-02  | 10E-02  |
| 0     | .035317 | .040049 | .018988 | .006497 |
| 1     | .296822 | .442913 | .141498 | .114955 |
| 2     | .347329 | .547390 | .237122 | .193777 |
| 3     | .321690 | .417039 | .350380 | .187827 |
| 4     | .180511 | .215646 | .273900 | .075542 |
| 5     | .155366 | .044959 | .255374 | .050024 |
| 6     | .218045 | .047103 | .376451 | .063260 |
| 7     | .240580 | .049878 | .399771 | .066322 |
| 8     | .224609 | .053259 | .338081 | .076329 |
| 9-11  | .144604 | .046573 | .244837 | .093864 |
| 12-14 | .126463 | .049340 | .178710 | .052541 |
| 15-21 | .120638 | .052602 | .268247 | .028011 |
| 22-30 | .100865 | .065348 | .396130 | .028040 |

RUN NO 90D 46M 6-18-63 1840-1956(EST)  
 RUN NO 90D 91M 6-18-63 1840-1956(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U        | V       | W       | T       |
|-------|----------|---------|---------|---------|
|       | 10E 00   | 10E 00  | 10E 00  | 10E 00  |
| 0     | .119492  | .137645 | .058966 | .340101 |
| 1     | .350191  | .302129 | .229146 | .436897 |
| 2     | .340319  | .257462 | .222719 | .476912 |
| 3     | .245882  | .196743 | .218358 | .455221 |
| 4     | .096057  | .242569 | .247089 | .347652 |
| 5     | -.100199 | .321475 | .198030 | .347173 |
| 6     | .200862  | .213660 | .163996 | .250595 |
| 7-8   | .106039  | .073130 | .156086 | .065023 |
| 9-11  | .125596  | .059445 | .183703 | .041887 |
| 12-15 | .052622  | .158931 | .136975 | .066296 |
| 16-20 | .117365  | .113354 | .117103 | .080586 |
| 21-27 | .129602  | .134514 | .070520 | .072443 |
| 28-36 | .123053  | .102487 | .141424 | .082432 |
| 37-47 | .107710  | .090333 | .079717 | .079843 |
| 48-60 | .076285  | .109717 | .088989 | .091865 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .856614 | .967468 | .733044 | .578185 |
| 1     | .613472 | .939654 | .502915 | .674305 |
| 2     | .509824 | .904982 | .276889 | .769211 |
| 3     | .468185 | .758964 | .118205 | .779665 |
| 4     | .409083 | .310640 | .134187 | .680688 |
| 5     | .193817 | .116573 | .245928 | .314522 |
| 6     | .161945 | .135493 | .298382 | .229645 |
| 7     | .093250 | .255290 | .181688 | .209039 |
| 8     | .488190 | .374304 | .253464 | .432504 |
| 9-11  | .485280 | .256557 | .272766 | .548214 |
| 12-14 | .468317 | .210216 | .176243 | .495603 |
| 15-21 | .282242 | .246504 | .241963 | .360820 |
| 22-30 | .320488 | .369501 | .356485 | .302230 |

RUN NO 91A 15M 6-18-63 2150-2300(EST)

GROSS STATISTICS

CLEAR WIND SPEED 3.58 M/SEC SIGMA A 7.40 DEG  
 STABLE WIND DIRECTION 235 DEG SIGMA E 4.7 DEG  
 SOLAR RAD. 0 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.33563E-00             | 0.28544E-00                    | 0.24434E-00                   | 0.15147E-00                        |
| V                | 0.19807E-00             | 0.16804E-00                    | 0.15823E-00                   | 0.59804E-01                        |
| W                | 0.79509E-01             | 0.74046E-01                    | 0.73718E-01                   | 0.19132E-01                        |
| T                | 0.20319E-01             | 0.36271E-02                    | 0.28923E-02                   | 0.19993E-01                        |
| E                | 0.30660E-00             | 0.26377E-00                    | 0.23815E-00                   |                                    |

|                         | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.16183                 | 0.14924                        | 0.13808                       | 0.10871                            |
| V                       | 0.12431                 | 0.11451                        | 0.11111                       | 0.06831                            |
| W                       | 0.07876                 | 0.07601                        | 0.07584                       | 0.03864                            |

|                    | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | 0.29995E-01             | 0.20341E-01                    | 0.14923E-01                   | 0.83634E-02                        |
| U,W                | -0.55770E-01            | -0.52205E-01                   | -0.47889E-01                  | -0.24988E-01                       |
| U,T                | 0.17022E-01             | 0.13766E-01                    | 0.99378E-02                   | 0.95614E-02                        |
| V,W                | 0.30114E-02             | -0.11286E-02                   | -0.19446E-03                  | 0.18613E-02                        |
| V,T                | -0.28236E-02            | 0.59148E-02                    | 0.49408E-02                   | 0.28114E-02                        |
| W,T                | -0.72918E-02            | -0.58418E-02                   | -0.54158E-02                  | -0.22365E-02                       |
| WE                 | 0.18882E-02             | 0.31134E-02                    | 0.39129E-02                   |                                    |

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | 0.11624                 | 0.09288                        | 0.07589                       | 0.08787                            |
| U,W                           | -0.34140                | -0.35909                       | -0.35682                      | -0.46416                           |
| U,T                           | 0.20612                 | 0.42782                        | 0.37382                       | 0.54943                            |
| V,W                           | 0.02400                 | -0.01012                       | -0.00180                      | 0.05502                            |
| V,T                           | -0.04451                | 0.23958                        | 0.23095                       | 0.25711                            |
| W,T                           | -0.18141                | -0.35646                       | -0.37090                      | -0.36162                           |



RUN NO 91A 15M 6-18-63 2150-2300(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | W,W               | V,T               | M,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.19668<br>10E 00 | 0.13423<br>10E 00 | 0.26590<br>10E-01 | 0.10801<br>10E 00 | 0.21395<br>10E-01 | 0.14602<br>10E-01 |
| 0  | .075856           | -.356788          | .373518           | -.001755          | .230834           | -.370905          |
| 1  | .068552           | -.303249          | .356267           | .011750           | .190530           | -.284431          |
| 2  | .054763           | -.216808          | .307809           | .023288           | .129658           | -.166723          |
| 3  | .030954           | -.145134          | .241971           | .024571           | .081336           | -.089349          |
| 4  | -.000700          | -.085453          | .173618           | .030003           | .044796           | -.050814          |
| 5  | -.018904          | -.044524          | .116197           | .029493           | .012454           | -.014269          |
| 6  | -.025742          | -.011114          | .071941           | .031070           | -.014097          | .023114           |
| 7  | -.024762          | .018481           | .036362           | .031396           | -.028686          | .038870           |
| 8  | -.021026          | .032057           | .007330           | .025943           | -.039825          | .039978           |
| 9  | -.015664          | .032027           | -.014573          | .017125           | -.049430          | .049535           |
| 10 | -.009797          | .031169           | -.030223          | .007105           | -.060013          | .055936           |
| 11 | -.007160          | .035793           | -.043445          | .002035           | -.061058          | .051330           |
| 12 | -.005357          | .033490           | -.058580          | -.010546          | -.050518          | .045723           |
| 13 | -.000225          | .030238           | -.069839          | -.027749          | -.037191          | .037232           |
| 14 | .005482           | .039115           | -.076879          | -.044196          | -.027957          | .035331           |
| 15 | .019913           | .045069           | -.077762          | -.047219          | -.018161          | .033591           |
| 16 | .030652           | .044938           | -.077820          | -.040617          | -.015403          | .029966           |
| 17 | .025484           | .055290           | -.080138          | -.033113          | -.014110          | .028870           |
| 18 | .010889           | .068572           | -.088402          | -.025680          | -.013628          | .029198           |
| 19 | .010687           | .074716           | -.100134          | -.025564          | -.020816          | .027408           |
| 20 | .001076           | .076414           | -.103015          | -.030744          | -.039333          | .017831           |
| 21 | -.001118          | .075053           | -.099908          | -.030052          | -.050653          | .011083           |
| 22 | .007249           | .067313           | -.097772          | -.028342          | -.047715          | .020915           |
| 23 | .009916           | .063647           | -.092399          | -.025768          | -.037832          | .031049           |
| 24 | .007972           | .069443           | -.087682          | -.022576          | -.035887          | .036941           |
| 25 | -.000820          | .070847           | -.085164          | -.025984          | -.028387          | .032583           |
| 26 | -.019346          | .054661           | -.079754          | -.018725          | -.026479          | .030785           |
| 27 | -.026060          | .032720           | -.068795          | .001055           | -.028565          | .028410           |
| 28 | -.030840          | .028684           | -.057255          | .003799           | -.026058          | .021694           |
| 29 | -.026737          | .023064           | -.050217          | .000713           | -.020515          | .021285           |
| 30 | -.022287          | .010984           | -.044665          | -.001720          | -.011436          | .020228           |
| 31 | -.025184          | -.004425          | -.042099          | .002948           | -.007811          | .012826           |
| 32 | -.021108          | -.016418          | -.038689          | .018737           | -.011241          | .011786           |
| 33 | -.009094          | -.012979          | -.029765          | .028974           | -.005250          | .015506           |
| 34 | -.001987          | -.017158          | -.019695          | .033214           | .007258           | .012243           |
| 35 | -.004781          | -.013399          | -.015885          | .032508           | .017737           | .011024           |
| 36 | -.008102          | -.007906          | -.010807          | .035013           | .021194           | .005341           |
| 37 | -.011918          | .000781           | -.008856          | .032633           | .017361           | -.005130          |
| 38 | -.003742          | -.003695          | -.004385          | .028116           | .008938           | -.018112          |
| 39 | .003341           | -.002399          | -.001971          | .016695           | .005092           | -.016784          |
| 40 | .003703           | .000560           | -.003229          | .020540           | .011891           | -.002151          |
| 41 | .002874           | .005345           | -.006765          | .020511           | .023520           | .007540           |
| 42 | .004313           | .012695           | -.008575          | .019572           | .029033           | .010218           |
| 43 | .014388           | .015111           | -.010403          | .007813           | .030243           | .007867           |
| 44 | .016192           | .007721           | -.012583          | .010584           | .021519           | .001211           |
| 45 | .003155           | .005379           | -.016154          | .014740           | .010614           | .000100           |
| 46 | .001297           | .000436           | -.015735          | .004950           | .011442           | -.000573          |
| 47 | .010407           | -.003176          | -.002825          | -.011530          | .016796           | -.009929          |
| 48 | .004609           | -.006527          | .006523           | -.014022          | .015228           | -.015345          |
| 49 | -.005789          | -.010776          | .005684           | -.002221          | .003997           | -.008276          |
| 50 | -.013048          | -.002247          | .004794           | .001714           | .001061           | .008934           |
| 51 | -.017241          | .012579           | .003601           | .001746           | .003026           | .026464           |
| 52 | -.015237          | .013495           | .006998           | -.008734          | .004887           | .027585           |
| 53 | -.012520          | .003863           | .018207           | -.017286          | .009427           | .019391           |
| 54 | -.014085          | .001544           | .025530           | -.014003          | .013819           | .009317           |
| 55 | -.015238          | .001421           | .027676           | -.008788          | .024940           | -.005116          |
| 56 | -.024287          | .002835           | .029585           | -.004319          | .028917           | -.009530          |
| 57 | -.030876          | .002364           | .025414           | .007968           | .022557           | -.003087          |
| 58 | -.035017          | .009323           | .019899           | .014665           | .014150           | .003757           |
| 59 | -.027747          | .015205           | .015821           | .019502           | .013968           | .008456           |
| 60 | -.028997          | .017970           | .012793           | .022044           | .011435           | .015387           |

RUN NC 91A 15M 6-18-63 2150-2300(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.19668<br>10E 00 | 0.13423<br>10E 00 | 0.26590<br>10E-01 | 0.21401<br>10E-01 | 0.21395<br>10E-01 | 0.14602<br>10E-01 |
| 1  | .010854           | -.017603          | .063809           | .029295           | .034246           | -.073331          |
| 2  | .023103           | -.025010          | .107900           | .026362           | .036979           | -.082326          |
| 3  | .029770           | -.023728          | .129287           | .030088           | .018830           | -.074764          |
| 4  | .034667           | -.022621          | .134016           | .025868           | .001999           | -.067853          |
| 5  | .038204           | -.022067          | .124247           | .022537           | -.009909          | -.059735          |
| 6  | .031586           | -.030933          | .111180           | .009848           | -.013932          | -.049369          |
| 7  | .029172           | -.030742          | .101215           | -.006125          | -.010522          | -.041384          |
| 8  | .014992           | -.027991          | .093672           | -.002825          | -.003652          | -.039630          |
| 9  | .003506           | -.028763          | .086746           | .010278           | -.003084          | -.034881          |
| 10 | -.009109          | -.022896          | .079917           | .007213           | -.003242          | -.021265          |
| 11 | -.014589          | -.017811          | .075785           | .005556           | -.005753          | -.011018          |
| 12 | -.015640          | -.012038          | .055595           | .014040           | -.004244          | -.006615          |
| 13 | -.012846          | -.004836          | .053076           | .016316           | -.000602          | -.000915          |
| 14 | -.010966          | .007077           | .041013           | .019979           | -.000677          | .000446           |
| 15 | -.004326          | .008672           | .035352           | .016291           | .000874           | .001337           |
| 16 | .010903           | .003468           | .036387           | .005252           | .002863           | .001919           |
| 17 | .018040           | -.003192          | .036255           | .007549           | .000704           | -.001201          |
| 18 | .015051           | -.003512          | .035736           | .012408           | -.000808          | -.005125          |
| 19 | .003205           | -.004310          | .037744           | .011566           | .005635           | -.008412          |
| 20 | -.004571          | .005250           | .032803           | .010396           | .015570           | -.017595          |
| 21 | -.006824          | .008743           | .024909           | .005810           | .023878           | -.036350          |
| 22 | -.004375          | .005240           | .026145           | .007386           | .022396           | -.047513          |
| 23 | -.000579          | .001135           | .026769           | .014281           | .019343           | -.045868          |
| 24 | -.005895          | -.001792          | .025417           | .010709           | .019314           | -.034135          |
| 25 | -.020882          | .005576           | .021906           | -.012272          | .025661           | -.020094          |
| 26 | -.023089          | .000988           | .011063           | -.012115          | .025427           | -.008536          |
| 27 | -.021574          | -.007405          | -.000657          | -.013902          | .015571           | .002550           |
| 28 | -.022610          | .000504           | -.012612          | -.013053          | -.001599          | .005585           |
| 29 | -.019378          | .000089           | -.017510          | -.014102          | -.010666          | .013912           |
| 30 | -.019394          | -.003101          | -.016373          | -.015043          | -.007593          | .028755           |
| 31 | -.017556          | -.002715          | -.011788          | -.019189          | .000254           | .032770           |
| 32 | -.003566          | -.013291          | .002176           | -.030484          | .006091           | .031636           |
| 33 | .003315           | -.016168          | .014200           | -.038077          | .006847           | .031301           |
| 34 | .004543           | -.011368          | .021110           | -.049449          | .010269           | .029155           |
| 35 | .007345           | -.015116          | .028745           | -.053322          | .013517           | .027174           |
| 36 | .004080           | -.007546          | .024478           | -.034005          | .014004           | .020451           |
| 37 | .000592           | -.004727          | .020780           | -.020672          | .015626           | .018526           |
| 38 | .002110           | .000781           | .012265           | -.016255          | .010520           | .019480           |
| 39 | .002163           | -.001039          | -.000579          | -.004122          | .001871           | .009256           |
| 40 | .002062           | -.004548          | -.011226          | .009131           | .003881           | .002417           |
| 41 | .004148           | -.003396          | -.021237          | .014325           | .000239           | .008731           |
| 42 | -.003817          | .000420           | -.026668          | .001821           | .000527           | .014317           |
| 43 | -.010254          | -.001310          | -.031995          | -.010897          | .006271           | .014173           |
| 44 | -.017328          | -.006215          | -.036466          | -.015585          | .011714           | .008273           |
| 45 | -.027661          | .003218           | -.038853          | -.017441          | .018800           | .005846           |
| 46 | -.026748          | .009725           | -.037211          | -.018018          | .023867           | .002856           |
| 47 | -.012559          | .010708           | -.033657          | -.018439          | .034740           | .001270           |
| 48 | -.001559          | .013634           | -.035682          | -.009865          | .046403           | -.000234          |
| 49 | .003865           | .020137           | -.037614          | .006480           | .045644           | -.001207          |
| 50 | .000305           | .015003           | -.044427          | .006173           | .035025           | .003063           |
| 51 | -.007061          | .013635           | -.057232          | .015707           | .026117           | .011324           |
| 52 | -.015346          | .017060           | -.070869          | .022749           | .016837           | .012147           |
| 53 | -.018378          | .017296           | -.074373          | .008648           | .011300           | .014128           |
| 54 | -.017202          | .016106           | -.060777          | .006172           | .006091           | .010781           |
| 55 | -.014905          | .006214           | -.039669          | .008328           | -.009238          | -.000979          |
| 56 | -.003636          | .001513           | -.023054          | .014470           | -.022185          | -.017350          |
| 57 | -.000968          | .007018           | -.017384          | .022657           | -.029981          | -.031477          |
| 58 | .005818           | .007016           | -.007740          | .032506           | -.029688          | -.034447          |
| 59 | .015396           | -.000277          | .001632           | .027938           | -.027533          | -.030617          |
| 60 | .023248           | -.008618          | .006517           | .024774           | -.030265          | -.020889          |

RUN NO 91A 15M 6-18-63 2150-2300.EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.24442<br>10E 00 | 0.15826<br>10E 00 | 0.73716<br>10E-01 | 0.28925<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .811823           | .687317           | .584549           | .834706           |
| 2  | .587939           | .385012           | .241003           | .590984           |
| 3  | .424414           | .211742           | .084643           | .396178           |
| 4  | .291984           | .091784           | .026641           | .257486           |
| 5  | .179860           | .015846           | -.015614          | .154469           |
| 6  | .086723           | -.035634          | -.060489          | .076102           |
| 7  | .012720           | -.054860          | -.061100          | .017332           |
| 8  | -.023940          | -.059195          | -.066557          | -.036122          |
| 9  | -.053607          | -.076617          | -.073820          | -.092511          |
| 10 | -.081859          | -.099971          | -.081591          | -.132351          |
| 11 | -.101858          | -.116449          | -.092377          | -.148546          |
| 12 | -.120440          | -.124286          | -.094157          | -.152482          |
| 13 | -.141245          | -.127966          | -.085350          | -.147890          |
| 14 | -.155196          | -.127289          | -.080272          | -.136302          |
| 15 | -.163352          | -.126688          | -.076607          | -.127990          |
| 16 | -.168736          | -.121247          | -.063883          | -.119355          |
| 17 | -.170780          | -.102421          | -.050797          | -.110066          |
| 18 | -.180488          | -.095697          | -.062144          | -.104942          |
| 19 | -.188084          | -.098247          | -.083817          | -.113741          |
| 20 | -.188101          | -.110813          | -.077978          | -.130484          |
| 21 | -.193708          | -.116024          | -.052800          | -.150667          |
| 22 | -.194857          | -.113204          | -.058785          | -.170760          |
| 23 | -.182667          | -.107787          | -.079913          | -.180343          |
| 24 | -.167873          | -.116112          | -.080695          | -.181041          |
| 25 | -.155114          | -.102370          | -.074285          | -.176289          |
| 26 | -.144254          | -.085038          | -.060101          | -.178305          |
| 27 | -.133784          | -.078714          | -.042881          | -.178872          |
| 28 | -.114554          | -.063995          | -.037054          | -.163417          |
| 29 | -.081417          | -.039116          | -.055012          | -.139424          |
| 30 | -.042570          | -.008933          | -.069715          | -.107779          |
| 31 | -.007494          | .009917           | -.039050          | -.076317          |
| 32 | .017541           | .015387           | -.005121          | -.056602          |
| 33 | .024270           | .016102           | .017609           | -.047041          |
| 34 | .021504           | .019632           | .033729           | -.032567          |
| 35 | .007090           | .027630           | .024971           | -.017759          |
| 36 | -.008658          | .031676           | .021444           | -.001382          |
| 37 | -.025620          | .025479           | .032714           | .010219           |
| 38 | -.035216          | .036682           | .045259           | .013663           |
| 39 | -.044894          | .030669           | .042848           | .006092           |
| 40 | -.041773          | .026900           | .018213           | -.000631          |
| 41 | -.043632          | .007391           | .003665           | -.005375          |
| 42 | -.053154          | .004566           | .015215           | -.004593          |
| 43 | -.052223          | .021585           | .019361           | -.006615          |
| 44 | -.048386          | .031354           | .030251           | -.009868          |
| 45 | -.045290          | .018164           | .015769           | -.009339          |
| 46 | -.036679          | .026261           | .003722           | .003139           |
| 47 | -.031924          | .020201           | .016714           | .010424           |
| 48 | -.032046          | .012234           | .019343           | .011952           |
| 49 | -.018760          | .007035           | .024615           | .010705           |
| 50 | -.011468          | -.002368          | .016222           | .007008           |
| 51 | .000834           | .011573           | .015271           | .008188           |
| 52 | .018303           | .006837           | .004523           | .020709           |
| 53 | .030121           | .002954           | .012908           | .038834           |
| 54 | .028566           | -.006348          | .018007           | .063693           |
| 55 | .020248           | -.012044          | -.009493          | .088561           |
| 56 | .013252           | -.008048          | -.029034          | .098566           |
| 57 | .015589           | -.000162          | -.027296          | .088031           |
| 58 | .023200           | .012868           | -.026919          | .073480           |
| 59 | .024896           | .010416           | -.033535          | .065587           |
| 60 | .022673           | .008132           | -.046880          | .055563           |

RUN NO 91A 15M 6-18-63 2150-2300(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 0     | .023355  | -.035881 | .010595  | -.001928 | -.006612 | -.030374 |
| 1     | .143880  | -.372742 | .128536  | -.003696 | .155866  | -.292671 |
| 2     | .113435  | -.520204 | .169471  | .073929  | .408260  | -.383669 |
| 3     | .046605  | -.651251 | .184838  | .172281  | .592315  | -.472104 |
| 4     | .004985  | -.522097 | .137104  | .110114  | .483158  | -.440994 |
| 5     | .121724  | -.324889 | .090185  | -.009813 | .418094  | -.421260 |
| 6     | .235372  | -.286786 | .071354  | -.036581 | .472318  | -.430826 |
| 7-8   | .186107  | -.336686 | .055634  | -.051207 | .426239  | -.351161 |
| 9-11  | .113849  | -.208124 | .027987  | -.031911 | .170088  | -.223902 |
| 12-15 | .056721  | -.094084 | .013314  | .002797  | .111547  | -.138180 |
| 16-20 | -.007606 | -.052162 | .002436  | -.010613 | .071832  | -.099709 |
| 21-27 | -.008019 | -.041376 | .000523  | -.006405 | .033650  | -.068674 |
| 28-36 | -.001769 | -.011893 | -.000021 | -.004139 | .024031  | -.044910 |
| 37-47 | .005695  | -.012712 | -.000017 | -.005594 | .010885  | -.014002 |
| 48-60 | .001451  | -.003055 | -.000133 | -.000926 | .006609  | -.010702 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-03   | 10E-03   | 10E-03   | 10E-03   |
| 1     | -.055056 | -.073032 | .864635  | -.138530 | .153784  | -.122672 |
| 2     | .037594  | -.061076 | .856590  | .728677  | .012032  | -.193513 |
| 3     | .102408  | -.073521 | .765193  | .861558  | -.039867 | -.176654 |
| 4     | .112361  | -.110745 | .679502  | .042545  | -.070565 | -.086417 |
| 5     | .064139  | -.095854 | .516363  | -.130403 | -.021517 | -.131154 |
| 6     | .072224  | -.057440 | .407005  | .340882  | .057695  | -.243601 |
| 7-8   | .169312  | -.033849 | .399833  | .298072  | .062074  | -.171232 |
| 9-11  | .046717  | .003409  | .174878  | .395903  | .045058  | -.063107 |
| 12-15 | -.024928 | -.015024 | .128962  | .289164  | .069669  | -.063807 |
| 16-20 | -.001301 | -.008251 | .031044  | .074156  | .071024  | -.053272 |
| 21-27 | .004217  | -.011362 | .011511  | .035872  | .019842  | -.027273 |
| 28-36 | .000064  | .000725  | .004211  | .108186  | .014929  | -.025883 |
| 37-47 | -.002625 | -.004090 | .002648  | .063086  | .002485  | -.009794 |
| 48-60 | .001987  | .002103  | -.000804 | .034369  | -.000353 | -.002282 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-02  | 10E-03  |
| 0     | .018087 | .004603 | .017762 | .018297 |
| 1     | .217975 | .062705 | .212964 | .245667 |
| 2     | .287677 | .107091 | .361343 | .339590 |
| 3     | .338136 | .150064 | .498189 | .375107 |
| 4     | .278659 | .130757 | .433065 | .282958 |
| 5     | .179436 | .099650 | .372391 | .223025 |
| 6     | .142490 | .093958 | .397539 | .229365 |
| 7-8   | .138697 | .086710 | .357429 | .182009 |
| 9-11  | .081556 | .059073 | .276331 | .084524 |
| 12-15 | .048139 | .049027 | .232678 | .065337 |
| 16-20 | .025909 | .030140 | .171028 | .043339 |
| 21-27 | .020391 | .020567 | .143173 | .020250 |
| 28-36 | .013256 | .015457 | .104892 | .013023 |
| 37-47 | .008721 | .010705 | .061911 | .006062 |
| 48-60 | .004992 | .006706 | .050553 | .003766 |

RUN NO 91A 15M 6-18-63 2150-2300(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.95167<br>10E-01 | 0.53829<br>10E-01 | 0.17400<br>10E-01 | 0.33827<br>10E-01 | 0.10935<br>10E-01 | 0.61851<br>10E-02 |
| 0  | .087881           | -.464205          | .549491           | .055022           | .257101           | -.361603          |
| 1  | .044423           | -.101926          | .210438           | .035551           | .025326           | -.020832          |
| 2  | .016457           | -.001285          | .086428           | -.061079          | -.010375          | -.037525          |
| 3  | -.005981          | .004628           | .042658           | .027873           | .047696           | .032130           |
| 4  | -.020220          | .095527           | -.008448          | .025510           | .043449           | .053037           |
| 5  | -.020797          | .053666           | .024834           | .034493           | .072290           | .012901           |
| 6  | -.068662          | .017502           | .003754           | -.024394          | .025457           | .050054           |
| 7  | .047951           | -.043954          | -.007697          | -.044232          | .011431           | -.037676          |
| 8  | -.019291          | -.030012          | -.064092          | -.003404          | -.041482          | -.059220          |
| 9  | -.013200          | -.073786          | -.072873          | .030651           | -.081974          | .012548           |
| 10 | .025495           | .029300           | -.116728          | -.084661          | .011258           | -.012587          |
| 11 | .032586           | .171051           | -.194832          | -.024060          | -.004008          | .125682           |
| 12 | -.044561          | .105198           | -.145155          | .004921           | -.074779          | .061485           |
| 13 | .010795           | .039814           | -.085990          | -.015288          | -.027845          | .015840           |
| 14 | -.007544          | .047118           | -.090420          | .015475           | -.037353          | .039937           |
| 15 | -.053378          | .054198           | -.086590          | .059452           | -.026996          | .033497           |
| 16 | .020410           | .059369           | -.096352          | .018233           | .022357           | .066367           |
| 17 | .003443           | .003459           | -.048053          | .052083           | -.038380          | .017057           |
| 18 | -.079555          | .057018           | -.037337          | .104041           | -.078606          | .032294           |
| 19 | .049775           | .022618           | .024611           | -.078488          | -.013008          | .010061           |
| 20 | .009318           | -.063735          | .053557           | -.009992          | -.019846          | -.035946          |
| 21 | .004649           | -.064887          | .080792           | -.056814          | .044147           | -.089336          |
| 22 | .057360           | -.097112          | .097021           | .007619           | .020887           | -.051767          |
| 23 | -.004136          | -.083070          | .088269           | -.031815          | .043988           | -.062837          |
| 24 | -.041948          | .019836           | .028406           | -.031142          | -.001916          | .029934           |
| 25 | -.071839          | .024157           | -.026024          | .047398           | -.082652          | .019256           |
| 26 | -.074412          | -.034786          | .063271           | .054573           | -.031927          | -.046410          |
| 27 | .033884           | -.090764          | .107415           | -.011644          | .034794           | -.075422          |
| 28 | .057203           | -.008228          | .055678           | -.043185          | -.039880          | .006966           |
| 29 | .006866           | -.028160          | .007655           | -.010907          | .024475           | -.045919          |
| 30 | .014721           | -.059666          | .001918           | -.056373          | -.041806          | -.045412          |

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02  | 10E-03   | 10E-03   | 10E-03   |
| 0     | .000331  | -.001636 | .002158 | .028466  | .039562  | -.000579 |
| 1     | .042721  | -.092979 | .069336 | .032380  | .286497  | -.067704 |
| 2     | .052985  | -.172043 | .119355 | .044429  | .281688  | -.135448 |
| 3     | .059189  | -.157098 | .120472 | .295609  | .213502  | -.121106 |
| 4     | .056239  | -.045806 | .051479 | .373066  | .072014  | -.030359 |
| 5     | .101370  | -.076442 | .029555 | -.092632 | .016329  | -.063955 |
| 6     | .140296  | -.166933 | .038553 | -.274087 | -.026290 | -.133515 |
| 7     | .082318  | -.217778 | .042515 | .074082  | -.038541 | -.152901 |
| 8     | .062140  | -.248724 | .058422 | .067107  | .048427  | -.183255 |
| 9-11  | .024316  | -.079683 | .041011 | .022060  | .133458  | -.065347 |
| 12-14 | -.005319 | -.098073 | .034709 | .412354  | .125664  | -.076551 |
| 15-21 | .008720  | -.096514 | .024858 | .218911  | .129461  | -.060574 |
| 22-30 | .038157  | -.093926 | .029202 | -.198605 | .150992  | -.157494 |

RUN NO 91A 15M 6-18-63 2150-2300(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.95167<br>10E-01 | 0.53829<br>10E-01 | 0.17400<br>10E-01 | 0.33827<br>10E-01 | 0.10035<br>10E-01 | 0.61851<br>10E-02 |
| 1  | .021860           | -.036603          | .156633           | .031735           | .017168           | -.072727          |
| 2  | -.027934          | -.000093          | .114261           | -.019046          | .083591           | -.062715          |
| 3  | -.016843          | .023120           | .128047           | -.036885          | .086526           | -.064487          |
| 4  | -.033713          | -.015882          | .062425           | -.058355          | .075561           | .008072           |
| 5  | .014470           | .054697           | .008081           | .021889           | .061144           | -.043954          |
| 6  | .051916           | .041423           | .048119           | .085708           | -.077592          | -.064238          |
| 7  | .065392           | .022174           | .041911           | .045089           | -.055608          | -.025947          |
| 8  | .079342           | .058715           | .029463           | .046826           | -.033032          | -.015695          |
| 9  | -.011021          | .013339           | .078005           | .009832           | .024452           | -.028690          |
| 10 | .024373           | .038859           | .064450           | -.030354          | .076929           | -.024944          |
| 11 | .020444           | .027163           | .020326           | -.004214          | .027031           | -.026160          |
| 12 | -.039572          | -.018834          | -.018751          | -.031409          | .004030           | -.003069          |
| 13 | -.000347          | .000543           | -.076619          | -.022395          | -.053522          | .007641           |
| 14 | .004515           | -.046788          | -.009509          | -.029214          | -.007845          | .040893           |
| 15 | -.056911          | -.031156          | -.007691          | -.125725          | .004287           | .061314           |
| 16 | -.001193          | -.045706          | .007983           | .099716           | -.083795          | .000384           |
| 17 | .029324           | -.009049          | -.012327          | .027401           | -.032534          | -.011477          |
| 18 | .014615           | -.044285          | -.057829          | .017894           | -.029491          | .097410           |
| 19 | -.003166          | -.010006          | -.054463          | .043352           | .001143           | .038492           |
| 20 | -.003221          | .041099           | -.039942          | .037930           | .013947           | .039782           |
| 21 | .006895           | -.036607          | .001498           | .027224           | -.004479          | .001137           |
| 22 | -.042381          | -.023630          | -.023306          | -.012726          | .014292           | .005045           |
| 23 | -.048173          | .004426           | .035764           | -.054073          | .061214           | -.070132          |
| 24 | -.038924          | -.028530          | .061555           | .013031           | .030080           | -.061987          |
| 25 | -.017895          | -.018641          | -.007864          | -.006813          | .036879           | .035673           |
| 26 | .085977           | .008551           | -.026772          | .003201           | -.026558          | .015490           |
| 27 | .091411           | .050596           | -.019718          | .080766           | -.064981          | -.044577          |
| 28 | .021090           | .041654           | -.048490          | .007649           | -.022635          | .023727           |
| 29 | .000972           | .060604           | .029461           | .011234           | -.004199          | -.013553          |
| 30 | -.009857          | -.013852          | .060946           | -.032936          | .023156           | -.023391          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-03   | 10E-03  | 10E-03   | 10E-03   | 10E-03   |
| 1     | .079543  | .296491  | .329323 | .108206  | .014912  | -.049201 |
| 2     | .093870  | .717521  | .484933 | .082716  | .088308  | -.110318 |
| 3     | .066985  | .701990  | .534058 | .247175  | .158044  | -.129350 |
| 4     | -.008887 | -.003422 | .316558 | .187807  | .099281  | -.046161 |
| 5     | -.102147 | -.488167 | .225173 | -.304659 | .117804  | -.023286 |
| 6     | -.154236 | -.360041 | .262507 | -.676704 | .263640  | -.049123 |
| 7     | -.072129 | -.065281 | .334844 | -.308332 | .278374  | -.041695 |
| 8     | -.022937 | -.170077 | .497289 | -.102031 | .170587  | -.054303 |
| 9-11  | .052484  | -.170098 | .207848 | .214316  | -.094842 | -.038460 |
| 12-14 | .037565  | -.035704 | .159266 | .277274  | -.020065 | -.052802 |
| 15-21 | .008116  | -.325335 | .077933 | .008281  | -.013931 | .009589  |
| 22-30 | .038073  | .143060  | .095591 | .141968  | -.013489 | -.037444 |

RUN NO 91A 15M 6-18-63 2150-2300(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.15144<br>10E 00 | 0.59806<br>10E-01 | 0.19134<br>10E-01 | 0.19994<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .268302           | .073937           | -.027076          | .311124           |
| 2  | .001760           | -.069351          | -.023286          | .172428           |
| 3  | .002315           | -.010796          | -.106973          | .059685           |
| 4  | -.103366          | -.076845          | -.084922          | -.002448          |
| 5  | -.066161          | -.005527          | -.066560          | .063412           |
| 6  | .037274           | -.071054          | -.132091          | -.007182          |
| 7  | .048304           | -.076905          | .063163           | -.055486          |
| 8  | -.027660          | -.030226          | .043703           | -.059339          |
| 9  | -.036435          | .026119           | .002207           | -.159929          |
| 10 | -.183171          | .001671           | -.038624          | -.175892          |
| 11 | -.281417          | .004693           | -.109385          | -.215325          |
| 12 | -.161258          | -.087872          | -.090117          | -.210691          |
| 13 | -.122849          | -.125495          | .013179           | -.098006          |
| 14 | -.038799          | -.100280          | .021692           | -.135835          |
| 15 | -.086360          | -.051037          | -.048996          | -.117947          |
| 16 | -.072619          | .009519           | .003682           | -.087577          |
| 17 | -.017914          | .020706           | -.012460          | -.101358          |
| 18 | -.021344          | .115092           | -.014862          | -.076661          |
| 19 | -.011593          | .040905           | -.057790          | -.014606          |
| 20 | .030553           | .055934           | .091364           | .029691           |
| 21 | .081276           | .037363           | .039589           | .104258           |
| 22 | .120831           | -.109074          | .086396           | .042891           |
| 23 | .134414           | .025125           | -.017411          | .052399           |
| 24 | .004803           | -.103736          | -.060826          | .013141           |
| 25 | -.019245          | -.065488          | -.029804          | -.062864          |
| 26 | .106852           | .109148           | -.049480          | .041216           |
| 27 | .114191           | -.010045          | .106374           | .092574           |
| 28 | .045847           | -.062823          | -.010136          | .087097           |
| 29 | .046782           | .055796           | .098666           | .044441           |
| 30 | -.013321          | .031148           | .090041           | -.007487          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-02  | 10E-02  | 10E-03  |
| 0     | .003711 | .026187 | .001079 | .012316 |
| 1     | .068664 | .175095 | .025729 | .160600 |
| 2     | .116648 | .219001 | .046848 | .217040 |
| 3     | .124593 | .283478 | .064323 | .212332 |
| 4     | .063878 | .219342 | .057833 | .116831 |
| 5     | .042366 | .192970 | .064312 | .073614 |
| 6     | .060581 | .331106 | .085854 | .072810 |
| 7     | .092913 | .344332 | .100798 | .076346 |
| 8     | .121907 | .196316 | .117729 | .102504 |
| 9-11  | .073371 | .220670 | .066730 | .083974 |
| 12-14 | .053393 | .285967 | .076811 | .067570 |
| 15-21 | .060929 | .270886 | .078678 | .049506 |
| 22-30 | .047076 | .305793 | .130888 | .083561 |

RUN NO 91A 46M 6-18-63 2150-2300(EST)

GROSS STATISTICS

CLEAR WIND SPEED 5.83 M/SEC SIGMA A 3.90 DEG  
 STABLE WIND DIRECTION 242 DEG SIGMA E 2.2 DEG  
 SOLAR RAD. 0 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.19007E-00             | 0.16132E-00                    | 0.14204E-00                   | 0.78549E-01                        |
| V                | 0.15718E-00             | 0.11372E-00                    | 0.10989E-00                   | 0.34543E-01                        |
| W                | 0.49979E-01             | 0.48872E-01                    | 0.49102E-01                   | 0.12408E-01                        |
| T                | 0.15489E-01             | 0.53164E-02                    | 0.43012E-02                   | 0.29690E-02                        |
| E                | 0.19862E-00             | 0.16196E-00                    | 0.15051E-00                   |                                    |

| <b>GUSTINESS RATIOS</b> |         |         |         |         |
|-------------------------|---------|---------|---------|---------|
| U                       | 0.07478 | 0.06889 | 0.06464 | 0.04807 |
| V                       | 0.06800 | 0.05784 | 0.05686 | 0.03188 |
| W                       | 0.03835 | 0.03792 | 0.03801 | 0.01911 |

| <b>COVARIANCES</b> |              |              |              |              |
|--------------------|--------------|--------------|--------------|--------------|
| U,V                | 0.24866E-01  | 0.19770E-01  | 0.19865E-01  | 0.20509E-02  |
| U,W                | -0.38510E-01 | -0.37073E-01 | -0.37825E-01 | -0.11776E-01 |
| U,T                | 0.11667E-01  | 0.13868E-01  | 0.10003E-01  | 0.85660E-02  |
| V,W                | -0.98286E-02 | -0.94669E-02 | -0.95214E-02 | 0.17592E-02  |
| V,T                | 0.72258E-02  | 0.27957E-02  | 0.33098E-02  | 0.44645E-04  |
| W,T                | -0.46640E-02 | -0.54365E-02 | -0.51513E-02 | -0.20581E-02 |
| WE                 | 0.35350E-02  | 0.47576E-02  | 0.26185E-02  |              |

| <b>NORMALIZED COVARIANCES</b> |          |          |          |          |
|-------------------------------|----------|----------|----------|----------|
| U,V                           | 0.14386  | 0.14597  | 0.15900  | 0.03937  |
| U,W                           | -0.39511 | -0.41753 | -0.45293 | -0.37720 |
| U,T                           | 0.21503  | 0.47356  | 0.40469  | 0.56092  |
| V,W                           | -0.11089 | -0.12699 | -0.12962 | 0.08497  |
| V,T                           | 0.14644  | 0.11370  | 0.15224  | 0.00441  |
| W,T                           | -0.16763 | -0.33727 | -0.35447 | -0.33909 |



RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.12495<br>10E 00 | 0.83523<br>10E-01 | 0.24716<br>10E-01 | 0.73455<br>10E-01 | 0.21736<br>10E-01 | 0.14529<br>10E-01 |
| 0  | .158962           | -.452850          | .404693           | -.129606          | .152098           | -.354303          |
| 1  | .123708           | -.346519          | .365938           | -.061067          | .127037           | -.284524          |
| 2  | .064065           | -.205744          | .278403           | .014897           | .069924           | -.174018          |
| 3  | .019965           | -.091790          | .189565           | .050279           | .016671           | -.098786          |
| 4  | -.014133          | -.015908          | .119451           | .068203           | -.012964          | -.042189          |
| 5  | -.039964          | .024002           | .062231           | .072605           | -.017958          | .001859           |
| 6  | -.055851          | .051349           | .016064           | .072598           | -.022640          | .042340           |
| 7  | -.060407          | .071493           | -.021943          | .058717           | -.023203          | .065011           |
| 8  | -.055127          | .076753           | -.044110          | .043643           | -.020296          | .075790           |
| 9  | -.042471          | .069726           | -.051476          | .018034           | -.010831          | .079582           |
| 10 | -.034987          | .058149           | -.054620          | -.004369          | -.001494          | .065698           |
| 11 | -.035411          | .040673           | -.059718          | -.018637          | .005527           | .045005           |
| 12 | -.030704          | .014120           | -.060705          | -.024483          | .001170           | .037280           |
| 13 | -.024713          | .001166           | -.062083          | -.015786          | -.002194          | .032943           |
| 14 | -.019472          | -.002660          | -.059201          | -.021456          | -.000448          | .018435           |
| 15 | -.012527          | .005812           | -.055590          | -.031030          | -.002593          | .002833           |
| 16 | -.012476          | .031982           | -.057469          | -.037331          | -.009201          | .000605           |
| 17 | -.010350          | .045445           | -.058850          | -.041052          | -.019103          | .002483           |
| 18 | -.004687          | .043439           | -.053306          | -.042231          | -.014320          | .001215           |
| 19 | .011659           | .038428           | -.047739          | -.051148          | -.002207          | .002139           |
| 20 | .036349           | .037319           | -.047569          | -.059841          | .005157           | .001335           |
| 21 | .043839           | .046906           | -.049121          | -.052815          | .005777           | .010850           |
| 22 | .034816           | .060529           | -.059044          | -.041637          | -.000149          | .025828           |
| 23 | .023578           | .071042           | -.074375          | -.023234          | -.007657          | .043953           |
| 24 | .003117           | .083719           | -.080406          | -.001514          | -.017103          | .058148           |
| 25 | -.018724          | .099439           | -.084173          | .019172           | -.028175          | .070028           |
| 26 | -.032108          | .109739           | -.084385          | .036771           | -.034051          | .081286           |
| 27 | -.036408          | .107251           | -.078778          | .038190           | -.031471          | .085511           |
| 28 | -.021000          | .087776           | -.068012          | .026171           | -.026898          | .072699           |
| 29 | .009669           | .064186           | -.053357          | .012516           | -.021441          | .050950           |
| 30 | .034626           | .037488           | -.040505          | .000992           | -.016818          | .026136           |
| 31 | .049542           | .008660           | -.028886          | -.013486          | -.001955          | .003062           |
| 32 | .054698           | -.024202          | -.010063          | -.021208          | .012423           | -.015575          |
| 33 | .058579           | -.042477          | .006005           | -.014312          | .015140           | -.024006          |
| 34 | .062967           | -.049409          | .016100           | .005572           | .001748           | -.021575          |
| 35 | .057514           | -.052815          | .022141           | .020696           | -.009011          | -.020498          |
| 36 | .047656           | -.050350          | .021976           | .021679           | -.013693          | -.017144          |
| 37 | .033254           | -.037865          | .024886           | .021847           | -.021843          | -.003602          |
| 38 | .011418           | -.018694          | .018559           | .029001           | -.025861          | .007753           |
| 39 | -.004062          | -.011185          | .015544           | .028525           | -.025923          | .010229           |
| 40 | -.019551          | -.006165          | .021094           | .022697           | -.023377          | .012448           |
| 41 | -.026045          | -.013001          | .023645           | .017959           | -.024078          | .023139           |
| 42 | -.025241          | -.020673          | .021418           | .003532           | -.012487          | .020814           |
| 43 | -.029896          | -.031557          | .018356           | -.004169          | -.000730          | .012635           |
| 44 | -.036771          | -.032426          | .012234           | -.007640          | -.006671          | .002566           |
| 45 | -.039591          | -.028571          | .008889           | -.015090          | -.013149          | -.009175          |
| 46 | -.039809          | -.030399          | .007324           | -.016818          | -.007253          | -.020587          |
| 47 | -.038687          | -.035738          | .007892           | -.015453          | .000177           | -.030582          |
| 48 | -.036034          | -.046866          | .011725           | -.014384          | .006159           | -.031171          |
| 49 | -.032339          | -.051257          | .018520           | -.005470          | .007746           | -.036424          |
| 50 | -.016577          | -.048732          | .019587           | .009988           | .022467           | -.042028          |
| 51 | -.003110          | -.043544          | .019134           | .004297           | .042949           | -.037492          |
| 52 | .000405           | -.032675          | .015545           | -.001973          | .047278           | -.027251          |
| 53 | .004608           | -.016914          | .004446           | -.011748          | .041380           | -.012107          |
| 54 | .010878           | -.011384          | -.009704          | -.007207          | .029151           | -.001797          |
| 55 | .017606           | -.017232          | -.023836          | -.002215          | .021303           | -.003108          |
| 56 | .015172           | -.019598          | -.032657          | .000701           | .017135           | -.013329          |
| 57 | .003848           | -.011979          | -.037325          | -.002535          | .009783           | -.011479          |
| 58 | -.009048          | .002523           | -.040419          | .003927           | -.002088          | -.012198          |
| 59 | -.017733          | .014258           | -.040926          | .016956           | -.005732          | -.009343          |
| 60 | -.013901          | .020578           | -.041812          | .012230           | -.002061          | -.006381          |

RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,M               | U,T               | V,M               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.12495<br>10E 00 | 0.83523<br>10E-01 | 0.24716<br>10E-01 | 0.73455<br>10E-01 | 0.21736<br>10E-01 | 0.14529<br>10E-01 |
| 1  | .001974           | -.028218          | .086688           | -.010417          | .047968           | -.032231          |
| 2  | .009049           | -.041319          | .118168           | -.020695          | .050949           | -.022024          |
| 3  | .011201           | -.045218          | .119807           | -.023839          | .034615           | -.003573          |
| 4  | .007803           | -.048558          | .117315           | -.018346          | .028018           | -.000787          |
| 5  | -.004928          | -.043268          | .104431           | -.019203          | .022284           | -.004512          |
| 6  | -.020408          | -.035716          | .087290           | -.023163          | .014651           | -.007415          |
| 7  | -.018743          | -.024408          | .071413           | -.018175          | -.007786          | -.009989          |
| 8  | -.003171          | -.011040          | .060782           | .000817           | -.030262          | -.015568          |
| 9  | .005485           | -.002150          | .049424           | .029106           | -.048841          | -.015224          |
| 10 | .010745           | -.000051          | .043423           | .040052           | -.050034          | -.009464          |
| 11 | .010822           | -.003362          | .043014           | .038957           | -.051365          | -.002841          |
| 12 | .009334           | -.012777          | .043189           | .029974           | -.045287          | -.006285          |
| 13 | .013618           | -.017516          | .044087           | .015220           | -.032382          | -.008776          |
| 14 | .011698           | -.012918          | .057690           | .010237           | -.021858          | -.022333          |
| 15 | .019580           | -.007924          | .071230           | .033031           | -.023252          | -.034378          |
| 16 | .033387           | -.009123          | .072430           | .046255           | -.027082          | -.030288          |
| 17 | .030863           | -.009442          | .063717           | .032629           | -.020076          | -.018382          |
| 18 | .010192           | -.015894          | .054492           | .004082           | -.002179          | -.011276          |
| 19 | -.010896          | -.015343          | .045935           | -.017041          | .013323           | .001965           |
| 20 | -.027293          | -.016183          | .042308           | -.026310          | .023338           | .014669           |
| 21 | -.025734          | -.013597          | .041168           | -.019009          | .038194           | .025113           |
| 22 | -.012663          | -.002468          | .035626           | -.010877          | .052770           | .029439           |
| 23 | .002165           | -.001523          | .030202           | -.009680          | .064782           | .029145           |
| 24 | .003442           | -.001240          | .023085           | -.016291          | .070907           | .027420           |
| 25 | -.003547          | -.001398          | .011533           | -.015449          | .069326           | .021383           |
| 26 | -.007927          | -.000919          | .001832           | -.017347          | .057251           | .017907           |
| 27 | -.001819          | -.004101          | -.008735          | -.020680          | .034714           | .019701           |
| 28 | .003855           | .000420           | -.025441          | -.002647          | .008453           | .020661           |
| 29 | .003814           | .010007           | -.046512          | .017136           | -.013504          | .017668           |
| 30 | -.000682          | .016502           | -.071096          | .020210           | -.026766          | .024535           |
| 31 | -.007173          | .015026           | -.087079          | .006254           | -.024936          | .051693           |
| 32 | .000020           | .007119           | -.088597          | .005475           | -.015702          | .066799           |
| 33 | .009540           | -.006750          | -.079504          | -.000119          | -.005171          | .056557           |
| 34 | .008570           | -.016259          | -.064690          | -.003920          | .001423           | .039812           |
| 35 | -.004115          | -.012231          | -.055929          | -.000898          | .005696           | .027110           |
| 36 | -.019538          | -.005271          | -.055296          | -.013776          | .018721           | .015378           |
| 37 | -.035512          | .000551           | -.053824          | -.033539          | .031032           | .008617           |
| 38 | -.037429          | .002876           | -.046432          | -.041951          | .032960           | -.000182          |
| 39 | -.024938          | .006077           | -.041790          | -.032024          | .024258           | -.011345          |
| 40 | -.015166          | .007367           | -.037075          | -.017032          | .013574           | -.017863          |
| 41 | -.020108          | .012904           | -.026084          | -.015110          | .000370           | -.023356          |
| 42 | -.026193          | .018315           | -.013582          | -.017639          | -.004103          | -.033266          |
| 43 | -.017133          | .012246           | .000907           | -.016928          | -.007876          | -.030066          |
| 44 | .003930           | .001515           | .008305           | -.002298          | -.019481          | -.022697          |
| 45 | .022658           | -.005107          | .009476           | .015575           | -.036567          | -.012419          |
| 46 | .032840           | -.002921          | .009986           | .034505           | -.045100          | -.005340          |
| 47 | .037315           | -.001390          | .014681           | .049061           | -.051293          | -.015512          |
| 48 | .037418           | .001541           | .021794           | .053698           | -.049485          | -.040079          |
| 49 | .037021           | .005709           | .025836           | .048198           | -.043444          | -.052446          |
| 50 | .016840           | .016491           | .023981           | .025297           | -.033636          | -.050173          |
| 51 | .007379           | .013032           | .026289           | .017787           | -.020214          | -.053535          |
| 52 | .011601           | .009444           | .022605           | .026993           | -.013155          | -.055621          |
| 53 | .011396           | .008822           | .016109           | .022305           | -.001290          | -.049779          |
| 54 | -.000459          | .013474           | .012265           | .001987           | .011229           | -.035332          |
| 55 | -.013623          | .014057           | .017563           | -.020921          | .017076           | -.020718          |
| 56 | -.010476          | .000678           | .029553           | -.028356          | .018488           | -.021152          |
| 57 | -.012417          | -.002160          | .041804           | -.022339          | .022931           | -.022827          |
| 58 | -.009129          | -.004172          | .042003           | -.024399          | .034344           | -.017268          |
| 59 | -.001119          | -.002370          | .041560           | -.022218          | .037618           | -.020782          |
| 60 | .005805           | .005442           | .034999           | -.009797          | .028506           | -.020903          |

RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.14208<br>10E 00 | 0.10989<br>10E 00 | 0.49100<br>10E-01 | 0.42995<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .789256           | .665051           | .633787           | .814485           |
| 2  | .532336           | .314015           | .282842           | .574378           |
| 3  | .344603           | .136620           | .105107           | .387063           |
| 4  | .207360           | .054686           | .011445           | .262833           |
| 5  | .105838           | .029479           | -.041803          | .163927           |
| 6  | .023075           | -.008167          | -.099045          | .084411           |
| 7  | -.041120          | -.042125          | -.124825          | .029497           |
| 8  | -.070701          | -.074157          | -.122878          | -.016901          |
| 9  | -.079065          | -.093421          | -.094364          | -.048755          |
| 10 | -.082361          | -.100690          | -.074688          | -.070710          |
| 11 | -.086827          | -.102573          | -.053876          | -.086554          |
| 12 | -.101299          | -.106563          | -.029579          | -.109975          |
| 13 | -.108272          | -.113038          | -.021174          | -.124721          |
| 14 | -.107903          | -.128222          | -.008611          | -.129194          |
| 15 | -.110083          | -.148409          | -.028131          | -.138329          |
| 16 | -.128065          | -.138287          | -.073778          | -.150006          |
| 17 | -.147621          | -.119482          | -.094395          | -.159171          |
| 18 | -.148237          | -.117775          | -.093915          | -.161650          |
| 19 | -.143501          | -.126945          | -.079865          | -.159537          |
| 20 | -.139189          | -.122478          | -.064312          | -.157900          |
| 21 | -.151463          | -.102525          | -.084294          | -.156879          |
| 22 | -.159088          | -.095720          | -.101738          | -.164401          |
| 23 | -.161469          | -.087132          | -.110673          | -.176245          |
| 24 | -.166168          | -.099732          | -.123996          | -.184247          |
| 25 | -.177834          | -.101661          | -.146672          | -.185361          |
| 26 | -.186491          | -.103380          | -.156710          | -.186222          |
| 27 | -.180960          | -.099956          | -.133017          | -.189691          |
| 28 | -.162846          | -.079985          | -.098561          | -.183074          |
| 29 | -.146256          | -.061290          | -.076811          | -.158231          |
| 30 | -.114306          | -.017978          | -.044604          | -.125793          |
| 31 | -.070512          | .053019           | .005382           | -.087641          |
| 32 | -.031286          | .091443           | .055764           | -.052262          |
| 33 | .007413           | .107901           | .054390           | -.027496          |
| 34 | .030053           | .097465           | .036152           | -.007241          |
| 35 | .036698           | .086592           | .040387           | .010397           |
| 36 | .037239           | .086596           | .054426           | .025805           |
| 37 | .032206           | .094264           | .039450           | .033624           |
| 38 | .027365           | .093860           | .022954           | .034962           |
| 39 | .028682           | .071598           | .012051           | .036191           |
| 40 | .029197           | .053170           | .014447           | .049381           |
| 41 | .038395           | .053104           | .019796           | .053590           |
| 42 | .052992           | .047924           | .018327           | .051507           |
| 43 | .061145           | .013304           | .030747           | .045158           |
| 44 | .046524           | -.031821          | .042240           | .037318           |
| 45 | .031706           | -.054347          | .050619           | .038381           |
| 46 | .024689           | -.059051          | .038551           | .037422           |
| 47 | .023229           | -.052662          | .036193           | .030465           |
| 48 | .020855           | -.053145          | .045380           | .019337           |
| 49 | .023741           | -.043122          | .040492           | .014845           |
| 50 | .024326           | -.024316          | .040963           | .020736           |
| 51 | .034950           | -.014769          | .044103           | .025017           |
| 52 | .031702           | -.013214          | .043396           | .012999           |
| 53 | .028288           | .001132           | .021363           | -.001799          |
| 54 | .026635           | .018156           | .010089           | -.012071          |
| 55 | .020825           | .018380           | .018603           | -.014522          |
| 56 | .009188           | .009427           | .030227           | -.017160          |
| 57 | -.004703          | .009111           | .021721           | -.022057          |
| 58 | -.015422          | .019423           | .008511           | -.022360          |
| 59 | -.022107          | .011869           | -.000637          | -.024982          |
| 60 | -.024300          | .006206           | .011820           | -.032965          |

RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02  | 10E-02   | 10E-03   | 10E-03   |
| 0     | .006470  | -.002529 | .009467 | -.000955 | .008243  | -.012768 |
| 1     | -.029373 | -.119906 | .082224 | .011839  | .194553  | -.239256 |
| 2     | -.045412 | -.276446 | .117322 | .049713  | .240163  | -.379029 |
| 3     | .077579  | -.359755 | .143521 | .101517  | .193723  | -.431937 |
| 4     | .190024  | -.222988 | .107740 | .076942  | .167369  | -.343411 |
| 5     | .150716  | -.163186 | .083440 | -.009528 | .177572  | -.350471 |
| 6     | .219600  | -.273460 | .091864 | -.076928 | .206185  | -.492015 |
| 7-8   | .207395  | -.325856 | .073850 | -.101552 | .253251  | -.498562 |
| 9-11  | .128576  | -.210362 | .037556 | -.076337 | .226649  | -.227453 |
| 12-15 | .062604  | -.091633 | .018250 | -.057262 | .126306  | -.115169 |
| 16-20 | .035681  | -.083521 | .008999 | -.029700 | .079552  | -.076837 |
| 21-27 | .023414  | -.039961 | .005600 | -.027891 | .042920  | -.057373 |
| 28-36 | .013068  | -.017311 | .000900 | -.017029 | -.001219 | -.033905 |
| 37-47 | .005321  | -.014771 | .000246 | -.009162 | .001314  | -.012540 |
| 48-60 | .001247  | -.009735 | .000059 | -.005761 | -.000592 | -.003199 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-03   | 10E-03   | 10E-03   | 10E-03   | 10E-03   | 10E-03   |
| 1     | -.013170 | -.575157 | .426155  | .080398  | .098202  | .090489  |
| 2     | .336169  | -.632910 | .796043  | .304590  | -.043115 | -.032494 |
| 3     | .414507  | -.594346 | .833432  | .424565  | -.257872 | -.175083 |
| 4     | -.066757 | -.460908 | .262301  | .056820  | -.212312 | -.062972 |
| 5     | -.088607 | -.375270 | .127687  | -.165016 | .011133  | .053235  |
| 6     | -.403038 | -.419079 | .396080  | -.615236 | .288009  | -.020600 |
| 7-8   | -.379775 | -.621589 | .386297  | -.651164 | .279731  | .009836  |
| 9-11  | .430953  | -.414150 | .299528  | -.117549 | .135772  | -.050911 |
| 12-15 | .119317  | -.147638 | .105946  | .000545  | .033960  | .005836  |
| 16-20 | .077290  | .017485  | .081588  | -.005389 | .036186  | -.038073 |
| 21-27 | -.110471 | -.052052 | .045684  | -.030617 | .050134  | -.023602 |
| 28-36 | .018482  | -.029230 | .030999  | .031790  | .023462  | -.019927 |
| 37-47 | -.021711 | -.013514 | .008218  | .006267  | .008103  | -.004454 |
| 48-60 | -.000112 | .007835  | -.001450 | -.000357 | -.003051 | -.000174 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-02  | 10E-03  |
| 0     | .007408 | .002259 | .004521 | .036330 |
| 1     | .097137 | .030624 | .135057 | .371276 |
| 2     | .149814 | .062379 | .272542 | .521277 |
| 3     | .177220 | .104419 | .359339 | .592088 |
| 4     | .124318 | .091020 | .257580 | .404858 |
| 5     | .090338 | .056197 | .192350 | .288963 |
| 6     | .099507 | .059962 | .259664 | .298600 |
| 7-8   | .087111 | .054592 | .316793 | .230496 |
| 9-11  | .058025 | .042019 | .239238 | .150594 |
| 12-15 | .031059 | .032181 | .133435 | .091417 |
| 16-20 | .019307 | .026973 | .115810 | .058910 |
| 21-27 | .014762 | .019307 | .089999 | .038087 |
| 28-36 | .007714 | .011285 | .054279 | .021623 |
| 37-47 | .005435 | .007340 | .036790 | .010690 |
| 48-60 | .003197 | .004285 | .025224 | .009168 |

RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.52091<br>10E-01 | 0.31205<br>10E-01 | 0.15274<br>10E-01 | 0.20696<br>10E-01 | 0.10130<br>10E-01 | 0.60684<br>10E-02 |
| 0  | .039371           | -.377378          | .560829           | .085000           | .004407           | -.339157          |
| 1  | -.063996          | .000839           | .218478           | .004914           | -.018380          | -.032094          |
| 2  | .013816           | .053527           | .099115           | -.056675          | .001584           | .003608           |
| 3  | .009283           | .067028           | .019170           | .057695           | -.044406          | .059695           |
| 4  | -.021501          | -.047844          | .032006           | .073919           | -.010885          | .017002           |
| 5  | -.019666          | -.014532          | -.060942          | -.012489          | .036759           | -.001973          |
| 6  | -.016526          | .061255           | -.113721          | .001995           | .014074           | .020754           |
| 7  | .036891           | .040798           | -.062441          | .028961           | .045618           | .029519           |
| 8  | .040844           | .024101           | -.114780          | -.093536          | .059543           | .103683           |
| 9  | .037311           | -.051917          | -.091227          | -.032232          | .039812           | -.002377          |
| 10 | -.013291          | .073155           | -.126775          | .067919           | .024287           | .066078           |
| 11 | .045629           | .088127           | -.127594          | -.080290          | .047437           | .067578           |
| 12 | .032274           | .002369           | -.101768          | -.076118          | -.013343          | .093601           |
| 13 | .026591           | -.009087          | -.074725          | .011509           | -.013127          | .054829           |
| 14 | .017344           | -.094775          | -.047070          | -.025194          | -.015744          | -.041120          |
| 15 | .004045           | .024121           | -.023157          | .027485           | -.062272          | -.070485          |
| 16 | -.047584          | .037975           | .042118           | .001585           | -.083755          | -.081119          |
| 17 | -.059103          | -.000026          | .067011           | .052103           | -.034385          | -.061209          |
| 18 | -.080333          | -.084190          | .120485           | -.044906          | -.052314          | -.062934          |
| 19 | -.018634          | -.041282          | .078555           | -.069772          | -.040056          | -.037183          |
| 20 | .011769           | -.055351          | .108598           | .035725           | -.028600          | -.049521          |
| 21 | -.063320          | -.066556          | .110571           | .072471           | -.081153          | -.076668          |
| 22 | -.004032          | -.030409          | .052280           | -.038031          | -.015503          | -.031412          |
| 23 | .043982           | .016313           | .021305           | -.058294          | .064739           | .050144           |
| 24 | -.024597          | .168091           | -.081038          | .031771           | .031340           | .131280           |
| 25 | -.017914          | .025627           | -.055135          | .038998           | .005625           | .040177           |
| 26 | .011812           | .034536           | -.101944          | -.036130          | .046506           | .003203           |
| 27 | .048392           | .042677           | -.053747          | .008495           | .118763           | .004895           |
| 28 | -.032277          | .014390           | -.112656          | .025530           | .104772           | .053584           |
| 29 | -.017244          | .039558           | -.099874          | .024834           | .034389           | .054581           |
| 30 | .032563           | -.004327          | -.060148          | .064557           | .004200           | .005516           |

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-03   | 10E-02   | 10E-02  | 10E-03   | 10E-03   | 10E-03   |
| 0     | .010614  | -.002145 | .004182 | -.012843 | .001428  | .006726  |
| 1     | .208295  | -.002919 | .032474 | .095438  | .099919  | .033280  |
| 2     | -.167682 | -.017399 | .071489 | .204005  | .042692  | -.047916 |
| 3     | -.726236 | -.060415 | .123630 | .232582  | -.166771 | -.196954 |
| 4     | -.349668 | -.051837 | .087160 | .101879  | -.181570 | -.163191 |
| 5     | .332082  | -.024582 | .040776 | -.084366 | -.013269 | -.019687 |
| 6     | .189364  | -.034844 | .047448 | -.161307 | .046994  | -.038124 |
| 7     | -.080681 | -.025500 | .045370 | -.089726 | .052014  | -.106508 |
| 8     | .144835  | -.044706 | .036146 | -.028351 | .032830  | -.132529 |
| 9-11  | -.147357 | -.041450 | .026376 | -.032173 | .037396  | -.092391 |
| 12-14 | -.247281 | -.104355 | .029659 | .197647  | .015544  | -.126007 |
| 15-21 | .240277  | -.049388 | .024622 | .250784  | -.035597 | -.065189 |
| 22-30 | .523999  | -.063420 | .025429 | -.037234 | .046121  | -.108088 |

RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.52091<br>10E-01 | 0.31205<br>10E-01 | 0.15274<br>10E-01 | 0.20696<br>10E-01 | 0.10130<br>10E-01 | 0.60684<br>10E-02 |
| 1  | -.008854          | -.075004          | .108150           | .063033           | -.003934          | -.004263          |
| 2  | .011970           | -.023307          | .087837           | .023285           | .039762           | .031564           |
| 3  | -.074088          | -.058120          | .008929           | -.052786          | .069623           | .081542           |
| 4  | -.021329          | -.040438          | -.003701          | .029207           | .039745           | .029840           |
| 5  | .001874           | .011575           | -.002607          | .066754           | .040001           | -.020133          |
| 6  | -.038852          | -.028058          | .021849           | -.026339          | .048717           | .033690           |
| 7  | -.029800          | -.011932          | -.043548          | .034115           | .002243           | .105969           |
| 8  | .000256           | -.050971          | -.001730          | -.031088          | .072390           | .061147           |
| 9  | -.015267          | .001717           | .002499           | .012252           | .079538           | -.001467          |
| 10 | -.014839          | .049942           | .022615           | .014494           | .033928           | -.060935          |
| 11 | .065414           | -.004747          | -.025254          | .001609           | -.040432          | -.005510          |
| 12 | .034201           | -.000144          | -.052707          | -.027536          | .031672           | .047946           |
| 13 | -.017365          | .052369           | -.040547          | -.015896          | .072025           | .013978           |
| 14 | .038391           | .107903           | -.031554          | .037487           | -.034682          | -.062454          |
| 15 | .050053           | .065517           | .013376           | -.004379          | -.036723          | -.070529          |
| 16 | -.001370          | .056269           | .048989           | -.000995          | -.003425          | -.066561          |
| 17 | .008975           | -.013677          | -.012024          | -.006480          | -.006597          | -.016587          |
| 18 | .011828           | -.028726          | -.046882          | -.017542          | -.038777          | .034565           |
| 19 | .045643           | .034844           | .023668           | -.001009          | -.079472          | -.004608          |
| 20 | .016732           | -.040659          | .026228           | -.037310          | -.062148          | .017008           |
| 21 | -.103745          | -.018549          | .017258           | .017782           | -.007602          | -.012367          |
| 22 | -.068028          | -.044443          | .033647           | .029109           | -.003529          | .008812           |
| 23 | .014878           | -.087824          | .029907           | .017624           | .011564           | .064304           |
| 24 | -.065769          | -.032101          | .017100           | -.015279          | .093991           | .040786           |
| 25 | -.088974          | -.044014          | -.001969          | .041900           | .094956           | .006089           |
| 26 | -.025151          | -.001232          | -.027232          | -.007439          | .077307           | .008523           |
| 27 | -.025674          | .023812           | -.041516          | .014718           | .051418           | .005228           |
| 28 | .017862           | -.018791          | -.026457          | .087500           | -.051363          | -.004681          |
| 29 | .016380           | -.033557          | -.037488          | -.067591          | -.010252          | -.000622          |
| 30 | .076467           | .024313           | -.010224          | .009453           | -.007762          | -.012857          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-03   | 10E-03   | 10E-03   | 10E-03   | 10E-03   | 10E-03   |
| 1     | .026951  | .174297  | -.049033 | .057731  | .182257  | .039745  |
| 2     | -.213297 | -.138616 | -.009467 | .078352  | .223053  | .078406  |
| 3     | -.799480 | -.665541 | .129640  | .114016  | .194214  | .124801  |
| 4     | -.499795 | -.457353 | .188669  | .077711  | .022454  | .061260  |
| 5     | -.059742 | .011316  | .124744  | .074499  | .030978  | -.009551 |
| 6     | -.037738 | -.092935 | .122744  | .047277  | .045538  | .001794  |
| 7     | .103747  | -.301762 | .158955  | -.025344 | .008002  | .011893  |
| 8     | -.025901 | -.295670 | .252577  | .002937  | .054732  | -.008765 |
| 9-11  | -.054468 | -.204845 | .139637  | .007135  | .015330  | .064084  |
| 12-14 | .254641  | .080116  | .218387  | .215229  | -.084012 | -.076908 |
| 15-21 | -.000231 | -.154764 | .047975  | .174386  | -.020631 | -.015003 |
| 22-30 | -.259886 | -.136975 | -.020553 | -.049966 | .000416  | .009057  |

RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.78541<br>10E-01 | 0.34549<br>10E-01 | 0.12398<br>10E-01 | 0.29703<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .278314           | .049391           | -.046069          | .403515           |
| 2  | .024428           | -.100390          | -.138235          | .128026           |
| 3  | -.073967          | .076729           | -.063608          | .009905           |
| 4  | -.025735          | .060336           | -.016022          | .012486           |
| 5  | -.096589          | -.080777          | .096441           | -.106416          |
| 6  | -.106817          | -.064682          | -.013839          | -.148248          |
| 7  | -.058958          | -.063118          | -.058825          | -.119009          |
| 8  | -.067377          | -.015934          | -.094871          | -.191526          |
| 9  | -.078813          | .102515           | .031502           | -.142438          |
| 10 | -.147933          | -.099747          | -.040120          | -.220517          |
| 11 | -.109982          | -.077311          | -.008524          | -.181649          |
| 12 | -.107289          | .020933           | -.072459          | -.211085          |
| 13 | -.060565          | -.064471          | -.065168          | -.096849          |
| 14 | .022352           | -.118543          | .010164           | -.064379          |
| 15 | -.121672          | -.033369          | -.042827          | .072957           |
| 16 | -.100535          | -.051448          | .045770           | .154462           |
| 17 | .006762           | .051739           | .080593           | .145097           |
| 18 | .190537           | .032974           | -.038889          | .118341           |
| 19 | .091299           | .025940           | -.152661          | .124499           |
| 20 | .092844           | .048392           | .094843           | .145074           |
| 21 | .074203           | .113604           | .117198           | .082349           |
| 22 | .087586           | -.024318          | .023963           | .054126           |
| 23 | -.010628          | -.029674          | -.003107          | .011556           |
| 24 | -.153423          | .000859           | -.111550          | -.098027          |
| 25 | -.063968          | -.072080          | .035308           | -.132546          |
| 26 | -.069458          | -.112718          | .027919           | -.142267          |
| 27 | .029227           | -.019521          | -.011530          | -.065026          |
| 28 | -.028787          | .006455           | -.010681          | -.119688          |
| 29 | -.024003          | .023592           | -.115681          | -.154226          |
| 30 | -.033569          | .057083           | .051457           | -.116003          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-02  | 10E-02  | 10E-03  | 10E-03  |
| 0     | .022257 | .029877 | .022467 | .019025 |
| 1     | .245853 | .142448 | .227585 | .113020 |
| 2     | .446960 | .142953 | .349791 | .215859 |
| 3     | .671214 | .168122 | .455409 | .392621 |
| 4     | .509739 | .119178 | .335853 | .314876 |
| 5     | .373615 | .108700 | .225350 | .142808 |
| 6     | .482055 | .158906 | .255625 | .141177 |
| 7     | .428212 | .140453 | .362879 | .176364 |
| 8     | .387036 | .097441 | .480110 | .164492 |
| 9-11  | .365072 | .087467 | .542397 | .106982 |
| 12-14 | .346756 | .166676 | .777794 | .108761 |
| 15-21 | .264323 | .209809 | .583774 | .088614 |
| 22-30 | .270385 | .151230 | .744176 | .075992 |

RUN NO 91A 15M 6-18-63 2150-2300(EST)  
 RUN NO 91A 46M 6-18-63 2150-2300(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .228117 | .156445 | .066822 | .130381 |
| 1     | .191228 | .164118 | .218592 | .172631 |
| 2     | .078920 | .051612 | .221347 | .262339 |
| 3     | .082991 | .162476 | .247704 | .315480 |
| 4     | .071006 | .191426 | .222293 | .214992 |
| 5     | .063932 | .108974 | .245804 | .028472 |
| 6     | .052838 | .046555 | .286635 | .074116 |
| 7-8   | .112845 | .100558 | .102781 | .159042 |
| 9-11  | .159465 | .133772 | .061915 | .048275 |
| 12-15 | .106439 | .054613 | .031287 | .086740 |
| 16-20 | .078999 | .080356 | .123578 | .074421 |
| 21-27 | .162743 | .102558 | .114215 | .139901 |
| 28-36 | .099353 | .099046 | .076374 | .120097 |
| 37-47 | .096628 | .083429 | .103648 | .123858 |
| 48-60 | .101151 | .104429 | .123348 | .102538 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .533800 | .843850 | .157589 | .070843 |
| 1     | .255563 | .745111 | .183485 | .070785 |
| 2     | .135079 | .592045 | .095100 | .101989 |
| 3     | .033311 | .376123 | .261731 | .277696 |
| 4     | .270599 | .122267 | .304583 | .425678 |
| 5     | .119112 | .215511 | .412584 | .072709 |
| 6     | .381563 | .302792 | .378367 | .285958 |
| 7     | .091800 | .303139 | .298969 | .086204 |
| 8     | .577235 | .184595 | .273835 | .490308 |
| 9-11  | .388156 | .131763 | .339233 | .420453 |
| 12-14 | .254353 | .213675 | .234756 | .544732 |
| 15-21 | .214018 | .263513 | .256909 | .228465 |
| 22-30 | .272303 | .277497 | .367498 | .173109 |



RUN NO 918 46M 6-18-63 2306-0010(EST)

GROSS STATISTICS

CLEAR WIND SPEED 6.00 M/SEC SIGMA A 3.70 DEG  
 STABLE WIND DIRECTION 238 DEG SIGMA E 1.4 DEG  
 SOLAR RAD. 0 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.18508E-00             | 0.83749E-01                    | 0.79184E-01                   | 0.37133E-01                        |
| V                | 0.14439E-00             | 0.71072E-01                    | 0.62722E-01                   | 0.28790E-01                        |
| W                | 0.21782E-01             | 0.20196E-01                    | 0.20597E-01                   | 0.44192E-02                        |
| T                | 0.19164E-01             | 0.72531E-02                    | 0.61527E-02                   | 0.47555E-02                        |
| E                | 0.17563E-00             | 0.87525E-01                    | 0.81252E-01                   |                                    |

|                         |         |         |         |         |
|-------------------------|---------|---------|---------|---------|
| <b>GUSTINESS RATIOS</b> |         |         |         |         |
| U                       | 0.07170 | 0.04623 | 0.04690 | 0.03212 |
| V                       | 0.06333 | 0.04443 | 0.04174 | 0.02828 |
| W                       | 0.02460 | 0.02369 | 0.02392 | 0.01108 |

|                    |              |              |              |              |
|--------------------|--------------|--------------|--------------|--------------|
| <b>COVARIANCES</b> |              |              |              |              |
| U,V                | 0.28489E-01  | 0.18489E-01  | 0.15459E-01  | 0.78746E-02  |
| U,W                | -0.17750E-01 | -0.15448E-01 | -0.16864E-01 | -0.40732E-02 |
| U,T                | 0.76361E-02  | 0.12076E-01  | 0.10705E-01  | 0.78369E-02  |
| V,W                | -0.36005E-02 | -0.71182E-02 | -0.72028E-02 | -0.10612E-02 |
| V,T                | 0.56739E-02  | 0.62839E-02  | 0.42555E-02  | 0.34186E-02  |
| W,T                | -0.44889E-02 | -0.33374E-02 | -0.38690E-02 | -0.10908E-02 |
| WE                 | 0.33843E-03  | 0.12856E-02  | 0.10764E-02  |              |

|                               |          |          |          |          |
|-------------------------------|----------|----------|----------|----------|
| <b>NORMALIZED COVARIANCES</b> |          |          |          |          |
| U,V                           | 0.17427  | 0.23965  | 0.21935  | 0.24084  |
| U,W                           | -0.27955 | -0.37562 | -0.41757 | -0.31796 |
| U,T                           | 0.12822  | 0.48997  | 0.48498  | 0.58975  |
| V,W                           | -0.06420 | -0.18788 | -0.20040 | -0.09408 |
| V,T                           | 0.10786  | 0.27677  | 0.21662  | 0.29216  |
| W,T                           | -0.21971 | -0.27575 | -0.34369 | -0.23794 |

RUN NO 918 46W 6-18-63 2306-0010(EST)  
 61 PCINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.70480<br>10E-01 | 0.40380<br>10E-01 | 0.22071<br>10E-01 | 0.35947<br>10E-01 | 0.19647<br>10E-01 | 0.11257<br>10E-01 |
| 0  | .219109           | -.417626          | .485026           | -.200518          | .216408           | -.343815          |
| 1  | .162895           | -.277873          | .434724           | -.093267          | .169405           | -.265036          |
| 2  | .078583           | -.122041          | .342188           | .023227           | .094693           | -.149808          |
| 3  | .028187           | -.036932          | .254474           | .041151           | .045864           | -.072113          |
| 4  | .003203           | -.001580          | .184833           | .025943           | .014207           | -.032924          |
| 5  | -.007924          | .012081           | .137905           | .020101           | .003154           | -.008661          |
| 6  | -.015335          | .016745           | .102415           | .011993           | -.004926          | -.006961          |
| 7  | -.021463          | .023919           | .074558           | .016546           | -.008573          | -.005927          |
| 8  | -.022462          | .025918           | .049682           | .040335           | -.010469          | .000232           |
| 9  | -.014338          | .027094           | .027185           | .026317           | -.003136          | .007871           |
| 10 | -.014936          | .021113           | .004800           | .012147           | .006543           | .015706           |
| 11 | -.005047          | .016806           | -.012588          | .001121           | .010268           | .020856           |
| 12 | .010174           | .023981           | -.029304          | -.011790          | .007158           | .030081           |
| 13 | .006974           | .032046           | -.049529          | -.014926          | .004549           | .038920           |
| 14 | -.003336          | .031365           | -.070367          | -.006433          | .005119           | .038611           |
| 15 | -.006545          | .018978           | -.090634          | -.012492          | .002605           | .042299           |
| 16 | -.003924          | .008668           | -.108127          | -.025237          | .001190           | .038080           |
| 17 | -.006607          | .011434           | -.121494          | -.012033          | -.009583          | .037540           |
| 18 | -.021478          | .010262           | -.125687          | .005733           | -.012651          | .032965           |
| 19 | -.015595          | .013869           | -.128329          | -.009139          | .005533           | .036537           |
| 20 | -.010001          | .033350           | -.132927          | -.022698          | .000266           | .039240           |
| 21 | -.004573          | .044396           | -.137761          | -.029993          | -.004969          | .043853           |
| 22 | -.004415          | .065239           | -.148613          | -.020998          | -.021011          | .058812           |
| 23 | -.016368          | .076564           | -.157538          | -.002098          | -.037368          | .077949           |
| 24 | -.030738          | .071340           | -.161200          | .010707           | -.053843          | .087293           |
| 25 | -.044254          | .060872           | -.156612          | .025497           | -.060619          | .095184           |
| 26 | -.046945          | .061930           | -.148299          | .022326           | -.058623          | .090950           |
| 27 | -.038288          | .054236           | -.131563          | .017645           | -.045005          | .070777           |
| 28 | -.038737          | .045051           | -.111120          | .002093           | -.030949          | .055425           |
| 29 | -.043756          | .040421           | -.097221          | .034513           | -.026253          | .047155           |
| 30 | -.042346          | .023125           | -.043623          | .027648           | -.026698          | .043501           |
| 31 | -.013598          | .012658           | -.070106          | .009946           | -.030942          | .026449           |
| 32 | -.035002          | .009504           | -.058176          | .005042           | -.040755          | .006989           |
|    | -.039138          | .005777           | -.044074          | .014425           | -.055640          | .001652           |
|    | -.028163          | -.002661          | -.026488          | .014854           | -.056779          | -.009307          |
| 35 | -.021101          | -.016453          | -.012231          | .017713           | -.053682          | -.013107          |
| 36 | -.023200          | -.021756          | .002983           | .026635           | -.052859          | -.011222          |
| 37 | -.011910          | -.033741          | .017185           | .012753           | -.042643          | -.025543          |
| 38 | -.001926          | -.032157          | .021761           | .002209           | -.034261          | -.042574          |
| 39 | .014973           | -.022294          | .029141           | .003380           | -.030094          | -.044750          |
| 40 | .031876           | -.013081          | .037974           | .005438           | -.022984          | -.041152          |
| 41 | .039072           | -.003631          | .037627           | -.011785          | -.003840          | -.035824          |
| 42 | .043223           | -.005665          | .040392           | -.040530          | .012009           | -.037554          |
| 43 | .042335           | -.008139          | .049609           | -.039108          | .018519           | -.030758          |
| 44 | .029221           | -.014388          | .049513           | -.012322          | .019980           | -.023997          |
| 45 | .017101           | -.010479          | .031101           | .016605           | .020307           | -.012022          |
| 46 | .003365           | .007056           | .012053           | .029231           | .021030           | .004512           |
| 47 | -.003895          | .015201           | -.004173          | .027212           | .018049           | .014308           |
| 48 | -.004950          | .009712           | -.012948          | .014770           | .018134           | .013418           |
| 49 | -.002054          | .001441           | -.009542          | .002170           | .028002           | .008439           |
| 50 | .001851           | .001467           | .003546           | .006008           | .039605           | .004531           |
| 51 | .010154           | .006975           | .010850           | -.000701          | .040050           | .006234           |
| 52 | .013493           | .004175           | .009880           | -.004495          | .032094           | .011126           |
| 53 | .020478           | .004989           | .007519           | -.006561          | .031411           | .013481           |
| 54 | .025837           | .007302           | .007592           | -.007836          | .043028           | .011243           |
| 55 | .031211           | .009041           | .009734           | -.040081          | .055248           | .008911           |
| 56 | .027858           | .001102           | .012931           | -.043610          | .059681           | .002718           |
| 57 | .019609           | .005967           | .016507           | -.019550          | .050744           | -.000965          |
| 58 | .021780           | .001951           | .025902           | -.014045          | .046837           | -.015066          |
| 59 | .034345           | -.027851          | .037562           | -.028725          | .046411           | -.037981          |
| 60 | .034815           | -.040836          | .036161           | -.035640          | .036867           | -.042470          |

RUN NC 91B 46M 6-18-63 2306-0010(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.70480<br>10E-01 | 0.40380<br>10E-01 | 0.22071<br>10E-01 | 0.35947<br>10E-01 | 0.19647<br>10E-01 | 0.11257<br>10E-01 |
| 1  | -.031179          | -.024197          | .068714           | -.083204          | .057171           | -.008490          |
| 2  | -.041353          | -.034776          | .093379           | -.103501          | .065122           | -.019624          |
| 3  | -.037183          | -.022298          | .098562           | -.094551          | .056513           | .034051           |
| 4  | -.027224          | -.018425          | .093917           | -.078477          | .054657           | .035123           |
| 5  | -.020513          | -.019716          | .089169           | -.061200          | .047396           | .035294           |
| 6  | -.024666          | -.011834          | .080683           | -.046431          | .044353           | .035784           |
| 7  | -.045882          | .002005           | .068314           | -.050836          | .045146           | .035368           |
| 8  | -.063872          | .018752           | .057097           | -.058060          | .053755           | .032671           |
| 9  | -.076179          | .020143           | .050090           | -.066163          | .064852           | .034777           |
| 10 | -.079192          | .013289           | .047557           | -.070674          | .071170           | .040828           |
| 11 | -.060416          | .001752           | .050586           | -.061549          | .066981           | .046411           |
| 12 | -.034400          | -.009334          | .060336           | -.044947          | .058811           | .047183           |
| 13 | -.014254          | -.020625          | .076249           | -.041368          | .048272           | .037139           |
| 14 | -.006516          | -.025937          | .084605           | -.036879          | .035996           | .032643           |
| 15 | -.007552          | -.018628          | .081765           | -.023429          | .029142           | .021211           |
| 16 | .004041           | -.016615          | .075259           | -.013936          | .032070           | .010894           |
| 17 | .012669           | -.025364          | .060852           | -.023266          | .038842           | .010080           |
| 18 | .009669           | -.026732          | .041072           | -.031809          | .040079           | .007674           |
| 19 | -.001278          | -.017784          | .024286           | -.030017          | .032064           | .002316           |
| 20 | -.017661          | -.000796          | .013559           | -.019613          | .022669           | -.002105          |
| 21 | -.025463          | .009126           | .005858           | -.014944          | .008023           | .001683           |
| 22 | -.010977          | -.003221          | .007336           | -.006120          | -.007336          | .009281           |
| 23 | .009329           | -.014355          | .012686           | -.003158          | -.015660          | .009682           |
| 24 | .025899           | -.013801          | .013640           | .003404           | -.021457          | -.004950          |
| 25 | .035079           | .002418           | .011910           | .022945           | -.028263          | -.020792          |
| 26 | .035881           | .007875           | .007745           | .036323           | -.032729          | -.037794          |
| 27 | .043727           | .004398           | .003322           | .047437           | -.041858          | -.043607          |
| 28 | .054025           | -.003836          | -.001123          | .064434           | -.054386          | -.037640          |
| 29 | .065257           | -.003676          | -.006371          | .065101           | -.067182          | -.028235          |
| 30 | .079776           | .000885           | -.015250          | .068545           | -.079004          | -.017322          |
| 31 | .081644           | .010284           | -.025430          | .069437           | -.081303          | -.012843          |
| 32 | .076139           | .018870           | -.036052          | .068109           | -.080628          | -.021801          |
| 33 | .080351           | .018294           | -.040777          | .060603           | -.082238          | -.028599          |
| 34 | .068664           | .024074           | -.042003          | .044665           | -.080046          | -.029407          |
| 35 | .041098           | .028958           | -.043640          | .023557           | -.064548          | -.023278          |
| 36 | .018453           | .025407           | -.039190          | .012405           | -.048143          | -.017448          |
| 37 | .013454           | .014212           | -.032876          | .025402           | -.037946          | -.015139          |
| 38 | .008272           | .000980           | -.029648          | .021210           | -.021649          | -.011759          |
| 39 | -.004434          | .008752           | -.032199          | .012145           | -.009506          | -.011924          |
| 40 | -.027466          | .017210           | -.035626          | -.006309          | .008769           | -.006973          |
| 41 | -.039425          | .021766           | -.035350          | -.021271          | .022466           | .003431           |
| 42 | -.028072          | .012680           | -.030379          | -.026982          | .031620           | .008646           |
| 43 | -.017239          | -.007954          | -.019419          | -.040853          | .038855           | .013508           |
| 44 | -.020915          | -.021441          | -.008961          | -.039903          | .046708           | .011812           |
| 45 | -.033968          | -.026205          | -.006383          | -.030814          | .051263           | .010428           |
| 46 | -.037584          | -.025528          | -.018124          | -.019041          | .050592           | .010686           |
| 47 | -.027820          | -.020360          | -.010957          | -.013379          | .047883           | .005780           |
| 48 | -.027569          | -.014277          | -.013848          | -.009515          | .035823           | .002441           |
| 49 | -.037625          | -.012268          | -.022626          | -.012676          | .020648           | .012140           |
| 50 | -.041097          | -.004635          | -.029053          | -.010488          | .012557           | .015558           |
| 51 | -.037319          | .003653           | -.029017          | -.001935          | .011851           | .014114           |
| 52 | -.035106          | .009831           | -.024238          | .004858           | .009331           | .000649           |
| 53 | -.041721          | .014120           | -.013786          | .006976           | .006423           | -.008771          |
| 54 | -.045482          | .007549           | -.006566          | .005174           | .007277           | .000031           |
| 55 | -.040013          | -.012255          | .002303           | -.010746          | .014323           | .010323           |
| 56 | -.023434          | -.022172          | .012808           | -.025300          | .015751           | .014115           |
| 57 | -.013688          | -.016037          | .022950           | -.030985          | .009203           | .014416           |
| 58 | -.007660          | -.012812          | .029471           | -.019436          | .015638           | .017158           |
| 59 | -.005534          | -.008966          | .034255           | -.019235          | .029858           | .013058           |
| 60 | -.011995          | -.006573          | .033069           | -.028815          | .033391           | .005191           |

RUN NC 91B 46M 6-18-63 2306-0010(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.79173<br>10E-01 | 0.62742<br>10E-01 | 0.20595<br>10E-01 | 0.61526<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .760638           | .605327           | .513880           | .866085           |
| 2  | .483119           | .233422           | .133197           | .684893           |
| 3  | .299993           | .083792           | -.007330          | .532920           |
| 4  | .180050           | .052726           | -.042657          | .408818           |
| 5  | .096160           | .026296           | -.040600          | .310209           |
| 6  | .046871           | -.011160          | -.033499          | .244598           |
| 7  | .014376           | -.041666          | -.027065          | .195204           |
| 8  | -.012192          | -.047864          | -.035165          | .146617           |
| 9  | -.038075          | -.040212          | -.043141          | .096933           |
| 10 | -.045432          | -.058125          | -.035546          | .044497           |
| 11 | -.046413          | -.071994          | -.035926          | -.012380          |
| 12 | -.053966          | -.070940          | -.047250          | -.070327          |
| 13 | -.064045          | -.062379          | -.073878          | -.125016          |
| 14 | -.078945          | -.060549          | -.082196          | -.171674          |
| 15 | -.100583          | -.067565          | -.088509          | -.211364          |
| 16 | -.137940          | -.080629          | -.086518          | -.244352          |
| 17 | -.172686          | -.115436          | -.077862          | -.272647          |
| 18 | -.180902          | -.115382          | -.067245          | -.285651          |
| 19 | -.180174          | -.076546          | -.073686          | -.295003          |
| 20 | -.180735          | -.079616          | -.068754          | -.307706          |
| 21 | -.175943          | -.111436          | -.057180          | -.322387          |
| 22 | -.178682          | -.106453          | -.047436          | -.332968          |
| 23 | -.179659          | -.098514          | -.063744          | -.338578          |
| 24 | -.175654          | -.086793          | -.055839          | -.341578          |
| 25 | -.175746          | -.097461          | -.051343          | -.333005          |
| 26 | -.174455          | -.097050          | -.060197          | -.314503          |
| 27 | -.164915          | -.074201          | -.055064          | -.282767          |
| 28 | -.150765          | -.052885          | -.049757          | -.246586          |
| 29 | -.140354          | -.050938          | -.054995          | -.210043          |
| 30 | -.115013          | -.032341          | -.018663          | -.175375          |
| 31 | -.086421          | .004209           | .002006           | -.138811          |
| 32 | -.063159          | .016187           | .015116           | -.106623          |
| 33 | -.044900          | .017032           | .023592           | -.079001          |
| 34 | -.026631          | .021454           | .033258           | -.049800          |
| 35 | -.010257          | .024140           | .037808           | -.029031          |
| 36 | .007476           | .008517           | .023830           | -.005682          |
| 37 | .025380           | -.018231          | .034554           | .018961           |
| 38 | .031258           | -.009645          | .050576           | .041128           |
| 39 | .039058           | .028313           | .027672           | .056735           |
| 40 | .047102           | .044733           | .000928           | .073449           |
| 41 | .044655           | .045034           | -.001699          | .085120           |
| 42 | .038521           | .035230           | .020502           | .094857           |
| 43 | .043417           | .020545           | .008188           | .103130           |
| 44 | .049289           | -.006192          | .002493           | .105609           |
| 45 | .041685           | -.010943          | .001687           | .098958           |
| 46 | .027061           | -.001724          | -.004590          | .083899           |
| 47 | .011741           | -.015096          | -.003830          | .065584           |
| 48 | .011442           | -.010068          | .011129           | .053941           |
| 49 | .012535           | -.008832          | .013615           | .048439           |
| 50 | .017608           | -.013661          | .003820           | .047169           |
| 51 | .031463           | -.000989          | .002582           | .044161           |
| 52 | .044706           | .005858           | .008931           | .041847           |
| 53 | .048244           | .005038           | .021832           | .038557           |
| 54 | .036382           | .018028           | .008661           | .037443           |
| 55 | .020473           | .031582           | .013781           | .036150           |
| 56 | .014582           | .017812           | .054766           | .039577           |
| 57 | .009736           | -.000785          | .021168           | .040548           |
| 58 | .012327           | .013090           | .005357           | .039398           |
| 59 | .024506           | .017704           | .049930           | .037995           |
| 60 | .025011           | .011612           | .053811           | .028422           |

RUN NO 918 46M 6-18-63 2306-0010(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V     | U,W      | U,T     | V,W      | V,T     | W,T      |
|-------|---------|----------|---------|----------|---------|----------|
|       | 10E-02  | 10E-02   | 10E-02  | 10E-03   | 10E-03  | 10E-03   |
| 0     | .003914 | -.003040 | .009884 | .007689  | .025569 | -.006861 |
| 1     | .086310 | -.067457 | .133253 | -.117740 | .418853 | -.214502 |
| 2     | .130879 | -.110121 | .190682 | -.129130 | .499921 | -.382703 |
| 3     | .111698 | -.131543 | .202063 | .013777  | .309208 | -.460290 |
| 4     | .044830 | -.084349 | .112999 | .070363  | .125481 | -.259800 |
| 5     | .073781 | -.059707 | .056754 | -.166524 | .220357 | -.155479 |
| 6     | .117682 | -.094130 | .056997 | -.408746 | .255903 | -.247203 |
| 7-8   | .090761 | -.102525 | .047894 | -.339935 | .283265 | -.218326 |
| 9-11  | .086027 | -.063582 | .033069 | -.300395 | .197308 | -.138545 |
| 12-15 | .045122 | -.063476 | .019875 | -.192503 | .131849 | -.140366 |
| 16-20 | .038766 | -.041636 | .012029 | -.296686 | .088701 | -.085539 |
| 21-27 | .024296 | -.029987 | .004452 | -.261913 | .059620 | -.046498 |
| 28-36 | .011662 | -.017081 | .001930 | -.162889 | .026787 | -.027134 |
| 37-47 | .005751 | -.010552 | .001096 | -.074029 | .010245 | -.010071 |
| 48-60 | .002389 | -.006208 | .000481 | -.032287 | .003793 | -.006296 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-03   | 10E-03  | 10E-03   | 10E-03   | 10E-03   |
| 1     | .034098  | -.110217 | .484331 | -.021065 | .045940  | .038266  |
| 2     | -.074596 | -.207310 | .685310 | -.069594 | .380977  | .130411  |
| 3     | -.178381 | -.180636 | .635096 | -.109638 | .634733  | .199201  |
| 4     | -.091227 | .072521  | .318753 | -.060607 | .263366  | .115662  |
| 5     | -.008627 | .090546  | .194504 | -.014127 | -.025329 | .028117  |
| 6     | -.051123 | -.052810 | .183614 | -.035477 | .121182  | .021453  |
| 7-8   | -.016786 | -.111919 | .151083 | -.035856 | .084706  | .011419  |
| 9-11  | .031522  | -.263067 | .270705 | -.017199 | .051044  | -.000541 |
| 12-15 | -.032122 | -.048884 | .049480 | -.029607 | .105517  | .011934  |
| 16-20 | -.024227 | .002461  | .063033 | -.015012 | .041268  | -.012639 |
| 21-27 | -.001183 | -.073870 | .034897 | -.006280 | .031225  | -.007375 |
| 28-36 | -.000900 | -.013325 | .016715 | -.004998 | .025565  | -.013645 |
| 37-47 | -.000536 | .010286  | .009948 | -.001902 | .011276  | -.008918 |
| 48-60 | -.000952 | .005588  | .003921 | -.000914 | -.001544 | -.002195 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-02  | 10E-02  | 10E-02  | 10E-02  |
| 0     | .037444 | .019860 | .002755 | .005559 |
| 1     | .579626 | .241282 | .044317 | .076977 |
| 2     | .876069 | .370611 | .081389 | .114295 |
| 3     | .976126 | .479607 | .117640 | .121727 |
| 4     | .630042 | .386750 | .101900 | .066458 |
| 5     | .415359 | .276358 | .076021 | .030775 |
| 6     | .431211 | .277705 | .077743 | .026435 |
| 7-8   | .403998 | .288000 | .074750 | .022367 |
| 9-11  | .336422 | .232145 | .077592 | .016290 |
| 12-15 | .186350 | .183249 | .071642 | .011955 |
| 16-20 | .145266 | .160962 | .060042 | .005921 |
| 21-27 | .083982 | .135866 | .046431 | .003144 |
| 28-36 | .056932 | .080349 | .033428 | .002147 |
| 37-47 | .033885 | .050621 | .022555 | .001296 |
| 48-60 | .021148 | .033450 | .016293 | .000826 |

RUN NO 918 46M 6-18-63 2306-0010(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.32690<br>10E-01 | 0.12813<br>10E-01 | 0.13288<br>10E-01 | 0.11291<br>10E-01 | 0.11699<br>10E-01 | 0.45856<br>10E-02 |
| 0  | .240804           | -.317886          | .589755           | -.094069          | .292205           | -.237873          |
| 1  | .088474           | .000496           | .241054           | .035192           | .160568           | -.010336          |
| 2  | .054176           | .068538           | -.008338          | -.012503          | .073715           | .045516           |
| 3  | .032875           | .059169           | -.037336          | .032993           | .039574           | .061421           |
| 4  | .036711           | .008193           | -.037790          | .018284           | .008869           | -.000684          |
| 5  | -.001015          | .066398           | -.066231          | .010687           | .008710           | .017510           |
| 6  | .015791           | -.073770          | -.001139          | -.023524          | -.002546          | -.061060          |
| 7  | -.046361          | -.090383          | -.004097          | -.038349          | -.031892          | -.071347          |
| 8  | -.059394          | -.046842          | .001260           | .042168           | -.051432          | -.017027          |
| 9  | -.029757          | .049527           | -.007644          | .089593           | -.023358          | .071984           |
| 10 | -.018801          | .014628           | .004175           | .027338           | -.067860          | .026113           |
| 11 | -.041744          | -.005698          | .001760           | .041186           | -.071275          | -.030104          |
| 12 | -.044163          | .016330           | -.020576          | .045785           | -.062574          | .007723           |
| 13 | -.076016          | .057320           | -.053158          | .057544           | -.085007          | .078177           |
| 14 | -.079399          | .048464           | -.066215          | .024804           | -.079953          | .057538           |
| 15 | .000000           | .061433           | -.032931          | -.035187          | -.034494          | .046328           |
| 16 | -.055774          | -.002510          | -.104272          | -.036291          | -.050283          | .029713           |
| 17 | -.057641          | .003866           | -.090833          | .035398           | .003215           | .036961           |
| 18 | .039672           | .001372           | -.005869          | -.038037          | .090273           | .014147           |
| 19 | .030325           | -.039305          | -.043173          | .011842           | .036859           | -.063023          |
| 20 | -.000970          | -.071283          | -.020827          | -.035659          | .012936           | -.068843          |
| 21 | -.014307          | -.033090          | .014526           | -.052030          | .021271           | -.003093          |
| 22 | -.040003          | .025878           | .042397           | -.054058          | .035469           | -.032986          |
| 23 | .016498           | .037830           | .042118           | -.040003          | .030080           | -.079068          |
| 24 | .069617           | -.053609          | .065734           | -.059216          | .105324           | -.097625          |
| 25 | .051859           | .017537           | -.066587          | -.037835          | .053565           | -.036691          |
| 26 | .067452           | -.009531          | -.088184          | -.051724          | .008915           | .092787           |
| 27 | .074450           | .022834           | .013696           | -.004066          | .039639           | .028031           |
| 28 | .066923           | -.021205          | .077561           | -.072168          | .040298           | .009314           |
| 29 | .078272           | -.015936          | .084005           | .022851           | .003023           | -.003359          |
| 30 | .001001           | .020713           | .087531           | -.006359          | .017120           | .000576           |

COSPECTRUM

| K     | U,V     | U,W      | U,T     | V,W      | V,T     | W,T      |
|-------|---------|----------|---------|----------|---------|----------|
|       | 10E-02  | 10E-03   | 10E-03  | 10E-03   | 10E-03  | 10E-03   |
| 0     | .006894 | -.012397 | .089000 | .052807  | .055278 | -.000580 |
| 1     | .070177 | -.085142 | .576750 | .155220  | .327847 | -.019276 |
| 2     | .106579 | -.113935 | .547252 | -.063286 | .474102 | -.054669 |
| 3     | .102699 | -.069233 | .436159 | -.151958 | .530575 | -.037532 |
| 4     | .049472 | .084838  | .346839 | -.019508 | .258565 | .037904  |
| 5     | .034654 | .042112  | .538106 | .067249  | .134225 | .009313  |
| 6     | .037379 | -.182173 | .621231 | .066604  | .200581 | -.044084 |
| 7     | .028918 | -.272204 | .520647 | -.020490 | .224444 | -.049568 |
| 8     | .007537 | -.280110 | .495465 | -.114172 | .127974 | -.064718 |
| 9-11  | .024640 | -.313561 | .431540 | -.102908 | .134517 | -.106377 |
| 12-14 | .029505 | -.068702 | .307812 | .040603  | .111982 | -.015622 |
| 15-21 | .025540 | -.265361 | .282479 | -.044309 | .073346 | -.061829 |
| 22-30 | .022603 | -.189923 | .126125 | -.126768 | .048599 | -.051870 |

RUN NO 91B 46M 6-18-63 2306-0010(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.32690<br>10E-01 | 0.12813<br>10E-01 | 0.13288<br>10E-01 | 0.11281<br>10E-01 | 0.11699<br>10E-01 | 0.45856<br>10E-02 |
| 1  | -.016658          | -.006227          | .114113           | -.126895          | .059145           | .055455           |
| 2  | .068806           | -.041663          | .103718           | -.021361          | .017728           | .014862           |
| 3  | .084706           | -.013335          | .055367           | .088582           | -.025213          | -.038673          |
| 4  | -.000402          | .007351           | .011202           | .027695           | .039169           | -.028087          |
| 5  | -.035962          | -.038732          | .025940           | .013818           | .059131           | .027525           |
| 6  | -.025839          | .026657           | .068721           | .042018           | .073467           | -.012520          |
| 7  | .041610           | .061705           | .029686           | .061304           | .018507           | -.056253          |
| 8  | .029024           | .064464           | .018753           | .043658           | -.021435          | -.088333          |
| 9  | .075617           | -.015366          | .024064           | .070794           | -.065679          | -.017022          |
| 10 | .044225           | -.036543          | -.017541          | -.012512          | -.038710          | .068505           |
| 11 | -.006326          | .006156           | -.033708          | -.116069          | -.021205          | .014534           |
| 12 | -.038567          | .004277           | -.030338          | -.096664          | -.005864          | -.025795          |
| 13 | -.029535          | .056461           | -.000102          | -.045442          | .000658           | -.057553          |
| 14 | .007741           | .028879           | .014858           | -.061299          | -.048829          | -.047977          |
| 15 | .011961           | .025390           | -.020478          | .043727           | -.034646          | -.010844          |
| 16 | -.025729          | -.005250          | -.018934          | -.022397          | -.024060          | .008855           |
| 17 | .017400           | .000978           | -.070367          | .012344           | -.039231          | -.003652          |
| 18 | -.079308          | .014058           | -.043796          | -.026245          | -.019717          | .045303           |
| 19 | -.025950          | .007194           | .001728           | .070520           | .021828           | .032222           |
| 20 | -.035747          | -.068261          | -.019366          | -.000991          | .031177           | .042571           |
| 21 | .022851           | -.043383          | -.006626          | .040586           | -.016049          | .043954           |
| 22 | -.014874          | .050958           | .011255           | -.000194          | .025061           | -.020865          |
| 23 | .031576           | -.020042          | .020185           | .050429           | -.021598          | -.020294          |
| 24 | .081448           | .031091           | .065462           | .071596           | -.009774          | -.043505          |
| 25 | .094555           | -.040214          | .048034           | .051481           | .006454           | .010943           |
| 26 | .045059           | -.042830          | .028425           | .067555           | -.007348          | -.011094          |
| 27 | .032282           | -.011279          | -.074019          | .017742           | -.046393          | .017927           |
| 28 | .007541           | .027961           | -.073432          | .018801           | -.004343          | .038799           |
| 29 | -.015298          | -.007920          | -.000492          | -.024082          | .050641           | .011564           |
| 30 | -.011957          | -.018019          | .037033           | -.007319          | .036776           | -.033428          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-03   | 10E-03   | 10E-03  | 10E-03   | 10E-03   | 10E-04   |
| 1     | .212599  | .116808  | .064210 | -.001635 | -.087930 | -.490068 |
| 2     | .329076  | .067606  | .193685 | .049094  | .041095  | -.460754 |
| 3     | .377963  | -.028831 | .306113 | .224095  | .174022  | -.173701 |
| 4     | .011689  | -.063382 | .214391 | .179241  | .176282  | .119458  |
| 5     | -.005737 | -.041917 | .159857 | -.058065 | .083266  | -.051573 |
| 6     | .114175  | -.101280 | .145041 | -.217953 | .031472  | .134069  |
| 7     | .242343  | -.173625 | .063964 | -.179017 | -.045826 | .620157  |
| 8     | .617171  | -.098102 | .107432 | -.010905 | -.146268 | .332738  |
| 9-11  | .215443  | .086774  | .210390 | -.056950 | .010329  | -.276566 |
| 12-14 | -.229288 | -.081896 | .142575 | -.201337 | .123396  | .804994  |
| 15-21 | -.240276 | .030870  | .016682 | -.128769 | .066178  | .148330  |
| 22-30 | .014377  | .005721  | .023713 | .014673  | -.025387 | .002078  |

RUN NC 918 46P 6-18-63 2306-0010(EST)  
 301 PCINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.37130<br>10E-01 | 0.28781<br>10E-01 | 0.44217<br>10E-02 | 0.47556<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .284350           | .380440           | -.030940          | .449099           |
| 2  | -.067950          | .264399           | -.087015          | .032159           |
| 3  | -.012933          | .224377           | -.032000          | -.071286          |
| 4  | -.062488          | .167947           | -.046954          | -.068847          |
| 5  | -.065072          | .047673           | -.050536          | -.064666          |
| 6  | .019586           | .066212           | -.025027          | -.079583          |
| 7  | .034452           | -.039347          | -.069722          | -.116749          |
| 8  | -.001953          | -.145541          | -.012745          | -.111439          |
| 9  | -.001059          | .145354           | -.069471          | -.080861          |
| 10 | -.009856          | -.221993          | .057987           | -.060239          |
| 11 | -.069749          | -.259204          | .021151           | -.062607          |
| 12 | -.066142          | -.260993          | -.054242          | -.062461          |
| 13 | -.116364          | -.248891          | -.061331          | -.061823          |
| 14 | -.037604          | -.241512          | -.068548          | -.083229          |
| 15 | .014964           | -.172887          | -.044492          | -.091027          |
| 16 | -.083077          | -.065272          | .017847           | -.131306          |
| 17 | -.103701          | -.026761          | -.019961          | -.054163          |
| 18 | -.026829          | .063154           | .051948           | .087003           |
| 19 | -.086349          | .028815           | -.055557          | .043887           |
| 20 | .011761           | .031601           | .077756           | .016132           |
| 21 | .050213           | .125945           | .109099           | .006071           |
| 22 | .016082           | .158478           | -.058225          | .089299           |
| 23 | .045683           | .086949           | -.035306          | .123460           |
| 24 | .071265           | .053892           | .000195           | .138501           |
| 25 | -.036116          | .116050           | -.050711          | -.019555          |
| 26 | -.106788          | .051801           | -.017865          | -.137915          |
| 27 | -.071442          | -.006248          | .042011           | -.056369          |
| 28 | -.011437          | .044310           | .028341           | .005692           |
| 29 | .078824           | .031160           | -.037980          | .038612           |
| 30 | .107988           | -.020879          | -.137833          | .120161           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-02  | 10E-02  | 10E-03  | 10E-03  |
| 0     | .033907 | .051929 | .009372 | .031253 |
| 1     | .210492 | .340389 | .081060 | .242709 |
| 2     | .203126 | .419539 | .113762 | .343466 |
| 3     | .178682 | .414606 | .149797 | .417696 |
| 4     | .134855 | .174321 | .134194 | .338362 |
| 5     | .172615 | .056414 | .149986 | .347178 |
| 6     | .209673 | .081335 | .202616 | .356481 |
| 7     | .233259 | .101917 | .181466 | .284669 |
| 8     | .264651 | .089448 | .135910 | .241013 |
| 9-11  | .200959 | .083745 | .173615 | .264102 |
| 12-14 | .168238 | .073862 | .187451 | .220475 |
| 15-21 | .149084 | .092866 | .222465 | .126722 |
| 22-30 | .099600 | .090130 | .271405 | .081315 |



RUN NO 91B 91M 6-18-63 2306-0010(EST)

GROSS STATISTICS

CLEAR WIND SPEED 9.09 M/SEC SIGMA A 1.60 DEG  
 STABLE WIND DIRECTION 255 DEG SIGMA E .36 DBC  
 SOLAR RAD. 0 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.14873E-00             | 0.14211E-01                    | 0.82727E-02                   | 0.94085E-02                        |
| V                | 0.60809E-01             | 0.15621E-01                    | 0.71383E-02                   | 0.11594E-01                        |
| W                | 0.31084E-02             | 0.27529E-02                    | 0.20550E-02                   | 0.15405E-02                        |
| T                | 0.20837E-01             | 0.58039E-02                    | 0.22820E-02                   | 0.48780E-02                        |
| E                | 0.10633E-00             | 0.16296E-01                    | 0.87331E-02                   |                                    |

|                         | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>GUSTINESS RATIOS</b> |                         |                                |                               |                                    |
| U                       | 0.04243                 | 0.01311                        | 0.01001                       | 0.01067                            |
| V                       | 0.02713                 | 0.01375                        | 0.00929                       | 0.01185                            |
| W                       | 0.00613                 | 0.00577                        | 0.00499                       | 0.00432                            |

|                    | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|--------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                | -0.16466E-01            | 0.45145E-02                    | 0.17212E-02                   | 0.39063E-02                        |
| U,W                | -0.15072E-02            | -0.90407E-03                   | -0.70750E-03                  | -0.35667E-03                       |
| U,T                | 0.10628E-01             | 0.44886E-02                    | 0.20411E-02                   | 0.35517E-02                        |
| V,W                | 0.86053E-03             | -0.98193E-03                   | -0.30180E-03                  | -0.65853E-03                       |
| V,T                | 0.90917E-02             | 0.50539E-02                    | 0.17970E-02                   | 0.44514E-02                        |
| W,T                | -0.44882E-03            | 0.48817E-04                    | -0.21054E-03                  | 0.23088E-03                        |
| WE                 | -0.20845E-03            | 0.29141E-04                    | 0.93244E-05                   |                                    |

|                               | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>NORMALIZED COVARIANCES</b> |                         |                                |                               |                                    |
| U,V                           | -0.17314                | 0.30300                        | 0.22398                       | 0.37402                            |
| U,W                           | -0.07010                | -0.14454                       | -0.17159                      | -0.09368                           |
| U,T                           | 0.19091                 | 0.49424                        | 0.46976                       | 0.52427                            |
| V,W                           | 0.06259                 | -0.14974                       | -0.07880                      | -0.15582                           |
| V,T                           | 0.25541                 | 0.53078                        | 0.44524                       | 0.59193                            |
| W,T                           | -0.05577                | 0.01221                        | -0.09722                      | 0.08422                            |

RUN NO 918 91M 6-18-63 2306-0010(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.76858<br>10E-02 | 0.41246<br>10E-02 | 0.43458<br>10E-02 | 0.38313<br>10E-02 | 0.40367<br>10E-02 | 0.21663<br>10E-02 |
| 0  | .224535           | -.171615          | .469774           | -.078545          | .445012           | -.097312          |
| 1  | .182532           | -.088803          | .401913           | -.025795          | .396458           | -.049669          |
| 2  | .147325           | -.035896          | .302806           | -.008854          | .338836           | -.016580          |
| 3  | .125401           | -.024518          | .232221           | -.017155          | .298083           | -.005103          |
| 4  | .109233           | -.005217          | .193139           | .000863           | .261616           | -.002990          |
| 5  | .106690           | .004694           | .163648           | .003498           | .217722           | -.007562          |
| 6  | .090777           | .002142           | .135825           | -.009365          | .175740           | -.013901          |
| 7  | .064870           | .006347           | .104784           | -.014767          | .136594           | -.014017          |
| 8  | .028905           | .011057           | .071884           | -.018561          | .096931           | -.007345          |
| 9  | -.005732          | .028711           | .037209           | -.014990          | .057338           | -.002642          |
| 10 | -.015270          | .036387           | .014209           | -.021444          | .029220           | -.005197          |
| 11 | -.011712          | .021547           | -.005722          | -.018823          | .001488           | -.004323          |
| 12 | -.015067          | .016674           | -.023055          | -.017739          | -.014094          | -.006771          |
| 13 | -.018831          | .039461           | -.040969          | -.009654          | -.029625          | .000593           |
| 14 | -.022387          | .033506           | -.059109          | -.004043          | -.043554          | .004129           |
| 15 | -.043405          | .032066           | -.081949          | -.004907          | -.047724          | -.003645          |
| 16 | -.060221          | .014603           | -.094702          | -.017612          | -.050131          | -.019832          |
| 17 | -.077367          | -.010156          | -.100577          | -.019867          | -.056522          | -.028280          |
| 18 | -.079240          | -.011414          | -.104890          | -.014387          | -.075833          | -.027086          |
| 19 | -.070215          | -.001225          | -.114705          | -.025338          | -.096853          | -.014771          |
| 20 | -.075938          | .011051           | -.125634          | -.022576          | -.128215          | -.003661          |
| 21 | -.089993          | .022729           | -.135267          | .003310           | -.151159          | .004626           |
| 22 | -.084993          | .011894           | -.139090          | -.013240          | -.161438          | .003611           |
| 23 | -.076823          | -.003080          | -.137328          | -.019027          | -.170039          | -.004863          |
| 24 | -.077793          | -.010976          | -.133661          | -.027587          | -.172237          | -.013814          |
| 25 | -.081520          | -.005208          | -.144183          | -.014097          | -.171938          | -.008504          |
| 26 | -.082716          | .010289           | -.152046          | -.002802          | -.168284          | .003126           |
| 27 | -.078346          | .000785           | -.142813          | .002720           | -.162245          | .004613           |
| 28 | -.083807          | -.004854          | -.132876          | .030345           | -.154554          | .009953           |
| 29 | -.080420          | -.006708          | -.123176          | .032529           | -.139780          | .021458           |
| 30 | -.060432          | -.019628          | -.110087          | .032438           | -.128271          | .028177           |
| 31 | -.043615          | -.036784          | -.086640          | .041017           | -.108143          | .032893           |
| 32 | -.029075          | -.029665          | -.078911          | .038355           | -.085334          | .036824           |
| 33 | -.019561          | -.015189          | -.070300          | .043437           | -.071983          | .041135           |
| 34 | .007573           | -.013546          | -.055846          | .040769           | -.048978          | .038995           |
| 35 | .005350           | -.010207          | -.048453          | .034664           | -.033220          | .038792           |
| 36 | -.000759          | -.011970          | -.038088          | .023379           | -.028010          | .034456           |
| 37 | .017916           | -.026378          | -.022776          | .013481           | -.020310          | .032124           |
| 38 | .040547           | -.041026          | .003751           | .000691           | -.007549          | .023781           |
| 39 | .045537           | -.034581          | .023567           | -.003961          | -.000176          | .016444           |
| 40 | .043195           | -.020913          | .036555           | -.036066          | .002252           | .009284           |
| 41 | .047340           | -.012633          | .047927           | -.023031          | .008794           | .001692           |
| 42 | .058990           | -.011023          | .059272           | -.037719          | .008271           | -.005559          |
| 43 | .064363           | -.001512          | .061283           | -.032170          | .007606           | .001196           |
| 44 | .065744           | .025565           | .056410           | -.017614          | .019536           | .011948           |
| 45 | .062062           | .042553           | .044997           | .001051           | .026124           | .024824           |
| 46 | .056267           | .028006           | .039859           | .012181           | .028526           | .025853           |
| 47 | .047742           | .021933           | .034307           | .032326           | .033941           | .021064           |
| 48 | .037944           | .028959           | .029437           | .040871           | .042151           | .018129           |
| 49 | .039498           | .038479           | .027686           | .041768           | .048506           | .021603           |
| 50 | .041786           | .040930           | .029807           | .023397           | .054154           | .024076           |
| 51 | .039447           | .046489           | .037056           | .007067           | .054057           | .030315           |
| 52 | .035332           | .053958           | .040216           | .004223           | .047758           | .038908           |
| 53 | .036161           | .056142           | .032798           | .014756           | .030092           | .043750           |
| 54 | .021577           | .046812           | .019697           | .014863           | .009631           | .039401           |
| 55 | -.005039          | .040944           | .007117           | .024044           | -.009086          | .035767           |
| 56 | -.013043          | .024074           | .000370           | .026613           | -.023989          | .024809           |
| 57 | -.000573          | .012085           | -.002605          | .018745           | -.026989          | .007554           |
| 58 | .004571           | .010606           | -.000439          | .015513           | -.027263          | -.007473          |
| 59 | .016697           | -.008269          | -.002911          | .001664           | -.034662          | -.023734          |
| 60 | .026111           | -.020458          | -.000381          | -.005071          | -.035042          | -.038256          |

RUN NO 918 91M 6-18-63 2306-0010(EST)  
 61 POINT RUNNING MEAN, NJ BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.76858<br>10E-02 | 0.41246<br>10E-02 | 0.43458<br>10E-02 | 0.38313<br>10E-02 | 0.40367<br>10E-02 | 0.21663<br>10E-02 |
| 1  | -.006767          | .004368           | .036746           | .008562           | .010371           | .039089           |
| 2  | -.011215          | .015217           | .053468           | .006973           | .016732           | .072273           |
| 3  | -.012999          | .018839           | .069390           | -.016137          | .025883           | .087207           |
| 4  | .005045           | .025867           | .077203           | .000202           | .035231           | .085674           |
| 5  | .017758           | .022879           | .084500           | .011317           | .044084           | .093876           |
| 6  | .028354           | .038566           | .084632           | .008279           | .040022           | .113234           |
| 7  | .039273           | .037485           | .083972           | .008627           | .036336           | .122107           |
| 8  | .046796           | .020046           | .083676           | .005413           | .033468           | .129212           |
| 9  | .049536           | .016599           | .072489           | .000440           | .021727           | .130861           |
| 10 | .051876           | .025327           | .064616           | -.001947          | .017048           | .129127           |
| 11 | .051203           | .034832           | .059274           | .010950           | .017145           | .123514           |
| 12 | .055693           | .031152           | .057656           | .018113           | .015118           | .113205           |
| 13 | .065601           | .016014           | .057050           | .016796           | .014646           | .109675           |
| 14 | .053806           | .011485           | .053488           | .012830           | .018608           | .109930           |
| 15 | .049974           | .001352           | .049829           | .020173           | .015009           | .112236           |
| 16 | .044151           | -.009861          | .046525           | .022015           | .010257           | .112174           |
| 17 | .041683           | -.021842          | .041809           | .023151           | .003633           | .112000           |
| 18 | .036972           | -.041562          | .041193           | .020855           | .004525           | .108950           |
| 19 | .026629           | -.047860          | .037619           | .002535           | .012686           | .102755           |
| 20 | .026705           | -.051544          | .029905           | -.018944          | .022670           | .090212           |
| 21 | .019123           | -.039310          | .030929           | -.017513          | .026588           | .068067           |
| 22 | .026440           | -.035829          | .041557           | -.016689          | .023731           | .049383           |
| 23 | .028541           | -.042670          | .051677           | -.024434          | .022794           | .042873           |
| 24 | .023672           | -.050614          | .050245           | -.030358          | .025226           | .037635           |
| 25 | .006184           | -.060757          | .037458           | -.024595          | .016747           | .029369           |
| 26 | .003558           | -.053997          | .027541           | -.011261          | .002379           | .010085           |
| 27 | .013102           | -.041247          | .031008           | .015893           | -.005415          | -.023313          |
| 28 | .009598           | -.037309          | .029483           | .017121           | -.007590          | -.039842          |
| 29 | -.015749          | -.026314          | .026331           | .000360           | .003420           | -.050415          |
| 30 | -.027777          | -.031278          | .023884           | -.007821          | .014133           | -.048838          |
| 31 | -.035424          | -.032848          | .017331           | -.002456          | .026589           | -.053422          |
| 32 | -.032740          | -.043712          | .010305           | -.009195          | .027590           | -.055237          |
| 33 | -.027114          | -.060334          | .000902           | -.006794          | .020424           | -.052455          |
| 34 | -.015155          | -.056088          | -.002950          | .007357           | .014937           | -.052069          |
| 35 | -.000946          | -.043388          | -.002272          | .012863           | .008648           | -.064393          |
| 36 | -.003471          | -.015697          | -.008662          | .010096           | .005991           | .067181           |
| 37 | -.005939          | .009264           | -.013639          | .006965           | .008744           | -.070748          |
| 38 | -.006969          | .022092           | -.019618          | -.000785          | .010691           | -.075591          |
| 39 | -.010021          | .022409           | -.028182          | -.011379          | .013495           | -.073705          |
| 40 | -.004534          | .020012           | -.027674          | -.006891          | .008949           | -.071943          |
| 41 | -.004391          | .017876           | -.022209          | -.004267          | .002366           | -.068090          |
| 42 | -.002048          | .014144           | -.022881          | -.010990          | .008199           | -.062694          |
| 43 | -.004819          | .039571           | -.029066          | -.012065          | .007443           | -.062113          |
| 44 | -.007316          | .051008           | -.027415          | -.013337          | .005754           | -.065700          |
| 45 | -.001756          | .061166           | -.029016          | -.014747          | .012834           | -.062684          |
| 46 | .002548           | .058733           | -.025681          | -.016828          | .022705           | -.052678          |
| 47 | .007065           | .035463           | -.025446          | -.017980          | .019471           | -.033957          |
| 48 | .003852           | .023664           | -.026465          | -.019098          | .013601           | -.014061          |
| 49 | .001835           | .019451           | -.023454          | -.019097          | .010984           | -.001281          |
| 50 | .010690           | .010926           | -.019640          | -.007384          | .004346           | .011204           |
| 51 | .012365           | .019342           | -.019376          | -.008398          | -.005884          | .021291           |
| 52 | .016172           | .023476           | -.012061          | -.005275          | -.013260          | .016914           |
| 53 | .025203           | .022771           | -.007512          | .003435           | -.016355          | .011985           |
| 54 | .028698           | .027874           | -.011915          | .012114           | -.021298          | .012930           |
| 55 | .039632           | .020892           | -.011103          | .016549           | -.026562          | .013594           |
| 56 | .036211           | .039125           | -.005851          | .017047           | -.030470          | .015941           |
| 57 | .027512           | .036776           | .001105           | .020627           | -.031853          | .014509           |
| 58 | .025958           | .027709           | .003572           | .011708           | -.027789          | .010270           |
| 59 | .025679           | .024170           | -.001150          | .025875           | -.024220          | .008727           |
| 60 | .013238           | .028962           | .000117           | .031489           | -.012042          | .008375           |

RUN NO 91B 91M 6-18-63 2306-0010(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.82742<br>10E-02 | 0.71393<br>10E-02 | 0.20560<br>10E-02 | 0.22825<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .705950           | .748234           | .666973           | .862985           |
| 2  | .480946           | .526656           | .440590           | .704110           |
| 3  | .343172           | .413064           | .351090           | .590570           |
| 4  | .266620           | .326142           | .259816           | .499876           |
| 5  | .215375           | .244879           | .206998           | .423407           |
| 6  | .163731           | .182868           | .178083           | .346969           |
| 7  | .113009           | .134846           | .133701           | .270068           |
| 8  | .070375           | .096967           | .097165           | .200713           |
| 9  | .013236           | .074888           | .043152           | .138763           |
| 10 | -.017839          | .029516           | -.003802          | .085949           |
| 11 | -.033695          | -.014439          | -.038431          | .035980           |
| 12 | -.055980          | -.037136          | -.069435          | -.008463          |
| 13 | -.084098          | -.056667          | -.104317          | -.045630          |
| 14 | -.096935          | -.087350          | -.109891          | -.081809          |
| 15 | -.122328          | -.099791          | -.120140          | -.108948          |
| 16 | -.145815          | -.093111          | -.132864          | -.132317          |
| 17 | -.150049          | -.117822          | -.162150          | -.153094          |
| 18 | -.164543          | -.158704          | -.195228          | -.182912          |
| 19 | -.172564          | -.181867          | -.197190          | -.219809          |
| 20 | -.204301          | -.201881          | -.219593          | -.254810          |
| 21 | -.234353          | -.219985          | -.248505          | -.275171          |
| 22 | -.244599          | -.224042          | -.236503          | -.283201          |
| 23 | -.245897          | -.240504          | -.225437          | -.289320          |
| 24 | -.247872          | -.250686          | -.213611          | -.302192          |
| 25 | -.236244          | -.250598          | -.223348          | -.322189          |
| 26 | -.223323          | -.232762          | -.234195          | -.336320          |
| 27 | -.201956          | -.246372          | -.202357          | -.333920          |
| 28 | -.175505          | -.256241          | -.175065          | -.325304          |
| 29 | -.153348          | -.218964          | -.161698          | -.309455          |
| 30 | -.125583          | -.189316          | -.131598          | -.283921          |
| 31 | -.086623          | -.154911          | -.120394          | -.251565          |
| 32 | -.056735          | -.126721          | -.084187          | -.222969          |
| 33 | -.040641          | -.110602          | -.066602          | -.196710          |
| 34 | -.031704          | -.077138          | -.026898          | -.170882          |
| 35 | -.028534          | -.067052          | -.000722          | -.151958          |
| 36 | -.024956          | -.058245          | .011255           | -.133755          |
| 37 | -.000567          | -.031247          | .027867           | -.115728          |
| 38 | .031503           | -.011783          | .060305           | -.093987          |
| 39 | .040465           | -.009858          | .065940           | -.068459          |
| 40 | .040937           | .009328           | .063414           | -.039485          |
| 41 | .040916           | .042782           | .085797           | -.006944          |
| 42 | .064767           | .060025           | .114195           | .019237           |
| 43 | .074065           | .061852           | .110158           | .026370           |
| 44 | .071068           | .072580           | .098026           | .027390           |
| 45 | .069420           | .098881           | .072787           | .026116           |
| 46 | .058278           | .113928           | .068224           | .026693           |
| 47 | .059522           | .119243           | .064642           | .036701           |
| 48 | .060142           | .119399           | .062087           | .047741           |
| 49 | .049810           | .106027           | .048729           | .057314           |
| 50 | .040681           | .109394           | .039876           | .070804           |
| 51 | .040426           | .105288           | .031089           | .074667           |
| 52 | .049460           | .090506           | .008427           | .072431           |
| 53 | .046749           | .080951           | .015585           | .061058           |
| 54 | .027782           | .076723           | .011972           | .049977           |
| 55 | .008966           | .061762           | -.007417          | .047295           |
| 56 | -.003276          | .050027           | -.027349          | .046602           |
| 57 | -.002174          | .044440           | -.041662          | .047245           |
| 58 | -.014452          | .024027           | -.042764          | .042492           |
| 59 | -.017983          | -.003091          | -.026237          | .035092           |
| 60 | -.004249          | -.018109          | -.016468          | .037393           |

RUN NO 918 91M 6-18-63 2306-0010(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T     | W,T      |
|-------|----------|----------|---------|----------|---------|----------|
|       | 10E-03   | 10E-04   | 10E-03  | 10E-04   | 10E-03  | 10E-04   |
| 0     | .018585  | -.055629 | .025189 | -.128656 | .044251 | -.034507 |
| 1     | .202443  | -.135606 | .286240 | -.568502 | .359747 | -.316243 |
| 2     | .349538  | -.105574 | .386720 | -.269489 | .413754 | -.187626 |
| 3     | .387818  | -.475141 | .372160 | .062799  | .363388 | .001350  |
| 4     | .175752  | -.603956 | .185611 | .185835  | .166097 | .015921  |
| 5     | .080213  | -.411398 | .107982 | -.112384 | .083304 | -.115069 |
| 6     | .089115  | -.463959 | .103493 | -.240061 | .094422 | -.141483 |
| 7-8   | .052632  | -.335932 | .067950 | .062642  | .077207 | -.048288 |
| 9-11  | .025924  | -.145482 | .045455 | -.113500 | .012552 | -.034468 |
| 12-15 | -.004597 | -.244611 | .034092 | -.125293 | .017249 | -.089302 |
| 16-20 | .035244  | -.160605 | .029598 | -.050084 | .009741 | -.054387 |
| 21-27 | .012899  | -.091895 | .016043 | -.022692 | .008300 | -.042782 |
| 28-36 | .007417  | -.135152 | .008304 | -.072703 | .006847 | -.033442 |
| 37-47 | .007434  | -.098365 | .003111 | -.085975 | .003444 | -.026413 |
| 48-60 | .005204  | -.055169 | .002214 | -.036654 | .002229 | -.018103 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-03   | 10E-04   | 10E-03  | 10E-04   | 10E-04   | 10E-03   |
| 1     | .149083  | -.656220 | .154910 | .017195  | .658567  | .089689  |
| 2     | .153374  | -.104910 | .135253 | .120509  | .371538  | .124845  |
| 3     | .126717  | .692279  | .087904 | .155535  | .268275  | .103894  |
| 4     | .029474  | .649704  | .054905 | .143338  | .252698  | .032776  |
| 5     | -.021789 | .203762  | .060246 | -.002450 | .223669  | .010632  |
| 6     | -.019756 | .111796  | .049053 | -.187281 | .222749  | .012741  |
| 7-8   | -.029809 | -.099238 | .024166 | -.060590 | .191097  | .015824  |
| 9-11  | -.018228 | .059363  | .013483 | .084501  | .005980  | .002162  |
| 12-15 | -.015979 | -.008931 | .001667 | -.040272 | -.024930 | .003454  |
| 16-20 | -.006243 | -.023686 | .003788 | -.026686 | -.000859 | .004653  |
| 21-27 | .000668  | .039145  | .002574 | .054716  | .000171  | .001630  |
| 28-36 | .003454  | -.033865 | .002083 | .058045  | .012276  | -.001493 |
| 37-47 | -.000797 | .016238  | .000790 | -.028546 | -.004446 | -.000109 |
| 48-60 | -.001286 | -.023449 | .001078 | -.017644 | .004541  | -.000005 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-02  | 10E-02  | 10E-03  | 10E-03  |
| 0     | .007195 | .009743 | .017462 | .047590 |
| 1     | .078180 | .087268 | .310    | .438458 |
| 2     | .110139 | .110547 | .270945 | .492291 |
| 3     | .116306 | .102316 | .293246 | .405564 |
| 4     | .066210 | .051201 | .159799 | .191773 |
| 5     | .036655 | .033211 | .085265 | .117278 |
| 6     | .036485 | .034572 | .086213 | .112254 |
| 7-8   | .035580 | .030040 | .070831 | .078591 |
| 9-11  | .020312 | .018134 | .047571 | .040434 |
| 12-15 | .017053 | .014373 | .043714 | .028587 |
| 16-20 | .014325 | .008731 | .034132 | .019650 |
| 21-27 | .009790 | .007584 | .024542 | .014899 |
| 28-36 | .007020 | .005920 | .021743 | .008483 |
| 37-47 | .005329 | .004266 | .019422 | .005979 |
| 48-60 | .004542 | .002672 | .011548 | .003572 |

RUN NC 918 91M 6-18-65 2306-0010(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.10446<br>10E-01 | 0.38092<br>10E-02 | 0.67773<br>10E-02 | 0.42272<br>10E-02 | 0.75211<br>10E-02 | 0.27426<br>10E-02 |
| 0  | .373959           | -.093634          | .524065           | -.155783          | .591855           | .084183           |
| 1  | .267536           | -.044669          | .369192           | -.167003          | .445817           | .086430           |
| 2  | .202667           | -.022169          | .272805           | -.138797          | .307112           | .088573           |
| 3  | .173359           | -.014780          | .208789           | -.069997          | .222032           | .104860           |
| 4  | .138351           | .003600           | .187406           | -.051685          | .148151           | .066274           |
| 5  | .102761           | .075062           | .136350           | -.009434          | .093988           | .045978           |
| 6  | .024344           | .034202           | .090657           | .031036           | .023704           | -.018639          |
| 7  | -.044733          | .040219           | .049932           | .056932           | -.029804          | -.062894          |
| 8  | -.068174          | .064680           | .046093           | .071594           | -.053114          | -.083802          |
| 9  | -.098467          | .047557           | -.007394          | .101547           | -.101782          | -.102476          |
| 10 | -.119073          | .048453           | -.033839          | .158180           | -.174907          | -.085054          |
| 11 | -.158734          | .051914           | -.106123          | .172975           | -.238484          | -.051469          |
| 12 | -.183495          | .078875           | -.136914          | .131603           | -.241067          | -.031519          |
| 13 | -.157437          | .057597           | -.145291          | .070139           | -.219122          | -.025450          |
| 14 | -.186261          | .064913           | -.171346          | .054153           | -.246465          | -.009308          |
| 15 | -.164807          | .022246           | -.148666          | .038137           | -.256301          | .005316           |
| 16 | -.136105          | .050454           | -.124634          | .073243           | -.221807          | .043197           |
| 17 | -.097388          | -.001195          | -.125250          | .034167           | -.176686          | .021876           |
| 18 | -.031672          | -.038289          | -.078278          | .037314           | -.138838          | .026905           |
| 19 | -.016528          | -.049399          | -.094605          | .084880           | -.125544          | .074006           |
| 20 | .008375           | -.038983          | -.067200          | .047369           | -.116274          | .081447           |
| 21 | .038569           | -.088648          | -.023746          | -.027051          | -.035885          | .037450           |
| 22 | .043447           | -.104368          | .006617           | -.065959          | .062936           | .032066           |
| 23 | .042932           | -.065506          | -.025155          | -.069247          | .122970           | .038313           |
| 24 | .060827           | -.051055          | -.030644          | -.075689          | .137715           | .031826           |
| 25 | .032176           | -.092227          | -.084177          | -.063742          | .138181           | -.019803          |
| 26 | -.000712          | -.077899          | -.095635          | -.086889          | .107777           | -.035614          |
| 27 | -.016173          | -.076611          | -.058692          | -.087211          | .068802           | -.089659          |
| 28 | -.023874          | -.070243          | -.016871          | -.109414          | .034713           | -.107709          |
| 29 | -.028741          | -.014057          | -.020414          | -.110100          | -.004052          | -.108380          |
| 30 | -.027014          | .029157           | -.020112          | -.137663          | .009505           | -.079601          |

COSPECTRUM

| K     | U,V     | U,W      | U,T     | V,W      | V,T     | W,T      |
|-------|---------|----------|---------|----------|---------|----------|
|       | 10E-07  | 10E-03   | 10E-02  | 10E-03   | 10E-02  | 10E-03   |
| 0     | .007408 | .029695  | .020858 | .025300  | .006812 | .014405  |
| 1     | .086755 | .068007  | .106953 | -.089646 | .096491 | .049833  |
| 2     | .106489 | -.063606 | .079929 | -.242184 | .115278 | .072721  |
| 3     | .086233 | -.110744 | .048501 | -.244047 | .082652 | .120010  |
| 4     | .025810 | -.040107 | .014789 | -.124771 | .028392 | .073892  |
| 5     | .007650 | -.027053 | .009467 | -.043323 | .020720 | .008294  |
| 6     | .011281 | -.042709 | .014968 | .017816  | .018155 | -.020378 |
| 7     | .005958 | -.028413 | .013984 | -.006331 | .018000 | -.035449 |
| 8     | .001974 | -.011020 | .011196 | -.054327 | .016957 | -.028137 |
| 9-11  | .006074 | -.000709 | .006312 | -.001040 | .008675 | -.004826 |
| 12-14 | .010814 | -.000287 | .007974 | -.008187 | .009261 | -.001954 |
| 15-21 | .003937 | -.019070 | .004009 | .012750  | .003949 | .001953  |
| 22-30 | .005007 | -.002134 | .004579 | .003984  | .003495 | .000497  |

RUN NO 918 91M 6-18-63 2306-0010(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.10446<br>10E-01 | 0.38092<br>10E-02 | 0.67773<br>10E-02 | 0.42272<br>10E-02 | 0.75211<br>10E-02 | 0.27426<br>10E-02 |
| 1  | .081236           | .019597           | .133712           | .053825           | .046132           | .058471           |
| 2  | .103526           | -.024121          | .188133           | .066496           | .071023           | .036925           |
| 3  | .102943           | .010849           | .233998           | .097926           | .090727           | -.054602          |
| 4  | .126478           | .068857           | .256308           | .103147           | .087336           | -.095130          |
| 5  | .129833           | .100245           | .269558           | .090767           | .077680           | -.097521          |
| 6  | .104908           | .103981           | .271472           | .114614           | .052580           | -.095910          |
| 7  | .082204           | .105322           | .254323           | .088676           | .050570           | -.096595          |
| 8  | .071921           | .092830           | .202561           | .041140           | .029140           | -.064544          |
| 9  | .063571           | .083792           | .186091           | -.002407          | .018649           | -.047044          |
| 10 | .088252           | .081338           | .160684           | -.057135          | .016154           | -.017244          |
| 11 | .061999           | .003218           | .112184           | -.061639          | .019325           | .018710           |
| 12 | -.005836          | -.051536          | .049407           | -.087930          | .031293           | .032389           |
| 13 | .024519           | -.040799          | .032039           | -.059814          | .021704           | .009021           |
| 14 | .010342           | -.023278          | -.015041          | -.058923          | .016789           | .001669           |
| 15 | -.008241          | -.046223          | -.064912          | -.043883          | -.005856          | .004701           |
| 16 | -.050231          | -.085274          | -.091332          | -.025493          | .008370           | .034009           |
| 17 | -.027831          | -.103921          | -.084351          | -.009452          | .003900           | .045120           |
| 18 | -.048642          | -.059540          | -.099410          | -.023762          | -.011845          | .054950           |
| 19 | -.072076          | -.010990          | -.118158          | -.019995          | .012301           | .046473           |
| 20 | -.131881          | .012703           | -.133160          | -.040711          | .038641           | .053246           |
| 21 | -.177286          | -.010995          | -.133466          | -.042170          | .059625           | .066355           |
| 22 | -.145170          | -.014364          | -.087047          | -.005740          | .064124           | .049842           |
| 23 | -.098609          | -.026443          | -.038802          | .019511           | .051671           | .058069           |
| 24 | -.052662          | -.021079          | -.010316          | .111406           | .058471           | .024670           |
| 25 | -.034508          | .012768           | .014767           | .131668           | .055209           | -.029722          |
| 26 | .018711           | .088742           | .025377           | .129405           | .044645           | -.078892          |
| 27 | .038718           | .119837           | .029123           | .069302           | .030136           | -.072913          |
| 28 | .050611           | .114547           | .009185           | .054629           | .009603           | -.069826          |
| 29 | .016574           | .066688           | -.012273          | .049340           | .027595           | -.060543          |
| 30 | -.005428          | .031831           | -.005941          | .039492           | .033878           | -.024833          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-03   | 10E-03   | 10E-03  | 10E-03   | 10E-03   | 10E-04   |
| 1     | .357277  | .067854  | .644157 | .007998  | .254274  | -.413870 |
| 2     | .568492  | .130521  | .781557 | .092829  | .166276  | -.843315 |
| 3     | .410175  | .139678  | .655680 | .189702  | .186782  | -.800234 |
| 4     | .173174  | .023842  | .256742 | .149977  | .142490  | -.287029 |
| 5     | .188039  | -.056315 | .117237 | .072176  | .097175  | -.014054 |
| 6     | .094265  | -.055138 | .082362 | -.011051 | .099619  | .338035  |
| 7     | .080026  | -.031842 | .055049 | -.034586 | .046747  | .483627  |
| 8     | .089179  | -.028993 | .050656 | .005209  | .002880  | .373327  |
| 9-11  | .003152  | -.013893 | .026451 | .017129  | .009280  | .263366  |
| 12-14 | .061447  | .014650  | .033615 | .002139  | -.004242 | .229830  |
| 15-21 | .019445  | .015465  | .012139 | .003168  | .005568  | .047874  |
| 22-30 | -.001763 | .005763  | .010467 | .006749  | .005422  | -.029378 |

RUN NO 918 91M 6-18-63 2306-0010(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.94128<br>10E-02 | 0.11592<br>10E-01 | 0.15415<br>10E-02 | 0.48797<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .631903           | .720802           | .519145           | .747017           |
| 2  | .428572           | .513687           | .175788           | .509905           |
| 3  | .344101           | .375686           | .051896           | .326171           |
| 4  | .261283           | .273174           | .061781           | .228025           |
| 5  | .156877           | .206184           | -.041772          | .148150           |
| 6  | .061576           | .070569           | -.122375          | .064162           |
| 7  | -.045621          | -.047155          | -.169781          | -.025372          |
| 8  | -.062762          | -.099021          | -.153519          | -.081219          |
| 9  | -.124215          | -.133480          | -.130365          | -.161698          |
| 10 | -.145511          | -.253667          | -.173594          | -.239533          |
| 11 | -.210035          | -.327231          | -.227873          | -.314663          |
| 12 | -.249094          | -.373518          | -.298536          | -.322177          |
| 13 | -.227707          | -.352288          | -.278717          | -.312280          |
| 14 | -.240312          | -.383142          | -.182196          | -.283392          |
| 15 | -.199983          | -.389781          | -.061686          | -.235742          |
| 16 | -.155549          | -.322824          | .002956           | -.199402          |
| 17 | -.128736          | -.281623          | .045243           | -.181210          |
| 18 | -.047004          | -.237328          | .072040           | -.144212          |
| 19 | -.070462          | -.230952          | .098525           | -.130578          |
| 20 | -.020731          | -.175490          | .004848           | -.096997          |
| 21 | .059382           | -.071619          | .019011           | -.038701          |
| 22 | .090875           | .042694           | .087498           | .039532           |
| 23 | -.014183          | .109229           | .105480           | .076327           |
| 24 | -.075733          | .134181           | .016229           | .088906           |
| 25 | -.095986          | .169356           | .007700           | .070354           |
| 26 | -.101590          | .153643           | .045456           | .025563           |
| 27 | -.127083          | .109022           | .060024           | .001767           |
| 28 | -.159004          | .073974           | .026319           | .002251           |
| 29 | -.189372          | .078404           | .039385           | -.012561          |
| 30 | -.165486          | .076845           | .012987           | .010780           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-02  | 10E-02  | 10E-03  | 10E-02  |
| 0     | .037659 | .026565 | .005077 | .015252 |
| 1     | .202673 | .268164 | .104442 | .107425 |
| 2     | .177653 | .288622 | .182902 | .107870 |
| 3     | .145682 | .200924 | .223909 | .085345 |
| 4     | .069209 | .073138 | .139764 | .039233 |
| 5     | .037623 | .050178 | .073557 | .021793 |
| 6     | .039194 | .042688 | .087836 | .018862 |
| 7     | .029829 | .040395 | .107272 | .021603 |
| 8     | .024314 | .035381 | .076642 | .021575 |
| 9-11  | .019911 | .023514 | .048734 | .012014 |
| 12-14 | .024009 | .027651 | .067487 | .009116 |
| 15-21 | .016125 | .010602 | .035265 | .004066 |
| 22-30 | .014465 | .012805 | .024887 | .004149 |



RUN NC 918 46M 6-18-63 2306-0010(EST)  
 RUN NC 918 91M 6-18-63 2306-0010(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .102385 | .053614 | .098253 | .222365 |
| 1     | .140816 | .156824 | .230245 | .277373 |
| 2     | .168958 | .154068 | .265859 | .359135 |
| 3     | .125063 | .116913 | .309335 | .338093 |
| 4     | .049432 | .045432 | .322777 | .174108 |
| 5     | .143638 | .163108 | .204846 | .059554 |
| 6     | .203864 | .091436 | .118658 | .175522 |
| 7-8   | .124350 | .119794 | .184008 | .107018 |
| 9-11  | .097030 | .069918 | .108861 | .126415 |
| 12-15 | .092308 | .082685 | .131882 | .139371 |
| 16-20 | .128997 | .090430 | .167640 | .120067 |
| 21-27 | .103039 | .132623 | .072065 | .129427 |
| 28-36 | .131336 | .075689 | .091253 | .093107 |
| 37-47 | .158983 | .077588 | .098605 | .054692 |
| 48-60 | .094240 | .095168 | .100930 | .133625 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .336323 | .688883 | .632164 | .289514 |
| 1     | .242783 | .735300 | .492798 | .282528 |
| 2     | .190675 | .719987 | .488718 | .335114 |
| 3     | .131871 | .612917 | .419139 | .292339 |
| 4     | .224683 | .232295 | .217953 | .092113 |
| 5     | .215614 | .223265 | .263839 | .280165 |
| 6     | .187069 | .246771 | .513224 | .430734 |
| 7     | .040226 | .179123 | .234005 | .450781 |
| 8     | .181807 | .167878 | .293352 | .309190 |
| 9-11  | .326147 | .367070 | .393984 | .521658 |
| 12-14 | .310711 | .239996 | .300203 | .516975 |
| 15-21 | .197880 | .228698 | .355491 | .284690 |
| 22-30 | .202703 | .274349 | .293679 | .312265 |

RUN NO 92A 15M 6-19-63 0030-0146(EST)

GROSS STATISTICS

CLBAR WIND SPEED 3.78 M/SEC SIGMA A 12.1 DEG  
 STABLE WIND DIRECTION 240 DEG SIGMA E 4.7 DEG  
 SOLAR RAD. 0 LY/MIN

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| <b>VARIANCES</b> |                         |                                |                               |                                    |
| U                | 0.81775E 00             | 0.33650E-00                    | 0.28840E-00                   | 0.19345E-00                        |
| V                | 0.55700E 00             | 0.18917E-00                    | 0.16824E-00                   | 0.71850E-01                        |
| W                | 0.95439E-01             | 0.94446E-01                    | 0.87311E-01                   | 0.26161E-01                        |
| T                | 0.55241E-02             | 0.24860E-02                    | 0.19262E-02                   | 0.15458E-02                        |
| E                | 0.73509E 00             | 0.31006E-00                    | 0.27198E-00                   |                                    |

**GUSTINESS RATIOS**

|   |         |         |         |         |
|---|---------|---------|---------|---------|
| U | 0.23923 | 0.15346 | 0.14207 | 0.11636 |
| V | 0.19744 | 0.11506 | 0.10851 | 0.07091 |
| W | 0.08173 | 0.08130 | 0.07817 | 0.04279 |

**COVARIANCES**

|     |              |              |              |              |
|-----|--------------|--------------|--------------|--------------|
| U,V | -0.27438E-00 | 0.11170E-01  | 0.54861E-02  | 0.93641E-02  |
| U,W | -0.88904E-01 | -0.65118E-01 | -0.60304E-01 | -0.34136E-01 |
| U,T | 0.18023E-01  | 0.12787E-01  | 0.10286E-01  | 0.93814E-02  |
| V,W | 0.40612E-01  | 0.10604E-01  | 0.10621E-01  | 0.45541E-02  |
| V,T | -0.36024E-03 | 0.23957E-02  | 0.18709E-02  | 0.14650E-02  |
| W,T | -0.46267E-02 | -0.47005E-02 | -0.44092E-02 | -0.20431E-02 |
| WE  | -0.19994E-01 | 0.76135E-02  | 0.75148E-02  |              |

**NORMALIZED COVARIANCES**

|     |          |          |          |          |
|-----|----------|----------|----------|----------|
| U,V | -0.40655 | 0.04427  | 0.02491  | 0.07943  |
| U,W | -0.31824 | -0.36528 | -0.38003 | -0.47984 |
| U,T | 0.26815  | 0.44209  | 0.43642  | 0.54251  |
| V,W | 0.17614  | 0.07933  | 0.08763  | 0.10504  |
| V,T | -0.00649 | 0.11047  | 0.10393  | 0.13901  |
| W,T | -0.20150 | -0.30676 | -0.34000 | -0.32128 |

RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.22031<br>10E 00 | 0.15869<br>10E 00 | 0.23572<br>10E-01 | 0.12121<br>10E 00 | 0.18005<br>10E-01 | 0.12969<br>10E-01 |
| 0  | .025087           | -.379998          | .436607           | .087511           | .103877           | -.340220          |
| 1  | .029884           | -.328228          | .415379           | .061113           | .094464           | -.279873          |
| 2  | .034655           | -.243767          | .364419           | .035540           | .069151           | -.195207          |
| 3  | .023520           | -.170658          | .301709           | .020742           | .043181           | -.130646          |
| 4  | .005450           | -.117452          | .237293           | .011001           | .029097           | -.080854          |
| 5  | .000410           | -.081187          | .175439           | .017639           | .021410           | -.044370          |
| 6  | -.003439          | -.041644          | .119077           | .026256           | .016056           | -.011712          |
| 7  | -.010856          | -.005169          | .070151           | .034622           | .010577           | .008827           |
| 8  | -.002942          | .013393           | .031491           | .025119           | .005808           | .027307           |
| 9  | -.000531          | .025140           | .003176           | .021062           | .000870           | .037546           |
| 10 | -.000688          | .029119           | -.016140          | .010521           | -.002360          | .043682           |
| 11 | .000784           | .038934           | -.034771          | -.001439          | -.001084          | .055894           |
| 12 | .003500           | .051433           | -.052023          | -.007478          | .000467           | .060389           |
| 13 | .004410           | .062039           | -.070881          | -.007196          | -.005618          | .058050           |
| 14 | .000249           | .072741           | -.089652          | -.011929          | -.017701          | .055825           |
| 15 | -.004493          | .080412           | -.102037          | -.020324          | -.026222          | .050698           |
| 16 | -.007899          | .086199           | -.112217          | -.014599          | -.027921          | .055766           |
| 17 | -.002218          | .091378           | -.126230          | -.010187          | -.028070          | .048147           |
| 18 | .002043           | .097080           | -.141774          | -.019812          | -.032452          | .044896           |
| 19 | .001044           | .105084           | -.154604          | -.026292          | -.041064          | .043108           |
| 20 | -.007482          | .105608           | -.163039          | -.025465          | -.042661          | .050696           |
| 21 | -.023963          | .105407           | -.167095          | -.028053          | -.040791          | .056692           |
| 22 | -.020661          | .097343           | -.170160          | -.029855          | -.034319          | .060364           |
| 23 | -.012382          | .091773           | -.170859          | -.018098          | -.026310          | .056911           |
| 24 | -.004184          | .094000           | -.171865          | -.007653          | -.020493          | .051571           |
| 25 | .002829           | .091051           | -.170869          | -.001431          | -.019982          | .049409           |
| 26 | .014031           | .071798           | -.161625          | -.013579          | -.015858          | .046676           |
| 27 | .021523           | .057501           | -.146931          | -.039148          | -.009705          | .040593           |
| 28 | .026998           | .051719           | -.130742          | -.039637          | .002526           | .034317           |
| 29 | .021072           | .046553           | -.110852          | -.034955          | .001751           | .031762           |
| 30 | .008379           | .037427           | -.086292          | -.022892          | .004645           | .030950           |
| 31 | -.004896          | .025821           | -.063024          | -.006447          | .004671           | .036054           |
| 32 | -.015346          | .004804           | -.037337          | -.002865          | .004035           | .035764           |
| 33 | -.023959          | -.012563          | -.016471          | .000686           | -.005296          | .032665           |
| 34 | -.029093          | -.021051          | .001835           | .002586           | -.012833          | .018232           |
| 35 | -.035611          | -.025625          | .015988           | .005104           | -.017126          | .006494           |
| 36 | -.031610          | -.038015          | .027543           | .008697           | -.018138          | -.003253          |
| 37 | -.018105          | -.052052          | .036861           | .005642           | -.004557          | -.014219          |
| 38 | -.005968          | -.060269          | .043330           | .001021           | .015768           | -.022822          |
| 39 | .006030           | -.059493          | .047033           | .007592           | .029873           | -.027641          |
| 40 | .012555           | -.042316          | .046376           | .011137           | .034416           | -.026794          |
| 41 | .012213           | -.020845          | .045326           | .001464           | .035531           | -.019555          |
| 42 | .005208           | .000439           | .040292           | -.005330          | .033258           | -.011015          |
| 43 | -.002817          | .002807           | .036297           | -.007259          | .025651           | -.002697          |
| 44 | -.009291          | .002901           | .032001           | .002243           | .012274           | .004784           |
| 45 | -.009823          | -.002427          | .034471           | -.000660          | .005429           | .006590           |
| 46 | -.014086          | -.005416          | .042906           | -.000942          | .003524           | -.003390          |
| 47 | -.014628          | -.007803          | .049696           | .000257           | -.001307          | -.010888          |
| 48 | -.018659          | -.018962          | .052996           | .000937           | -.008951          | -.018124          |
| 49 | -.012176          | -.028115          | .047236           | -.007729          | -.011262          | -.017515          |
| 50 | -.000207          | -.028369          | .041899           | -.021412          | -.012508          | -.019163          |
| 51 | .007100           | -.026247          | .037340           | -.022168          | -.004865          | -.020462          |
| 52 | .006616           | -.024514          | .033332           | -.019847          | -.000464          | -.023303          |
| 53 | .001329           | -.016898          | .027781           | -.018294          | -.003714          | -.023483          |
| 54 | .004526           | -.010044          | .024634           | -.029666          | -.007189          | -.022404          |
| 55 | .008294           | -.003345          | .026304           | -.033350          | -.008552          | -.025600          |
| 56 | .006680           | -.000314          | .028245           | -.025162          | -.010512          | -.026698          |
| 57 | .002610           | -.007451          | .029659           | -.009969          | -.015305          | -.027904          |
| 58 | .000678           | -.006416          | .030619           | .012025           | -.019576          | -.029222          |
| 59 | .000726           | -.006040          | .028888           | .014329           | -.019360          | -.036056          |
| 60 | -.004715          | -.016058          | .033388           | .021911           | -.013407          | -.034894          |

RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,i               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.22031<br>10E 00 | 0.15869<br>10E 00 | 0.23572<br>10E-01 | 0.12121<br>10E 00 | 0.18005<br>10E-01 | 0.12969<br>10E-01 |
| 1  | -.008270          | -.023832          | .082198           | .006744           | .006565           | -.057982          |
| 2  | -.006269          | -.028018          | .140161           | .007256           | .012373           | -.070572          |
| 3  | -.006838          | -.020341          | .169198           | .000412           | .021514           | -.067500          |
| 4  | -.003235          | -.009199          | .180991           | .004132           | .028377           | -.063699          |
| 5  | .006011           | .000576           | .185148           | .005486           | .028640           | -.056461          |
| 6  | .012987           | -.001462          | .182704           | .000717           | .018275           | -.051573          |
| 7  | .017015           | -.000265          | .177215           | -.010089          | .009395           | -.046167          |
| 8  | .011714           | -.011823          | .170840           | -.012365          | .000511           | -.045452          |
| 9  | .010768           | -.014364          | .161545           | -.009390          | -.001616          | -.055570          |
| 10 | .016439           | -.011040          | .149121           | -.009040          | -.001589          | -.061714          |
| 11 | .022489           | -.007874          | .136058           | -.015215          | .003403           | -.055176          |
| 12 | .013265           | -.003570          | .125592           | -.023937          | .009413           | -.038809          |
| 13 | .004768           | -.002799          | .121403           | -.038496          | .019509           | -.022459          |
| 14 | -.005751          | -.007822          | .112067           | -.042006          | .030699           | -.015416          |
| 15 | -.011715          | -.007224          | .098535           | -.020710          | .036315           | -.015972          |
| 16 | -.013036          | .002898           | .083064           | -.005158          | .031883           | -.017074          |
| 17 | -.012946          | .004487           | .069292           | .002198           | .022045           | -.013291          |
| 18 | -.017745          | -.005204          | .058395           | -.001466          | .015714           | -.003005          |
| 19 | -.023878          | -.011329          | .042847           | -.016018          | .014109           | .006521           |
| 20 | -.030459          | -.009547          | .028176           | -.032858          | .015926           | .020194           |
| 21 | -.036859          | -.010814          | .011469           | -.043571          | .009427           | .025498           |
| 22 | -.037698          | -.017200          | -.000343          | -.032028          | -.004626          | .024169           |
| 23 | -.030174          | -.019324          | -.008765          | -.021790          | -.013776          | .016431           |
| 24 | -.018261          | -.019813          | -.019528          | -.016611          | -.007969          | .018022           |
| 25 | -.015735          | -.017596          | -.033841          | -.013183          | -.001937          | .020862           |
| 26 | -.019372          | -.015778          | -.049787          | -.009694          | .005631           | .020652           |
| 27 | -.024976          | -.017601          | -.058381          | -.003878          | .015169           | .024782           |
| 28 | -.021288          | -.014345          | -.058614          | -.009765          | .025610           | .020948           |
| 29 | -.019026          | -.014538          | -.056182          | -.015118          | .033551           | .021275           |
| 30 | -.016113          | -.013825          | -.054719          | -.010711          | .040176           | .017524           |
| 31 | -.014088          | -.015264          | -.054278          | .003884           | .040380           | .010436           |
| 32 | -.013707          | -.015761          | -.054509          | .001574           | .040358           | .013609           |
| 33 | -.008317          | -.001754          | -.059943          | .003252           | .036456           | .018009           |
| 34 | -.008941          | .004353           | -.066833          | .002550           | .032947           | .027191           |
| 35 | -.012079          | .019838           | -.065687          | .008524           | .029319           | .034399           |
| 36 | -.008232          | .029050           | -.063001          | .011121           | .019815           | .030822           |
| 37 | -.008308          | .026882           | -.053664          | .003300           | .011648           | .008784           |
| 38 | .000516           | .019668           | -.039772          | .002704           | .008064           | .001481           |
| 39 | .016096           | .012786           | -.025080          | .027617           | .004191           | -.003789          |
| 40 | .020296           | .012926           | -.011701          | .045661           | -.003249          | -.011056          |
| 41 | .020470           | .021755           | -.003450          | .048945           | -.014272          | -.016185          |
| 42 | .022625           | .022451           | .003253           | .036411           | -.024648          | -.023200          |
| 43 | .032220           | .017100           | .011102           | .024268           | -.036878          | -.024865          |
| 44 | .033630           | -.001087          | .015420           | .007387           | -.040999          | -.020934          |
| 45 | .028679           | -.014973          | .015775           | -.015690          | -.041645          | -.011210          |
| 46 | .028001           | -.018131          | .007615           | -.004218          | -.043862          | -.006930          |
| 47 | .029930           | -.008267          | .002066           | .019006           | -.044841          | -.003771          |
| 48 | .033342           | -.001025          | -.000320          | .022094           | -.037531          | .000185           |
| 49 | .038888           | .010588           | -.000880          | .013917           | -.028435          | .004836           |
| 50 | .044104           | .011935           | -.002290          | .003675           | -.021210          | .001291           |
| 51 | .043859           | .018609           | -.005007          | .005413           | -.014910          | -.003925          |
| 52 | .037398           | .023903           | -.004329          | .016858           | -.010985          | -.010582          |
| 53 | .039298           | .019926           | -.002184          | .028474           | -.018865          | -.017989          |
| 54 | .036009           | .003353           | .002415           | .036368           | -.032265          | -.019034          |
| 55 | .028036           | -.002003          | .005955           | .025886           | -.036767          | -.006842          |
| 56 | .024362           | .012235           | .009781           | .014810           | -.034006          | .002080           |
| 57 | .025332           | .020480           | .011243           | .014389           | -.032248          | .002102           |
| 58 | .023769           | .011578           | .014450           | .019744           | -.031082          | -.007142          |
| 59 | .020292           | .003760           | .016596           | .018277           | -.025564          | -.016944          |
| 60 | .017567           | -.001801          | .019423           | .013578           | -.016364          | -.013253          |

RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.28843<br>10E 00 | 0.16828<br>10E 00 | 0.87310<br>10E-01 | 0.19264<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .816757           | .686686           | .571147           | .860194           |
| 2  | .605275           | .372340           | .229562           | .665000           |
| 3  | .448416           | .192110           | .074147           | .488428           |
| 4  | .322214           | .089628           | .014205           | .346415           |
| 5  | .216194           | .020252           | .000717           | .232171           |
| 6  | .124811           | -.015275          | -.015607          | .141529           |
| 7  | .044958           | -.042773          | -.038793          | .067038           |
| 8  | -.013000          | -.078165          | -.065022          | .008142           |
| 9  | -.056406          | -.090141          | -.057880          | -.039743          |
| 10 | -.080710          | -.094144          | -.053604          | -.074258          |
| 11 | -.095622          | -.094118          | -.070296          | -.096295          |
| 12 | -.105874          | -.095891          | -.090100          | -.119433          |
| 13 | -.121357          | -.094189          | -.099966          | -.138573          |
| 14 | -.132133          | -.098924          | -.101266          | -.152068          |
| 15 | -.148418          | -.103434          | -.100275          | -.172639          |
| 16 | -.170074          | -.112280          | -.082200          | -.193060          |
| 17 | -.197973          | -.128876          | -.072532          | -.207458          |
| 18 | -.220849          | -.139883          | -.066876          | -.215327          |
| 19 | -.239338          | -.135730          | -.067949          | -.215754          |
| 20 | -.252759          | -.131121          | -.078000          | -.215219          |
| 21 | -.258633          | -.140874          | -.088748          | -.219520          |
| 22 | -.258697          | -.125317          | -.078535          | -.221630          |
| 23 | -.268811          | -.094070          | -.070185          | -.227861          |
| 24 | -.271496          | -.088631          | -.063530          | -.235420          |
| 25 | -.260909          | -.088358          | -.048741          | -.237793          |
| 26 | -.239996          | -.089805          | -.037051          | -.234008          |
| 27 | -.223198          | -.094828          | -.043599          | -.226588          |
| 28 | -.195350          | -.088197          | -.053335          | -.209134          |
| 29 | -.168833          | -.059997          | -.058537          | -.186204          |
| 30 | -.134161          | -.011795          | -.037782          | -.157859          |
| 31 | -.086203          | .018297           | -.024194          | -.124064          |
| 32 | -.041969          | .039537           | -.013034          | -.090893          |
| 33 | -.008379          | .042115           | -.020826          | -.062189          |
| 34 | .021973           | .027278           | -.025703          | -.027357          |
| 35 | .039874           | .017006           | .007965           | .002779           |
| 36 | .057926           | .010341           | .055983           | .029298           |
| 37 | .094263           | .017574           | .054222           | .048980           |
| 38 | .108408           | .024591           | .049671           | .062806           |
| 39 | .108260           | .030416           | .043316           | .074557           |
| 40 | .099119           | .030417           | .027933           | .078054           |
| 41 | .071906           | .026110           | .019180           | .075854           |
| 42 | .044892           | .022372           | .014668           | .073481           |
| 43 | .032076           | .023144           | -.014052          | .065699           |
| 44 | .032645           | .024276           | -.033055          | .053906           |
| 45 | .031172           | .015418           | -.031934          | .053501           |
| 46 | .032044           | .011065           | -.019839          | .067451           |
| 47 | .036338           | .003253           | -.000756          | .076928           |
| 48 | .053915           | -.013400          | .011296           | .080335           |
| 49 | .069548           | -.038414          | .012887           | .076758           |
| 50 | .069407           | -.043777          | .010713           | .067131           |
| 51 | .068194           | -.028365          | .008566           | .057210           |
| 52 | .076661           | -.007289          | -.006042          | .042151           |
| 53 | .082097           | .014087           | -.004858          | .026855           |
| 54 | .074225           | .015797           | -.019154          | .017405           |
| 55 | .064385           | .013795           | -.017070          | .011310           |
| 56 | .050749           | .012229           | -.014948          | .008746           |
| 57 | .044440           | .007837           | -.007178          | .006584           |
| 58 | .037159           | .019883           | -.001082          | .009142           |
| 59 | .027954           | .025446           | .010057           | .004763           |
| 60 | .023789           | .033478           | .033979           | .000511           |

RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W     | V,T      | W,T      |
|-------|----------|----------|---------|---------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-02  | 10E-02  | 10E-03   | 10E-03   |
| 0     | .010349  | -.002086 | .007490 | .008613 | .022258  | -.009837 |
| 1     | .108970  | -.042621 | .129538 | .123684 | .166379  | -.278920 |
| 2     | .090814  | -.078764 | .211756 | .159227 | .261064  | -.473328 |
| 3     | .065468  | -.104645 | .239454 | .163150 | .348731  | -.576303 |
| 4     | .088396  | -.073970 | .136250 | .077833 | .230510  | -.454793 |
| 5     | .091943  | -.039756 | .064280 | .016879 | .110137  | -.371310 |
| 6     | .023424  | -.036819 | .063176 | .022433 | .059301  | -.357241 |
| 7-8   | .056083  | -.032709 | .054430 | .000293 | .073549  | -.257058 |
| 9-11  | .044576  | -.022062 | .024186 | .023973 | .085300  | -.147704 |
| 12-15 | .028705  | -.011193 | .007667 | .045213 | .045068  | -.105636 |
| 16-20 | -.012190 | -.005944 | .002127 | .031939 | .030186  | -.057707 |
| 21-27 | -.016526 | -.005499 | .001869 | .007262 | .009521  | -.037567 |
| 28-36 | -.019240 | -.001257 | .000475 | .008541 | .001486  | -.020541 |
| 37-47 | .005082  | -.001072 | .000161 | .007251 | -.001798 | -.010818 |
| 48-50 | -.000941 | -.000440 | .000037 | .004673 | -.000338 | -.006863 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-03   | 10E-03   |
| 1     | -.192303 | -.102415 | .077322  | -.120314 | .248668  | -.052068 |
| 2     | -.094113 | -.087166 | .124801  | -.120289 | .138490  | -.152749 |
| 3     | .151531  | -.010422 | .154485  | -.032259 | .005750  | -.276347 |
| 4     | .168710  | .023204  | .102946  | .037442  | .071362  | -.237752 |
| 5     | .059521  | -.051187 | .053741  | .016458  | .071749  | -.138584 |
| 6     | .003887  | -.071023 | .043805  | .013684  | -.064085 | -.100329 |
| 7-8   | -.076403 | -.005354 | .032590  | .025680  | .042827  | -.046616 |
| 9-11  | -.033458 | -.016424 | .019944  | .016334  | .082654  | -.057180 |
| 12-15 | -.014674 | -.039208 | .009056  | -.001208 | -.006758 | -.059671 |
| 16-20 | -.024766 | -.040037 | .005728  | -.005143 | -.009995 | -.029792 |
| 21-27 | .014037  | -.006737 | .001708  | .009567  | -.007134 | -.022553 |
| 28-36 | -.009818 | -.006033 | .000597  | .005536  | .002400  | -.010669 |
| 37-47 | -.005244 | -.002327 | -.000124 | -.002022 | .000184  | -.007795 |
| 48-60 | -.000023 | .002804  | .000085  | -.001798 | .001833  | -.000523 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-02  | 10E-03  |
| 0     | .013530 | .004318 | .019262 | .015027 |
| 1     | .235978 | .068710 | .275856 | .186801 |
| 2     | .399200 | .116087 | .441905 | .283577 |
| 3     | .476405 | .161047 | .600686 | .320168 |
| 4     | .298315 | .136518 | .531347 | .204557 |
| 5     | .163643 | .097117 | .432110 | .136410 |
| 6     | .178981 | .091282 | .433010 | .135792 |
| 7-8   | .164429 | .090537 | .358841 | .100140 |
| 9-11  | .091869 | .069974 | .312273 | .062007 |
| 12-15 | .045312 | .045867 | .287808 | .031936 |
| 16-20 | .033473 | .036117 | .216241 | .020550 |
| 21-27 | .023695 | .023836 | .179714 | .010914 |
| 28-36 | .014498 | .016236 | .108744 | .006148 |
| 37-47 | .010140 | .010334 | .086058 | .003824 |
| 48-60 | .006291 | .007229 | .062605 | .002841 |

RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.11795<br>10E 00 | 0.71174<br>10E-01 | 0.17289<br>10E-01 | 0.43388<br>10E-01 | 0.10539<br>10E-01 | 0.63595<br>10E-02 |
| 0  | .079387           | -.479611          | .542621           | .104963           | .138999           | -.321270          |
| 1  | .046939           | -.082972          | .222890           | .011402           | .059861           | -.027043          |
| 2  | .025366           | .102351           | -.011167          | -.077095          | .004941           | .029256           |
| 3  | .022813           | .038691           | -.014463          | -.001653          | -.016157          | .031303           |
| 4  | -.016470          | .010736           | .000151           | -.023244          | -.023373          | .010420           |
| 5  | .012378           | .021969           | .001263           | -.059032          | -.039535          | -.013823          |
| 6  | .002583           | .000592           | -.010999          | .024672           | -.039155          | -.044150          |
| 7  | .058114           | .049183           | -.063461          | .071745           | -.021049          | .036816           |
| 8  | .003572           | .003557           | -.019151          | .050560           | .022989           | .017788           |
| 9  | .056159           | -.004579          | -.004947          | -.046427          | .029969           | .012802           |
| 10 | .017090           | -.041556          | .014326           | -.021722          | .014631           | -.016004          |
| 11 | -.010598          | .038589           | -.027322          | .016178           | -.063088          | .024777           |
| 12 | -.088803          | .062542           | -.113340          | .080253           | -.061202          | .058196           |
| 13 | -.009307          | .108402           | -.141788          | .011682           | -.061603          | .077426           |
| 14 | -.030531          | .058266           | -.051247          | .000686           | -.029693          | -.014756          |
| 15 | -.073822          | .047831           | .049293           | .043311           | -.029677          | .046223           |
| 16 | .000545           | .046630           | -.063285          | .049999           | -.008929          | .088743           |
| 17 | -.012826          | -.050616          | -.036029          | -.066018          | -.010439          | .042860           |
| 18 | .007297           | .016025           | .001726           | -.002537          | -.017169          | -.015162          |
| 19 | -.007242          | -.016384          | .075424           | -.017376          | .030846           | -.010680          |
| 20 | .017411           | -.042602          | .073673           | -.031412          | .032277           | .005654           |
| 21 | .009416           | -.027461          | -.018221          | .009885           | -.000830          | .018627           |
| 22 | .010216           | .002235           | -.059350          | .062250           | -.004276          | -.004395          |
| 23 | -.034909          | -.020565          | -.034584          | .010304           | -.029780          | -.015934          |
| 24 | -.035401          | -.104428          | .049986           | .062423           | -.023506          | -.090841          |
| 25 | -.062141          | -.038691          | .030064           | .016471           | -.094014          | -.058750          |
| 26 | .003734           | .002045           | .040048           | -.008853          | -.021661          | -.036108          |
| 27 | .050953           | -.043620          | .055510           | -.015761          | .027288           | .004257           |
| 28 | .005471           | -.033550          | .017056           | .021735           | .043854           | -.011350          |
| 29 | -.015198          | -.036043          | .007091           | -.023462          | -.004665          | -.019854          |
| 30 | .013463           | .027436           | -.032130          | -.032383          | .080600           | .014497           |

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-03  | 10E-03   | 10E-03   | 10E-03   |
| 0     | .043627  | .004109  | .088869 | -.000001 | -.039489 | .005910  |
| 1     | .235712  | -.061088 | .665085 | -.351826 | .029795  | -.067306 |
| 2     | .169922  | -.155742 | .786933 | -.440983 | .133476  | -.126972 |
| 3     | .069418  | -.161306 | .760505 | -.423377 | .130500  | -.091732 |
| 4     | -.053010 | -.066999 | .440395 | -.102928 | .058548  | -.024072 |
| 5     | -.029678 | -.098887 | .405754 | .235033  | .064685  | -.050679 |
| 6     | .125392  | -.202757 | .671716 | .128912  | .189270  | -.080595 |
| 7     | .161437  | -.230160 | .678934 | .341512  | .218578  | -.088520 |
| 8     | .100263  | -.153073 | .410156 | .886738  | .152261  | -.078343 |
| 9-11  | .008442  | -.158554 | .412738 | .759662  | .003397  | -.107399 |
| 12-14 | .024973  | -.223876 | .553575 | -.039039 | .090406  | -.128159 |
| 15-21 | .005677  | -.172330 | .305207 | .398332  | .038101  | -.081502 |
| 22-30 | .023172  | -.100078 | .160002 | .045179  | .028923  | -.097348 |

RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.11795<br>10E 00 | 0.71174<br>10E-01 | 0.17289<br>10E-01 | 0.43388<br>10E-01 | 0.10539<br>10E-01 | 0.63595<br>10E-02 |
| 1  | .022762           | -.022286          | .215803           | -.028164          | .059056           | -.079003          |
| 2  | -.006360          | -.027267          | .129380           | -.045800          | .042427           | -.032220          |
| 3  | .034823           | -.044836          | .074768           | -.000267          | .086162           | -.027873          |
| 4  | .087199           | .059307           | .047532           | .100108           | .008581           | -.066330          |
| 5  | .131528           | .024711           | .040490           | .069418           | -.064250          | -.056097          |
| 6  | .089878           | .015123           | .024123           | .072660           | -.041875          | -.069503          |
| 7  | -.014291          | .019817           | -.031892          | -.039120          | -.005576          | -.026752          |
| 8  | .005479           | -.005279          | -.050206          | -.010837          | .004795           | .045580           |
| 9  | .013160           | -.012128          | -.045684          | -.093863          | .009360           | .000428           |
| 10 | .046934           | -.007766          | .004765           | -.022142          | .033810           | -.038507          |
| 11 | .052615           | .006013           | .045336           | .001650           | .054655           | -.023032          |
| 12 | .039116           | -.002584          | .017030           | -.023368          | .018731           | -.011028          |
| 13 | .022932           | -.054854          | .027347           | .016282           | .013061           | .039188           |
| 14 | .002661           | -.010952          | -.004825          | -.038497          | -.015803          | .039777           |
| 15 | .005773           | -.015680          | -.046770          | .027523           | -.003692          | .022327           |
| 16 | .058861           | -.029373          | -.091592          | .020543           | -.047090          | .071954           |
| 17 | -.046084          | -.022975          | -.062427          | -.108860          | -.015643          | .062254           |
| 18 | -.074863          | .017263           | -.058296          | -.069240          | .071031           | .045870           |
| 19 | -.040186          | -.064056          | .026267           | .012961           | .066242           | .055379           |
| 20 | -.002366          | -.004668          | .103761           | .042136           | .046435           | -.012106          |
| 21 | .035629           | .063019           | .106333           | .038583           | -.009522          | -.146974          |
| 22 | -.022539          | .044515           | .048563           | .011853           | .029325           | -.069908          |
| 23 | .000766           | .008635           | -.002619          | -.001935          | .035969           | -.034728          |
| 24 | -.013739          | .034390           | -.058817          | -.000525          | -.038454          | -.017560          |
| 25 | -.064989          | -.026635          | -.078605          | -.040597          | -.031348          | .015592           |
| 26 | -.071183          | .028421           | -.079746          | -.028946          | .012254           | .015390           |
| 27 | -.006940          | -.007904          | -.021408          | .006105           | .025296           | .005664           |
| 28 | -.008277          | -.022446          | .023017           | .038623           | -.027049          | -.017524          |
| 29 | -.055830          | .033280           | -.029657          | -.051953          | -.034298          | -.013509          |
| 30 | -.018582          | -.029751          | .076468           | .064157           | -.038079          | -.010238          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-03   | 10E-03  | 10E-02   | 10E-03   | 10E-03   |
| 1     | .304351  | -.341394 | .070310 | -.026143 | .103907  | -.029505 |
| 2     | .298353  | .070425  | .171716 | .011628  | .019104  | -.084970 |
| 3     | .209696  | .546922  | .355999 | .050494  | .009836  | -.154407 |
| 4     | .106911  | .168257  | .367606 | .053876  | .021830  | -.077018 |
| 5     | .110880  | -.314507 | .341774 | .041040  | .018499  | -.018845 |
| 6     | .111876  | -.276694 | .645815 | .026303  | .147027  | -.087101 |
| 7     | -.028703 | -.501013 | .554221 | -.045097 | .261344  | -.047190 |
| 8     | -.139029 | -.606823 | .109849 | -.103004 | .169977  | .027697  |
| 9-11  | -.166404 | -.560217 | .232652 | -.067026 | .077352  | .017023  |
| 12-14 | .074934  | -.008219 | .341033 | .001080  | -.031255 | -.078176 |
| 15-21 | .036897  | .303663  | .169045 | .012948  | .003348  | -.037383 |
| 22-30 | .027022  | -.439569 | .091110 | -.014141 | .050108  | -.001719 |



RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.19349<br>10E 00 | 0.71905<br>10E-01 | 0.26180<br>10E-01 | 0.15448<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .260958           | .164162           | .049817           | .413891           |
| 2  | -.043420          | .052203           | -.042424          | .130197           |
| 3  | -.048902          | .036198           | -.056497          | .012068           |
| 4  | .005073           | .058834           | -.044264          | .017485           |
| 5  | -.000987          | .014322           | -.088709          | -.010804          |
| 6  | -.032209          | .113194           | -.017690          | -.077084          |
| 7  | -.105742          | .089361           | -.024196          | -.119017          |
| 8  | -.068178          | .104457           | .012282           | -.068346          |
| 9  | .007912           | -.037703          | -.120058          | -.044060          |
| 10 | .054236           | -.011734          | -.051848          | -.029136          |
| 11 | -.034748          | -.057343          | -.115462          | -.074941          |
| 12 | -.133787          | -.057193          | -.012574          | -.138282          |
| 13 | -.137035          | -.211544          | -.092400          | -.194424          |
| 14 | -.138413          | -.122888          | .012864           | -.088989          |
| 15 | -.095124          | .000466           | .007767           | -.079048          |
| 16 | -.049675          | -.018141          | -.024048          | -.027141          |
| 17 | .006297           | -.085564          | .026852           | .027570           |
| 18 | .039200           | -.083259          | .024819           | .107424           |
| 19 | .075066           | -.228362          | .001492           | .131635           |
| 20 | .068065           | -.091823          | .061051           | .127423           |
| 21 | -.009211          | -.092647          | .002555           | -.048292          |
| 22 | -.085383          | -.035056          | -.016761          | -.062433          |
| 23 | -.057010          | -.112304          | -.005357          | -.066558          |
| 24 | -.036527          | -.059242          | .091889           | -.008159          |
| 25 | -.036910          | -.072463          | -.038901          | -.009544          |
| 26 | -.018772          | -.105688          | -.065427          | -.022846          |
| 27 | .123635           | .010796           | -.050759          | .043823           |
| 28 | .013528           | -.042371          | -.013521          | .008605           |
| 29 | .034560           | -.050072          | .081321           | .006337           |
| 30 | -.001855          | .045358           | -.014315          | -.046812          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-02  | 10E-02  | 10E-03  |
| 0     | .014818 | .134147 | .004849 | .025749 |
| 1     | .106925 | .802081 | .054749 | .126318 |
| 2     | .118149 | .566171 | .091173 | .130646 |
| 3     | .122276 | .302727 | .131950 | .153773 |
| 4     | .084652 | .163364 | .112975 | .110641 |
| 5     | .077553 | .145827 | .086137 | .076920 |
| 6     | .124271 | .220197 | .095114 | .106800 |
| 7     | .118958 | .378420 | .119093 | .104753 |
| 8     | .065090 | .411057 | .133642 | .057276 |
| 9-11  | .084983 | .294110 | .113788 | .057612 |
| 12-14 | .111643 | .209011 | .094630 | .069000 |
| 15-21 | .070502 | .315457 | .124149 | .039163 |
| 22-30 | .062274 | .327015 | .141593 | .040396 |

RUN NO 92A 46M 6-19-63 0030-0146(EST)

GROSS STATISTICS

CLEAR WIND SPEED 5.97 M/SEC SIGMA A 8.00 DEG  
STABLE WIND DIRECTION 243 DEG SIGMA E 2.0 DEG  
SOLAR RAD. 0 LY/MIN

|           | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-----------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| VARIANCES |                         |                                |                               |                                    |
| U         | 0.68803E 00             | 0.16146E-00                    | 0.13058E-00                   | 0.84831E-01                        |
| V         | 0.63809E 00             | 0.10284E-00                    | 0.87080E-01                   | 0.36360E-01                        |
| W         | 0.42033E-01             | 0.41016E-01                    | 0.38547E-01                   | 0.11425E-01                        |
| T         | 0.19185E-01             | 0.78907E-02                    | 0.61201E-02                   | 0.50164E-02                        |
| E         | 0.68408E 00             | 0.15270E-00                    | 0.12810E-00                   |                                    |

|                  |         |         |         |         |
|------------------|---------|---------|---------|---------|
| GUSTINESS RATIOS |         |         |         |         |
| U                | 0.13894 | 0.06731 | 0.06053 | 0.04879 |
| V                | 0.13380 | 0.05372 | 0.04943 | 0.03194 |
| W                | 0.03434 | 0.03392 | 0.03289 | 0.01790 |

|             |              |              |              |              |
|-------------|--------------|--------------|--------------|--------------|
| COVARIANCES |              |              |              |              |
| U,V         | -0.33265E-00 | 0.17247E-01  | 0.14170E-01  | 0.48359E-02  |
| U,W         | -0.39109E-01 | -0.33012E-01 | -0.31494E-01 | -0.12071E-01 |
| U,T         | 0.79377E-03  | 0.17308E-01  | 0.13599E-01  | 0.11226E-01  |
| V,W         | -0.66256E-02 | -0.91308E-02 | -0.90572E-02 | -0.14950E-02 |
| V,T         | 0.41142E-01  | 0.12945E-02  | 0.26730E-02  | -0.12745E-02 |
| W,T         | -0.37292E-02 | -0.59307E-02 | -0.53387E-02 | -0.25991E-02 |
| WE          | 0.12403E-02  | 0.49309E-02  | 0.45850E-02  |              |

|                        |          |          |          |          |
|------------------------|----------|----------|----------|----------|
| NORMALIZED COVARIANCES |          |          |          |          |
| U,V                    | -0.50204 | 0.13385  | 0.13288  | 0.08707  |
| U,W                    | -0.22997 | -0.40566 | -0.44391 | -0.38775 |
| U,T                    | 0.00691  | 0.48489  | 0.48105  | 0.54421  |
| V,W                    | -0.04046 | -0.14059 | -0.15633 | -0.07335 |
| V,T                    | 0.37184  | 0.04544  | 0.11579  | -0.09437 |
| W,T                    | -0.13132 | -0.32966 | -0.34759 | -0.34332 |

RUN NO 92A 46M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.10664<br>10E 00 | 0.70943<br>10E-01 | 0.28270<br>10E-01 | 0.57929<br>10E-01 | 0.23084<br>10E-01 | 0.15357<br>10E-01 |
| 0  | .133125           | -.444059          | .480941           | -.156420          | .115735           | -.347619          |
| 1  | .108980           | -.342600          | .447076           | -.084439          | .092285           | -.285035          |
| 2  | .062909           | -.202302          | .375020           | -.014771          | .043967           | -.189066          |
| 3  | .026687           | -.094103          | .296632           | .018329           | .001112           | -.116775          |
| 4  | -.000554          | -.033816          | .225427           | .029485           | -.025901          | -.065286          |
| 5  | -.019369          | .001257           | .161503           | .031867           | -.041760          | -.024819          |
| 6  | -.047406          | .034503           | .104727           | .045969           | -.053437          | .010090           |
| 7  | -.062024          | .060998           | .056933           | .066358           | -.060242          | .039324           |
| 8  | -.068085          | .073694           | .024183           | .065121           | -.060785          | .054477           |
| 9  | -.066505          | .061084           | -.000119          | .040746           | -.050086          | .054808           |
| 10 | -.062468          | .047092           | -.017648          | .024672           | -.041715          | .047773           |
| 11 | -.049508          | .044271           | -.033987          | .019816           | -.038657          | .042695           |
| 12 | -.034905          | .052142           | -.052510          | .015838           | -.033123          | .045631           |
| 13 | -.022316          | .053207           | -.063962          | .003856           | -.018769          | .047212           |
| 14 | -.015319          | .047452           | -.071144          | -.010501          | -.000374          | .041632           |
| 15 | -.013479          | .041886           | -.076416          | -.010804          | .010178           | .031457           |
| 16 | -.001294          | .040606           | -.080879          | -.018188          | .019744           | .021322           |
| 17 | .010338           | .037376           | -.087123          | -.019883          | .025449           | .014346           |
| 18 | .025479           | .026060           | -.091037          | -.039164          | .032027           | .007786           |
| 19 | .030720           | .026020           | -.092418          | -.034763          | .037537           | .006051           |
| 20 | .035020           | .036333           | -.095725          | -.019393          | .041304           | .012287           |
| 21 | .036194           | .044662           | -.105484          | -.001877          | .035777           | .023800           |
| 22 | .033052           | .048696           | -.118387          | .004121           | .025430           | .038327           |
| 23 | .029745           | .040373           | -.129775          | -.013119          | .018028           | .050210           |
| 24 | .023608           | .028883           | -.136789          | -.020136          | .012038           | .054971           |
| 25 | .014367           | .020930           | -.136377          | -.007485          | .000777           | .057951           |
| 26 | .003180           | .022261           | -.128530          | .010743           | -.008114          | .061387           |
| 27 | -.006138          | .024969           | -.120852          | .020325           | -.010444          | .058210           |
| 28 | -.018177          | .020600           | -.119900          | .007279           | -.006169          | .048980           |
| 29 | -.020305          | .025500           | -.115526          | -.007303          | .002111           | .037549           |
| 30 | -.011858          | .029655           | -.100051          | -.011492          | .010089           | .022553           |
| 31 | -.000901          | .029957           | -.087437          | -.018638          | .010346           | .020317           |
| 32 | .011751           | .024738           | -.080004          | -.020590          | .008589           | .016798           |
| 33 | .015033           | .021382           | -.075857          | -.012060          | .006271           | .018303           |
| 34 | .011256           | .020525           | -.071426          | -.005236          | .010353           | .014457           |
| 35 | -.001010          | .020043           | -.059344          | .002874           | .018567           | .003081           |
| 36 | -.011707          | .016928           | -.050176          | -.007126          | .022804           | -.005858          |
| 37 | -.013202          | .004059           | -.044467          | -.014193          | .017865           | -.013781          |
| 38 | -.007854          | -.010062          | -.040545          | -.012160          | .007272           | -.015757          |
| 39 | -.006666          | .000381           | -.037580          | -.007219          | -.005315          | -.015099          |
| 40 | -.005579          | .015427           | -.035700          | .008435           | -.012728          | -.011856          |
| 41 | .006058           | .023286           | -.025916          | .008303           | -.021443          | -.008372          |
| 42 | .019450           | .012931           | -.016803          | .009328           | -.032576          | -.004675          |
| 43 | .010422           | .002281           | -.012683          | .010504           | -.043138          | .002183           |
| 44 | -.005073          | -.013724          | -.009032          | .018121           | -.047931          | .004075           |
| 45 | -.003056          | -.023620          | -.003682          | .011381           | -.042450          | .002416           |
| 46 | .008000           | -.032926          | .004178           | .005389           | -.035995          | -.000986          |
| 47 | .014148           | -.038520          | .009431           | -.006072          | -.030379          | .000301           |
| 48 | .006382           | -.038523          | .014617           | -.001364          | -.021520          | .007890           |
| 49 | .000787           | -.035376          | .018520           | .000267           | -.009801          | .011608           |
| 50 | .001019           | -.031659          | .027300           | .000537           | .000642           | .008648           |
| 51 | .001979           | -.032015          | .041042           | .005423           | .006764           | .000841           |
| 52 | .001391           | -.047188          | .050812           | .012643           | .010311           | -.009007          |
| 53 | -.001921          | -.046981          | .051289           | .015306           | .013349           | -.011392          |
| 54 | -.004890          | -.036250          | .046890           | .014641           | .014594           | -.011078          |
| 55 | -.008132          | -.029434          | .044102           | .005920           | .018990           | -.015299          |
| 56 | -.015838          | -.017238          | .040630           | .004831           | .016623           | -.015637          |
| 57 | -.025313          | -.007710          | .040064           | .006559           | .008757           | -.008185          |
| 58 | -.029883          | -.003144          | .040212           | .015991           | .001503           | .003163           |
| 59 | -.026444          | -.005073          | .041954           | .014409           | .000238           | .007905           |
| 60 | -.018210          | -.003987          | .040948           | .001323           | .006113           | .003708           |

RUN NO 92A 46M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.10664<br>10E 00 | 0.70943<br>10E-01 | 0.28270<br>10E-01 | 0.57929<br>10E-01 | 0.23084<br>10E-01 | 0.15357<br>10E-01 |
| 1  | -.005513          | -.000984          | .074281           | -.019163          | .049257           | -.040787          |
| 2  | -.006548          | -.010469          | .109458           | -.031581          | .073284           | -.037254          |
| 3  | -.003735          | -.017814          | .122337           | -.023661          | .079690           | -.028344          |
| 4  | .004272           | -.029987          | .126562           | -.024854          | .080577           | -.020182          |
| 5  | .000014           | -.043684          | .129960           | -.022401          | .083334           | -.015461          |
| 6  | -.010556          | -.048020          | .129078           | -.023438          | .085210           | -.014671          |
| 7  | -.012723          | -.045063          | .123358           | -.005891          | .080909           | -.011281          |
| 8  | -.014413          | -.037124          | .117839           | .007554           | .069554           | -.003367          |
| 9  | -.013364          | -.040168          | .114835           | .016200           | .059778           | .000122           |
| 10 | -.010218          | -.043731          | .110630           | .023814           | .049160           | .005806           |
| 11 | -.003710          | -.037674          | .103513           | .014206           | .047768           | .003506           |
| 12 | .001216           | -.031004          | .097232           | -.001993          | .055431           | -.002284          |
| 13 | -.001168          | -.022192          | .090372           | -.008890          | .050480           | -.002890          |
| 14 | -.007711          | -.009590          | .083445           | .002896           | .037697           | .000817           |
| 15 | -.009675          | .000450           | .073543           | .010745           | .025828           | .006370           |
| 16 | -.004671          | .008794           | .063973           | .019317           | .019448           | .006423           |
| 17 | -.001310          | .006133           | .053909           | .014513           | .012798           | .011174           |
| 18 | -.005099          | .011307           | .046856           | .003121           | .011096           | .013146           |
| 19 | -.009799          | .006765           | .042614           | .005648           | .003706           | .011095           |
| 20 | -.015646          | -.008435          | .038420           | .000587           | -.000438          | .009475           |
| 21 | -.012901          | -.013898          | .028128           | -.003685          | -.005115          | .007041           |
| 22 | -.008748          | -.008459          | .017207           | -.000479          | -.002665          | .007449           |
| 23 | -.005993          | -.007516          | .009603           | -.009319          | -.002009          | .012318           |
| 24 | -.013375          | -.007445          | .002306           | -.024268          | -.001668          | .015105           |
| 25 | -.015678          | -.006388          | -.003129          | -.030019          | .002343           | .015093           |
| 26 | -.011355          | .001595           | -.007776          | -.027345          | .004999           | .010829           |
| 27 | -.005650          | .012082           | -.011725          | -.006473          | .001581           | .004177           |
| 28 | -.000336          | .022833           | -.019311          | -.004297          | -.002335          | -.004059          |
| 29 | -.008948          | .031049           | -.027517          | -.008023          | -.008441          | -.013050          |
| 30 | -.011713          | .032391           | -.028416          | -.005133          | -.011146          | -.020365          |
| 31 | -.010682          | .029325           | -.029819          | .001722           | -.015746          | -.016840          |
| 32 | -.005450          | .029264           | -.038658          | -.005452          | -.018615          | -.007811          |
| 33 | .002430           | .018946           | -.052510          | -.007727          | -.020248          | .011627           |
| 34 | .012634           | .018714           | -.058273          | -.003503          | -.023987          | .025156           |
| 35 | .022796           | .004441           | -.056701          | .000056           | -.025290          | .025174           |
| 36 | .026250           | -.007374          | -.057896          | -.007880          | -.024393          | .020426           |
| 37 | .030174           | -.019451          | -.061937          | -.016082          | -.028224          | .019583           |
| 38 | .029005           | -.030081          | -.059820          | -.011371          | -.026686          | .013317           |
| 39 | .025534           | -.031047          | -.055679          | .003824           | -.028507          | .010800           |
| 40 | .026999           | -.022093          | -.053870          | .024443           | -.032333          | .018985           |
| 41 | .026430           | -.014794          | -.050918          | .028135           | -.035324          | .025733           |
| 42 | .018216           | -.010842          | -.047122          | .016509           | -.032324          | .025654           |
| 43 | .011284           | -.009256          | -.040934          | .004261           | -.020517          | .021198           |
| 44 | .005735           | -.016433          | -.031016          | -.013320          | -.007134          | .019985           |
| 45 | -.001123          | -.020565          | -.020568          | -.023143          | .005230           | .017041           |
| 46 | -.011107          | -.023019          | -.011871          | -.027738          | .014943           | .011928           |
| 47 | -.017819          | -.025529          | -.003033          | -.025076          | .017668           | .007550           |
| 48 | -.021895          | -.021038          | .008251           | -.010101          | .015134           | -.004658          |
| 49 | -.023247          | -.015528          | .021283           | .000725           | .014053           | -.020038          |
| 50 | -.017404          | -.006567          | .025634           | .008272           | .020550           | -.027841          |
| 51 | -.012932          | -.002451          | .024850           | .020615           | .029987           | -.027798          |
| 52 | -.008462          | -.002087          | .024677           | .019470           | .030777           | -.025231          |
| 53 | -.004722          | -.004697          | .024993           | .026751           | .021743           | -.023084          |
| 54 | -.000841          | -.006234          | .025324           | .026495           | .014720           | -.023000          |
| 55 | -.000148          | -.008835          | .028543           | .024220           | .015889           | -.027214          |
| 56 | -.012080          | -.008748          | .034835           | .018451           | .016946           | -.033775          |
| 57 | -.020905          | -.003817          | .039732           | .006638           | .011385           | -.025455          |
| 58 | -.026852          | .000243           | .042857           | -.002179          | .007987           | -.019020          |
| 59 | -.024352          | .013441           | .040486           | -.009688          | .008138           | -.024441          |
| 60 | -.012514          | .015289           | .034040           | -.012985          | .015907           | -.028010          |

RUN NC 92A 46M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.13059<br>10E 00 | 0.87074<br>10E-01 | 0.38539<br>10E-01 | 0.61195<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .806685           | .643355           | .596134           | .870985           |
| 2  | .567182           | .284387           | .244348           | .690576           |
| 3  | .391119           | .076511           | .075598           | .531712           |
| 4  | .262044           | -.018801          | .010859           | .405423           |
| 5  | .166472           | -.038145          | -.025432          | .303061           |
| 6  | .090188           | -.050469          | -.067344          | .214334           |
| 7  | .024185           | -.070263          | -.097773          | .138277           |
| 8  | -.035274          | -.081655          | -.101990          | .076518           |
| 9  | -.079428          | -.080991          | -.084477          | .026278           |
| 10 | -.108348          | -.074042          | -.071598          | -.012032          |
| 11 | -.120950          | -.078390          | -.060458          | -.051313          |
| 12 | -.136651          | -.080540          | -.080170          | -.089101          |
| 13 | -.149790          | -.089034          | -.076837          | -.122888          |
| 14 | -.156945          | -.094535          | -.065229          | -.145787          |
| 15 | -.167485          | -.098558          | -.051927          | -.158754          |
| 16 | -.174204          | -.110614          | -.046058          | -.173930          |
| 17 | -.176212          | -.105059          | -.052653          | -.194907          |
| 18 | -.172936          | -.075330          | -.037340          | -.210075          |
| 19 | -.166205          | -.063358          | -.032241          | -.228037          |
| 20 | -.161567          | -.052165          | -.039294          | -.242343          |
| 21 | -.158788          | -.041344          | -.041868          | -.255951          |
| 22 | -.149907          | -.020947          | -.060898          | -.270608          |
| 23 | -.135787          | -.001991          | -.070543          | -.285573          |
| 24 | -.115207          | -.007882          | -.072070          | -.294319          |
| 25 | -.100403          | -.039088          | -.063359          | -.299292          |
| 26 | -.092630          | -.074378          | -.062391          | -.306182          |
| 27 | -.089409          | -.090380          | -.083996          | -.300366          |
| 28 | -.086412          | -.071144          | -.067937          | -.281673          |
| 29 | -.079293          | -.031815          | -.060468          | -.256201          |
| 30 | -.074101          | -.006187          | -.059664          | -.220999          |
| 31 | -.071967          | .019710           | -.046240          | -.180515          |
| 32 | -.066900          | .039626           | -.040142          | -.143607          |
| 33 | -.056962          | .041386           | -.040912          | -.112472          |
| 34 | -.053193          | .012730           | -.018955          | -.087489          |
| 35 | -.046300          | -.037669          | -.018584          | -.067108          |
| 36 | -.044023          | -.055315          | -.008547          | -.048355          |
| 37 | -.034287          | -.033432          | .013373           | -.028963          |
| 38 | -.018531          | -.026987          | .033738           | -.011007          |
| 39 | -.020855          | -.016172          | .029817           | .011751           |
| 40 | -.032938          | -.019345          | .017362           | .034854           |
| 41 | -.041925          | .000158           | .011088           | .053195           |
| 42 | -.032640          | .013756           | .018178           | .056655           |
| 43 | -.019086          | .025161           | .018033           | .073824           |
| 44 | -.017429          | .010653           | .006651           | .080069           |
| 45 | -.019922          | -.004022          | -.006435          | .087141           |
| 46 | -.017184          | -.003978          | -.010379          | .096619           |
| 47 | -.008236          | .005070           | .018412           | .103484           |
| 48 | -.001411          | .012945           | .027010           | .103434           |
| 49 | .005516           | .016778           | .014815           | .102120           |
| 50 | .015127           | .011567           | .007487           | .097181           |
| 51 | .028659           | .019003           | .005010           | .090539           |
| 52 | .043112           | .016420           | .019358           | .079254           |
| 53 | .051564           | .007453           | .022422           | .069549           |
| 54 | .053950           | .012529           | .020835           | .061046           |
| 55 | .051905           | .028240           | .031186           | .054110           |
| 56 | .052221           | .032790           | .027504           | .044985           |
| 57 | .055732           | .022729           | .014411           | .034242           |
| 58 | .055302           | .004682           | -.003279          | .018857           |
| 59 | .054311           | -.014953          | -.002441          | .009468           |
| 60 | .048121           | -.032471          | .014394           | .001540           |

RUN NO 92A 46M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02  | 10E-03   | 10E-03   | 10E-03   |
| 0     | -.001867 | -.006175 | .014883 | .012573  | -.011611 | -.032823 |
| 1     | -.023081 | -.131762 | .204422 | .197237  | -.062128 | -.354998 |
| 2     | -.018778 | -.216815 | .254374 | .266988  | -.127468 | -.478646 |
| 3     | .018080  | -.261057 | .233609 | .135699  | -.084175 | -.545426 |
| 4     | .107575  | -.246857 | .150170 | -.181355 | .141717  | -.436026 |
| 5     | .210818  | -.249843 | .111623 | -.464055 | .273077  | -.412511 |
| 6     | .244589  | -.232956 | .099384 | -.805295 | .427432  | -.504249 |
| 7-8   | .158841  | -.209391 | .074400 | -.893942 | .362816  | -.413121 |
| 9-11  | .078518  | -.150475 | .034008 | -.171437 | .158306  | -.197094 |
| 12-15 | .026864  | -.096357 | .017182 | -.317421 | .111980  | -.130961 |
| 16-20 | .023631  | -.053173 | .006512 | -.220148 | .058693  | -.067148 |
| 21-27 | .016478  | -.044625 | .004554 | -.281435 | .038779  | -.057105 |
| 28-36 | .005046  | -.014061 | .001210 | -.084084 | .005307  | -.024183 |
| 37-47 | .003420  | -.009482 | .000494 | -.100207 | .001098  | -.012700 |
| 48-60 | -.000526 | -.007319 | .000154 | -.050562 | .001116  | -.005705 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T     | W,T      |
|-------|----------|----------|---------|----------|---------|----------|
|       | 10E-03   | 10E-03   | 10E-02  | 10E-03   | 10E-03  | 10E-03   |
| 1     | -.419311 | -.437991 | .078515 | -.158260 | .297655 | .071499  |
| 2     | -.555969 | -.556992 | .123869 | .000297  | .480386 | -.011531 |
| 3     | -.207734 | -.977539 | .127740 | .106239  | .560902 | -.040188 |
| 4     | .232518  | -.758380 | .071463 | -.016629 | .405005 | -.050315 |
| 5     | -.218325 | -.345478 | .051675 | -.275310 | .364375 | -.103501 |
| 6     | -.303347 | -.483745 | .042602 | -.390047 | .281209 | -.062362 |
| 7-8   | .039417  | -.147099 | .026746 | -.235580 | .133560 | -.036772 |
| 9-11  | .096385  | .155752  | .018424 | -.251678 | .127095 | -.054393 |
| 12-15 | .032426  | .018495  | .011699 | -.048014 | .046323 | -.035513 |
| 16-20 | -.154951 | .087802  | .006546 | .012915  | .029816 | -.031470 |
| 21-27 | -.047660 | -.007594 | .004062 | -.065502 | .030691 | -.025207 |
| 28-36 | .032410  | .011321  | .001881 | -.015369 | .009285 | -.014140 |
| 37-47 | .000037  | .015924  | .000787 | .010166  | .003172 | -.011412 |
| 48-60 | -.006419 | -.001900 | .000266 | .026880  | .000532 | -.002241 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-02  | 10E-02  | 10E-02  |
| 0     | .008370 | .023356 | .007039 | .005414 |
| 1     | .109507 | .280642 | .124258 | .077353 |
| 2     | .146386 | .414682 | .191709 | .109696 |
| 3     | .166601 | .555074 | .228533 | .101166 |
| 4     | .143174 | .571351 | .196080 | .059386 |
| 5     | .111271 | .530248 | .199269 | .038764 |
| 6     | .085793 | .474069 | .228294 | .038700 |
| 7-8   | .064655 | .414301 | .199684 | .029169 |
| 9-11  | .044340 | .389166 | .155671 | .015857 |
| 12-15 | .026211 | .292089 | .122413 | .009938 |
| 16-20 | .019095 | .231038 | .089165 | .005379 |
| 21-27 | .011187 | .154191 | .078780 | .003609 |
| 28-36 | .006980 | .082427 | .047803 | .001802 |
| 37-47 | .004308 | .063544 | .033874 | .001151 |
| 48-60 | .002727 | .042245 | .023377 | .000801 |

RUN NO 92A 46M 6-19-63 0030-0146(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.55520<br>10E-01 | 0.31100<br>10E-01 | 0.20623<br>10E-01 | 0.20357<br>10E-01 | 0.13499<br>10E-01 | 0.75615<br>10E-02 |
| 0  | .087102           | -.388146          | .544376           | -.073439          | -.094417          | -.343730          |
| 1  | .008437           | .033759           | .211137           | .071584           | -.112963          | -.047302          |
| 2  | .091519           | .024652           | -.007680          | -.026025          | -.072314          | .019928           |
| 3  | .027750           | .059763           | -.107348          | -.037325          | -.065225          | .075040           |
| 4  | .038700           | .071611           | -.119123          | -.013151          | -.060304          | .073198           |
| 5  | .048362           | -.021587          | -.054067          | -.014151          | -.047031          | .051297           |
| 6  | .021244           | .016070           | .020649           | -.015205          | .006953           | .044245           |
| 7  | .044909           | .090297           | .026544           | -.040047          | -.022466          | .045 53           |
| 8  | .060086           | .056191           | .019378           | -.054890          | .042499           | .011078           |
| 9  | .000462           | -.007133          | .027837           | .009514           | -.024259          | -.046472          |
| 10 | -.020089          | -.013043          | -.000342          | -.016740          | -.031713          | .008863           |
| 11 | -.042414          | .033850           | -.036192          | .031593           | -.045282          | .039559           |
| 12 | -.014287          | -.048722          | .011293           | -.029937          | -.024190          | -.013035          |
| 13 | -.079167          | .055744           | .003891           | .021461           | -.021330          | .010431           |
| 14 | -.070954          | -.089240          | .060143           | .051131           | -.064231          | -.021026          |
| 15 | -.061399          | -.057753          | .009489           | -.032668          | -.042498          | -.000189          |
| 16 | -.030326          | .044055           | .002379           | -.055871          | .015807           | .016675           |
| 17 | .006825           | -.048227          | .020798           | -.012571          | .047836           | .020573           |
| 18 | -.002475          | -.055895          | .013014           | -.018513          | .028778           | -.036954          |
| 19 | -.066524          | -.012088          | -.016390          | .073367           | -.030511          | -.038041          |
| 20 | -.077453          | -.068504          | -.007103          | -.030104          | -.009678          | -.032431          |
| 21 | -.035498          | .021091           | -.058912          | .022236           | .031537           | .040070           |
| 22 | -.019608          | .043635           | -.075989          | -.031043          | .073714           | .013254           |
| 23 | -.033059          | .008817           | -.038873          | .012430           | .045712           | .013188           |
| 24 | .002111           | -.033012          | -.021141          | -.023371          | .057769           | -.012079          |
| 25 | -.005249          | .098219           | -.096539          | -.043878          | .053095           | .076352           |
| 26 | -.048896          | .036402           | -.107525          | .115335           | .005768           | .047485           |
| 27 | .051368           | -.057881          | -.026255          | -.020551          | .063145           | -.011428          |
| 28 | .016884           | -.015373          | .058431           | -.049737          | .054627           | -.048643          |
| 29 | .039197           | -.048163          | .090043           | -.003392          | .063611           | -.084422          |
| 30 | .088092           | .033941           | -.003724          | -.082498          | .105266           | .029940           |

COSPECTRUM

| K     | U,V      | U,W      | U,T     | V,W      | V,T      | W,T      |
|-------|----------|----------|---------|----------|----------|----------|
|       | 10E-02   | 10E-03   | 10E-02  | 10E-03   | 10E-03   | 10E-03   |
| 0     | .022630  | .020057  | .018742 | -.100152 | -.213301 | .016805  |
| 1     | .188154  | .223284  | .069620 | -.241430 | -.653524 | .027786  |
| 2     | .145264  | .081744  | .033861 | -.045127 | -.216842 | -.022486 |
| 3     | .044752  | -.403803 | .041809 | .037869  | -.138997 | -.093001 |
| 4     | -.032163 | -.676699 | .066837 | .115235  | -.229896 | -.142405 |
| 5     | -.044538 | -.510828 | .067358 | .166808  | -.189396 | -.163722 |
| 6     | -.004298 | -.462304 | .078943 | .115506  | -.068417 | -.207221 |
| 7     | .043790  | -.411820 | .098847 | -.042952 | .053449  | -.198635 |
| 8     | .020230  | -.377061 | .104843 | -.066131 | .056505  | -.168862 |
| 9-11  | -.003173 | -.552170 | .076460 | .058992  | .000619  | -.115064 |
| 12-14 | -.019157 | -.747108 | .044954 | .096791  | -.051910 | -.142544 |
| 15-21 | -.007321 | -.453156 | .028871 | -.131840 | .002282  | -.087395 |
| 22-30 | .059493  | -.838536 | .025000 | -.277372 | .040233  | -.119798 |

RUN NC 92A 46K 6-19-63 0030-0146(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.55520<br>10E-01 | 0.31100<br>10E-01 | 0.20623<br>10E-01 | 0.20357<br>10E-01 | 0.13499<br>10E-01 | 0.75615<br>10E-02 |
| 1  | -.018970          | -.078511          | .175638           | -.047242          | .104634           | -.004401          |
| 2  | -.021886          | -.066790          | .118083           | -.047464          | .048592           | .029681           |
| 3  | -.020860          | -.025468          | .078846           | -.075822          | .032574           | -.009559          |
| 4  | .055308           | -.066310          | .029926           | -.028447          | -.025036          | .019117           |
| 5  | .015371           | -.062132          | .069694           | -.062958          | -.001574          | -.052408          |
| 6  | .046574           | .038430           | .037915           | -.010212          | -.020102          | -.062650          |
| 7  | .062322           | .021933           | .019541           | -.050384          | -.059111          | -.021446          |
| 8  | .089472           | .036159           | -.039277          | -.026533          | -.073684          | .008231           |
| 9  | .081228           | -.028488          | -.031881          | -.052099          | -.025325          | .008314           |
| 10 | .068995           | -.025802          | -.038307          | -.088729          | .037106           | .002416           |
| 11 | .101801           | -.015445          | -.059906          | -.044965          | -.071372          | .014131           |
| 12 | .084415           | -.013741          | -.025339          | -.065859          | -.014778          | -.030135          |
| 13 | .072497           | .004183           | -.000035          | -.052635          | .045760           | -.022331          |
| 14 | .076765           | -.014592          | -.027207          | -.042710          | .018289           | .050419           |
| 15 | .084544           | -.016139          | -.081361          | -.015006          | -.012022          | .040626           |
| 16 | .105767           | -.004273          | -.111259          | .026957           | -.033310          | .007493           |
| 17 | .058476           | .010938           | -.034465          | -.057442          | .024854           | -.019895          |
| 18 | .028863           | -.014813          | -.031284          | .031619           | .020466           | -.010027          |
| 19 | -.047299          | -.038184          | .029926           | -.131587          | .054341           | -.019654          |
| 20 | .008457           | .000246           | .013517           | -.015759          | .022422           | .001462           |
| 21 | .004169           | -.039408          | .027771           | -.000958          | -.015817          | -.020003          |
| 22 | .066984           | -.027985          | .009485           | .061418           | -.047563          | -.035000          |
| 23 | .011968           | -.019591          | -.041061          | .014934           | -.043282          | -.023532          |
| 24 | -.018386          | -.045307          | .022565           | .053276           | -.016178          | -.050700          |
| 25 | -.009357          | -.020001          | -.020773          | .021087           | .000990           | -.001121          |
| 26 | -.038439          | .047152           | -.081533          | .012646           | -.001400          | .016755           |
| 27 | -.007026          | .025830           | -.081445          | .070171           | -.025305          | .035541           |
| 28 | -.020521          | .004347           | -.120653          | .042191           | -.027145          | .022583           |
| 29 | -.057213          | -.026161          | -.046833          | .067391           | .051869           | .020546           |
| 30 | -.049060          | -.026018          | .003058           | .067624           | .043429           | -.008991          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-03   | 10E-03   | 10E-03   | 10E-03   | 10E-04   |
| 1     | .334341  | -.416848 | -.223645 | -.841262 | -.116617 | -.392789 |
| 2     | .143469  | -.201264 | .199379  | -.499926 | -.105323 | -.303283 |
| 3     | -.021169 | -.262320 | .596615  | -.188395 | -.053874 | -.594030 |
| 4     | -.065640 | -.352551 | .606210  | -.102062 | .114731  | -.332179 |
| 5     | -.032938 | -.398769 | .408999  | -.087446 | .194496  | .242438  |
| 6     | -.031369 | -.530567 | .450380  | -.182902 | .199399  | .288642  |
| 7     | -.049008 | -.471824 | .356448  | -.293448 | .217324  | .411871  |
| 8     | -.012125 | -.285418 | .105443  | -.106988 | .120737  | .698708  |
| 9-11  | -.019675 | .047463  | .323564  | -.037167 | .098330  | .184472  |
| 12-14 | -.019556 | -.178728 | .292084  | -.027948 | .143361  | -.260519 |
| 15-21 | .016183  | -.209678 | .140496  | -.001986 | .055482  | .025948  |
| 22-30 | -.022404 | .035535  | .123719  | -.105059 | .060029  | -.411615 |



RUN NO 92A 46M 6-19-63 0030-0146(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.84820<br>10E-01 | 0.36341<br>10E-01 | 0.11403<br>10E-01 | 0.50141<br>10E-02 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .282129           | .253597           | .031905           | .411185           |
| 2  | .070507           | .240386           | -.001455          | .036719           |
| 3  | .001888           | .195099           | -.076596          | -.110112          |
| 4  | -.096016          | .142293           | -.068689          | -.045383          |
| 5  | -.010922          | .100237           | .041118           | .008495           |
| 6  | .037675           | .122443           | .020999           | -.025803          |
| 7  | .005678           | .075503           | -.045020          | .017501           |
| 8  | -.024873          | .023907           | -.079278          | .021682           |
| 9  | .008274           | .055312           | -.031580          | .034527           |
| 10 | .012638           | .064412           | -.069102          | -.029599          |
| 11 | -.104918          | -.092212          | -.109205          | -.037424          |
| 12 | -.031887          | -.057587          | -.001067          | .078932           |
| 13 | -.070552          | -.104906          | -.055864          | .051104           |
| 14 | -.011246          | -.153346          | .061823           | .016964           |
| 15 | -.048837          | -.120976          | .002493           | -.042178          |
| 16 | -.063274          | -.080232          | -.060399          | .004169           |
| 17 | .033875           | -.182828          | -.018319          | .025396           |
| 18 | -.000139          | -.170560          | .000388           | -.003784          |
| 19 | -.040881          | -.124861          | -.003601          | -.059165          |
| 20 | -.020001          | -.112422          | .043891           | -.048140          |
| 21 | -.070833          | -.098193          | -.050216          | -.100082          |
| 22 | -.127211          | -.090229          | -.029413          | -.107903          |
| 23 | -.108190          | -.117538          | -.003554          | -.060617          |
| 24 | -.059375          | -.167722          | .032171           | .010520           |
| 25 | -.166471          | -.079869          | -.060144          | -.112382          |
| 26 | -.117113          | -.145458          | -.071228          | -.183279          |
| 27 | .024129           | -.094823          | -.028003          | -.137133          |
| 28 | .023302           | -.099335          | .009807           | .039378           |
| 29 | .116702           | -.079784          | .020667           | .141830           |
| 30 | .020604           | -.034940          | .000146           | -.010057          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-02  | 10E-02  | 10E-03  | 10E-03  |
| 0     | .145591 | .130144 | .054981 | .130525 |
| 1     | .737594 | .650933 | .388943 | .486290 |
| 2     | .530210 | .414752 | .428288 | .261228 |
| 3     | .480199 | .209917 | .521893 | .245391 |
| 4     | .451984 | .110834 | .482889 | .316868 |
| 5     | .380694 | .120180 | .371796 | .315581 |
| 6     | .465229 | .140382 | .325307 | .304807 |
| 7     | .530243 | .130231 | .376157 | .320904 |
| 8     | .478834 | .115405 | .511427 | .323901 |
| 9-11  | .401908 | .091726 | .552931 | .297901 |
| 12-14 | .304667 | .101640 | .519943 | .230875 |
| 15-21 | .274224 | .122161 | .434476 | .122791 |
| 22-30 | .303120 | .165839 | .684277 | .115244 |

RUN NO 92A 15M 6-19-63 0030-0146(EST)  
 RUN NO 92A 46M 6-19-63 0030-0146(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .281139 | .261768 | .054757 | .171512 |
| 1     | .129183 | .057682 | .161798 | .181221 |
| 2     | .086592 | .093511 | .140865 | .163859 |
| 3     | .140019 | .070304 | .124695 | .160034 |
| 4     | .158606 | .124888 | .146259 | .125107 |
| 5     | .125758 | .263457 | .188734 | .205446 |
| 6     | .139445 | .184430 | .212970 | .173375 |
| 7-8   | .168916 | .104689 | .151951 | .184532 |
| 9-11  | .125986 | .139157 | .108293 | .073712 |
| 12-15 | .073289 | .100364 | .139978 | .105243 |
| 16-20 | .075797 | .095499 | .112767 | .082425 |
| 21-27 | .110376 | .077847 | .071179 | .125058 |
| 28-36 | .070196 | .079177 | .091399 | .113874 |
| 37-47 | .115957 | .098186 | .127778 | .112944 |
| 48-60 | .093501 | .111183 | .096061 | .081702 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .787614 | .898197 | .379136 | .665654 |
| 1     | .672022 | .875908 | .342711 | .603433 |
| 2     | .466978 | .728553 | .050520 | .338628 |
| 3     | .285961 | .462210 | .101860 | .128421 |
| 4     | .390257 | .473062 | .180696 | .288452 |
| 5     | .498002 | .148673 | .232144 | .380594 |
| 6     | .410308 | .136715 | .480569 | .345538 |
| 7     | .321871 | .254304 | .186404 | .225823 |
| 8     | .232178 | .161430 | .128460 | .255993 |
| 9-11  | .124523 | .347263 | .287764 | .241558 |
| 12-14 | .164766 | .159913 | .265873 | .220261 |
| 15-21 | .255489 | .187007 | .308412 | .251759 |
| 22-30 | .162047 | .391944 | .189085 | .315619 |

RUN NO 94A 46M 6-19-63 1306-1422(EST)

GROSS STATISTICS

CLEAR WIND SPEED 4.97 M/SEC SIGMA A 12.0 DEG  
 UNSTABLE WIND DIRECTION 203 DEG SIGMA E 10.9 DEG  
 SOLAR RAD. 1.27 LY/MIN

WITH NO WITH 301 POINT WITH 61 POINT 301 PT RUN MEAN  
 RUNNING MEAN RUNNING MEAN RUNNING MEAN 10 PT BLOCK AVG

VARIANCES

|   |             |             |             |             |
|---|-------------|-------------|-------------|-------------|
| U | 0.16498E 01 | 0.12598E 01 | 0.73778E 00 | 0.91344E 00 |
| V | 0.98723E 00 | 0.77059E 00 | 0.70188E 00 | 0.42433E-00 |
| W | 0.65828E 00 | 0.61879E 00 | 0.48072E-00 | 0.35656E-00 |
| T | 0.28169E-00 | 0.66095E-01 | 0.34261E-01 | 0.51646E-01 |
| E | 0.16476E 01 | 0.13250E 01 | 0.96020E 00 |             |

GUSTINESS RATIOS

|   |         |         |         |         |
|---|---------|---------|---------|---------|
| U | 0.25844 | 0.22583 | 0.17283 | 0.19230 |
| V | 3.19992 | 0.17663 | 0.16857 | 0.13107 |
| W | 0.16325 | 0.15828 | 0.13950 | 0.12015 |

COVARIANCES

|     |              |              |              |              |
|-----|--------------|--------------|--------------|--------------|
| U,V | -0.22794E-00 | -0.13621E-00 | -0.87528E-01 | -0.10415E-00 |
| U,W | -0.49076E-00 | -0.38242E-00 | -0.17461E-00 | -0.31572E-00 |
| U,T | -0.36216E-00 | -0.20199E-00 | -0.91992E-01 | -0.16652E-00 |
| V,W | 0.16190E-01  | 0.29940E-01  | 0.15289E-01  | 0.25935E-01  |
| V,T | 0.22441E-00  | 0.48392E-01  | 0.38391E-01  | 0.32891E-01  |
| W,T | 0.78202E-01  | 0.62822E-01  | 0.19442E-01  | 0.56334E-01  |
| WE  | 0.11735E-00  | 0.77237E-01  | 0.71373E-02  |              |

NORMALIZED COVARIANCES

|     |          |          |          |          |
|-----|----------|----------|----------|----------|
| U,V | -0.17861 | -0.13825 | -0.12163 | -0.16729 |
| U,W | -0.47093 | -0.43314 | -0.29320 | -0.55322 |
| U,T | -0.53126 | -0.70000 | -0.57861 | -0.76665 |
| V,W | 0.02008  | 0.04336  | 0.02632  | 0.06667  |
| V,T | 0.42555  | 0.21443  | 0.24757  | 0.22218  |
| W,T | 0.18160  | 0.31064  | 0.15149  | 0.41513  |

RUN NO 94A 46M 6-19-63 1306-1422(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.71960<br>10E 00 | 0.59563<br>10E 00 | 0.15903<br>10E 00 | 0.58090<br>10E 00 | 0.15510<br>10E 00 | 0.12838<br>10E 00 |
| 0  | -.121531          | -.293347          | -.578057          | .026342           | .247424           | .151632           |
| 1  | -.118251          | -.270749          | -.532522          | .027354           | .223507           | .146303           |
| 2  | -.098602          | -.230832          | -.451659          | .024863           | .180795           | .131120           |
| 3  | -.076032          | -.187310          | -.374523          | .023484           | .140318           | .112117           |
| 4  | -.056717          | -.145008          | -.305062          | .020535           | .109564           | .098485           |
| 5  | -.041376          | -.112411          | -.245330          | .013772           | .083170           | .084460           |
| 6  | -.024977          | -.086724          | -.195282          | .011012           | .060107           | .073508           |
| 7  | -.012558          | -.070583          | -.152249          | .013637           | .042069           | .070029           |
| 8  | -.002588          | -.054854          | -.111682          | .012944           | .030709           | .067658           |
| 9  | .002329           | -.035019          | -.076616          | .008828           | .019291           | .062378           |
| 10 | .003018           | -.016765          | -.045675          | .005632           | .006036           | .051837           |
| 11 | .000018           | -.006431          | -.015087          | .004354           | -.003659          | .036362           |
| 12 | -.009265          | .000630           | .012938           | .000640           | -.013068          | .019609           |
| 13 | -.024209          | .008349           | .040028           | -.002274          | -.017826          | .003617           |
| 14 | -.034812          | .024663           | .069681           | .000433           | -.020770          | -.010411          |
| 15 | -.037898          | .044143           | .097041           | .006544           | -.026924          | -.021235          |
| 16 | -.033419          | .057806           | .125595           | .010935           | -.033700          | -.029466          |
| 17 | -.024629          | .064490           | .153356           | .012851           | -.044552          | -.037504          |
| 18 | -.012946          | .067690           | .179344           | .014414           | -.058703          | -.041496          |
| 19 | .003983           | .070858           | .198867           | .007378           | -.073145          | -.045849          |
| 20 | .022424           | .079223           | .209452           | .000016           | -.084796          | -.049346          |
| 21 | .032761           | .083700           | .209836           | -.007683          | -.091625          | -.051780          |
| 22 | .040043           | .084459           | .207613           | -.016694          | -.094939          | -.054883          |
| 23 | .040912           | .091166           | .204564           | -.019442          | -.089913          | -.053626          |
| 24 | .035644           | .095321           | .196818           | -.014056          | -.078728          | -.056988          |
| 25 | .036134           | .095628           | .196228           | -.009911          | -.068635          | -.051976          |
| 26 | .040075           | .094299           | .201275           | -.010570          | -.063215          | -.063554          |
| 27 | .051320           | .090978           | .202140           | -.017513          | -.060478          | -.061294          |
| 28 | .062619           | .076503           | .191382           | -.028946          | -.059207          | -.058116          |
| 29 | .073748           | .061739           | .171906           | -.035397          | -.057389          | -.056393          |
| 30 | .077136           | .050045           | .142366           | -.037510          | -.051199          | -.059207          |
| 31 | .070836           | .035910           | .111971           | -.036903          | -.039809          | -.055183          |
| 32 | .062305           | .018650           | .083958           | -.034909          | -.027220          | -.047282          |
| 33 | .055727           | .004954           | .055390           | -.027222          | -.019460          | -.044020          |
| 34 | .046385           | -.011815          | .028503           | -.015139          | -.013963          | -.038249          |
| 35 | .037084           | -.017788          | .003870           | -.007272          | -.012633          | -.033113          |
| 36 | .027398           | -.014351          | -.017280          | -.002741          | -.012419          | -.029657          |
| 37 | .020754           | -.008791          | -.033419          | -.004882          | -.010631          | -.020097          |
| 38 | .017505           | -.009346          | -.042669          | -.006704          | -.006908          | -.007958          |
| 39 | .019430           | -.006904          | -.049719          | -.006795          | -.006624          | -.000485          |
| 40 | .024232           | -.003701          | -.058575          | -.008156          | -.006641          | .003239           |
| 41 | .030677           | .002437           | -.068791          | -.011024          | -.007166          | .002962           |
| 42 | .031920           | .010162           | -.077194          | -.014929          | -.010249          | .004181           |
| 43 | .028446           | .011552           | -.085107          | -.018341          | -.012439          | .005517           |
| 44 | .021161           | .005361           | -.089924          | -.019212          | -.009688          | .009139           |
| 45 | .010424           | .002678           | -.092295          | -.009917          | -.005012          | .011233           |
| 46 | -.002280          | .000119           | -.091181          | -.003189          | -.000849          | .013190           |
| 47 | -.012310          | -.004025          | -.085368          | -.001532          | .001420           | .016675           |
| 48 | -.018874          | -.004813          | -.075546          | .004741           | .007112           | .017925           |
| 49 | -.020392          | -.002253          | -.059954          | .006426           | .012121           | .009452           |
| 50 | -.020714          | .000955           | -.039978          | .004063           | .017024           | .002350           |
| 51 | -.019793          | .004348           | -.024173          | .002248           | .019751           | -.005157          |
| 52 | -.017920          | .013804           | -.012403          | .000230           | .019990           | -.012736          |
| 53 | -.021809          | .027383           | -.005749          | .002164           | .024463           | -.027043          |
| 54 | -.024960          | .037052           | -.001101          | .005925           | .030291           | -.036290          |
| 55 | -.027400          | .037000           | .004583           | .007046           | .032420           | -.037319          |
| 56 | -.030257          | .037263           | .011645           | .004928           | .030584           | -.037725          |
| 57 | -.027777          | .041697           | .021804           | .004119           | .027125           | -.036116          |
| 58 | -.025634          | .047215           | .032028           | .010209           | .023363           | -.030433          |
| 59 | -.028639          | .048765           | .043887           | .016310           | .023827           | -.026665          |
| 60 | -.030493          | .046099           | .053197           | .021096           | .029922           | -.024406          |

RUN NO 94A 46M 6-19-63 1306-1422(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.71960<br>10E 00 | 0.59563<br>10E 00 | 0.15903<br>10E 00 | 0.58090<br>10E 00 | 0.15510<br>10E 00 | 0.12838<br>10E 00 |
| 1  | -.000134          | -.037068          | -.041645          | .003338           | .011347           | -.006580          |
| 2  | .002475           | -.062859          | -.059484          | .002799           | .016680           | -.005650          |
| 3  | .004251           | -.075493          | -.071527          | .001842           | .012101           | -.002491          |
| 4  | -.000164          | -.084212          | -.083923          | -.001810          | .003759           | -.004285          |
| 5  | -.009156          | -.092544          | -.093787          | -.002047          | -.005418          | -.010712          |
| 6  | -.023164          | -.100003          | -.103263          | -.005673          | -.015371          | -.021024          |
| 7  | -.035489          | -.106356          | -.116523          | -.006763          | -.029895          | -.030512          |
| 8  | -.041206          | -.109683          | -.123349          | -.006960          | -.038996          | -.035643          |
| 9  | -.042131          | -.107141          | -.123997          | -.003565          | -.043405          | -.040903          |
| 10 | -.033116          | -.102859          | -.121409          | .003128           | -.043550          | -.048881          |
| 11 | -.025007          | -.094036          | -.117906          | .014567           | -.042279          | -.055931          |
| 12 | -.020940          | -.080707          | -.115807          | .034759           | -.041426          | -.058756          |
| 13 | -.017332          | -.073071          | -.111741          | .045206           | -.036314          | -.057797          |
| 14 | -.014062          | -.065451          | -.108170          | .047156           | -.027472          | -.047925          |
| 15 | -.014473          | -.053694          | -.102755          | .049561           | -.017666          | -.035916          |
| 16 | -.015164          | -.043052          | -.095495          | .052324           | -.010591          | -.025813          |
| 17 | -.012483          | -.029655          | -.087339          | .045377           | -.007602          | -.012678          |
| 18 | -.011495          | -.014008          | -.075206          | .034010           | -.002576          | -.002354          |
| 19 | -.010569          | -.006751          | -.059212          | .022532           | .000585           | .003607           |
| 20 | -.012930          | .000958           | -.044137          | .009294           | -.000559          | .009809           |
| 21 | -.014890          | .008769           | -.029045          | .004050           | -.006666          | .015342           |
| 22 | -.015882          | .008925           | -.018731          | .007229           | -.013922          | .021913           |
| 23 | -.017492          | .006155           | -.008904          | .006643           | -.018469          | .023690           |
| 24 | -.017545          | .000336           | -.002307          | .006875           | -.015628          | .019020           |
| 25 | -.013495          | .000471           | .002985           | .006438           | -.007581          | .013887           |
| 26 | -.006719          | .002509           | .012088           | .006800           | .002049           | .008993           |
| 27 | .003477           | .007841           | .024372           | .007202           | .008402           | .010062           |
| 28 | .009671           | .020237           | .035838           | .002197           | .012837           | .017221           |
| 29 | .014758           | .031527           | .044635           | -.003396          | .014647           | .025844           |
| 30 | .026919           | .036681           | .049313           | -.003608          | .017279           | .029449           |
| 31 | .039905           | .035685           | .054865           | -.000131          | .023058           | .029651           |
| 32 | .044461           | .032274           | .057545           | -.001764          | .028243           | .027294           |
| 33 | .043426           | .029191           | .057278           | -.000402          | .029798           | .027202           |
| 34 | .036240           | .027085           | .053254           | .001331           | .027350           | .034881           |
| 35 | .025844           | .024547           | .049428           | -.001245          | .027041           | .043494           |
| 36 | .021861           | .017311           | .047578           | -.005154          | .028663           | .046364           |
| 37 | .022284           | .009653           | .041240           | -.016627          | .031921           | .041897           |
| 38 | .021788           | .012194           | .035345           | -.025199          | .032602           | .039191           |
| 39 | .017978           | .012408           | .027774           | -.026597          | .029010           | .038247           |
| 40 | .013043           | .010318           | .019648           | -.021910          | .021671           | .033355           |
| 41 | .005601           | .003978           | .016749           | -.018742          | .011589           | .026445           |
| 42 | -.004676          | -.002364          | .017759           | -.021245          | .002003           | .014870           |
| 43 | -.012796          | -.006076          | .013482           | -.029988          | -.006859          | .000458           |
| 44 | -.019020          | .001703           | .002610           | -.034761          | -.010675          | -.003468          |
| 45 | -.019646          | .010324           | -.008552          | -.036295          | -.007356          | -.001256          |
| 46 | -.015360          | .016252           | -.022718          | -.033802          | -.001123          | .007490           |
| 47 | -.006186          | .019013           | -.036818          | -.029738          | .006304           | .015105           |
| 48 | .003066           | .021985           | -.046436          | -.026878          | .009436           | .020126           |
| 49 | .007018           | .026310           | -.050347          | -.026109          | .011815           | .016155           |
| 50 | .006679           | .027473           | -.053298          | -.014220          | .011822           | .010362           |
| 51 | .003893           | .025380           | -.057578          | -.011186          | .010017           | .012771           |
| 52 | .000324           | .022304           | -.058920          | -.013058          | .001162           | .013176           |
| 53 | -.005523          | .019836           | -.055910          | -.016175          | -.006634          | .012829           |
| 54 | -.010036          | .019471           | -.050008          | -.017483          | -.008611          | .013127           |
| 55 | -.013123          | .018917           | -.043406          | -.017588          | -.010757          | .008869           |
| 56 | -.011694          | .016959           | -.038219          | -.013962          | -.006902          | .006358           |
| 57 | -.008550          | .011671           | -.038027          | -.007345          | .000424           | .007417           |
| 58 | -.004543          | .010576           | -.034322          | -.000279          | .005829           | .006787           |
| 59 | -.001075          | .014712           | -.028362          | .004837           | .012994           | .006726           |
| 60 | .003397           | .016061           | -.018285          | .010497           | .018885           | .007520           |

RUN NC 94A 46M 6-19-63 1306-1422(EST)  
 61 PCINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTO-COVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.73784<br>10E 00 | 0.70180<br>10E 00 | 0.48092<br>10E 00 | 0.34276<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .851903           | .839604           | .804731           | .882313           |
| 2  | .663349           | .625410           | .567334           | .729793           |
| 3  | .509953           | .460771           | .388973           | .600758           |
| 4  | .388749           | .336576           | .267625           | .492928           |
| 5  | .291940           | .244658           | .179645           | .399264           |
| 6  | .213519           | .171477           | .112170           | .317896           |
| 7  | .149672           | .113249           | .048955           | .246346           |
| 8  | .088332           | .063510           | -.006477          | .177541           |
| 9  | .036845           | .014989           | -.042021          | .111500           |
| 10 | -.003388          | -.033884          | -.060208          | .050577           |
| 11 | -.044155          | -.080427          | -.066421          | -.004964          |
| 12 | -.083105          | -.115628          | -.073090          | -.056698          |
| 13 | -.121645          | -.140498          | -.084788          | -.106463          |
| 14 | -.154410          | -.162317          | -.108275          | -.151733          |
| 15 | -.184428          | -.186122          | -.131389          | -.187154          |
| 16 | -.210814          | -.208109          | -.147490          | -.227646          |
| 17 | -.231537          | -.224742          | -.152556          | -.269224          |
| 18 | -.250795          | -.239314          | -.161335          | -.306840          |
| 19 | -.259779          | -.252764          | -.174070          | -.336738          |
| 20 | -.262108          | -.264558          | -.197511          | -.357834          |
| 21 | -.255222          | -.276111          | -.205580          | -.369333          |
| 22 | -.247399          | -.283976          | -.200442          | -.369691          |
| 23 | -.241762          | -.281132          | -.200139          | -.365431          |
| 24 | -.234804          | -.273973          | -.210287          | -.359830          |
| 25 | -.234608          | -.262291          | -.225502          | -.353089          |
| 26 | -.232890          | -.248482          | -.225582          | -.344744          |
| 27 | -.229091          | -.230257          | -.208379          | -.333086          |
| 28 | -.214512          | -.211571          | -.176784          | -.306016          |
| 29 | -.186561          | -.188024          | -.136939          | -.273869          |
| 30 | -.145637          | -.147985          | -.091246          | -.231429          |
| 31 | -.098288          | -.099753          | -.053343          | -.186241          |
| 32 | -.052440          | -.057800          | -.032277          | -.139487          |
| 33 | -.014717          | -.023716          | -.015945          | -.095058          |
| 34 | .016259           | -.003138          | -.003479          | -.052724          |
| 35 | .040867           | .009810           | .007904           | -.012421          |
| 36 | .052699           | .021078           | .011256           | .025384           |
| 37 | .060518           | .029801           | .020916           | .056434           |
| 38 | .060716           | .036327           | .026044           | .080738           |
| 39 | .058152           | .039326           | .018825           | .106611           |
| 40 | .060887           | .045669           | .012849           | .129447           |
| 41 | .064383           | .054656           | .016997           | .149363           |
| 42 | .062810           | .059853           | .019779           | .168177           |
| 43 | .062997           | .060427           | .020951           | .186972           |
| 44 | .064029           | .061155           | .012137           | .199277           |
| 45 | .069939           | .063627           | -.002782          | .205171           |
| 46 | .076038           | .058780           | -.007043          | .199248           |
| 47 | .077671           | .053242           | -.001748          | .181546           |
| 48 | .070863           | .050035           | .005308           | .162062           |
| 49 | .057359           | .049487           | .012952           | .137631           |
| 50 | .037656           | .051987           | .016012           | .111831           |
| 51 | .015869           | .058675           | .015652           | .086550           |
| 52 | -.001272          | .067249           | .016882           | .064840           |
| 53 | -.007779          | .070810           | .019670           | .048521           |
| 54 | -.013786          | .070462           | .024869           | .038367           |
| 55 | -.022873          | .066044           | .029439           | .027420           |
| 56 | -.037475          | .066704           | .027336           | .011539           |
| 57 | -.056062          | .074891           | .024876           | -.010752          |
| 58 | -.076583          | .079980           | .019957           | -.033221          |
| 59 | -.091479          | .080628           | .012415           | -.051349          |
| 60 | -.098323          | .077045           | .006521           | -.067424          |

RUN NO 94A 46M 6-19-63 1306-1422(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T      |
|-------|----------|----------|----------|----------|---------|----------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02  | 10E-02   |
| 0     | -.019180 | -.048208 | -.019491 | .027553  | .049593 | .078121  |
| 1     | -.215160 | -.318367 | -.153042 | .607419  | .584229 | .549473  |
| 2     | -.208479 | -.345472 | -.200138 | .592837  | .740569 | .554571  |
| 3     | -.097580 | -.345067 | -.203438 | .209125  | .712608 | .434224  |
| 4     | -.005998 | -.194066 | -.097864 | -.077766 | .407053 | .158328  |
| 5     | -.039015 | -.078691 | -.041760 | .046927  | .189423 | .057710  |
| 6     | -.089804 | -.079758 | -.041006 | .234781  | .162516 | .041151  |
| 7-8   | -.086432 | -.079108 | -.031846 | .083156  | .200504 | .009591  |
| 9-11  | -.028046 | -.045733 | -.023719 | -.031974 | .105882 | .042318  |
| 12-15 | -.004489 | -.020845 | -.009468 | .067245  | .063362 | .033930  |
| 16-20 | -.006274 | -.014006 | -.005920 | -.026812 | .026210 | .000908  |
| 21-27 | -.001876 | -.001085 | -.002785 | -.016979 | .018203 | .003640  |
| 28-36 | .001111  | -.002606 | -.001664 | .016358  | .007899 | .000968  |
| 37-47 | .001189  | -.001807 | -.000790 | -.008367 | .002709 | -.001974 |
| 48-60 | .001122  | -.000859 | -.000382 | -.005095 | .001963 | .000397  |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | -.338922 | -.119962 | -.539323 | .560078  | -.069143 | .005167  |
| 2     | -.771198 | -.179190 | -.719676 | .688798  | -.180382 | -.175890 |
| 3     | -.816029 | -.212732 | -.770968 | .282615  | -.184990 | -.229594 |
| 4     | -.133955 | -.159462 | -.348983 | -.150497 | -.051089 | -.108263 |
| 5     | .034688  | -.090515 | -.095922 | -.319297 | -.006252 | -.019913 |
| 6     | -.302956 | -.057778 | -.069556 | -.457671 | -.014096 | .032737  |
| 7-8   | .057852  | -.013473 | -.044010 | -.142179 | .084896  | .089952  |
| 9-11  | .233913  | -.013860 | -.034256 | .235917  | .064778  | .000075  |
| 12-15 | .112683  | -.005690 | -.011089 | -.006217 | .018627  | -.006125 |
| 16-20 | -.058219 | -.008796 | -.024997 | -.010428 | .006185  | -.003615 |
| 21-27 | -.018833 | -.002711 | -.010361 | .013675  | .005206  | -.007338 |
| 28-36 | -.006076 | -.000274 | -.009946 | .007953  | -.000526 | -.000802 |
| 37-47 | -.006310 | -.000105 | -.004102 | .000094  | -.000726 | -.001466 |
| 48-60 | .003311  | .000201  | -.001291 | .007074  | -.001138 | .000177  |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E-01  | 10E-02  |
| 0     | .011304 | .003792 | .040713 | .052676 |
| 1     | .084200 | .067945 | .448207 | .486321 |
| 2     | .117602 | .107989 | .611563 | .711478 |
| 3     | .132355 | .121912 | .676549 | .749685 |
| 4     | .082016 | .075468 | .451004 | .360692 |
| 5     | .044140 | .041182 | .276075 | .160823 |
| 6     | .038914 | .037471 | .284306 | .152606 |
| 7-8   | .029939 | .032617 | .270601 | .116907 |
| 9-11  | .021637 | .020003 | .162225 | .075659 |
| 12-15 | .011908 | .014181 | .093309 | .043510 |
| 16-20 | .007623 | .008535 | .073541 | .027347 |
| 21-27 | .004601 | .005009 | .042858 | .016348 |
| 28-36 | .002882 | .002950 | .023948 | .010563 |
| 37-47 | .001718 | .001799 | .015787 | .006563 |
| 48-60 | .001261 | .001061 | .011094 | .004508 |

RUN NC 94A 46M 6-19-63 1306-1422(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.62232<br>10E 00 | 0.57055<br>10E 00 | 0.21719<br>10E 00 | 0.38878<br>10E 00 | 0.14799<br>10E 00 | 0.13568<br>10E 00 |
| 0  | -.167358          | -.553371          | -.766702          | .066707           | .222246           | .415190           |
| 1  | -.091004          | -.365444          | -.530262          | .011071           | .086812           | .329709           |
| 2  | -.027378          | -.190934          | -.286085          | -.025034          | -.024201          | .197649           |
| 3  | .065457           | -.064695          | -.145399          | -.068317          | -.057514          | .083323           |
| 4  | .057646           | .026347           | -.075039          | -.066441          | -.059418          | .025302           |
| 5  | .039527           | .090839           | .043862           | -.027335          | -.052835          | -.031063          |
| 6  | .012885           | .157534           | .155846           | .013829           | -.024330          | -.082646          |
| 7  | .001060           | .128923           | .214095           | .051329           | -.028924          | -.080163          |
| 8  | -.040662          | .110428           | .185679           | .038008           | -.005746          | -.104171          |
| 9  | -.077918          | .096363           | .188309           | .082828           | .067827           | -.113210          |
| 10 | -.016657          | .107519           | .168605           | .041751           | .034224           | -.130944          |
| 11 | .028562           | .120817           | .145705           | .013459           | -.001230          | -.153536          |
| 12 | .061682           | .104592           | .114815           | .005632           | -.039318          | -.138217          |
| 13 | .024534           | .055610           | .088426           | -.030544          | .003114           | -.086960          |
| 14 | .043978           | .040803           | .029562           | -.070046          | -.016553          | -.084617          |
| 15 | .034852           | -.035780          | -.035853          | -.060478          | .008808           | .001747           |
| 16 | .015341           | -.117878          | -.065433          | .041669           | .012763           | .087217           |
| 17 | -.062172          | -.132426          | -.105012          | .031458           | .052730           | .099595           |
| 18 | -.040460          | -.108934          | -.110040          | .013384           | .024888           | .070650           |
| 19 | -.003998          | -.073002          | -.063136          | .017662           | .005979           | .060298           |
| 20 | .004760           | .005632           | -.034786          | -.005808          | .000692           | .013039           |
| 21 | -.011524          | .017203           | .024842           | -.025663          | -.030665          | .005403           |
| 22 | .021746           | .060208           | .058081           | -.036737          | -.070313          | -.009802          |
| 23 | -.023703          | .081128           | .052816           | .006315           | -.017488          | -.023059          |
| 24 | -.065739          | .046125           | .038475           | .033393           | .067994           | .014178           |
| 25 | -.058647          | -.013918          | .052777           | -.019974          | .048636           | .043470           |
| 26 | -.031367          | .013229           | .020822           | .010940           | .034612           | .010277           |
| 27 | .013137           | .019507           | .018736           | .023070           | -.038991          | -.025099          |
| 28 | .044759           | .016696           | .024327           | .033719           | -.054991          | -.042378          |
| 29 | .071451           | .010793           | .057127           | -.016169          | -.030376          | -.034182          |
| 30 | .010779           | .053233           | .060599           | .018635           | .006430           | -.062261          |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T     | W,T     |
|-------|----------|----------|----------|----------|---------|---------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02  | 10E-01  |
| 0     | -.011483 | -.042161 | -.035166 | .010259  | .017814 | .009771 |
| 1     | -.043312 | -.225179 | -.178717 | -.046456 | .030085 | .060964 |
| 2     | -.060398 | -.311063 | -.206110 | -.194972 | .024607 | .087036 |
| 3     | -.062137 | -.531985 | -.297830 | -.425965 | .103949 | .123107 |
| 4     | -.021963 | -.504250 | -.263506 | -.452134 | .201383 | .090827 |
| 5     | -.051008 | -.267921 | -.140891 | -.050895 | .247970 | .035586 |
| 6     | -.149526 | -.229042 | -.092595 | .682646  | .354655 | .029705 |
| 7     | -.215075 | -.275303 | -.084690 | .991958  | .456789 | .045380 |
| 8     | -.138876 | -.163558 | -.049918 | .498320  | .276597 | .030627 |
| 9-11  | -.040659 | -.065720 | -.039458 | .313044  | .147209 | .012587 |
| 12-14 | -.058401 | -.073162 | -.048476 | .054262  | .216825 | .009213 |
| 15-21 | .006799  | -.039414 | -.022196 | .040385  | .090943 | .002563 |
| 22-30 | -.022717 | -.038693 | -.013332 | .097805  | .048948 | .002539 |



RUN NC 94A 46M 6-19-63 1306-1422(EST)  
 301 PCINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.62232<br>10E 00 | 0.57055<br>10E 00 | 0.21719<br>10E 00 | 0.38878<br>10E 00 | 0.14799<br>10E 00 | 0.13568<br>10E 00 |
| 1  | -.023379          | -.120194          | -.126774          | .052467           | -.016397          | -.022788          |
| 2  | .004208           | -.066489          | -.141052          | .075974           | .003197           | .020798           |
| 3  | .047276           | -.068898          | -.121514          | .034831           | .035765           | .046348           |
| 4  | .051455           | -.060309          | -.112746          | .015773           | .040867           | .025363           |
| 5  | .035149           | -.035372          | -.117666          | .012711           | .001592           | -.006057          |
| 6  | .021150           | -.058563          | -.073616          | .052532           | -.014350          | -.045744          |
| 7  | .032884           | -.069366          | -.013232          | .087729           | -.019009          | -.078203          |
| 8  | .013059           | -.047483          | .008238           | .049555           | -.011254          | -.086506          |
| 9  | .055738           | -.009089          | .002994           | -.005769          | .033973           | -.023005          |
| 10 | .044534           | .031507           | -.006228          | .033480           | .070193           | .019293           |
| 11 | .018833           | .076091           | .005264           | .013939           | .052603           | .056362           |
| 12 | -.001934          | .040313           | .047955           | -.033290          | .013660           | .007660           |
| 13 | -.011070          | .051223           | .045931           | .014874           | -.005210          | .012414           |
| 14 | -.008455          | .126514           | .020326           | .005141           | -.006397          | .061284           |
| 15 | .015586           | .096706           | .021162           | .016536           | -.014343          | .048049           |
| 16 | .000742           | .058766           | .036335           | -.063677          | -.026747          | .045839           |
| 17 | -.025284          | .023135           | .003369           | -.048479          | -.037438          | .028263           |
| 18 | -.089277          | -.014488          | -.023265          | -.016445          | -.057896          | .044433           |
| 19 | -.101422          | -.007927          | -.068730          | -.004809          | -.042942          | .065866           |
| 20 | -.062888          | -.018851          | -.048314          | -.057946          | -.043887          | .048398           |
| 21 | -.028988          | -.016884          | -.007259          | -.062783          | -.043273          | .030743           |
| 22 | -.000113          | -.001208          | -.012972          | -.083964          | -.007998          | .036639           |
| 23 | .024666           | -.025706          | -.005960          | -.056620          | .052760           | -.001129          |
| 24 | .060351           | -.040156          | .014374           | .035608           | .084312           | -.063691          |
| 25 | .060709           | -.066376          | .005801           | .107277           | .080462           | -.046206          |
| 26 | .093516           | -.068724          | .018809           | .168716           | .021323           | -.041291          |
| 27 | .029021           | -.047119          | -.011438          | .103538           | .003216           | -.037141          |
| 28 | .001527           | .014113           | -.048675          | -.025578          | .037316           | .014597           |
| 29 | .020065           | .020591           | -.030248          | .051041           | .039565           | .046520           |
| 30 | .019781           | .023818           | -.006456          | -.033682          | -.008141          | .046543           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .057524  | .038486  | -.381861 | .411740  | .055526  | .119916  |
| 2     | .112476  | -.076029 | -.483589 | .801380  | .139723  | -.128845 |
| 3     | .093119  | -.214756 | -.828425 | .741111  | .092121  | -.192207 |
| 4     | -.011108 | -.160614 | -.889694 | .217310  | -.118536 | .050182  |
| 5     | .012097  | -.026987 | -.557988 | .219489  | -.013738 | .182003  |
| 6     | .017844  | .001475  | -.402159 | .028159  | .144779  | .228986  |
| 7     | -.021390 | -.045718 | -.406170 | .051571  | .127753  | .197193  |
| 8     | .018860  | -.057784 | -.217188 | .208770  | .101749  | .037695  |
| 9-11  | -.039537 | -.070147 | -.074782 | .454321  | -.120306 | -.132409 |
| 12-14 | -.023966 | -.015891 | -.236433 | .232217  | -.040342 | -.006683 |
| 15-21 | -.008991 | -.045157 | -.049694 | -.034928 | -.015894 | -.059958 |
| 22-30 | .002269  | -.015432 | -.033042 | -.080108 | -.006853 | .004000  |

RUN NO 94A 46M 6-19-63 1306-1422(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.91326<br>10E 00 | 0.42406<br>10E 00 | 0.35644<br>10E 00 | 0.51649<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .580211           | .212602           | .390094           | .654577           |
| 2  | .281996           | -.176348          | .109065           | .337021           |
| 3  | .145762           | -.218330          | .015428           | .178569           |
| 4  | .019325           | -.067273          | -.052788          | .132736           |
| 5  | -.112486          | -.050453          | -.098317          | -.000315          |
| 6  | -.235738          | -.024326          | -.093124          | -.155501          |
| 7  | -.251951          | -.066389          | -.127478          | -.248937          |
| 8  | -.212517          | -.028215          | -.092927          | -.212363          |
| 9  | -.193781          | .080868           | -.111244          | -.178381          |
| 10 | -.172936          | .101254           | -.213477          | -.192191          |
| 11 | -.175762          | -.009192          | -.151907          | -.204428          |
| 12 | -.124054          | -.127917          | -.113863          | -.187646          |
| 13 | -.064884          | -.098822          | -.216439          | -.148912          |
| 14 | -.008908          | -.127570          | -.116354          | -.076789          |
| 15 | .059517           | -.009959          | .063050           | -.019548          |
| 16 | .103375           | -.020487          | .098694           | .018370           |
| 17 | .149012           | .055407           | .124806           | .064934           |
| 18 | .135863           | .048706           | .110052           | .088881           |
| 19 | .070320           | .093730           | .071570           | .077281           |
| 20 | .020444           | -.078781          | .000525           | .026496           |
| 21 | -.040496          | -.060373          | -.040238          | -.043464          |
| 22 | -.041133          | -.060667          | -.026962          | -.083645          |
| 23 | -.069885          | .020794           | .035237           | -.043268          |
| 24 | -.089909          | .149162           | -.006957          | .003147           |
| 25 | -.058058          | .114435           | -.026231          | -.014883          |
| 26 | -.005863          | .084807           | -.021022          | -.002367          |
| 27 | -.009535          | -.023016          | -.047035          | .013161           |
| 28 | -.015357          | -.112626          | -.007233          | .003699           |
| 29 | -.048396          | -.096611          | .013991           | -.031955          |
| 30 | -.042677          | -.002967          | -.057770          | -.053140          |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .013431 | .009331 | .017088 | .107262 |
| 1     | .069932 | .079406 | .163429 | .609301 |
| 2     | .087704 | .119299 | .270743 | .686712 |
| 3     | .140115 | .138752 | .406327 | .860863 |
| 4     | .134700 | .124922 | .327633 | .691730 |
| 5     | .078243 | .170235 | .169666 | .377511 |
| 6     | .055101 | .279618 | .182657 | .273344 |
| 7     | .052828 | .351483 | .260104 | .255758 |
| 8     | .034196 | .238298 | .208141 | .147840 |
| 9-11  | .020932 | .235237 | .140775 | .123427 |
| 12-14 | .027919 | .289140 | .109910 | .195761 |
| 15-21 | .018437 | .159253 | .116224 | .074492 |
| 22-30 | .013870 | .134014 | .089331 | .050866 |

RUN NO 94A 91M 6-19-63 1306-1422(EST)

GROSS STATISTICS

CLEAR WIND SPEED 6.17 M/SEC SIGMA A 6.80 DEG  
UNSTABLE WIND DIRECTION 207 DEG SIGMA E 7.9 DEG  
SOLAR RAD. 1.27 LY/MIN

|           | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-----------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| VARIANCES |                         |                                |                               |                                    |
| U         | 0.12122E 01             | 0.10285E 01                    | 0.74186E 00                   | 0.75910E 00                        |
| V         | 0.79107E 00             | 0.63404E 00                    | 0.57915E 00                   | 0.35026E-00                        |
| W         | 0.57224E 00             | 0.56873E 00                    | 0.51055E 00                   | 0.29462E-00                        |
| T         | 0.16856E-00             | 0.33094E-01                    | 0.21880E-01                   | 0.21615E-01                        |
| E         | 0.12877E 01             | 0.11156E 01                    | 0.91578E 00                   |                                    |

|                  | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| GUSTINESS RATIOS |                         |                                |                               |                                    |
| U                | 0.17844                 | 0.16437                        | 0.13960                       | 0.14121                            |
| V                | 0.14415                 | 0.12905                        | 0.12334                       | 0.09592                            |
| W                | 0.12260                 | 0.12223                        | 0.11581                       | 0.08797                            |

|             | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| COVARIANCES |                         |                                |                               |                                    |
| U,V         | -0.21759E-00            | -0.14694E-00                   | -0.17613E-00                  | -0.91401E-01                       |
| U,W         | -0.39297E-00            | -0.38853E-00                   | -0.29544E-00                  | -0.29531E-00                       |
| U,T         | -0.13969E-00            | -0.49503E-01                   | -0.20528E-01                  | -0.39678E-01                       |
| V,W         | 0.71690E-01             | 0.94417E-01                    | 0.10282E-00                   | 0.48888E-01                        |
| V,T         | 0.10213E-00             | -0.87299E-02                   | -0.55873E-02                  | -0.36643E-02                       |
| W,T         | -0.12004E-01            | -0.13840E-01                   | -0.20709E-01                  | -0.76308E-01                       |
| WE          | 0.21527E-00             | 0.16618E-00                    | 0.75490E-01                   |                                    |

|                        | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|------------------------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| NORMALIZED COVARIANCES |                         |                                |                               |                                    |
| U,V                    | -0.22221                | -0.18196                       | -0.26870                      | -0.17726                           |
| U,W                    | -0.47183                | -0.50802                       | -0.48006                      | -0.62445                           |
| U,T                    | -0.30904                | -0.26832                       | -0.16112                      | -0.30975                           |
| V,W                    | 0.10655                 | 0.15723                        | 0.18909                       | 0.15219                            |
| V,T                    | 0.27968                 | -0.06027                       | -0.04963                      | -0.04211                           |
| W,T                    | -0.03865                | -0.10088                       | -0.19593                      | -0.00956                           |

RUN NC 94A 91M 6-19-63 1306-1422(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.65548<br>10E 00 | 0.61550<br>10E 00 | 0.12743<br>10E 00 | 0.54369<br>10F 00 | 0.11256<br>10E 00 | 0.10570<br>10E 00 |
| 0  | -.268697          | -.479972          | -.160904          | .189151           | -.049835          | -.195883          |
| 1  | -.259758          | -.449889          | -.136568          | .177079           | -.044044          | -.171625          |
| 2  | -.232585          | -.393932          | -.103086          | .148039           | -.032306          | -.124665          |
| 3  | -.195939          | -.338748          | -.082505          | .116970           | -.020323          | -.079328          |
| 4  | -.161940          | -.286026          | -.069674          | .088192           | -.009478          | -.045768          |
| 5  | -.130119          | -.231265          | -.057990          | .057307           | .003084           | -.022417          |
| 6  | -.095175          | -.175982          | -.048785          | .022420           | .016011           | -.000846          |
| 7  | -.060214          | -.121065          | -.043707          | -.010579          | .027313           | .026100           |
| 8  | -.025158          | -.074778          | -.047410          | -.037214          | .038925           | .053528           |
| 9  | .006429           | -.034453          | -.038678          | -.061083          | .048570           | .075451           |
| 10 | .028617           | .002856           | -.028210          | -.080510          | .051372           | .090345           |
| 11 | .043749           | .034084           | -.014454          | -.091368          | .054871           | .095133           |
| 12 | .052923           | .062454           | -.005581          | -.092833          | .059309           | .089441           |
| 13 | .060906           | .092080           | -.000411          | -.083313          | .054755           | .080173           |
| 14 | .068242           | .122345           | .002647           | -.070556          | .045015           | .064621           |
| 15 | .074978           | .148370           | .005908           | -.061399          | .032251           | .051661           |
| 16 | .079950           | .165606           | .011853           | -.055150          | .019576           | .046529           |
| 17 | .080820           | .177413           | .017401           | -.042551          | .010051           | .046609           |
| 18 | .078183           | .186066           | .023561           | -.028795          | .001376           | .040386           |
| 19 | .077452           | .188893           | .025526           | -.022798          | -.003585          | .032914           |
| 20 | .077610           | .187641           | .024265           | -.017312          | -.004318          | .028912           |
| 21 | .075503           | .181327           | .023497           | -.008146          | -.003113          | .027048           |
| 22 | .077042           | .179045           | .023270           | .001936           | -.003574          | .022130           |
| 23 | .079320           | .178178           | .023722           | .010097           | -.008634          | .016231           |
| 24 | .082425           | .175972           | .025637           | .010266           | -.018845          | .006421           |
| 25 | .083813           | .167073           | .029436           | .008728           | -.024287          | -.000696          |
| 26 | .084591           | .155655           | .032892           | .005416           | -.037096          | -.007460          |
| 27 | .084976           | .140512           | .038392           | -.000894          | -.039202          | -.012518          |
| 28 | .085198           | .121641           | .045459           | -.012286          | -.041067          | -.022724          |
| 29 | .081465           | .105077           | .049224           | -.019663          | -.037476          | -.040376          |
| 30 | .072314           | .086387           | .048595           | -.017443          | -.028700          | -.051080          |
| 31 | .061270           | .061336           | .047347           | -.009064          | -.019518          | -.048174          |
| 32 | .051624           | .038432           | .049738           | -.002226          | -.014271          | -.045732          |
| 33 | .046265           | .021526           | .050181           | -.002038          | -.011250          | -.040951          |
| 34 | .040975           | .006966           | .045214           | -.005160          | -.007826          | -.030643          |
| 35 | .031654           | -.002479          | .040980           | -.009527          | -.004642          | -.025174          |
| 36 | .022694           | -.010300          | .040307           | -.016477          | -.007704          | -.025188          |
| 37 | .017331           | -.015217          | .038640           | -.024208          | -.010502          | -.022513          |
| 38 | .017277           | -.022925          | .031194           | -.029451          | -.008822          | -.015232          |
| 39 | .018833           | -.030641          | .018534           | -.033096          | -.006393          | -.010322          |
| 40 | .021679           | -.031916          | .007943           | -.034012          | -.007137          | -.007331          |
| 41 | .023102           | -.032923          | .002638           | -.032131          | -.010503          | -.002954          |
| 42 | .018805           | -.033891          | -.000768          | -.024155          | -.012194          | .004173           |
| 43 | .011616           | -.033792          | -.008472          | -.015968          | -.013321          | .012164           |
| 44 | .004371           | -.033258          | -.015602          | -.014530          | -.014262          | .017500           |
| 45 | -.003804          | -.033112          | -.021034          | -.019626          | -.006900          | .018259           |
| 46 | -.012502          | -.033536          | -.027113          | -.023516          | -.002245          | .017377           |
| 47 | -.018273          | -.025860          | -.031246          | -.024076          | -.004723          | .011621           |
| 48 | -.027545          | -.016458          | -.030553          | -.013983          | -.005639          | .007128           |
| 49 | -.045498          | -.012808          | -.026653          | .007263           | -.003400          | -.003557          |
| 50 | -.062073          | -.015190          | -.021591          | .030198           | -.002999          | -.009072          |
| 51 | -.072126          | -.019045          | -.014820          | .043332           | -.008814          | -.014259          |
| 52 | -.082673          | -.028648          | -.004390          | .051800           | -.011958          | -.013727          |
| 53 | -.091397          | -.037472          | .001804           | .061750           | -.010060          | -.016661          |
| 54 | -.095736          | -.041242          | .005808           | .068346           | -.003443          | -.016867          |
| 55 | -.092435          | -.041599          | .005999           | .072947           | .005810           | -.008686          |
| 56 | -.084304          | -.040356          | .006397           | .076265           | .011017           | -.002320          |
| 57 | -.074876          | -.042093          | .010375           | .074983           | .013410           | -.000919          |
| 58 | -.068973          | -.044793          | .017376           | .069782           | .013951           | .001003           |
| 59 | -.064871          | -.046010          | .023010           | .063817           | .015521           | .008874           |
| 60 | -.057987          | -.041305          | .025493           | .052647           | .018363           | .016909           |

RUN NO 94A 91M 6-19-63 1306-1422(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.65548<br>10E 00 | 0.61550<br>10E 00 | 0.12743<br>10E 00 | 0.54369<br>10E 00 | 0.11256<br>10E 00 | 0.10570<br>10E 00 |
| 1  | .007241           | -.013884          | -.012511          | .027494           | -.030337          | .017822           |
| 2  | .014321           | -.022794          | -.018264          | .049143           | -.050132          | .054426           |
| 3  | .017493           | -.024154          | -.028125          | .061487           | -.062503          | .091010           |
| 4  | .022470           | -.021562          | -.038584          | .074191           | -.068294          | .116528           |
| 5  | .032322           | -.021655          | -.046902          | .087902           | -.068244          | .126607           |
| 6  | .038348           | -.020498          | -.052691          | .098875           | -.068170          | .129604           |
| 7  | .042270           | -.017005          | -.058509          | .104881           | -.066541          | .131189           |
| 8  | .046484           | -.016133          | -.059724          | .106484           | -.064876          | .121846           |
| 9  | .050234           | -.024512          | -.057095          | .106414           | -.060361          | .108357           |
| 10 | .050417           | -.029027          | -.059099          | .109041           | -.052152          | .094964           |
| 11 | .046937           | -.028003          | -.064294          | .108723           | -.042742          | .088109           |
| 12 | .046966           | -.024556          | -.068507          | .109148           | -.037303          | .081353           |
| 13 | .050066           | -.022560          | -.067914          | .107104           | -.035136          | .070175           |
| 14 | .052734           | -.025595          | -.062903          | .102734           | -.034829          | .056659           |
| 15 | .055347           | -.029298          | -.055393          | .095161           | -.031284          | .045333           |
| 16 | .055982           | -.030715          | -.046064          | .086565           | -.028501          | .040786           |
| 17 | .053278           | -.025745          | -.041356          | .074841           | -.025196          | .041427           |
| 18 | .047243           | -.016750          | -.039656          | .057806           | -.021251          | .041449           |
| 19 | .042132           | -.009845          | -.037249          | .042723           | -.015307          | .034534           |
| 20 | .042055           | -.005795          | -.036690          | .030605           | -.005680          | .024009           |
| 21 | .045756           | -.004823          | -.038226          | .017676           | .007026           | .013966           |
| 22 | .050779           | -.007769          | -.039864          | .003607           | .021805           | .007906           |
| 23 | .053165           | -.012720          | -.039534          | -.007203          | .034808           | .001533           |
| 24 | .050677           | -.013604          | -.035892          | -.013427          | .046362           | -.000864          |
| 25 | .047198           | -.013773          | -.032226          | -.019515          | .053988           | -.005058          |
| 26 | .040052           | -.019194          | -.028927          | -.031719          | .057888           | -.016330          |
| 27 | .031181           | -.023225          | -.021025          | -.042395          | .059151           | -.030177          |
| 28 | .021190           | -.021385          | -.007824          | -.049361          | .062921           | -.040250          |
| 29 | .009698           | -.017562          | .003180           | -.053001          | .065228           | -.048585          |
| 30 | -.002832          | -.016822          | .010566           | -.049546          | .061469           | -.054966          |
| 31 | -.015695          | -.016711          | .021006           | -.042130          | .051396           | -.058887          |
| 32 | -.025058          | -.017754          | .032029           | -.033801          | .041774           | -.063525          |
| 33 | -.028078          | -.020287          | .042137           | -.027637          | .029380           | -.067502          |
| 34 | -.033324          | -.023099          | .051524           | -.023222          | .018305           | -.069075          |
| 35 | -.040070          | -.022292          | .061219           | -.019841          | .004570           | -.062821          |
| 36 | -.042145          | -.017101          | .065214           | -.016060          | -.005899          | -.050595          |
| 37 | -.044477          | -.010102          | .066080           | -.015162          | -.010799          | -.041804          |
| 38 | -.046016          | -.005654          | .066782           | -.006643          | -.021336          | -.040060          |
| 39 | -.045907          | -.004353          | .068038           | .001593           | -.032985          | -.039408          |
| 40 | -.045110          | -.002207          | .067352           | .005047           | -.041583          | -.039404          |
| 41 | -.049454          | .002948           | .062135           | .004824           | -.049894          | -.042419          |
| 42 | -.054132          | .009509           | .056416           | -.001528          | -.052351          | -.038078          |
| 43 | -.052006          | .018577           | .047566           | -.011350          | -.045380          | -.027900          |
| 44 | -.047267          | .026768           | .035780           | -.014407          | -.038067          | -.018333          |
| 45 | -.041108          | .032959           | .024570           | -.011500          | -.032935          | -.014531          |
| 46 | -.035896          | .045047           | .015651           | -.012446          | -.030807          | -.008575          |
| 47 | -.031710          | .057842           | .009029           | -.017822          | -.026495          | -.001190          |
| 48 | -.029640          | .065098           | .004582           | -.025513          | -.022382          | .003261           |
| 49 | -.030497          | .068116           | .001501           | -.032947          | -.023176          | .012280           |
| 50 | -.029919          | .069629           | -.004408          | -.036988          | -.028810          | .019430           |
| 51 | -.024969          | .070678           | -.011072          | -.036659          | -.033190          | .025566           |
| 52 | -.019386          | .071124           | -.015793          | -.031310          | -.030732          | .028414           |
| 53 | -.015541          | .065385           | -.020450          | -.025744          | -.025917          | .027254           |
| 54 | -.010903          | .055243           | -.019162          | -.019403          | -.019624          | .024256           |
| 55 | -.007333          | .041585           | -.016931          | -.011140          | -.009459          | .018181           |
| 56 | -.005113          | .027173           | -.017721          | -.008658          | .000564           | .016541           |
| 57 | -.001879          | .017587           | -.020144          | -.013451          | .012313           | .021155           |
| 58 | .003312           | .009951           | -.019382          | -.020759          | .023351           | .027704           |
| 59 | .003455           | .004033           | -.014646          | -.025373          | .029140           | .027966           |
| 60 | .001125           | -.002796          | -.011253          | -.027795          | .035570           | .025737           |

RUN NO 94A 91M 6-19-63 1306-1422(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.74205<br>10E 00 | 0.57900<br>10E 00 | 0.51053<br>10E 00 | 0.21083<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .907563           | .847022           | .821568           | .851091           |
| 2  | .778050           | .630814           | .582221           | .647236           |
| 3  | .666435           | .460647           | .396926           | .484654           |
| 4  | .564156           | .326364           | .261061           | .351952           |
| 5  | .465605           | .214836           | .154821           | .236281           |
| 6  | .373181           | .126733           | .063497           | .137122           |
| 7  | .289503           | .052333           | -.014756          | .054124           |
| 8  | .209707           | -.011957          | -.074289          | -.016730          |
| 9  | .134282           | -.075169          | -.116731          | -.070276          |
| 10 | .065256           | -.131944          | -.147142          | -.111944          |
| 11 | -.000313          | -.176037          | -.167580          | -.136790          |
| 12 | -.062996          | -.205411          | -.177475          | -.150250          |
| 13 | -.126287          | -.216384          | -.180578          | -.161593          |
| 14 | -.189855          | -.214336          | -.182647          | -.170985          |
| 15 | -.246696          | -.211825          | -.186316          | -.178744          |
| 16 | -.293495          | -.216974          | -.180148          | -.189988          |
| 17 | -.330549          | -.222361          | -.173709          | -.198004          |
| 18 | -.358731          | -.218355          | -.170912          | -.207356          |
| 19 | -.378489          | -.211335          | -.169961          | -.216258          |
| 20 | -.389798          | -.199942          | -.170788          | -.222087          |
| 21 | -.397528          | -.189458          | -.166287          | -.228035          |
| 22 | -.402369          | -.180070          | -.163477          | -.225281          |
| 23 | -.399024          | -.168404          | -.164900          | -.216607          |
| 24 | -.388250          | -.160347          | -.161784          | -.204216          |
| 25 | -.367782          | -.155296          | -.153740          | -.191762          |
| 26 | -.345181          | -.152698          | -.142409          | -.173346          |
| 27 | -.320693          | -.151315          | -.120835          | -.158388          |
| 28 | -.288126          | -.147836          | -.091521          | -.144424          |
| 29 | -.250725          | -.139725          | -.054652          | -.122400          |
| 30 | -.211146          | -.123199          | -.010188          | -.093640          |
| 31 | -.169881          | -.094928          | .026517           | -.059448          |
| 32 | -.132147          | -.059670          | .046978           | -.028111          |
| 33 | -.098924          | -.021869          | .048934           | -.007142          |
| 34 | -.069488          | .010215           | .039148           | .010110           |
| 35 | -.048646          | .033442           | .026969           | .026902           |
| 36 | -.030429          | .049965           | .025034           | .037228           |
| 37 | -.017984          | .060131           | .029771           | .039113           |
| 38 | -.004658          | .057648           | .030749           | .037017           |
| 39 | .015213           | .040823           | .023399           | .029208           |
| 40 | .037234           | .022413           | .004447           | .019451           |
| 41 | .057596           | .011143           | -.013532          | .014941           |
| 42 | .076143           | .009848           | -.027799          | .026745           |
| 43 | .093612           | .014294           | -.036522          | .045973           |
| 44 | .108054           | .021992           | -.025544          | .060742           |
| 45 | .116607           | .030943           | -.009297          | .074148           |
| 46 | .120141           | .036295           | .002185           | .088379           |
| 47 | .116875           | .042676           | .005037           | .100615           |
| 48 | .106024           | .053962           | .010097           | .102376           |
| 49 | .094574           | .060285           | .010751           | .098995           |
| 50 | .083129           | .062739           | .011308           | .088555           |
| 51 | .075001           | .068429           | .012103           | .069598           |
| 52 | .071901           | .067266           | .021190           | .044254           |
| 53 | .071898           | .051111           | .029977           | .027880           |
| 54 | .070920           | .035444           | .033411           | .020299           |
| 55 | .070293           | .028107           | .033479           | .010705           |
| 56 | .066792           | .022747           | .032737           | -.005227          |
| 57 | .059731           | .023880           | .037151           | -.023536          |
| 58 | .046361           | .024039           | .040915           | -.038168          |
| 59 | .037071           | .028486           | .034722           | -.050531          |
| 60 | .030353           | .035327           | .026086           | -.061299          |

RUN NO 94A 91M 6-19-63 1306-1422(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-01   | 10E-02   | 10E-02   |
| 0     | -.007238 | -.028914 | -.069786 | -.003788 | .016941  | .012050  |
| 1     | -.260721 | -.419749 | -.443167 | .059658  | .127409  | .035118  |
| 2     | -.387873 | -.635807 | -.414837 | .105184  | .074500  | -.077505 |
| 3     | -.379246 | -.717473 | -.281488 | .144952  | -.056529 | -.291071 |
| 4     | -.252846 | -.443652 | -.119272 | .193841  | -.177007 | -.394191 |
| 5     | -.179741 | -.206432 | -.127327 | .191108  | -.187892 | -.295633 |
| 6     | -.135479 | -.138403 | -.093015 | .136578  | -.117964 | -.210461 |
| 7-8   | -.070867 | -.090575 | -.039001 | .061624  | -.055816 | -.171193 |
| 9-11  | -.020703 | -.050337 | -.055046 | .013733  | .004717  | -.041033 |
| 12-15 | -.004749 | -.016985 | -.042999 | .004052  | -.015018 | -.032010 |
| 16-20 | -.010227 | -.012591 | -.019909 | .006100  | -.001827 | -.038042 |
| 21-27 | -.001696 | -.009172 | -.017629 | .004120  | -.003956 | -.011882 |
| 28-36 | .000713  | -.003957 | -.010055 | .000508  | -.002057 | -.002352 |
| 37-47 | .000816  | -.002054 | -.004369 | -.000134 | .000272  | -.002349 |
| 48-60 | .000007  | -.000598 | -.002267 | -.000162 | -.000047 | -.001087 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-02   | 10E-01   | 10E-02   | 10E-02   |
| 1     | .160977  | -.991865 | -.262457 | .152923  | -.039802 | .173785  |
| 2     | .186323  | -.725562 | -.390932 | .211041  | -.139679 | .383597  |
| 3     | .091975  | -.243023 | -.273280 | .233419  | -.331517 | .453644  |
| 4     | -.011358 | -.354409 | -.030784 | .139839  | -.251252 | .259112  |
| 5     | .008439  | -.250267 | -.058473 | .026334  | -.040336 | .163864  |
| 6     | .026933  | .021506  | -.076968 | -.003434 | -.037301 | .160134  |
| 7-8   | -.002621 | -.017135 | .015830  | .014320  | -.094468 | .093494  |
| 9-11  | .001449  | -.157543 | -.006754 | .010566  | -.027015 | .015597  |
| 12-15 | -.006228 | -.059830 | .002414  | .000238  | -.014343 | -.008093 |
| 16-20 | .003354  | -.031664 | .002912  | .002906  | -.010834 | -.015277 |
| 21-27 | .000976  | -.021737 | -.002219 | .003079  | -.000187 | -.009779 |
| 28-36 | .000425  | .005333  | -.003127 | .000241  | -.001772 | -.005052 |
| 37-47 | -.000995 | -.000801 | -.001669 | -.000489 | -.001610 | -.001975 |
| 48-60 | .000253  | -.001391 | -.001157 | -.000246 | .000331  | -.000724 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .009415 | .024783 | .022633 | .019342 |
| 1     | .118012 | .444207 | .328221 | .193725 |
| 2     | .167564 | .732570 | .521828 | .293102 |
| 3     | .172466 | .914971 | .704378 | .354943 |
| 4     | .093345 | .715893 | .613516 | .259027 |
| 5     | .040029 | .512763 | .421385 | .173412 |
| 6     | .025347 | .433556 | .356248 | .145973 |
| 7-8   | .021135 | .276827 | .314489 | .122102 |
| 9-11  | .013636 | .163844 | .159860 | .062705 |
| 12-15 | .007011 | .106825 | .102497 | .033783 |
| 16-20 | .004486 | .069147 | .068791 | .023628 |
| 21-27 | .002721 | .039136 | .043807 | .014288 |
| 28-36 | .001893 | .024287 | .023412 | .008894 |
| 37-47 | .001025 | .013334 | .014133 | .004955 |
| 48-60 | .000658 | .007136 | .008808 | .003075 |

RUN NO 94A 91M 6-19-63 1306-1422(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.51568<br>1GE 00 | 0.47339<br>10E 00 | 0.12814<br>10E 00 | 0.32136<br>10E 00 | 0.86985<br>10E-01 | 0.79851<br>10E-01 |
| 0  | -.177245          | -.623820          | -.309650          | .152131           | -.042125          | -.009556          |
| 1  | .039709           | -.222593          | -.245070          | -.129196          | .052205           | .139288           |
| 2  | .097068           | .056363           | -.151075          | -.045330          | -.017127          | .075041           |
| 3  | .114794           | .065769           | -.049480          | -.036879          | -.032431          | -.007402          |
| 4  | .060803           | .036858           | -.003429          | -.042487          | -.025019          | .017995           |
| 5  | -.049920          | .052046           | .018518           | .065813           | -.034993          | -.016996          |
| 6  | -.061043          | .040102           | .093480           | .106449           | -.002480          | -.025161          |
| 7  | .024127           | .068389           | .088215           | -.018028          | .005183           | -.036371          |
| 8  | .032603           | .053369           | .035767           | -.034194          | -.006974          | -.044098          |
| 9  | -.016452          | .052673           | .064083           | -.019005          | .056622           | -.023305          |
| 10 | -.038369          | .055124           | .025831           | .007165           | .037900           | -.006846          |
| 11 | -.065466          | -.002935          | .007087           | -.004219          | .066551           | .026830           |
| 12 | -.056247          | .051954           | .005635           | .000108           | .038949           | -.005154          |
| 13 | -.084647          | .066035           | .041786           | .057043           | .039781           | -.010136          |
| 14 | -.095557          | .042619           | .058839           | .040680           | .028331           | .010064           |
| 15 | -.025549          | -.017962          | .091356           | .009638           | -.026462          | -.051757          |
| 16 | .044877           | -.084161          | .095820           | -.007224          | -.049357          | -.045518          |
| 17 | .068063           | -.012234          | .047712           | -.044798          | -.042340          | .024805           |
| 18 | .047759           | .022239           | .041599           | -.002383          | -.085753          | -.031180          |
| 19 | .065477           | .004232           | .034293           | .038816           | -.050296          | -.005244          |
| 20 | .043013           | .080047           | -.021793          | -.049243          | .065716           | .028860           |
| 21 | -.058278          | .007748           | -.021448          | .077139           | -.003719          | .000827           |
| 22 | -.070836          | -.042621          | -.026708          | .047517           | .028669           | -.005723          |
| 23 | -.038090          | -.027007          | -.057779          | .008895           | .042787           | -.027271          |
| 24 | -.019572          | .023701           | -.020609          | .006688           | -.019947          | -.021119          |
| 25 | .074768           | .001845           | -.020568          | -.028635          | .002547           | -.044806          |
| 26 | .114185           | -.022275          | -.045659          | -.119504          | -.036883          | .073477           |
| 27 | .022956           | -.040774          | -.007088          | .014544           | -.079372          | .033753           |
| 28 | .001682           | -.029489          | .012870           | .022626           | -.009906          | .030332           |
| 29 | .027780           | -.032978          | .013808           | -.048129          | -.008921          | -.017542          |
| 30 | .027558           | -.000656          | .018117           | -.044949          | -.008631          | -.029839          |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 0     | -.000678 | -.006737 | -.042672 | -.016434 | .009131  | .014897  |
| 1     | .039087  | -.090594 | -.484989 | -.242841 | .015757  | .114233  |
| 2     | .086174  | -.142874 | -.637189 | -.280119 | -.050748 | .123654  |
| 3     | .101619  | -.204107 | -.643504 | -.257764 | -.114033 | .131624  |
| 4     | .015110  | -.212507 | -.527501 | -.254000 | -.034803 | .129965  |
| 5     | -.073898 | -.176106 | -.575932 | -.224295 | .136321  | .129114  |
| 6     | -.015786 | -.158966 | -.449823 | -.350650 | .119781  | .102976  |
| 7     | .037132  | -.192689 | -.160317 | -.405312 | -.000062 | .019485  |
| 8     | -.066043 | -.184044 | -.035244 | .108949  | .022050  | -.026907 |
| 9-11  | -.125844 | -.167233 | -.121529 | .505732  | .020123  | .017518  |
| 12-14 | -.100628 | -.143735 | -.079367 | .331392  | .000758  | -.013607 |
| 15-21 | -.028032 | -.110401 | .002946  | .239706  | -.023744 | -.073309 |
| 22-30 | -.061510 | -.058291 | -.028753 | .710049  | -.086588 | -.088066 |



RUN NO 94A 91M 6-19-63 1306-1422(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.51568<br>10E 00 | 0.47339<br>10E 00 | 0.12814<br>10E 00 | 0.32136<br>10E 00 | 0.86985<br>10E-01 | 0.79851<br>10E-01 |
| 1  | .077405           | -.037516          | -.089398          | .193338           | -.057994          | .146213           |
| 2  | .090387           | -.053522          | -.090966          | .120649           | -.025418          | .037987           |
| 3  | .032449           | -.037690          | -.077515          | -.016590          | .029623           | .008562           |
| 4  | -.026614          | -.002553          | -.026539          | .013883           | -.057359          | -.019083          |
| 5  | -.041623          | .066332           | -.077766          | -.090050          | -.048597          | .031434           |
| 6  | -.014435          | .005056           | -.100125          | -.070121          | .000264           | .068866           |
| 7  | .030574           | -.047371          | -.079390          | .005780           | -.002232          | .041396           |
| 8  | -.010471          | -.015502          | -.081155          | -.025504          | -.053287          | .009527           |
| 9  | -.037077          | .056712           | -.073181          | -.002838          | -.097097          | .053854           |
| 10 | -.051015          | .013989           | -.005068          | -.011101          | -.027674          | -.017903          |
| 11 | .016945           | .005506           | .022728           | .027027           | -.002984          | .023275           |
| 12 | -.004795          | .011837           | .010003           | .003357           | -.025543          | .023941           |
| 13 | -.021231          | .020396           | .000090           | .004109           | .013819           | -.023202          |
| 14 | -.072196          | .006215           | .061056           | -.060652          | .023675           | -.081074          |
| 15 | -.035978          | .015628           | .075723           | -.055085          | .014580           | -.040087          |
| 16 | .004653           | -.015288          | .065693           | .023543           | -.060190          | -.041095          |
| 17 | .060413           | -.007024          | .014987           | .047221           | -.030621          | .018178           |
| 18 | .016845           | -.000586          | -.009391          | .006952           | .012100           | .030483           |
| 19 | -.028579          | -.045382          | .010103           | .045619           | .004465           | .014930           |
| 20 | -.001167          | -.021475          | .034026           | .011116           | -.027545          | -.054707          |
| 21 | .023422           | .005683           | -.016507          | -.066488          | .055106           | -.006986          |
| 22 | .038051           | -.001728          | -.032275          | -.025292          | .088858           | .024526           |
| 23 | .013603           | -.029519          | -.067532          | .042062           | .011783           | -.005792          |
| 24 | -.008502          | -.023723          | -.008859          | .010914           | -.069837          | -.056099          |
| 25 | -.013472          | -.022351          | .026872           | -.002083          | -.033436          | -.042577          |
| 26 | -.009225          | -.009599          | -.009636          | -.013224          | -.008370          | -.007547          |
| 27 | -.024573          | .030226           | -.044028          | -.000368          | -.056479          | .056610           |
| 28 | -.019571          | .035427           | -.061650          | -.062473          | -.010046          | .086280           |
| 29 | -.034044          | -.013549          | -.018227          | -.021228          | -.037846          | -.001012          |
| 30 | -.049703          | -.008023          | -.041783          | -.019429          | -.023715          | .048664           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | -.436780 | .095232  | -.247369 | -.207182 | -.167818 | .054394  |
| 2     | -.209985 | .125564  | -.374115 | -.154574 | -.135537 | .111107  |
| 3     | .278061  | -.176786 | -.483712 | -.015725 | -.081292 | .134817  |
| 4     | .552876  | -.381407 | -.254323 | .189181  | -.019226 | .072399  |
| 5     | .363303  | -.240660 | -.010326 | .297977  | .009486  | -.011582 |
| 6     | .383878  | -.173896 | -.006344 | .506980  | .040942  | -.006362 |
| 7     | .638944  | -.282994 | -.066291 | .913144  | -.036603 | .071590  |
| 8     | .767983  | -.408148 | -.097584 | .973838  | -.102469 | .073031  |
| 9-11  | .757542  | -.566677 | -.164726 | .689386  | .005886  | .095565  |
| 12-14 | .251679  | .041464  | -.065203 | .377761  | -.015515 | .123433  |
| 15-21 | .011140  | .029037  | -.003804 | .453002  | -.080290 | .063570  |
| 22-30 | .027591  | .099305  | -.050171 | -.124205 | .029753  | .063642  |

RUN NO 94A 91M 6-19-63 1306-1422(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVEFAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.75965<br>10E 00 | 0.35006<br>10E 00 | 0.29500<br>10E 00 | 0.21614<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .471965           | .048748           | .080739           | .463560           |
| 2  | .002667           | -.095201          | -.103369          | .265968           |
| 3  | -.092785          | -.102787          | -.014516          | .188345           |
| 4  | -.070600          | -.083524          | -.115735          | .093085           |
| 5  | -.078009          | -.002007          | -.053025          | .067182           |
| 6  | -.124305          | .021851           | -.043323          | -.091398          |
| 7  | -.146663          | -.039101          | -.061434          | -.140874          |
| 8  | -.149554          | -.067901          | -.011168          | -.127192          |
| 9  | -.106989          | .022939           | -.044322          | -.176014          |
| 10 | -.062968          | -.008571          | -.052614          | -.174645          |
| 11 | -.041411          | -.029270          | -.035007          | -.162660          |
| 12 | -.068994          | .017251           | -.081883          | -.202136          |
| 13 | -.061440          | -.074273          | -.111862          | -.232186          |
| 14 | -.037607          | -.026174          | -.037745          | -.285804          |
| 15 | .017079           | .085942           | .055568           | -.169843          |
| 16 | .043146           | -.008275          | .139997           | -.144485          |
| 17 | -.006130          | -.091770          | .043647           | -.164526          |
| 18 | -.062060          | -.006023          | .021906           | -.111216          |
| 19 | -.069174          | .008859           | .038189           | -.036821          |
| 20 | -.057437          | -.054408          | -.166479          | .047613           |
| 21 | .022787           | -.032022          | -.044016          | .180544           |
| 22 | .108496           | .074958           | .028588           | .126053           |
| 23 | .101698           | .001059           | .032306           | .133207           |
| 24 | .024994           | -.024773          | -.060789          | .076733           |
| 25 | .025612           | -.092072          | .048212           | .103521           |
| 26 | .019042           | -.102454          | -.014977          | .093074           |
| 27 | .008747           | .007163           | .007202           | .061547           |
| 28 | -.001544          | -.022972          | .027589           | -.031745          |
| 29 | -.028532          | -.023846          | .047733           | -.043424          |
| 30 | -.069676          | .015907           | .068427           | .004073           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E-01  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .031127 | .014853 | .004210 | .019886 |
| 1     | .309821 | .096455 | .053656 | .232335 |
| 2     | .479245 | .090136 | .085705 | .319464 |
| 3     | .658524 | .105108 | .136796 | .299440 |
| 4     | .678326 | .119711 | .144633 | .152215 |
| 5     | .629296 | .132201 | .100892 | .124854 |
| 6     | .492183 | .138105 | .108770 | .117608 |
| 7     | .459011 | .149113 | .177231 | .072958 |
| 8     | .468176 | .174849 | .163214 | .058735 |
| 9-11  | .416302 | .178198 | .120570 | .062052 |
| 12-14 | .370874 | .171766 | .120249 | .065779 |
| 15-21 | .204757 | .155825 | .144004 | .050905 |
| 22-30 | .104274 | .180870 | .142497 | .060547 |

RUN NO 94A 46M 6-19-63 1306-1422(EST)  
 RUN NO 94A 91M 6-19-63 1306-1422(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .411878 | .040557 | .602783 | .343427 |
| 1     | .209842 | .476185 | .565861 | .058425 |
| 2     | .157488 | .498746 | .480032 | .054437 |
| 3     | .138641 | .491358 | .418507 | .053003 |
| 4     | .106769 | .474121 | .399986 | .092762 |
| 5     | .144735 | .372599 | .383665 | .129002 |
| 6     | .132188 | .198616 | .422368 | .071421 |
| 7-8   | .074166 | .208508 | .302777 | .140708 |
| 9-11  | .064879 | .124586 | .123231 | .103133 |
| 12-15 | .108545 | .118455 | .069742 | .088737 |
| 16-20 | .065532 | .088940 | .114255 | .072769 |
| 21-27 | .098437 | .095441 | .068222 | .089228 |
| 28-36 | .077449 | .100895 | .069387 | .068275 |
| 37-47 | .078256 | .094910 | .098814 | .108155 |
| 48-60 | .108315 | .101015 | .084998 | .109445 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .674608 | .422949 | .501001 | .240039 |
| 1     | .587960 | .537650 | .593138 | .257569 |
| 2     | .689220 | .402821 | .692734 | .440978 |
| 3     | .721359 | .247982 | .766711 | .568867 |
| 4     | .612033 | .069816 | .765989 | .565180 |
| 5     | .514775 | .167643 | .587336 | .516063 |
| 6     | .350216 | .395903 | .439463 | .472596 |
| 7     | .097539 | .498114 | .567900 | .136163 |
| 8     | .161948 | .441057 | .677446 | .345405 |
| 9-11  | .283935 | .446836 | .634283 | .339296 |
| 12-14 | .106799 | .550829 | .351336 | .117150 |
| 15-21 | .244446 | .474900 | .437985 | .220524 |
| 22-30 | .196972 | .289401 | .347035 | .234290 |

RUN NO 95A 15M 6-19-63 1446-1602(EST)

GROSS STATISTICS

CLEAR WIND SPEED 4.15 M/SEC SIGMA A 14.9 DEG  
UNSTABLE WIND DIRECTION 211 DEG SIGMA E 12.0 DEG  
SOLAR RAD. 0.91 LY/MIN

|           | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-----------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| VARIANCES |                         |                                |                               |                                    |
| U         | 0.19035E 01             | 0.16123E 01                    | 0.10623E 01                   | 0.11184E 01                        |
| V         | 0.97734E 00             | 0.81390E 00                    | 0.68547E 00                   | 0.46227E 00                        |
| W         | 0.50011E 00             | 0.47916E 00                    | 0.43752E 00                   | 0.18859E 00                        |
| T         | 0.24797E 00             | 0.99174E 01                    | 0.43266E 01                   | 0.81213E 01                        |
| E         | 0.16905E 01             | 0.14528E 01                    | 0.10927E 01                   |                                    |

|                  |         |         |         |         |
|------------------|---------|---------|---------|---------|
| GUSTINESS RATIOS |         |         |         |         |
| U                | 0.33245 | 0.30597 | 0.24836 | 0.25483 |
| V                | 0.23822 | 0.21739 | 0.19950 | 0.16383 |
| W                | 0.17041 | 0.16680 | 0.15939 | 0.10464 |

|             |              |              |              |              |
|-------------|--------------|--------------|--------------|--------------|
| COVARIANCES |              |              |              |              |
| U,V         | -0.79183E-01 | 0.18317E-01  | 0.33315E-01  | -0.84905E-02 |
| U,W         | -0.39790E-00 | -0.34648E-00 | -0.25208E-00 | -0.24392E-00 |
| U,T         | -0.40883E-00 | -0.30259E-00 | -0.15487E-00 | -0.24356E-00 |
| V,W         | 0.90410E-01  | 0.60340E-01  | 0.44375E-01  | 0.29135E-01  |
| V,T         | -0.58506E-01 | -0.15083E-01 | -0.14740E-01 | -0.99527E-02 |
| W,T         | 0.98864E-01  | 0.84165E-01  | 0.56382E-01  | 0.58843E-01  |
| WE          | 0.14364E-00  | 0.14142E-00  | 0.12515E-00  |              |

|                        |          |          |          |          |
|------------------------|----------|----------|----------|----------|
| NORMALIZED COVARIANCES |          |          |          |          |
| U,V                    | -0.05805 | 0.01599  | 0.03904  | -0.01181 |
| U,W                    | -0.40782 | -0.39420 | -0.36974 | -0.53111 |
| U,T                    | -0.59507 | -0.75672 | -0.72237 | -0.80815 |
| V,W                    | 0.12932  | 0.09662  | 0.08103  | 0.09867  |
| V,T                    | -0.11884 | -0.05309 | -0.08559 | -0.05137 |
| W,T                    | 0.28074  | 0.38609  | 0.40980  | 0.47546  |

RUN NO 95A 15M 6-19-63 1446-1602(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.85362<br>10E 00 | 0.68192<br>10E 00 | 0.21443<br>10E 00 | 0.54774<br>10E 00 | 0.17224<br>10E 00 | 0.13759<br>10E 00 |
| 0  | .039168           | -.369616          | -.722282          | .081151           | -.085615          | .409685           |
| 1  | .031351           | -.352583          | -.666952          | .052656           | -.078189          | .371497           |
| 2  | .015914           | -.297347          | -.566338          | .013760           | -.065619          | .295342           |
| 3  | .004025           | -.233437          | -.466001          | -.009466          | -.054486          | .220859           |
| 4  | -.003245          | -.176814          | -.377683          | -.017747          | -.044614          | .157119           |
| 5  | -.012779          | -.128992          | -.301769          | -.017974          | -.036956          | .114634           |
| 6  | -.016276          | -.093692          | -.241010          | -.006843          | -.030446          | .082376           |
| 7  | -.007963          | -.061319          | -.187691          | .005315           | -.026719          | .055509           |
| 8  | -.001173          | -.024127          | -.129336          | .013561           | -.019772          | .025395           |
| 9  | -.000394          | .014440           | -.070326          | .011051           | -.008516          | -.005196          |
| 10 | -.001830          | .042961           | -.020873          | .006907           | -.003842          | -.036324          |
| 11 | -.009201          | .062777           | .020821           | .010994           | .000044           | -.059880          |
| 12 | -.013425          | .072136           | .055045           | .019002           | .008257           | -.078717          |
| 13 | -.018547          | .087408           | .086161           | .020123           | .018904           | -.094190          |
| 14 | -.023585          | .099239           | .113531           | .022304           | .023549           | -.108486          |
| 15 | -.023930          | .099828           | .135415           | .024954           | .027628           | -.112577          |
| 16 | -.020789          | .100592           | .150582           | .026101           | .031603           | -.109528          |
| 17 | -.023762          | .099939           | .165425           | .021797           | .035256           | -.104490          |
| 18 | -.033063          | .097608           | .176142           | .015065           | .041386           | -.098692          |
| 19 | -.032465          | .101255           | .185507           | .009016           | .043619           | -.097885          |
| 20 | -.024402          | .103336           | .195239           | .005645           | .042043           | -.100637          |
| 21 | -.015596          | .102005           | .206696           | .004244           | .039707           | -.097852          |
| 22 | -.011056          | .101759           | .212788           | .009186           | .042069           | -.093146          |
| 23 | -.007901          | .100239           | .221981           | .009140           | .043643           | -.084846          |
| 24 | -.002558          | .097556           | .230496           | .002568           | .042530           | -.083215          |
| 25 | .003575           | .091080           | .236131           | -.005019          | .037139           | -.089247          |
| 26 | .009980           | .085735           | .232712           | -.015411          | .027404           | -.094694          |
| 27 | .020497           | .081184           | .216602           | -.032441          | .010952           | -.094524          |
| 28 | .034267           | .078944           | .197009           | -.041809          | -.004415          | -.089561          |
| 29 | .046866           | .068616           | .178538           | -.041302          | -.013951          | -.078769          |
| 30 | .052407           | .063235           | .161869           | -.036847          | -.020949          | -.064335          |
| 31 | .051036           | .060756           | .145486           | -.032346          | -.025850          | -.047838          |
| 32 | .051085           | .055592           | .128504           | -.023782          | -.027992          | -.034685          |
| 33 | .052826           | .042479           | .112528           | -.025930          | -.028679          | -.021490          |
| 34 | .054919           | .022365           | .094635           | -.035335          | -.033425          | -.013873          |
| 35 | .049355           | .003034           | .075427           | -.047639          | -.039866          | -.008910          |
| 36 | .035066           | -.007908          | .055388           | -.043514          | -.039976          | -.003917          |
| 37 | .018912           | -.013442          | .037355           | -.034515          | -.027743          | .002654           |
| 38 | .008943           | -.017518          | .020891           | -.021036          | -.013011          | .009287           |
| 39 | .005594           | -.025526          | .007059           | -.019139          | -.003708          | .022450           |
| 40 | .005474           | -.028770          | -.003909          | -.013308          | -.001706          | .040761           |
| 41 | .012078           | -.032798          | -.010447          | -.003152          | -.006094          | .054046           |
| 42 | .017056           | -.038307          | -.014644          | -.006682          | -.016564          | .064020           |
| 43 | .016776           | -.046789          | -.019900          | -.019571          | -.026816          | .074016           |
| 44 | .010523           | -.049995          | -.023996          | -.013157          | -.028861          | .073165           |
| 45 | -.001006          | -.050669          | -.030303          | -.001197          | -.025343          | .067906           |
| 46 | -.010882          | -.049027          | -.041889          | .002826           | -.013805          | .062207           |
| 47 | -.017581          | -.044519          | -.054097          | .003153           | -.001276          | .062938           |
| 48 | -.017691          | -.040607          | -.064138          | .005319           | .007944           | .060605           |
| 49 | -.018538          | -.043720          | -.071392          | .006992           | .015795           | .062150           |
| 50 | -.017272          | -.049952          | -.078235          | .008179           | .024386           | .068432           |
| 51 | -.018111          | -.059427          | -.085353          | .007717           | .031814           | .076705           |
| 52 | -.018975          | -.066740          | -.087599          | .006276           | .034353           | .082527           |
| 53 | -.016561          | -.067849          | -.088661          | -.001567          | .031150           | .082658           |
| 54 | -.014986          | -.061170          | -.087994          | -.005004          | .028836           | .071948           |
| 55 | -.015769          | -.048880          | -.079301          | .003513           | .028830           | .054926           |
| 56 | -.020193          | -.035789          | -.059437          | .008492           | .032557           | .029343           |
| 57 | -.029125          | -.021596          | -.038103          | .017112           | .036652           | .002631           |
| 58 | -.035578          | -.011680          | -.027825          | .016408           | .039049           | -.015995          |
| 59 | -.038190          | .000114           | -.021413          | .018872           | .042843           | -.035265          |
| 60 | -.039535          | .013902           | -.011900          | .016477           | .046924           | -.056378          |

RUN NO 95A 15M 6-19-63 1446-1602(EST)  
61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.85362<br>10E 00 | 0.68192<br>10E 00 | 0.21443<br>10E 00 | 0.54774<br>10E 00 | 0.17224<br>10E 00 | 0.13759<br>10E 00 |
| 1  | .007784           | -.030246          | -.077512          | .008094           | .007819           | .000777           |
| 2  | .014798           | -.040938          | -.113731          | .021077           | .015156           | .002562           |
| 3  | .022160           | -.046187          | -.130394          | .034615           | .026849           | .002769           |
| 4  | .027923           | -.054568          | -.138506          | .037654           | .034774           | .004085           |
| 5  | .025151           | -.059559          | -.144898          | .042399           | .034850           | .005966           |
| 6  | .026624           | -.054278          | -.147302          | .040234           | .036544           | .011987           |
| 7  | .031085           | -.052926          | -.147695          | .032744           | .035802           | .019298           |
| 8  | .030307           | -.058728          | -.150726          | .026259           | .029112           | .019168           |
| 9  | .021538           | -.059491          | -.146343          | .018107           | .018513           | .013884           |
| 10 | .011468           | -.052291          | -.135795          | .003478           | .007419           | .008578           |
| 11 | .003424           | -.036958          | -.123735          | -.000748          | .002253           | .012512           |
| 12 | -.003605          | -.026175          | -.115922          | .002215           | -.000927          | .014920           |
| 13 | -.005438          | -.028676          | -.107439          | -.002700          | -.002360          | .013681           |
| 14 | -.004142          | -.025452          | -.100827          | -.006242          | .000725           | .013443           |
| 15 | .000022           | -.019865          | -.096631          | -.007531          | .002741           | .019337           |
| 16 | .003989           | -.013060          | -.090585          | -.005057          | .004521           | .023422           |
| 17 | .003150           | -.004158          | -.084290          | -.008625          | .008002           | .026907           |
| 18 | .005485           | .007864           | -.078279          | -.010290          | .016761           | .035724           |
| 19 | .006709           | .010967           | -.072730          | -.006039          | .026226           | .045289           |
| 20 | .010031           | .008304           | -.072526          | .001711           | .031378           | .041212           |
| 21 | .016087           | .001180           | -.072120          | .011164           | .034642           | .030951           |
| 22 | .022689           | -.004509          | -.071847          | .012869           | .034853           | .015435           |
| 23 | .025553           | -.005996          | -.068266          | .011064           | .030447           | .007778           |
| 24 | .029904           | -.005473          | -.059434          | .013624           | .028485           | .003752           |
| 25 | .032942           | .004030           | -.047574          | .020479           | .033205           | .005503           |
| 26 | .039949           | .011074           | -.033497          | .025029           | .043016           | .009737           |
| 27 | .039965           | .008090           | -.017745          | .029355           | .050754           | .011778           |
| 28 | .033828           | .002488           | -.002331          | .032169           | .046622           | .003107           |
| 29 | .020593           | .002931           | .011862           | .025175           | .031936           | -.004322          |
| 30 | .006129           | .005673           | .023431           | .009429           | .019453           | -.005420          |
| 31 | .001817           | .006454           | .031886           | -.005844          | .012493           | -.008673          |
| 32 | .004851           | .005066           | .037683           | -.016103          | .012531           | -.017502          |
| 33 | .003578           | .000467           | .041552           | -.028154          | .010145           | -.023379          |
| 34 | -.001333          | .004755           | .044787           | -.035015          | .002670           | -.020016          |
| 35 | -.004852          | .015241           | .047554           | -.038285          | -.008035          | -.014964          |
| 36 | -.008474          | .019408           | .048338           | -.045772          | -.020413          | -.012264          |
| 37 | -.015552          | .017168           | .046451           | -.041437          | -.031069          | -.015420          |
| 38 | -.020541          | .019581           | .042102           | -.032972          | -.033392          | -.013986          |
| 39 | -.026634          | .021509           | .034482           | -.024042          | -.033539          | -.011513          |
| 40 | -.033161          | .014862           | .025946           | -.020022          | -.036209          | -.012186          |
| 41 | -.035889          | .006473           | .017403           | -.011984          | -.039728          | -.008021          |
| 42 | -.031081          | .010876           | .012410           | -.001831          | -.042942          | .001181           |
| 43 | -.023958          | .015883           | .008782           | .010498           | -.044929          | .005925           |
| 44 | -.009516          | .021219           | .006737           | .023868           | -.043072          | .012389           |
| 45 | .001242           | .025775           | .005494           | .020113           | -.037279          | .019394           |
| 46 | .008661           | .026014           | .007612           | .007403           | -.032374          | .021265           |
| 47 | .010932           | .021367           | .011922           | .006245           | -.030366          | .021429           |
| 48 | .009257           | .012073           | .010870           | .001509           | -.028151          | .019375           |
| 49 | .004869           | .003779           | .005556           | -.005784          | -.024196          | .017835           |
| 50 | .004503           | .000157           | -.000572          | -.004895          | -.018777          | .013517           |
| 51 | .008204           | -.001602          | -.005154          | .000737           | -.015718          | .011645           |
| 52 | .010611           | -.004713          | -.011344          | -.004620          | -.013581          | .012078           |
| 53 | .010825           | -.009885          | -.015012          | -.010367          | -.013264          | .008495           |
| 54 | .013687           | -.014024          | -.013483          | .000368           | -.012347          | .000598           |
| 55 | .013943           | -.026463          | -.007979          | .014337           | -.010922          | -.006406          |
| 56 | .015221           | -.031519          | -.005350          | .024396           | -.005421          | -.011229          |
| 57 | .012141           | -.031526          | -.002945          | .025095           | -.000516          | -.013110          |
| 58 | .002704           | -.030481          | -.000619          | .019494           | .003170           | -.012609          |
| 59 | -.000123          | -.027371          | -.000916          | .010905           | .006763           | -.007083          |
| 60 | -.000536          | -.019945          | .000079           | .004392           | .008649           | -.004273          |

RUN NO 95A 15M 6-19-63 1446-1602(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.10627<br>10E 01 | 0.68565<br>10E 00 | 0.43757<br>10E 00 | 0.43267<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .853854           | .792386           | .696270           | .894536           |
| 2  | .667088           | .566994           | .398457           | .729548           |
| 3  | .523903           | .409795           | .225360           | .583360           |
| 4  | .413089           | .289303           | .100463           | .465774           |
| 5  | .322839           | .199814           | .017608           | .370818           |
| 6  | .249853           | .133298           | -.030017          | .294488           |
| 7  | .187888           | .090274           | -.061996          | .228128           |
| 8  | .121101           | .058848           | -.088834          | .159425           |
| 9  | .053407           | .01229            | -.110086          | .090506           |
| 10 | -.004183          | -.018625          | -.120177          | .033006           |
| 11 | -.048594          | -.046994          | -.118344          | -.013387          |
| 12 | -.086366          | -.073948          | -.116812          | -.054733          |
| 13 | -.118470          | -.097305          | -.129082          | -.091242          |
| 14 | -.144634          | -.123313          | -.136023          | -.120602          |
| 15 | -.168349          | -.146405          | -.127560          | -.141392          |
| 16 | -.183154          | -.170134          | -.103831          | -.159420          |
| 17 | -.198920          | -.186842          | -.100141          | -.174195          |
| 18 | -.212562          | -.196714          | -.092994          | -.187690          |
| 19 | -.221045          | -.204293          | -.075465          | -.200181          |
| 20 | -.229025          | -.210049          | -.078509          | -.214468          |
| 21 | -.241970          | -.218466          | -.086483          | -.231225          |
| 22 | -.249368          | -.229899          | -.080938          | -.245964          |
| 23 | -.263208          | -.237129          | -.069774          | -.260695          |
| 24 | -.276681          | -.242736          | -.064040          | -.275049          |
| 25 | -.277336          | -.245153          | -.070263          | -.289625          |
| 26 | -.266974          | -.243752          | -.086954          | -.294741          |
| 27 | -.246239          | -.231459          | -.099254          | -.285147          |
| 28 | -.226586          | -.205323          | -.095558          | -.263574          |
| 29 | -.208498          | -.176677          | -.080549          | -.236770          |
| 30 | -.185973          | -.158269          | -.044562          | -.210652          |
| 31 | -.159260          | -.127965          | -.012314          | -.184331          |
| 32 | -.140394          | -.100298          | -.000233          | -.160663          |
| 33 | -.124178          | -.093036          | .007721           | -.143182          |
| 34 | -.103035          | -.082852          | .011859           | -.122520          |
| 35 | -.083746          | -.057260          | .007603           | -.095383          |
| 36 | -.066861          | -.035163          | .007586           | -.067776          |
| 37 | -.049203          | -.022700          | .005408           | -.046549          |
| 38 | -.029746          | -.012855          | .001986           | -.029338          |
| 39 | -.011108          | -.002413          | .002318           | -.015156          |
| 40 | .006711           | .011645           | .020969           | -.001906          |
| 41 | .015846           | .027186           | .042232           | .009366           |
| 42 | .013168           | .038990           | .057998           | .018173           |
| 43 | .017983           | .047515           | .059027           | .022862           |
| 44 | .020788           | .059293           | .057015           | .026837           |
| 45 | .026875           | .065915           | .036502           | .030439           |
| 46 | .034260           | .065565           | .013826           | .037015           |
| 47 | .043421           | .054908           | -.001152          | .045659           |
| 48 | .060649           | .032259           | -.000815          | .053763           |
| 49 | .073763           | .021733           | .004059           | .058970           |
| 50 | .084573           | .026420           | .015503           | .064729           |
| 51 | .091973           | .033655           | .019805           | .070405           |
| 52 | .090505           | .036064           | .022914           | .075916           |
| 53 | .092177           | .046281           | .029625           | .080238           |
| 54 | .093272           | .062527           | .029995           | .074793           |
| 55 | .086457           | .080531           | .021422           | .058520           |
| 56 | .075393           | .091103           | .008999           | .038682           |
| 57 | .061982           | .088372           | -.000645          | .019953           |
| 58 | .051977           | .086500           | -.020391          | .007974           |
| 59 | .047652           | .086267           | -.028665          | -.005239          |
| 60 | .041854           | .078832           | -.031635          | -.020247          |

RUN NO 95A 15M 6-19-63 1446-1602(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T     |
|-------|----------|----------|----------|----------|----------|---------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-01  |
| 0     | .005757  | -.021513 | -.028113 | .043643  | -.042137 | .004608 |
| 1     | -.054578 | -.279202 | -.266039 | .656156  | -.168277 | .052660 |
| 2     | -.040746 | -.451443 | -.328237 | .473189  | -.242377 | .089793 |
| 3     | .075079  | -.519268 | -.308676 | -.158558 | -.410568 | .105803 |
| 4     | .107941  | -.348537 | -.173732 | -.358958 | -.279918 | .070811 |
| 5     | .012288  | -.242238 | -.104235 | .058191  | -.037582 | .051475 |
| 6     | -.028366 | -.195488 | -.085496 | .271504  | .011965  | .041219 |
| 7-8   | .020467  | -.109237 | -.056571 | .219223  | -.064223 | .022341 |
| 9-11  | .025184  | -.050154 | -.027278 | .271581  | -.019016 | .013797 |
| 12-15 | .020570  | -.033881 | -.019575 | .244179  | -.017963 | .011300 |
| 16-20 | .002110  | -.020656 | -.011622 | .175998  | -.014631 | .005618 |
| 21-27 | .001819  | -.000796 | -.003806 | .053784  | -.003802 | .001750 |
| 28-36 | .005267  | -.001441 | -.002651 | .056050  | -.005935 | .000934 |
| 37-47 | -.001109 | .001325  | -.000965 | .023914  | -.000044 | .000435 |
| 48-60 | .000442  | .001068  | -.000664 | .011869  | -.000711 | .000106 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .918582  | -.056881 | -.117647 | .187054  | .251988  | .142300  |
| 2     | .692406  | -.097516 | -.122579 | .345752  | .215812  | .135265  |
| 3     | .127919  | -.111717 | -.103913 | .259880  | .006504  | .089262  |
| 4     | -.023302 | -.096056 | -.051456 | .108251  | -.029367 | -.035284 |
| 5     | .679261  | -.084342 | -.036656 | .497096  | .148855  | -.050091 |
| 6     | .792174  | -.053712 | -.042930 | .725098  | .166998  | .012060  |
| 7-8   | .237724  | -.020370 | -.023716 | .142466  | .081081  | .024763  |
| 9-11  | .032657  | -.009718 | -.010514 | .117416  | .008006  | -.012523 |
| 12-15 | -.069970 | -.005757 | -.007357 | -.023592 | -.009698 | -.002842 |
| 16-20 | .058098  | -.010443 | -.006313 | -.014741 | -.002449 | .001018  |
| 21-27 | -.034387 | -.000570 | -.002586 | -.020198 | -.006256 | .001579  |
| 28-36 | -.001100 | -.005613 | -.001938 | -.005723 | -.000910 | -.001486 |
| 37-47 | .011595  | -.000617 | -.000592 | -.006836 | .003533  | -.000355 |
| 48-60 | -.009596 | -.000707 | -.000279 | .006205  | -.000681 | -.000347 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E-01  | 10E-02  |
| 0     | .013498 | .003635 | .015821 | .093549 |
| 1     | .147287 | .068832 | .183324 | .738776 |
| 2     | .188568 | .100046 | .295968 | .839279 |
| 3     | .182263 | .101838 | .395060 | .765156 |
| 4     | .108694 | .060700 | .350864 | .427267 |
| 5     | .068892 | .038932 | .310444 | .273135 |
| 6     | .058605 | .036828 | .302983 | .251757 |
| 7-8   | .042217 | .031198 | .239889 | .171292 |
| 9-11  | .022990 | .021831 | .171516 | .088134 |
| 12-15 | .017697 | .014614 | .122863 | .065459 |
| 16-20 | .012069 | .009454 | .082864 | .040809 |
| 21-27 | .006451 | .005616 | .053613 | .018186 |
| 28-36 | .004459 | .004205 | .041718 | .011252 |
| 37-47 | .002474 | .002828 | .029373 | .005409 |
| 48-60 | .001650 | .001785 | .017636 | .003484 |



RUN NO 95A 15M 6-19-63 1446-1602(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.71900<br>10E 00 | 0.45920<br>10E 00 | 0.30136<br>10E 00 | 0.29522<br>10E 00 | 0.19374<br>10E 00 | 0.12374<br>10E 00 |
| 0  | -.011809          | -.531181          | -.808182          | .096690           | -.051370          | .475542           |
| 1  | -.022941          | -.197139          | -.509153          | .053979           | -.005178          | .207128           |
| 2  | -.030978          | -.040367          | -.258988          | .036029           | .026933           | .093049           |
| 3  | .007309           | -.001668          | -.113979          | -.052705          | .041195           | .046086           |
| 4  | -.011794          | -.007550          | -.039740          | -.027666          | .047916           | .040162           |
| 5  | -.064436          | .010570           | .011797           | .004661           | .089937           | .002700           |
| 6  | -.053057          | .081611           | .063641           | .035523           | .080253           | -.088438          |
| 7  | -.040659          | .143709           | .139825           | .036227           | .053777           | -.153538          |
| 8  | -.005271          | .105442           | .142249           | -.004644          | -.010023          | -.112150          |
| 9  | .039696           | .017070           | .124569           | .029576           | -.005644          | -.055984          |
| 10 | .079050           | .033489           | .128838           | -.028803          | -.054931          | -.047740          |
| 11 | .045101           | .024084           | .134217           | -.070899          | -.041981          | -.056349          |
| 12 | .006648           | .032887           | .121414           | -.072058          | -.021925          | -.045323          |
| 13 | -.043581          | .025054           | .130728           | -.004625          | .024405           | -.019506          |
| 14 | .000629           | .015651           | .093656           | -.031112          | -.029744          | -.031987          |
| 15 | .053989           | .010451           | .029991           | -.002603          | -.052289          | -.012026          |
| 16 | .059495           | -.001892          | -.014564          | -.019482          | -.059052          | -.001774          |
| 17 | .022132           | -.033740          | -.008573          | .013444           | -.039195          | .058034           |
| 18 | -.007725          | -.008045          | .046476           | .001127           | -.019979          | .028825           |
| 19 | -.025225          | .006760           | .107240           | .011699           | .017339           | -.002024          |
| 20 | .007744           | .030742           | .135842           | -.021081          | -.027738          | -.048682          |
| 21 | .006258           | .018570           | .112123           | -.009171          | -.019376          | -.054707          |
| 22 | .024079           | .013581           | .100240           | .062685           | -.009329          | -.048107          |
| 23 | -.012141          | .084297           | .143924           | .037241           | .033100           | -.096470          |
| 24 | -.031514          | .113512           | .191175           | .048536           | .045830           | -.125219          |
| 25 | .019908           | .120459           | .165383           | -.004172          | .018543           | -.129176          |
| 26 | -.006189          | .074721           | .086676           | -.005673          | .009680           | -.066755          |
| 27 | -.041615          | .037929           | .027698           | .014995           | .037348           | -.015586          |
| 28 | -.027532          | -.050607          | -.040754          | .032042           | -.023416          | .023923           |
| 29 | .013200           | -.076214          | -.081610          | -.066718          | -.040753          | .062698           |
| 30 | .042227           | -.105381          | -.115624          | -.073380          | -.065147          | .107004           |

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T     |
|-------|----------|----------|----------|----------|----------|---------|
|       | 10E-02   | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02  |
| 0     | -.134094 | -.011632 | -.033132 | .021427  | .073675  | .038838 |
| 1     | -.994938 | -.141352 | -.323713 | .222027  | .427578  | .476643 |
| 2     | -.977626 | -.159947 | -.322597 | .377909  | .334778  | .532816 |
| 3     | -.535329 | -.224250 | -.332751 | .331541  | .052995  | .716031 |
| 4     | .213188  | -.244875 | -.297811 | -.002307 | -.249089 | .732080 |
| 5     | .598633  | -.181499 | -.180552 | -.068005 | -.310952 | .441148 |
| 6     | .737381  | -.150896 | -.130670 | .118171  | -.343806 | .315334 |
| 7     | .612218  | -.109145 | -.139206 | .442019  | -.294129 | .225270 |
| 8     | -.156511 | -.064606 | -.110958 | .587928  | -.114833 | .075609 |
| 9-11  | -.710309 | -.086981 | -.082934 | .258673  | .054056  | .155687 |
| 12-14 | .078975  | -.139111 | -.068745 | .126954  | -.045814 | .305028 |
| 15-21 | .322603  | -.066341 | -.036360 | -.091622 | -.068601 | .127875 |
| 22-30 | -.101526 | -.065355 | -.028962 | .102576  | -.027510 | .156349 |

RUN NO 95A 15M 6-19-63 1445-1602(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.71900<br>10E 00 | 0.45920<br>10E 00 | 0.30136<br>10E 00 | 0.29522<br>10E 00 | 0.19374<br>10E 00 | 0.12374<br>10E 00 |
| 1  | .043544           | -.065418          | -.166291          | .047692           | .033893           | .042112           |
| 2  | .048373           | -.036142          | -.205795          | .034159           | .027002           | .066953           |
| 3  | .061073           | -.027657          | -.189813          | .057459           | .041396           | .050973           |
| 4  | .003358           | -.028914          | -.165492          | .006790           | -.014531          | .038241           |
| 5  | .004342           | -.019033          | -.141278          | .033005           | -.019442          | .044167           |
| 6  | -.010791          | -.033872          | -.104540          | .059524           | .012749           | .018497           |
| 7  | -.052315          | -.031848          | -.075757          | .022919           | .005952           | -.012689          |
| 8  | -.012521          | -.027215          | -.056869          | .022420           | .024694           | -.036216          |
| 9  | -.002558          | -.007825          | -.055978          | -.005531          | .016671           | -.017755          |
| 10 | -.022633          | -.010369          | -.050749          | .043556           | .001359           | -.015297          |
| 11 | .015729           | -.013767          | -.053269          | .038779           | .010389           | .009422           |
| 12 | .023533           | .069165           | -.030706          | .005762           | .004801           | .048860           |
| 13 | -.020119          | .011920           | -.018263          | -.050925          | -.002123          | .026123           |
| 14 | .015512           | .070721           | .003202           | -.001797          | .031499           | .039697           |
| 15 | -.006729          | .047537           | .010057           | -.035576          | .035906           | .044973           |
| 16 | -.006196          | .008199           | -.003796          | .000790           | .028160           | .019078           |
| 17 | -.016249          | -.009651          | -.009273          | -.014931          | .000692           | .016200           |
| 18 | .004251           | -.028376          | -.007298          | -.013336          | -.003649          | -.009993          |
| 19 | -.005738          | -.086535          | -.008455          | -.053739          | -.018643          | -.043081          |
| 20 | .002854           | -.007434          | .000736           | .000449           | .004840           | .011190           |
| 21 | .027506           | .017749           | .004632           | .000279           | .027712           | .029740           |
| 22 | -.011746          | .024284           | -.005091          | -.005342          | -.013742          | .042143           |
| 23 | -.044230          | .009753           | .017346           | -.031032          | -.039524          | .028314           |
| 24 | .012470           | -.007117          | .025300           | .021685           | -.002162          | .013525           |
| 25 | .044009           | .008344           | .074697           | .075287           | .003734           | -.014749          |
| 26 | .012345           | .029410           | .094864           | .022065           | -.024027          | -.020730          |
| 27 | -.042739          | .029019           | .123618           | -.046063          | -.041191          | -.067067          |
| 28 | -.088571          | .029365           | .103725           | -.042938          | -.055034          | -.056822          |
| 29 | .013401           | .012529           | .083136           | .020784           | -.008792          | -.041623          |
| 30 | .089815           | .036993           | .064289           | .119494           | .065018           | .005167           |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-02   | 10E-01   | 10E-02   | 10E-02   | 10E-02   |
| 1     | -.010606 | -.156046 | -.167995 | .280118  | .198987  | .186525  |
| 2     | .001906  | -.380311 | -.158506 | .446779  | .104092  | .085675  |
| 3     | .020911  | -.756251 | -.150085 | .480962  | .007439  | .062748  |
| 4     | .047816  | -.694274 | -.128042 | .202339  | .035533  | .136367  |
| 5     | .079261  | -.001660 | -.096208 | .084568  | .082630  | .234930  |
| 6     | .103745  | .168584  | -.086090 | .117279  | .063696  | .232179  |
| 7     | .094350  | -.366898 | -.076946 | .160714  | .052092  | .062296  |
| 8     | .054457  | -.422411 | -.053835 | .171579  | .129046  | -.006878 |
| 9-11  | .018121  | -.204294 | -.027825 | .041564  | .131057  | .015428  |
| 12-14 | .007598  | -.224458 | -.022738 | .208180  | .021381  | .049208  |
| 15-21 | -.010608 | -.151452 | -.009679 | -.051227 | -.025895 | -.003117 |
| 22-30 | .027838  | -.086849 | -.003180 | .120441  | .065252  | -.002654 |

RUN NC 95A 15M 6-19-63 1446-1602(EST)  
 301 PCINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVIARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.11184<br>10E 01 | 0.46224<br>10E 00 | 0.18854<br>10E 00 | 0.81207<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .518850           | .340064           | .106767           | .700908           |
| 2  | .175827           | -.017910          | .008936           | .443576           |
| 3  | .016188           | -.102146          | -.018815          | .245512           |
| 4  | -.054134          | -.030278          | -.036398          | .133732           |
| 5  | -.072347          | -.004825          | -.099963          | .027507           |
| 6  | -.077719          | .080833           | -.136671          | -.063275          |
| 7  | -.143672          | -.014834          | -.152088          | -.150705          |
| 8  | -.147399          | -.114277          | -.023264          | -.156533          |
| 9  | -.100824          | -.119667          | -.000735          | -.170402          |
| 10 | -.086712          | -.067611          | -.026406          | -.188620          |
| 11 | -.108011          | -.075976          | -.106979          | -.218018          |
| 12 | -.104551          | -.160869          | -.091813          | -.205110          |
| 13 | -.132225          | -.127978          | -.022739          | -.210245          |
| 14 | -.090865          | -.121716          | -.024097          | -.169574          |
| 15 | .022396           | .006250           | .025207           | -.112992          |
| 16 | .077329           | .036303           | .000005           | -.063211          |
| 17 | .019756           | -.025666          | .126008           | -.042890          |
| 18 | -.063543          | -.053402          | .101402           | -.082235          |
| 19 | -.120231          | -.051650          | .027063           | -.135042          |
| 20 | -.140024          | .047483           | .059307           | -.160527          |
| 21 | -.095283          | .043654           | -.079167          | -.154882          |
| 22 | -.059560          | .035537           | -.030492          | -.165203          |
| 23 | -.108989          | -.045772          | -.122915          | -.219624          |
| 24 | -.187972          | -.001700          | -.117505          | -.253132          |
| 25 | -.142543          | .005827           | -.132176          | -.241032          |
| 26 | -.079732          | -.002725          | -.054539          | -.150687          |
| 27 | -.021155          | -.026893          | .038118           | -.069112          |
| 28 | .082275           | .040301           | .056270           | .007115           |
| 29 | .099673           | -.036181          | .023384           | .080097           |
| 30 | .120428           | -.031760          | .068382           | .138860           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-01  |
| 0     | .008836 | .030857 | .004584 | .015716 |
| 1     | .097283 | .264685 | .045244 | .143835 |
| 2     | .102405 | .327219 | .063919 | .137979 |
| 3     | .116021 | .354039 | .116647 | .127678 |
| 4     | .117089 | .243655 | .124546 | .099211 |
| 5     | .083597 | .168418 | .084617 | .055913 |
| 6     | .068189 | .193481 | .101020 | .042514 |
| 7     | .076354 | .256729 | .110120 | .042227 |
| 8     | .066573 | .294735 | .074014 | .030282 |
| 9-11  | .048275 | .299534 | .047743 | .019899 |
| 12-14 | .037170 | .202402 | .090904 | .017660 |
| 15-21 | .023929 | .150079 | .076950 | .008690 |
| 22-30 | .018750 | .117764 | .096700 | .008395 |

RUN NO 95A 46M 6-19-63 1446-1602(EST)

GROSS STATISTICS

CLEAR WIND SPEED 5.21 M/SEC SIGMA A 11.1 DEG  
UNSTABLE WIND DIRECTION 206 DEG SIGMA E 9.8 DEG  
SOLAR RAD. 0.91 LY/MIN

|           | WITH NO<br>RUNNING MEAN | WITH 301 POINT<br>RUNNING MEAN | WITH 61 POINT<br>RUNNING MEAN | 301 PT RUN MEAN<br>10 PT BLOCK AVG |
|-----------|-------------------------|--------------------------------|-------------------------------|------------------------------------|
| VARIANCES |                         |                                |                               |                                    |
| U         | 0.15302E 01             | 0.10412E 01                    | 0.61476E 00                   | 0.78171E 00                        |
| V         | 0.91754E 00             | 0.68834E 00                    | 0.59033E 00                   | 0.37946E-00                        |
| W         | 0.58483E 00             | 0.49041E-00                    | 0.40471E-00                   | 0.27227E-00                        |
| T         | 0.15485E-00             | 0.31187E-01                    | 0.14120E-01                   | 0.26106E-01                        |
| E         | 0.15163E 01             | 0.11101E 01                    | 0.80490E 00                   |                                    |

|                  |         |         |         |         |
|------------------|---------|---------|---------|---------|
| GUSTINESS RATIOS |         |         |         |         |
| U                | 0.23743 | 0.19586 | 0.15049 | 0.16970 |
| V                | 0.18385 | 0.15924 | 0.14747 | 0.11823 |
| W                | 0.14678 | 0.13441 | 0.12211 | 0.10015 |

|             |              |              |              |              |
|-------------|--------------|--------------|--------------|--------------|
| COVARIANCES |              |              |              |              |
| U,V         | 0.11982E-00  | 0.12257E-00  | 0.54726E-01  | 0.93607E-01  |
| U,W         | -0.42017E-00 | -0.25570E-00 | -0.13032E-00 | -0.20660E-00 |
| U,T         | -0.22267E-00 | -0.12040E-00 | -0.51583E-01 | -0.10324E-00 |
| V,W         | 0.61978E-02  | -0.12489E-01 | -0.11662E-01 | 0.30065E-02  |
| V,T         | -0.14515E-00 | -0.21541E-01 | -0.98848E-02 | -0.18576E-01 |
| W,T         | 0.51983E-01  | 0.17195E-01  | -0.92913E-03 | 0.18471E-01  |
| WE          | 0.19793E-00  | 0.85943E-01  | 0.10894E-01  |              |

|                        |          |          |          |          |
|------------------------|----------|----------|----------|----------|
| NORMALIZED COVARIANCES |          |          |          |          |
| U,V                    | 0.10112  | 0.14478  | 0.07084  | 0.17187  |
| U,W                    | -0.44416 | -0.35783 | -0.26126 | -0.44782 |
| U,T                    | -0.45744 | -0.66813 | -0.55365 | -0.72267 |
| V,W                    | 0.00846  | -0.02150 | -0.02386 | 0.00935  |
| V,T                    | -0.38509 | -0.14702 | -0.10827 | -0.18644 |
| W,T                    | 0.17274  | 0.13904  | -0.01229 | 0.21909  |

RUN NO 95A 46M 6-19-63 1446-1602(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.60239<br>10E 00 | 0.49874<br>10E 00 | 0.93154<br>10E-01 | 0.48870<br>10E 00 | 0.91278<br>10E-01 | 0.75573<br>10E-01 |
| 0  | .090809           | -.261121          | -.553830          | -.023690          | -.107917          | -.012174          |
| 1  | .086247           | -.242249          | -.513333          | -.010496          | -.108234          | -.007568          |
| 2  | .074882           | -.203093          | -.444878          | .004094           | -.104661          | -.004509          |
| 3  | .057932           | -.164702          | -.374945          | .011084           | -.096805          | -.003796          |
| 4  | .039047           | -.126770          | -.309547          | .016565           | -.084850          | -.003991          |
| 5  | .020494           | -.091628          | -.255853          | .017513           | -.068734          | -.004485          |
| 6  | .009693           | -.063600          | -.207797          | .013487           | -.056444          | -.004098          |
| 7  | .007415           | -.047171          | -.163137          | .012588           | -.052470          | -.005166          |
| 8  | .011997           | -.033979          | -.119320          | .006981           | -.049441          | -.005741          |
| 9  | .017114           | -.024481          | -.078640          | -.002919          | -.044324          | -.002244          |
| 10 | .018731           | -.014361          | -.045555          | -.012410          | -.034427          | .003248           |
| 11 | .014004           | -.001973          | -.013458          | -.020846          | -.023200          | .008134           |
| 12 | .006032           | .015095           | .016196           | -.027586          | -.009367          | .008784           |
| 13 | -.006180          | .031458           | .044700           | -.028193          | .002170           | .008885           |
| 14 | -.016309          | .044822           | .073575           | -.029250          | .010736           | .007995           |
| 15 | -.022859          | .053880           | .104004           | -.025494          | .022589           | .002792           |
| 16 | -.028866          | .063253           | .134218           | -.018883          | .032497           | -.005383          |
| 17 | -.037902          | .069791           | .159387           | -.011288          | .039654           | -.012323          |
| 18 | -.043740          | .076795           | .175995           | -.006394          | .049742           | -.014396          |
| 19 | -.041555          | .082985           | .185532           | -.003416          | .058041           | -.013683          |
| 20 | -.036068          | .082871           | .191439           | .002254           | .060369           | -.014449          |
| 21 | -.033641          | .082040           | .195112           | .009378           | .061943           | -.010414          |
| 22 | -.031080          | .082207           | .194623           | .010854           | .064201           | .000138           |
| 23 | -.029799          | .076755           | .191718           | .012751           | .067961           | .016766           |
| 24 | -.021723          | .067940           | .188692           | .014986           | .069995           | .033297           |
| 25 | -.013283          | .063684           | .183474           | .010841           | .070175           | .041440           |
| 26 | -.007337          | .060911           | .172351           | .003130           | .069106           | .047404           |
| 27 | -.002986          | .055313           | .158489           | -.000741          | .064306           | .048913           |
| 28 | .005239           | .046945           | .136898           | -.004923          | .054759           | .051710           |
| 29 | .018547           | .033870           | .109446           | -.000542          | .043679           | .057894           |
| 30 | .028754           | .015743           | .082659           | .005589           | .034127           | .058884           |
| 31 | .031138           | .003358           | .056357           | .003303           | .032042           | .058185           |
| 32 | .019300           | -.004505          | .028617           | .003740           | .037632           | .058971           |
| 33 | .006233           | -.010504          | .005164           | .003469           | .038572           | .060064           |
| 34 | -.002005          | -.014610          | -.012513          | .004450           | .037486           | .052012           |
| 35 | -.006171          | -.018202          | -.021065          | .006544           | .035366           | .044276           |
| 36 | -.007544          | -.023455          | -.023814          | .005560           | .030560           | .044964           |
| 37 | -.012595          | -.028295          | -.022181          | .004424           | .024994           | .046692           |
| 38 | -.019273          | -.028390          | -.017585          | .003235           | .020133           | .041001           |
| 39 | -.021999          | -.028853          | -.011192          | .003392           | .014247           | .032904           |
| 40 | -.019077          | -.030221          | -.008148          | -.004369          | .012300           | .026584           |
| 41 | -.015756          | -.026056          | -.004618          | -.017011          | .010535           | .022176           |
| 42 | -.008319          | -.017002          | .003909           | -.028058          | .003739           | .011709           |
| 43 | .004921           | -.009393          | .014872           | -.037727          | -.008283          | -.001991          |
| 44 | .017146           | -.000751          | .020795           | -.039271          | -.022789          | -.010799          |
| 45 | .026028           | .006434           | .020156           | -.030378          | -.036102          | -.016992          |
| 46 | .030729           | .014172           | .014836           | -.016639          | -.041694          | -.021031          |
| 47 | .031286           | .019241           | .010248           | -.005012          | -.042524          | -.021969          |
| 48 | .028173           | .022829           | .007824           | .006575           | -.046235          | -.024007          |
| 49 | .019531           | .025215           | .007346           | .013328           | -.048673          | -.027504          |
| 50 | .004908           | .024627           | .005939           | .017791           | -.047793          | -.034369          |
| 51 | -.015153          | .021632           | .001134           | .027270           | -.042953          | -.039695          |
| 52 | -.029126          | .022079           | -.002470          | .035355           | -.036237          | -.046853          |
| 53 | -.031564          | .025325           | -.002310          | .033356           | -.035882          | -.056377          |
| 54 | -.028749          | .029764           | .001017           | .028403           | -.042247          | -.065352          |
| 55 | -.023390          | .036002           | .007149           | .021953           | -.046107          | -.074614          |
| 56 | -.023997          | .043089           | .012333           | .013765           | -.044499          | -.082689          |
| 57 | -.019239          | .041794           | .016647           | .012198           | -.044183          | -.083492          |
| 58 | -.014393          | .039374           | .017130           | .011577           | -.043863          | -.078659          |
| 59 | -.012646          | .036995           | .014904           | .005527           | -.040813          | -.077666          |
| 60 | -.007440          | .037760           | .011478           | -.001416          | -.039556          | -.078061          |

RUN NC 95A 46M 6-19-63 1446-1602(EST)  
 61 PCINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.60239<br>10E 00 | 0.49874<br>10E 00 | 0.93154<br>10E-01 | 0.48870<br>10E 00 | 0.91278<br>10E-01 | 0.75573<br>10E-01 |
| 1  | -.000049          | -.014544          | -.025437          | .020702           | .001234           | -.023478          |
| 2  | -.000288          | -.030008          | -.029445          | .033005           | -.003684          | -.034869          |
| 3  | .002574           | -.041994          | -.035975          | .039685           | -.009512          | -.034679          |
| 4  | .006861           | -.058140          | -.043845          | .044232           | -.017116          | -.029302          |
| 5  | .014482           | -.066759          | -.053564          | .047656           | -.022502          | -.023752          |
| 6  | .019236           | -.068882          | -.066086          | .049331           | -.026374          | -.017749          |
| 7  | .021201           | -.071124          | -.073996          | .046269           | -.029042          | -.015171          |
| 8  | .022717           | -.067672          | -.078781          | .042345           | -.030659          | -.013405          |
| 9  | .026147           | -.063977          | -.080956          | .030090           | -.030369          | -.013120          |
| 10 | .029985           | -.065849          | -.082774          | .014515           | -.027432          | -.015168          |
| 11 | .034967           | -.069913          | -.083722          | -.001500          | -.022042          | -.017789          |
| 12 | .042970           | -.073942          | -.077835          | -.009407          | -.011471          | -.018713          |
| 13 | .053056           | -.077966          | -.069534          | -.004995          | .000531           | -.018156          |
| 14 | .061083           | -.076354          | -.061030          | .001006           | .014248           | -.018839          |
| 15 | .065285           | -.068140          | -.052312          | .002195           | .023454           | -.013514          |
| 16 | .061618           | -.053670          | -.041641          | .003115           | .027128           | -.001090          |
| 17 | .053345           | -.039917          | -.027510          | .007403           | .028227           | .010836           |
| 18 | .043102           | -.028443          | -.015084          | .012616           | .031248           | .015236           |
| 19 | .036170           | -.019596          | -.007258          | .017299           | .033843           | .016143           |
| 20 | .032347           | -.009854          | -.003498          | .016591           | .035646           | .019786           |
| 21 | .031946           | .002482           | .000739           | .016141           | .032689           | .026554           |
| 22 | .034057           | .010993           | .002711           | .018580           | .028461           | .028033           |
| 23 | .034331           | .013046           | -.002436          | .021003           | .020756           | .029898           |
| 24 | .027506           | .018261           | -.008471          | .020639           | .013796           | .032459           |
| 25 | .022661           | .029795           | -.013933          | .016940           | .010986           | .037650           |
| 26 | .015997           | .042217           | -.020263          | .011210           | .007894           | .042104           |
| 27 | .003707           | .051459           | -.020025          | .004613           | .001332           | .045546           |
| 28 | -.008692          | .060458           | -.015412          | -.002012          | -.007949          | .046707           |
| 29 | -.020359          | .064017           | -.008378          | -.007496          | -.009782          | .043505           |
| 30 | -.032294          | .063612           | -.005018          | -.009984          | -.008031          | .043192           |
| 31 | -.041291          | .059408           | -.003530          | -.019951          | -.012257          | .045467           |
| 32 | -.046810          | .051593           | -.000119          | -.031052          | -.015536          | .044389           |
| 33 | -.053757          | .045656           | .002315           | -.035532          | -.018015          | .043776           |
| 34 | -.058734          | .038342           | .004498           | -.033303          | -.025811          | .043369           |
| 35 | -.056698          | .034384           | .001932           | -.034663          | -.034322          | .042827           |
| 36 | -.054121          | .030302           | -.004907          | -.040729          | -.039787          | .038794           |
| 37 | -.055790          | .026601           | -.010297          | -.047417          | -.037915          | .033584           |
| 38 | -.059850          | .021011           | -.012970          | -.048487          | -.038691          | .023625           |
| 39 | -.060470          | .012264           | -.013711          | -.042216          | -.046142          | .009836           |
| 40 | -.056257          | .001093           | -.011946          | -.030355          | -.056652          | -.005802          |
| 41 | -.051149          | -.009154          | -.008370          | -.016045          | -.064246          | -.020210          |
| 42 | -.048266          | -.016593          | -.006684          | -.007321          | -.069381          | -.029986          |
| 43 | -.045616          | -.017604          | -.010597          | -.003863          | -.072416          | -.031179          |
| 44 | -.043863          | -.024772          | -.011735          | -.000659          | -.066237          | -.032984          |
| 45 | -.036080          | -.030069          | -.011267          | .003439           | -.054379          | -.034980          |
| 46 | -.024763          | -.031921          | -.009748          | .002785           | -.041681          | -.037609          |
| 47 | -.013977          | -.036757          | -.010538          | -.002222          | -.034842          | -.037019          |
| 48 | -.005799          | -.040473          | -.008924          | -.004601          | -.029947          | -.031366          |
| 49 | -.004245          | -.043795          | -.009686          | -.004239          | -.022999          | -.031996          |
| 50 | -.004946          | -.047308          | -.010934          | -.005346          | -.014824          | -.034785          |
| 51 | -.003603          | -.048703          | -.012444          | -.004565          | -.005240          | -.036768          |
| 52 | -.003232          | -.050543          | -.011975          | .000472           | .003767           | -.038652          |
| 53 | .000981           | -.052284          | -.010783          | .009718           | .013524           | -.039634          |
| 54 | .011655           | -.052793          | -.012716          | .014525           | .022177           | -.043301          |
| 55 | .023526           | -.046127          | -.014640          | .016772           | .029117           | -.041508          |
| 56 | .031515           | -.034764          | -.014674          | .017935           | .031188           | -.036901          |
| 57 | .041821           | -.026400          | -.015099          | .015357           | .036938           | -.033644          |
| 58 | .053903           | -.019115          | -.015307          | .011537           | .042844           | -.032716          |
| 59 | .066299           | -.013216          | -.011174          | .016807           | .052580           | -.033533          |
| 60 | .073883           | -.001812          | -.004897          | .023523           | .065315           | -.034211          |

RUN NO 95A 46M 6-19-63 1446-1602(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.61477<br>10E 00 | 0.59026<br>10E 00 | 0.40462<br>10E 00 | 0.14115<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .868843           | .829794           | .804130           | .893097           |
| 2  | .699242           | .610748           | .565890           | .748537           |
| 3  | .553781           | .442486           | .404835           | .626179           |
| 4  | .432031           | .311588           | .287744           | .519946           |
| 5  | .335789           | .219571           | .185122           | .427010           |
| 6  | .255010           | .145611           | .093297           | .348694           |
| 7  | .183415           | .079383           | .016257           | .279046           |
| 8  | .127467           | .029099           | -.044329          | .213216           |
| 9  | .072581           | -.011952          | -.081376          | .153066           |
| 10 | -.022524          | -.046526          | -.106841          | .099823           |
| 11 | -.030312          | -.073293          | -.127711          | .047716           |
| 12 | -.073488          | -.097565          | -.143522          | -.005571          |
| 13 | -.107406          | -.125192          | -.154738          | -.060997          |
| 14 | -.136533          | -.155331          | -.161582          | -.117011          |
| 15 | -.167915          | -.182090          | -.177841          | -.166801          |
| 16 | -.203597          | -.195794          | -.188498          | -.211216          |
| 17 | -.231544          | -.209608          | -.190386          | -.247321          |
| 18 | -.250985          | -.220753          | -.192080          | -.269930          |
| 19 | -.261641          | -.221153          | -.183365          | -.288922          |
| 20 | -.268200          | -.224359          | -.178465          | -.307881          |
| 21 | -.272367          | -.228163          | -.178306          | -.325450          |
| 22 | -.273923          | -.224912          | -.187046          | -.334588          |
| 23 | -.273407          | -.223636          | -.200605          | -.340853          |
| 24 | -.269846          | -.220667          | -.205901          | -.348151          |
| 25 | -.259215          | -.215584          | -.197046          | -.345603          |
| 26 | -.246126          | -.215168          | -.188823          | -.335460          |
| 27 | -.234452          | -.217123          | -.183366          | -.320476          |
| 28 | -.213939          | -.212882          | -.171037          | -.294726          |
| 29 | -.181139          | -.201917          | -.145123          | -.261751          |
| 30 | -.141963          | -.170707          | -.108278          | -.223121          |
| 31 | -.103627          | -.126569          | -.058505          | -.180853          |
| 32 | -.062726          | -.085267          | -.023255          | -.140516          |
| 33 | -.021993          | -.052511          | -.002839          | -.110870          |
| 34 | .007142           | -.033358          | .021350           | -.084667          |
| 35 | .023960           | -.018371          | .041971           | -.056726          |
| 36 | .032289           | .001970           | .056643           | -.035683          |
| 37 | .032706           | .019648           | .076763           | -.019865          |
| 38 | .031365           | .029527           | .098987           | -.006390          |
| 39 | .029866           | .031953           | .117483           | .005618           |
| 40 | .027911           | .027677           | .124560           | .014551           |
| 41 | .019113           | .025883           | .118103           | .018000           |
| 42 | .004767           | .026520           | .108786           | .019900           |
| 43 | -.010887          | .036381           | .104089           | .021987           |
| 44 | -.022412          | .050449           | .108818           | .022415           |
| 45 | -.023744          | .052780           | .112770           | .026503           |
| 46 | -.020757          | .048775           | .102505           | .036721           |
| 47 | -.023645          | .049024           | .078794           | .042949           |
| 48 | -.030535          | .042401           | .053650           | .044011           |
| 49 | -.036758          | .035590           | .027623           | .046736           |
| 50 | -.042344          | .039941           | .010181           | .052240           |
| 51 | -.037895          | .047680           | -.005644          | .058113           |
| 52 | -.030453          | .051444           | -.029562          | .061921           |
| 53 | -.026214          | .058923           | -.046598          | .064965           |
| 54 | -.020254          | .058207           | -.056732          | .060050           |
| 55 | -.018753          | .054739           | -.061517          | .047518           |
| 56 | -.018664          | .052495           | -.057328          | .035780           |
| 57 | -.021309          | .050703           | -.048637          | .029702           |
| 58 | -.024392          | .042622           | -.042505          | .028547           |
| 59 | -.024785          | .040533           | -.040821          | .028144           |
| 60 | -.021330          | .041767           | -.045209          | .025652           |

RUN NO 95A 46M 6-19-63 1446-1602(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COSPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-03   |
| 0     | .015638  | -.032299 | -.013301 | -.058069 | -.015989 | .369648  |
| 1     | .079732  | -.196252 | -.095527 | -.117481 | -.251380 | -.147650 |
| 2     | .087429  | -.227445 | -.109630 | -.018063 | -.344813 | -.921006 |
| 3     | .109278  | -.269782 | -.113740 | .092809  | -.282613 | .053566  |
| 4     | .088885  | -.176125 | -.067028 | .311282  | -.099738 | .579514  |
| 5     | .036817  | -.070799 | -.024073 | .234096  | -.025164 | -.184622 |
| 6     | -.013311 | -.057049 | -.017270 | .057053  | .007191  | -.464039 |
| 7-8   | .025639  | -.053366 | -.017825 | -.197868 | -.020132 | -.056545 |
| 9-11  | .031366  | -.040593 | -.010782 | -.181194 | -.014709 | .153620  |
| 12-15 | .011717  | -.019894 | -.004581 | -.049965 | -.007649 | -.070967 |
| 16-20 | -.002691 | -.003809 | -.003339 | -.045792 | .005711  | -.018101 |
| 21-27 | -.000797 | -.003341 | -.001310 | -.035537 | .002702  | -.013376 |
| 28-36 | .000624  | -.002942 | -.000647 | -.012111 | -.001518 | -.016300 |
| 37-47 | .000016  | -.000263 | -.000176 | -.020407 | .001501  | -.007900 |
| 48-60 | .000206  | -.000068 | -.000244 | -.004582 | .000102  | -.006798 |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .064708  | -.047170 | -.257859 | .163875  | -.029559 | .101894  |
| 2     | .141229  | -.114770 | -.216551 | .539710  | .056283  | -.008387 |
| 3     | .091967  | -.174358 | -.218203 | .484073  | -.038734 | -.120790 |
| 4     | -.030202 | -.088956 | -.169917 | .128050  | -.134328 | -.069444 |
| 5     | -.034982 | -.006480 | -.098783 | .347693  | -.081881 | -.007801 |
| 6     | -.008741 | -.002164 | -.034158 | .634213  | -.044002 | -.020366 |
| 7-8   | -.011851 | -.009249 | .032030  | .345410  | .018097  | -.009250 |
| 9-11  | .009171  | -.012421 | -.006833 | .061939  | .017396  | -.027801 |
| 12-15 | -.009904 | .002946  | -.002365 | -.032834 | .000188  | -.017066 |
| 16-20 | .000366  | .002212  | -.007573 | .056913  | .006641  | -.008296 |
| 21-27 | .000392  | -.000379 | -.007764 | .005664  | .000665  | -.003723 |
| 28-36 | .000115  | -.000356 | -.003366 | .011078  | .000606  | -.000592 |
| 37-47 | .000046  | .000459  | -.004079 | .002374  | .000764  | .000056  |
| 48-60 | .000539  | .000414  | -.000897 | -.000893 | .000524  | -.000164 |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .010872 | .031858 | .023837 | .030087 |
| 1     | .088625 | .566626 | .273002 | .256351 |
| 2     | .106468 | .856935 | .474533 | .305231 |
| 3     | .113302 | .934715 | .613813 | .287948 |
| 4     | .071141 | .600240 | .417274 | .148477 |
| 5     | .034057 | .385464 | .285219 | .063772 |
| 6     | .029636 | .357994 | .294115 | .053879 |
| 7-8   | .024833 | .270624 | .216362 | .045855 |
| 9-11  | .015865 | .196549 | .127817 | .030687 |
| 12-15 | .009260 | .112589 | .072248 | .017043 |
| 16-20 | .005546 | .074202 | .053395 | .010491 |
| 21-27 | .003321 | .044155 | .039392 | .006045 |
| 28-36 | .001866 | .025173 | .023458 | .003863 |
| 37-47 | .001411 | .018472 | .013372 | .002474 |
| 48-60 | .000875 | .009835 | .008478 | .001485 |



RUN NO 95A 46M 6-19-63 1446-1602(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED COSPECTRUM COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.54478<br>10E 00 | 0.46118<br>10E 00 | 0.14282<br>10E 00 | 0.32143<br>10E 00 | 0.99545<br>10E-01 | 0.84270<br>10E-01 |
| 0  | .171825           | -.447971          | -.722818          | .009353           | -.186613          | .219193           |
| 1  | .115286           | -.290470          | -.535504          | -.043404          | -.139525          | .214264           |
| 2  | .038905           | -.174760          | -.345612          | .007712           | -.043600          | .188529           |
| 3  | .046497           | -.092516          | -.277007          | .027414           | -.027435          | .174243           |
| 4  | .001780           | -.051007          | -.189929          | .015533           | -.025798          | .090474           |
| 5  | -.008161          | .039183           | -.105078          | .056831           | -.043839          | .019293           |
| 6  | -.025842          | .068568           | -.041486          | .055779           | -.032294          | -.067340          |
| 7  | -.008767          | .046096           | .015115           | .015483           | -.000718          | -.030452          |
| 8  | -.014072          | .050318           | .089200           | -.013578          | .058102           | -.032835          |
| 9  | -.010083          | .038351           | .102423           | -.045112          | .046335           | -.024044          |
| 10 | .038559           | .075178           | .106307           | -.030969          | -.001483          | -.029475          |
| 11 | .046352           | .124267           | .126695           | -.022216          | -.025593          | -.057960          |
| 12 | -.003543          | .117285           | .188485           | -.016183          | .017600           | -.111933          |
| 13 | -.046938          | .121153           | .177969           | -.004454          | .058614           | -.085760          |
| 14 | -.041400          | .062484           | .163498           | -.059738          | .022234           | -.056999          |
| 15 | -.045196          | .081024           | .175001           | -.093751          | .006512           | -.046097          |
| 16 | -.029890          | .063381           | .199845           | -.061514          | .025704           | -.100313          |
| 17 | -.016141          | .047108           | .184207           | .012927           | .063697           | -.104865          |
| 18 | -.004034          | .027769           | .179799           | .007951           | .082050           | -.097556          |
| 19 | -.031410          | .044819           | .223563           | .053961           | .040222           | -.081492          |
| 20 | -.041940          | .055167           | .220802           | -.023492          | .032867           | -.109363          |
| 21 | -.038612          | .019769           | .190046           | .020168           | .024890           | -.092132          |
| 22 | -.043961          | .005831           | .184845           | .014844           | .032144           | -.039050          |
| 23 | -.074184          | .033312           | .148130           | .079718           | .057624           | .003082           |
| 24 | -.044484          | .008529           | .098230           | .032622           | .040961           | .014046           |
| 25 | .009714           | -.001972          | .074275           | .059607           | .018389           | .014221           |
| 26 | -.005338          | .008473           | .045788           | .085077           | .033157           | .013904           |
| 27 | -.051169          | -.019763          | .019774           | .029226           | .063915           | .040835           |
| 28 | -.033195          | -.059719          | .002272           | -.002537          | .041018           | .071922           |
| 29 | .009531           | -.102699          | -.041344          | -.011720          | .002777           | .098643           |
| 30 | -.026188          | -.053969          | -.060075          | .016287           | .019103           | .086174           |

COSPECTRUM

| K     | U,V     | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|---------|----------|----------|----------|----------|----------|
|       | 10E-01  | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   |
| 0     | .025839 | -.023515 | -.029841 | -.035144 | -.052250 | .060708  |
| 1     | .173314 | -.290146 | -.262613 | .093908  | -.399115 | .604339  |
| 2     | .120210 | -.339140 | -.227038 | .399923  | -.307598 | .577514  |
| 3     | .073519 | -.312433 | -.147677 | .185305  | -.194716 | .388799  |
| 4     | .078657 | -.210098 | -.093138 | -.377023 | -.157201 | .255266  |
| 5     | .097104 | -.149835 | -.064106 | -.391620 | -.139298 | .213215  |
| 6     | .108675 | -.141298 | -.039749 | -.272948 | -.075601 | .111042  |
| 7     | .074639 | -.140909 | -.035048 | -.313149 | -.028938 | .069470  |
| 8     | .002502 | -.103578 | -.027176 | -.319650 | -.053135 | .015185  |
| 9-11  | .027249 | -.026605 | -.023184 | .173729  | -.133710 | -.098722 |
| 12-14 | .016661 | -.052163 | -.020527 | -.064751 | -.057745 | .009945  |
| 15-21 | .026757 | -.034987 | -.015013 | .025303  | -.029842 | .010644  |
| 22-30 | .001436 | -.024202 | -.005457 | .192816  | .009974  | -.000607 |

RUN NO 95A 46M 6-19-63 1446-1602(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED QUADRATURE COVARIANCE

| M  | U,V               | U,W               | U,T               | V,W               | V,T               | W,T               |
|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|    | 0.54478<br>10E 00 | 0.46118<br>10E 00 | 0.14282<br>10E 00 | 0.32143<br>10E 00 | 0.99545<br>10E-01 | 0.84270<br>10E-01 |
| 1  | .026290           | -.095475          | -.094669          | .013000           | -.045453          | -.002234          |
| 2  | .038166           | -.062565          | -.129006          | .002764           | -.030419          | .051079           |
| 3  | -.016480          | -.028153          | -.170012          | -.016318          | -.060748          | .060140           |
| 4  | -.038112          | -.066057          | -.183332          | -.015450          | -.073465          | .037763           |
| 5  | -.004703          | -.083550          | -.177226          | -.022782          | -.036400          | .006312           |
| 6  | .045811           | -.036212          | -.158931          | .038208           | .015354           | .012829           |
| 7  | .001380           | -.000198          | -.139052          | .009641           | .018706           | .029976           |
| 8  | -.017677          | .006173           | -.137265          | -.027247          | -.019844          | .059059           |
| 9  | -.041354          | .013579           | -.151926          | .008035           | -.045058          | .035877           |
| 10 | -.012270          | .070454           | -.163335          | .005405           | -.047904          | .084817           |
| 11 | -.021535          | -.005004          | -.159479          | -.064882          | -.007260          | .062865           |
| 12 | -.000100          | -.041722          | -.150822          | -.068381          | -.002327          | .040124           |
| 13 | -.026465          | -.058484          | -.132465          | -.046597          | -.019464          | .021742           |
| 14 | -.039789          | -.013674          | -.068089          | -.049776          | -.033792          | -.030053          |
| 15 | -.000071          | -.035791          | -.014616          | -.033164          | .012619           | -.062651          |
| 16 | .025250           | -.024900          | .020083           | .021388           | .034065           | -.051370          |
| 17 | .085910           | -.001382          | .038996           | .030145           | .052317           | -.020833          |
| 18 | .077208           | .031573           | .052599           | .000575           | .057271           | -.035612          |
| 19 | .001978           | .055041           | .012021           | .016842           | .007831           | .015747           |
| 20 | .018210           | .036353           | -.003189          | .025064           | .030112           | .034343           |
| 21 | .012123           | .015151           | .032257           | .024417           | .001891           | -.003573          |
| 22 | .026760           | .034895           | .042939           | .060684           | -.017559          | .010166           |
| 23 | .020475           | .055745           | .096625           | .135031           | -.026316          | .032320           |
| 24 | .037243           | .011350           | .121302           | .132976           | .017792           | -.004773          |
| 25 | .017925           | .046952           | .123476           | .053344           | .033884           | .010456           |
| 26 | -.032789          | .060642           | .128914           | -.027074          | .007280           | -.018744          |
| 27 | -.076569          | .029730           | .132787           | -.018417          | -.005453          | -.049603          |
| 28 | -.041324          | .021157           | .104533           | -.027094          | .000118           | -.045452          |
| 29 | -.023212          | -.052027          | .069853           | -.091170          | .000669           | -.048803          |
| 30 | -.016209          | -.063045          | .059783           | -.068157          | -.023996          | -.043124          |

QUADRATURE SPECTRUM

| K     | U,V      | U,W      | U,T      | V,W      | V,T      | W,T      |
|-------|----------|----------|----------|----------|----------|----------|
|       | 10E-02   | 10E-01   | 10E-01   | 10E-02   | 10E-02   | 10E-02   |
| 1     | .001584  | -.055218 | -.146481 | -.332338 | -.105588 | .172511  |
| 2     | -.373228 | -.069570 | -.122596 | -.313122 | -.154632 | .171719  |
| 3     | -.034340 | -.050655 | -.067129 | .230660  | -.130885 | .130899  |
| 4     | .504048  | -.072301 | -.021635 | .250872  | -.040653 | -.012793 |
| 5     | .155277  | -.111829 | -.018134 | -.158808 | -.071044 | -.059421 |
| 6     | -.245800 | -.074886 | -.032730 | -.261438 | -.150440 | .069169  |
| 7     | -.055819 | -.002030 | -.026853 | -.184446 | -.110059 | .133947  |
| 8     | .227301  | .021267  | -.000947 | .182295  | -.056983 | .063204  |
| 9-11  | .282255  | -.020452 | -.000232 | .076225  | .017386  | .003889  |
| 12-14 | .489591  | -.026704 | -.002070 | .176349  | .025596  | -.037907 |
| 15-21 | -.110946 | -.033653 | -.003008 | .001639  | -.039785 | -.026496 |
| 22-30 | -.110348 | -.005745 | -.002150 | -.045457 | -.015553 | -.016169 |

RUN NO 95A 46M 6-19-63 1446-1602(EST)  
 301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

NORMALIZED AUTOCOVARIANCE

| M  | U                 | V                 | W                 | T                 |
|----|-------------------|-------------------|-------------------|-------------------|
|    | 0.78164<br>10E 00 | 0.37969<br>10E 00 | 0.27211<br>10E 00 | 0.26098<br>10E-01 |
| 0  | 1.000000          | 1.000000          | 1.000000          | 1.000000          |
| 1  | .613810           | .282826           | .267121           | .724731           |
| 2  | .323008           | -.070147          | .078894           | .458746           |
| 3  | .209298           | -.135679          | .005117           | .341147           |
| 4  | .111306           | -.034602          | .100642           | .277827           |
| 5  | .003097           | .007467           | -.069963          | .192236           |
| 6  | -.024148          | .020897           | -.131993          | .111592           |
| 7  | -.020035          | .015443           | -.113081          | .019285           |
| 8  | -.063026          | -.106495          | .002314           | -.084220          |
| 9  | -.082970          | -.159749          | -.116740          | -.117385          |
| 10 | -.113616          | -.079666          | -.167952          | -.138598          |
| 11 | -.132825          | .002519           | -.164103          | -.182308          |
| 12 | -.219988          | -.051021          | -.048337          | -.236890          |
| 13 | -.258222          | -.103647          | -.132488          | -.239487          |
| 14 | -.228532          | -.144909          | -.117843          | -.248651          |
| 15 | -.178315          | -.025108          | -.084291          | -.283579          |
| 16 | -.170462          | .024106           | -.002181          | -.283198          |
| 17 | -.174914          | .037982           | .003029           | -.263455          |
| 18 | -.130871          | .000446           | .005265           | -.275240          |
| 19 | -.175386          | -.010816          | -.018971          | -.282762          |
| 20 | -.182609          | -.066395          | .011239           | -.255621          |
| 21 | -.139586          | .006914           | .024601           | -.260574          |
| 22 | -.133411          | .044005           | -.040918          | -.298873          |
| 23 | -.118468          | -.001189          | .049894           | -.277243          |
| 24 | -.077246          | .003584           | .065688           | -.204726          |
| 25 | -.064079          | .007565           | -.028620          | -.147777          |
| 26 | -.053222          | -.018289          | .002082           | -.066189          |
| 27 | .005639           | -.043725          | -.020235          | -.025856          |
| 28 | .050897           | -.071084          | .095180           | .010262           |
| 29 | .081566           | .055899           | .065757           | .040134           |
| 30 | .063030           | .096062           | -.009817          | .075495           |

POWER SPECTRUM

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E-01  | 10E-01  | 10E-02  |
| 0     | .013700 | .07388  | .010936 | .082840 |
| 1     | .134532 | .163691 | .149949 | .691101 |
| 2     | .128141 | .209949 | .216955 | .572062 |
| 3     | .093917 | .243063 | .249671 | .347464 |
| 4     | .060010 | .191718 | .182885 | .199134 |
| 5     | .048154 | .148373 | .128174 | .131393 |
| 6     | .048197 | .160851 | .124288 | .096769 |
| 7     | .048380 | .196151 | .130232 | .086604 |
| 8     | .034966 | .201479 | .111751 | .070091 |
| 9-11  | .021785 | .272294 | .086349 | .077992 |
| 12-14 | .017471 | .157236 | .110741 | .060970 |
| 15-21 | .016809 | .135029 | .101165 | .033794 |
| 22-30 | .009411 | .115923 | .101888 | .017853 |

RUN NO 95A 15M 6-19-63 1446-1602(EST)  
 RUN NO 95A 46M 6-19-63 1446-1602(EST)  
 61 POINT RUNNING MEAN, NO BLOCK AVERAGING

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10L 00  | 10E 00  | 10E 00  |
| 0     | .512861 | .252280 | .499969 | .511294 |
| 1     | .514197 | .537007 | .369384 | .474649 |
| 2     | .459684 | .572734 | .373067 | .417904 |
| 3     | .337625 | .539014 | .364247 | .311842 |
| 4     | .145324 | .422630 | .246738 | .108342 |
| 5     | .123404 | .304719 | .092233 | .058159 |
| 6     | .069824 | .208281 | .090518 | .083706 |
| 7-8   | .045601 | .179254 | .072028 | .077104 |
| 9-11  | .126291 | .227447 | .087222 | .091559 |
| 12-15 | .113926 | .115691 | .094263 | .072967 |
| 16-20 | .062380 | .133493 | .141754 | .087738 |
| 21-27 | .093844 | .104718 | .107758 | .102176 |
| 28-36 | .066187 | .118112 | .089595 | .128819 |
| 37-47 | .129664 | .070691 | .109650 | .155982 |
| 48-60 | .074465 | .083009 | .099177 | .082971 |

301 POINT RUNNING MEAN, 10 POINT BLOCK AVERAGE

COHERENCE WITH QUADRATURE

| K     | U       | V       | W       | T       |
|-------|---------|---------|---------|---------|
|       | 10E 00  | 10E 00  | 10E 00  | 10E 00  |
| 0     | .895316 | .036972 | .310221 | .959578 |
| 1     | .863060 | .140934 | .507928 | .911763 |
| 2     | .747650 | .353942 | .544327 | .828738 |
| 3     | .592841 | .559537 | .548310 | .690009 |
| 4     | .611082 | .634567 | .565929 | .654219 |
| 5     | .637684 | .543836 | .557072 | .568917 |
| 6     | .549448 | .465719 | .520621 | .412105 |
| 7     | .464506 | .472720 | .463280 | .472866 |
| 8     | .446133 | .493790 | .365523 | .537683 |
| 9-11  | .601190 | .578552 | .228400 | .524341 |
| 12-14 | .396167 | .606900 | .456828 | .410181 |
| 15-21 | .242890 | .422331 | .354679 | .323638 |
| 22-30 | .178024 | .248444 | .239104 | .185651 |

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| 13. ABSTRACT<br>This volume describes the experimental techniques and the data-processing procedures employed in a program of turbulent structure measurements carried out at the Round Hill Field Station. It also contains data summaries for 12 of the 76 field experiments selected for inclusion in this report. The field site and the experimental procedures are described in Section I. Sections II and III respectively contain descriptions of the data-acquisition system and the data-processing procedures. Section IV contains data summaries for Runs 87A through 95A; data summaries for the remaining field experiments are presented in Volumes II, III, IV, and V. |  |  |                      |

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| Turbulence statistics |        |    |        |    |        |    |

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