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May 1994

US Army Corps
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Waterways Experiment
Station

Index and Bulk Parameters for Frequency-Direction Spectra Measured at CERC Field Research Facility, September 1991 to August 1992

by Charles E. Long, Janna L. Pemberton

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Prepared for Headquarters, U.S. Army Corps of Engineers

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Waterways Experiment Station
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Final report

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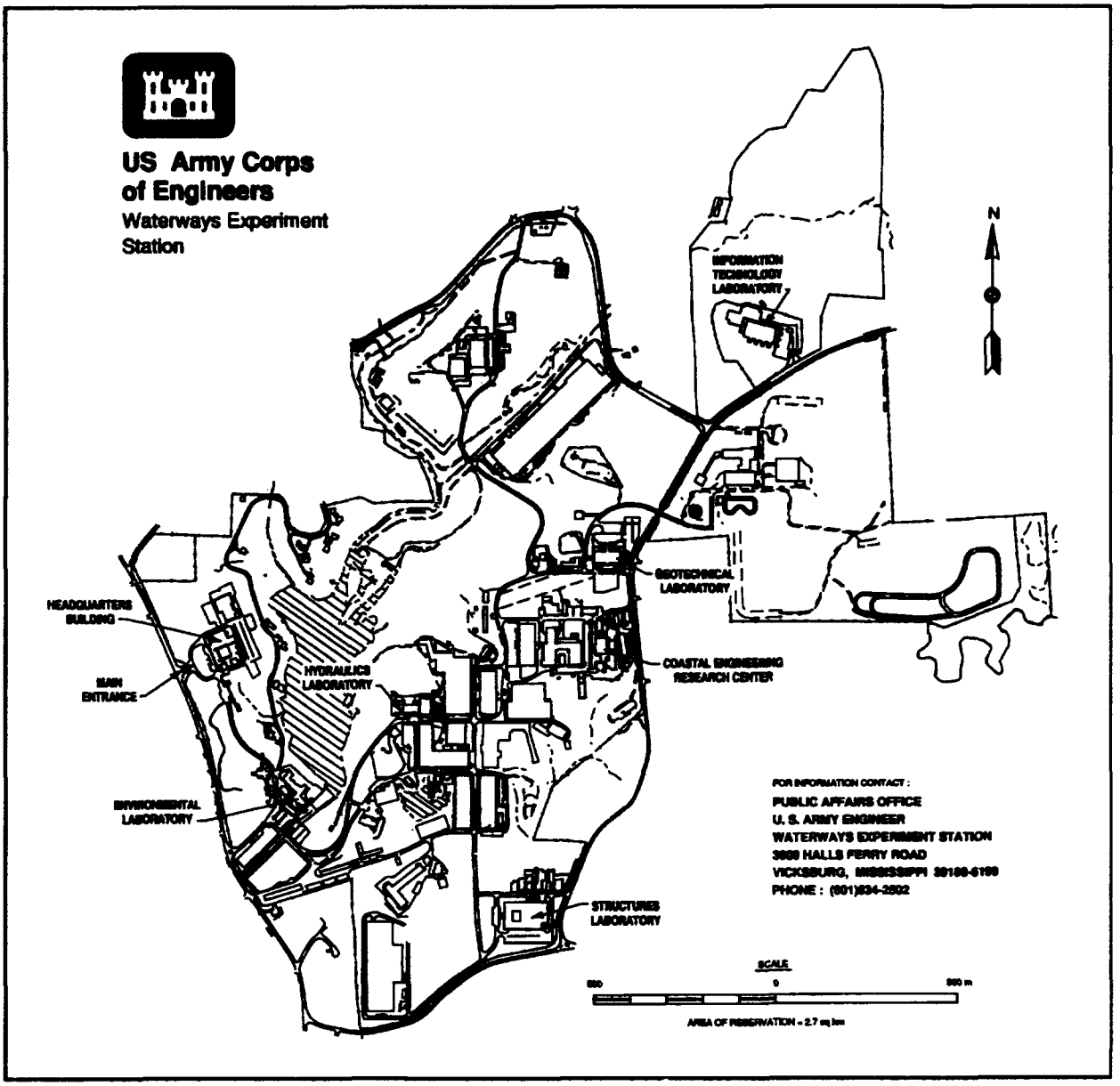

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Contents

Preface

This report indexes and describes means of access to a series of wind-wave frequency-direction spectral observations made with a special, high-resolution directional wave gauge. The work was motivated by a paucity of observations of directionally distributed wave energy, which has hindered understanding and modeling of the nearshore processes that affect coastal engineering projects. This effort was authorized by Headquarters, U.S. Army Corps of Engineers (HQUSACE), under Civil Works Coastal Flooding Program Research Work Unit 32484, "Directionality of Waves in Shallow Water." Funds were provided through the Coastal Engineering Research Center (CERC), U.S. Army Engineer Waterways Experiment Station (WES), under the program management of Ms. Carolyn M. Holmes, CERC. Messrs. John H. Lockhart, Jr., John G. Housley, Barry W. Holliday, and John F. C. Sanda were HQUSACE Technical Monitors.

This summary report was prepared by Dr. Charles E. Long using data processed and archived with help from Ms. Janna L. Pemberton, a student contracted through the Cooperative Education Program at Florida Institute of Technology, at CERC's Field Research Facility (FRF), Duck, NC. Work was performed under the direct supervision of Mr. William A. Birkemeier, Chief, FRF, and Mr. Thomas W. Richardson, Chief, Engineering Development Division, CERC; and under the general supervision of Dr. James R. Houston and Mr. Charles C. Calhoun, Jr., Director and Assistant Director, CERC, respectively.

The directional wave gauge and its data processing software were designed by Dr. Joan M. Oltman-Shay while at Oregon State University working through an Intergovernmental Personnel Agreement. This work would not be possible without continued physical maintenance of the directional wave gauge. This was done by the FRF dive team consisting of Messrs. Birkemeier, Michael W. Leffler, H. Carl Miller, Eugene W. Bichner, and Brian L. Scarborough. Gauge calibration was maintained by Mr. Kent K. Hathaway, FRF. Acquisition, monitoring, and storage of raw data were done by Mr. Clifford F. Baron, FRF.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Bruce K. Howard, EN.

1 Introduction

The range and magnitude of forces due to ocean waves in the so-called wind wave frequency band (roughly 0.04 to 0.3 Hz) are of importance to an engineer estimating the durability of a natural boundary or designing a modification to such a boundary. Wind waves are among the dominant forcing mechanisms in all coastal processes. Estimation of wave forces requires knowledge of the sea state in the region of interest. Description of a sea state requires, at a minimum, an amplitude, a frequency, and a direction for each component of the wave field. Historically, there have been many observations of wave amplitude and frequency, but very few detailed observations of wave direction, due primarily to additional technical requirements in making such measurements. This represents a distinct and very important void in the knowledge required for comprehensive engineering design.

In September 1986, to begin to alleviate this dearth of knowledge, the Field Research Facility (FRF) of the Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, installed a high-resolution, directional wave gauge consisting of an alongshore linear array of nine pressure gauges for long-term observations of the nearshore incident directional wave climate at its site near Duck, NC (Figure 1). In September 1990, an additional six gauges with a cross-shore alignment were incorporated, making a fifteen-element, two-dimensional spatial array for estimating wave energy propagating in all directions.

Data thus obtained, which take the form of wave frequency-direction spectra, are intended for use by the broadest possible group of researchers and application engineers and have been archived in a simple form of database. This report simplifies data dissemination by indexing and describing means of access to the set of observations collected during the sixth year of deployment. Similar indexes for the first 5 years of deployment are reported by Long (1991a, 1991b), Long and Smith (1993, in preparation), and Long and Atmadja (in preparation).

The main text of this document describes and clarifies the substantial information contained in the appendixes. Brief overviews are given of the measurement site, instrumentation, data collection, and method of directional spectral estimation. These subjects are described in greater detail in other publications, to which the reader is referred. Following the overviews is a description of the archived frequency-direction spectra and some characteriz-

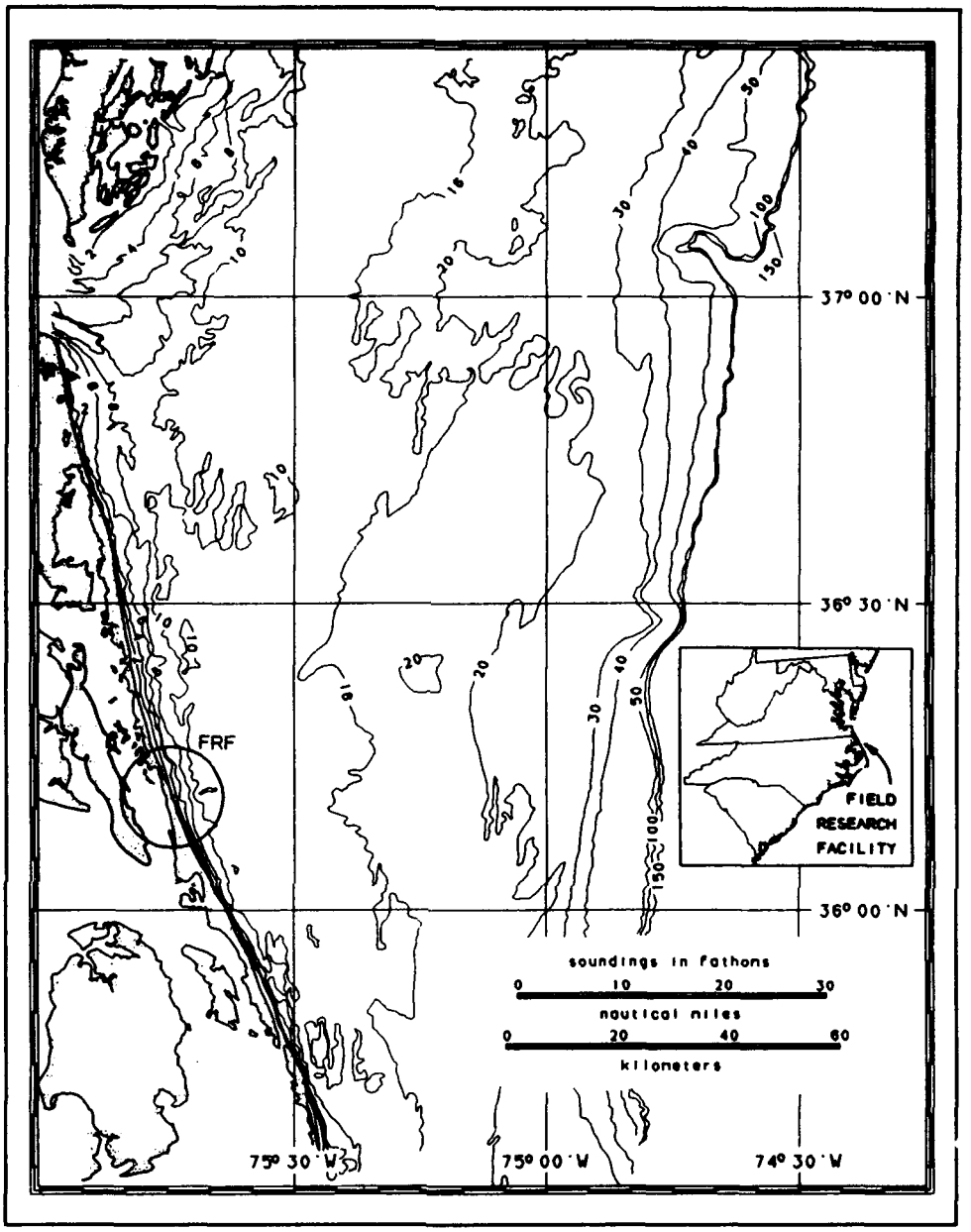

Figure 1. Location and offshore bathymetry of the FRF

ing bulk parameters that can be derived from them. Appendix A is a listing of these characterizing parameters and is intended to be used as a catalog of the set of spectra. Appendix B contains graphs of time series of some of these parameters as a pictorial augmentation of the information in Appendix A. Appendix C illustrates a FORTRAN computer program that can be used to read archived data, of which a sample listing is given in Appendix D.

2 Field Research Facility

As shown in Figure 1, the FRF is located on the barrier island chain of coastal North Carolina. A detailed description of the layout, function, and capabilities of the FRF is given by Birkemeier et al. (1985). Of particular relevance to directional wave studies are the wave-steering bathymetry and wave-generating winds.

Bathymetry

Regarding bathymetry, the coastline in the vicinity of the FRF is nearly straight for several tens of kilometers north and south (Figure 1). It is oriented such that a shore-normal line (directed seaward) is very nearly 70 deg from true north. Waves and onshore winds can approach this site along an easterly 180-deg arc from 340 to 160 deg true. The adjacent continental shelf is wide, relatively shallow, and of somewhat complex bathymetry. The direction of nearest approach of the 100-m isobath, which indicates the shelf break, is 10 to 15 deg south of east and is about 80 km distant. A typical bottom slope for the shelf is 1 m/km, but this is interrupted by numerous features of 1- to 10-km horizontal scales and 10-m vertical scales scattered irregularly across the shelf.

Within a few kilometers of the FRF, the offshore bathymetry is more regular, with isobaths nearly shore-parallel and a bottom slope of about 2 m/km (Figure 2). Some irregularities exist. Within about 300 m of the shore, there exists a complex and mobile bar system (Birkemeier 1984) that is strongly influenced by nearshore waves and currents. These processes have also created some irregular bathymetry in the vicinity of the 600-m-long FRF research pier (Miller, Birkemeier, and DeWall 1983).

Wave-Generating Winds

The site is subject to a variety of climates, which gives rise to a diverse set of directional wave conditions. Primary sources of high-energy waves are winds associated with hurricanes and frontal passages. Though no hurricanes passed directly over the FRF during the period covered by this report, a major storm called the "Unnamed Hurricane" by the National Oceanic and Atmospheric Administration (also referenced colloquially as the "Halloween Storm") passed near enough that significant wave energy was measured at the

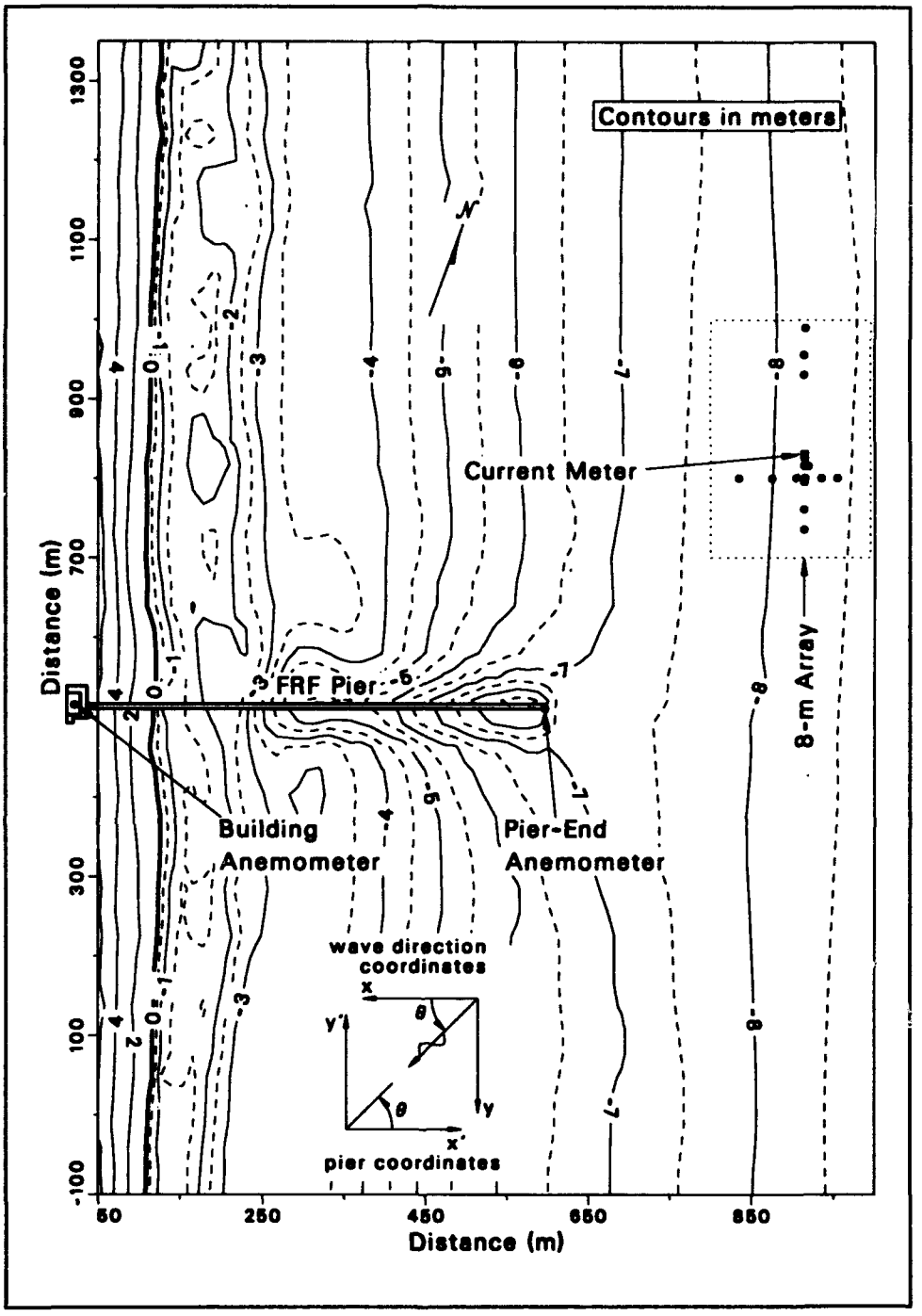

Figure 2. FRF nearshore bathymetry and coordinate system

FRF. Low-pressure weather fronts, of which several crossed the FRF site during this reporting year, were typically oriented northeast-southwest, with strong wave-generating winds coming from the northeast. Detailed, quantitative descriptions of the climate at the FRF, as determined from its arsenal of instrumentation, during the period covered by this report are given by Leffler et al. (1993, in preparation).

3 Instrumentation

The primary instrument in this study is a high-resolution directional wave gauge. It consists of two parts. The first is a spatial array of sensors that sample sea-surface displacement at several points in (horizontal) space. The second, described in the following section on data processing, is the mathematical treatment of these data to obtain estimates of wave directionality.

The FRF array consists of 15 pressure gauges mounted approximately 0.5 m off the bottom in the vicinity of the 8-m isobath about 900 m offshore and to the north of the research pier (Figure 2). Its location satisfies three constraints. First, it is generally outside the surf zone so that linear wave theory is applicable in data processing. Second, it is in water shallow enough that signals from 3-sec waves, the shortest periods of interest here, are detectable above background noise at the bottom-mounted gauges. Third, it is located away from the irregular isobaths around the pier and in the nearshore bar system, which helps minimize bathymetrically induced inhomogeneities in the wave field.

Spacing between gauges in the array appears irregular in Figure 2 but, for the most part, corresponds to the array-design criterion posed by Davis and Regier (1977) that every gauge pair has a unique separation. Figure 3 is an enlarged view of the array layout and shows gauge spacing as well as the gauge naming scheme. A sixteenth pressure gauge (labelled T) in Figure 3 is part of a low-resolution directional wave gauge that also includes the current meter indicated in Figure 2. Gauge T is included in the error checking procedure described below, and was available as a backup gauge in the event of failure of certain other gauges, but was not used as part of the high-resolution array during this collection year.

The array geometry encompasses considerable ranges in both sizes and numbers of gauge separations. Minimum gauge spacing is 5 m in both the alongshore and cross-shore directions. Maximum spacing is 255 m in the alongshore direction and 120 m in the cross-shore direction. Intermediate gauge spacings are in multiples of 5 m. With 15 gauges, there are 105 possible unique spacings. In the FRF array, 12 redundant spacings are intentionally left for ancillary examination of spatial homogeneity of the wave field, so that 93 unique spacings remain.

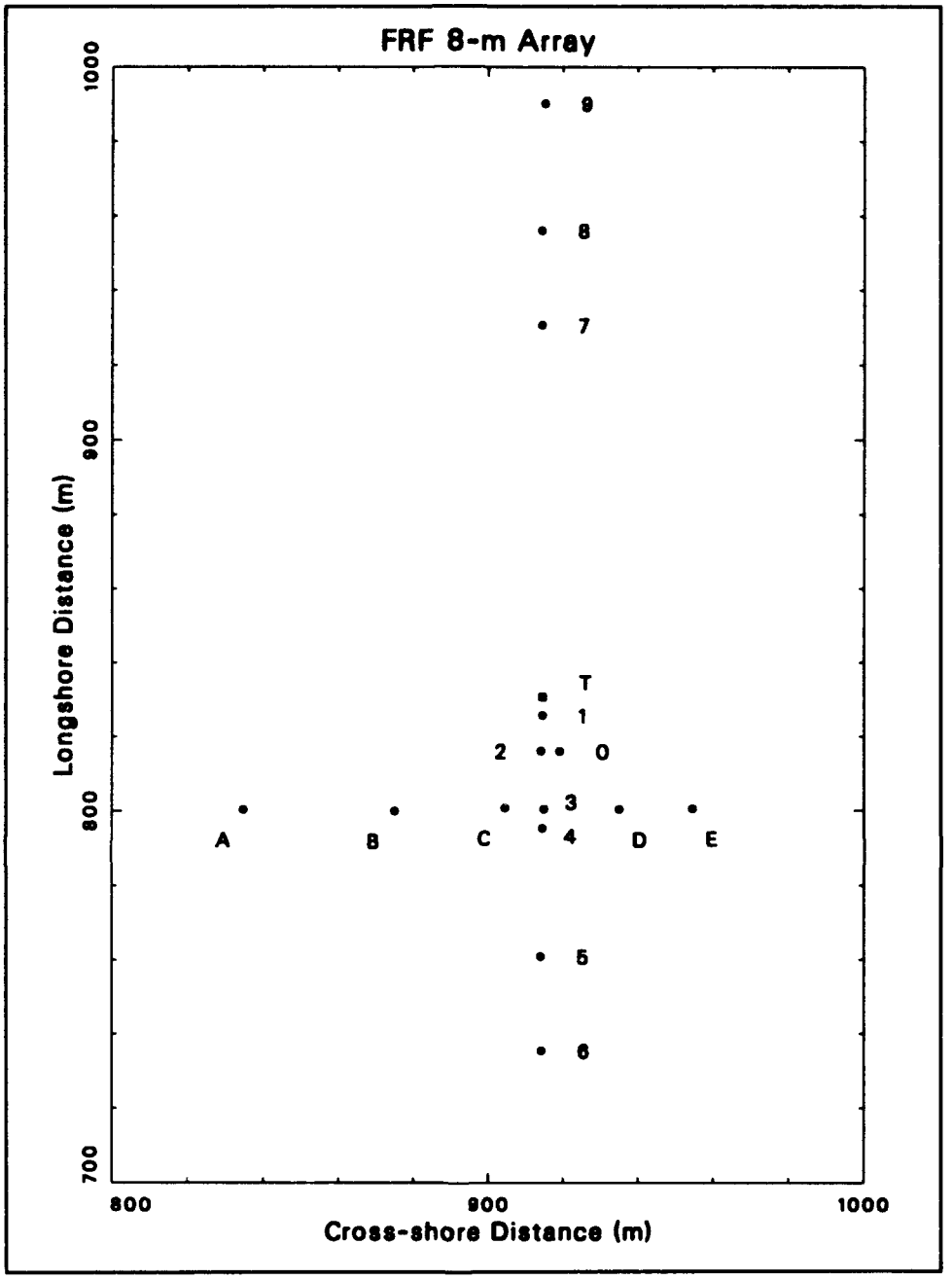

Figure 3. Spacing and numbering of linear array gauges

With the exception of gauge C, each pressure gauge is a Senso-Metric Model SP973(C), in which a piezo-electric strain gauge detects displacement of a pressure-sensitive diaphragm referenced to an evacuated cavity. Site calibrations indicate an accuracy of the pressure equivalent of ± 0.006 m of water for wave-induced fluctuations about a static water column height of 8 m. Gauge C is a Paroscientific Model 245AT resonating quartz absolute pressure transducer. The manufacturer's stated accuracy of this gauge is the pressure equivalent of ± 0.003 m of water, which is about twice as accurate as the Senso-Metric gauges.

Voltage analogs of pressure signals are hard-wired through 10-Hz, fourth-order, Butterworth filters (primarily to eliminate 60-Hz noise) to an analog-to-digital signal converter and then to a Digital Equipment Corporation VAX 11/750 computer for data acquisition. Discretization of the full-scale signal to 11-bit binary form results in a digitization step of the equivalent of 0.007 m of water, which is nearly the same as gauge accuracy.

4 Data Collection

Signals from each of the pressure gauges were sampled at 2 Hz and stored digitally as records of 4,096 points (34 min 8 sec). A collection consisted of four such records, or 16,384 points (2 hr 16 min 32 sec) for each gauge. This procedure resulted in a total of 245,760 data points to produce one frequency-direction spectrum. For the first part of this collection year, starting times for normal collections were the same as those for the routine FRF observations described by Birkemeier et al. (1985), which occurred daily at 0100, 0700, 1300, and 1900 hr Eastern Standard Time (EST). At times of high energy or when specifically requested by an investigator, additional daily collections occurred at 0400, 1000, 1600, and 2200 hr EST.

Because this sampling pattern occasionally missed observations during the first few hours of a storm, the collection pattern was modified on 22 November 1991 to follow continuously the storm collection pattern. From this date on, collections occurred daily at 0100, 0400, 0700, 1000, 1300, 1600, 1900, and 2200 hr EST.

During the period covered by this report, a total of 2,779 frequency-direction spectra were obtained. A list of data collection start times for these observations is given in Appendix A. Appendix B contains time-series plots of spectral parameters with winds and currents as auxiliary environmental variables. Locations of reference anemometers and the current meter are shown in Figure 2. Note that wind vectors plotted in Appendix B are derived from the pier-end anemometer shown in Figure 2, except for the months of November and December 1991, and January 1992. Electronic problems with the pier-end anemometer precluded its use during these months, so data from the building anemometer were used to represent the local wind field.

5 Data Processing

Conversion of measured time series to estimates of frequency-direction spectra requires products of frequency spectral estimates from the 15 gauges in the array. For final results to be accurate, raw input data must be of exceptionally high quality so that spiky or drifty data from one gauge do not contaminate products of results from the other gauges. Hence, the procedure for data processing is to check raw data for errors before estimating frequency-direction spectra. Some bulk parameters can then be computed to characterize results.

Error Checking

Because multiple gauges were deployed in what was assumed to be a uniform sea, certain statistical properties of raw data from the 15 gauges should be identical. One such property is the frequency spectrum $S(f)$ (where f is frequency)[1] of raw (not surface-corrected) pressure signals. Under the ideal circumstances of constant water depth, uniform gauge elevation from the bottom, and no statistical noise, frequency spectra from all gauges are identical in every detail. Though these circumstances are not met exactly in the FRF system, they are approximated sufficiently closely that an intercomparison of the frequency spectra from the array of gauges is an excellent method for identifying erroneous data records.

A convenient way to effect such an intercomparison is to overplot frequency spectra from all the gauges on a single graph. Wind wave signals attenuate with depth so that, in accordance with linearized wave theory, very little direct wind wave energy is expected in the frequency range from about 0.4 Hz out to the sampling Nyquist frequency (1.0 Hz for normal FRF sampling). Spectra in this frequency band should primarily indicate system noise, which should be about the same for all gauges of like kind, and consistent in time for all gauges. Excessively spiky data from one gauge appear as an increased noise level relative to other gauges. Strong low-frequency drifts in data from one gauge appear either as deviations in the low-frequency part of the spectrum or as varying mean values from segment to segment through a data record. In the pass band of wind wave frequencies for which directional estimates are computed (0.04 to 0.32 Hz for these data), one expects the

[1] For convenience, symbols and abbreviations are listed in the notation (Appendix E).

frequency spectra to be nearly identical. A malfunctioning gauge is clearly identifiable in this type of intercomparison.

Figure 4 is an example of one set of overplotted frequency spectra. Semi-logarithmic coordinates have been used to emphasize the behavior of the low-energy, high-frequency spectral tails. All pressure gauge signals have been converted to equivalent heights of a static water column for convenience in interpretation. As can be seen in Figure 4, spectra in the wind wave frequency pass band are very nearly alike, indicating that all gauges are functioning reasonably well. The noise floor at high frequencies is very low relative to the wind wave signal and is nearly uniform for all but two gauges. The two exceptions are the spare gauge (gauge T in Figure 3), for which the signal follows a slightly different and intrinsically noisier electronic path to the data collection computer, and the Paroscientific gauge (gauge C in Figure 3), which has an inherently quieter background noise level than that of the other gauges.

The inset graph in Figure 4 reveals information about gauge mean values. Data records were divided into 15 half-overlapping segments having a duration of 17 min 4 sec. Segment mean values were then computed for each gauge. Ideally, when gauge means are corrected for the depth of water in which they were deployed and for the elevation of the gauge from the ocean bottom, they would all give a measure of mean water level (tidal elevation, barometric overpressure, and any wind- or wave-induced setup), which should be the same for all locations in the array for that segment of time. Experience has shown that the Senso-Metric gauges used in the 8-m array tend to have a modest mean drift over time scales of months. For the analysis used to produce this report, an estimate of true water depth was computed by finding the median of the set of corrected gauge means for each segment. The inset in Figure 4 shows the deviation of individual gauge means from this median value as a function of segment number, and indicates, for this example, mean depth errors ranging from about 0.5 m low to about 0.8 m high. By referencing all gauges to the median mean depth, potential errors in surface correcting the wind wave part of the signal are reduced.

The triangular symbol in the inset in Figure 4 shows the deviation of the median mean depth from still-water level (based on the 1929 National Geodetic Vertical Datum) as a function of segment number. The resulting curve represents the combined effects of tide, setup, and barometric overpressure. The square symbol in the inset in Figure 4 is the deviation of barometric pressure from one standard atmosphere in units of meters of sea water as a function of segment number. This curve indicates the magnitude of atmospheric pressure on pressure measurements of mean water level. This effect is removed from pressure gauge means by subtracting the excess of atmospheric pressure over one standard atmosphere from each of the gauge means.

It is noted that the present method of error checking is different from that used for results reported for the first four years of array analysis (Long 1991a, 1991b; Long and Smith 1993, in preparation). The older method relied on moments and extremal characteristics derived from data time series

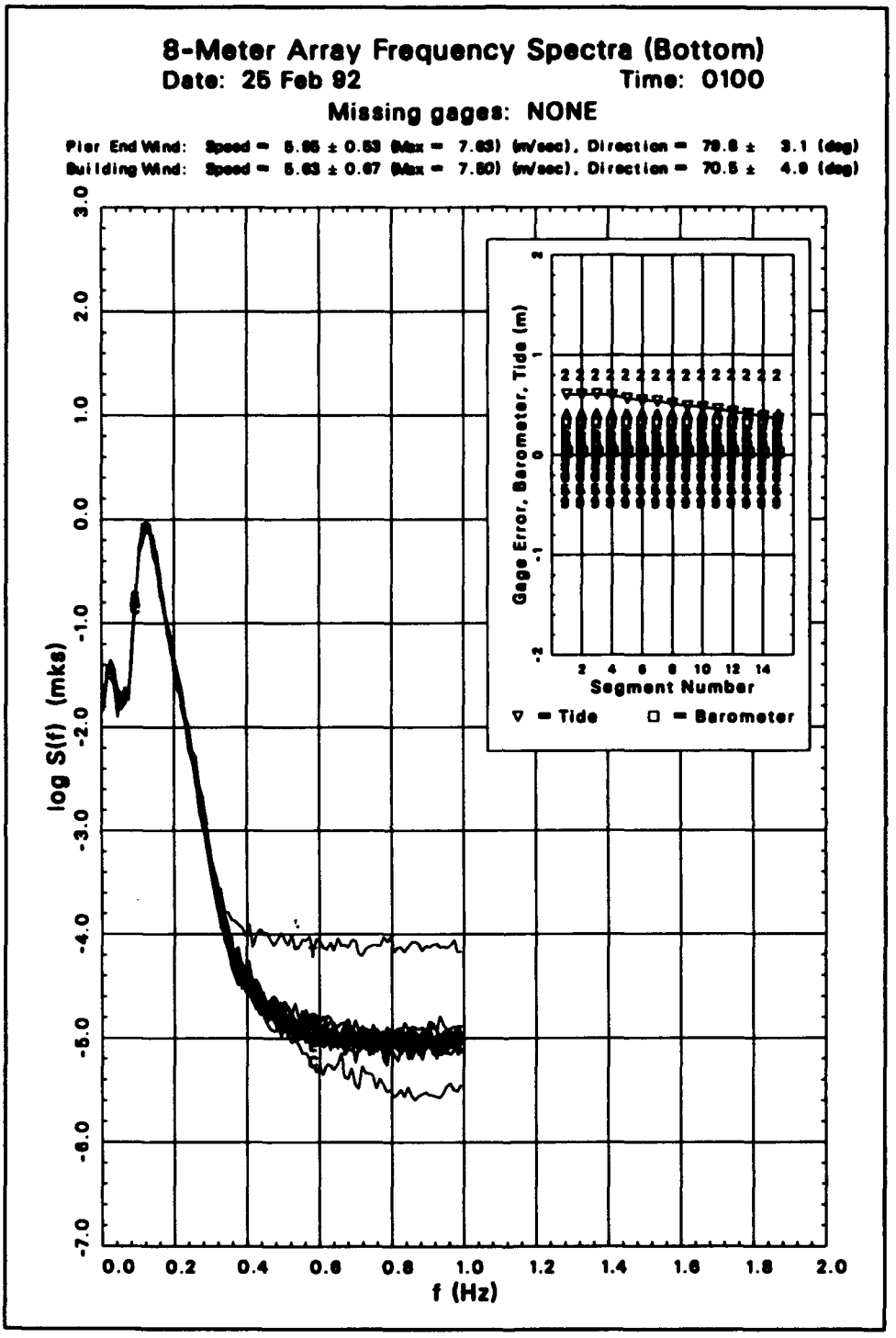

Figure 4. Example of overplotted frequency spectra

in the time domain. The present method casts the data in the frequency domain, but is sensitive to the same underlying characteristics that would flag data as suspect in the older method, and is much easier to use. In both methods, if a gauge demonstrated properties that deviated too much from properties of the other gauges, it was flagged as being suspect, and the data were

then further examined by hand to ensure that the flagging procedure had indeed identified a malfunctioning gauge.

If a gauge malfunctioned, it was not used in further analysis. The analysis programs were written so that data from a subset of gauges could be analyzed, so that a few gauges could be lost without seriously compromising the results. Using fewer gauges yields a somewhat reduced directional resolution. Some gauges are more critical than others. If any of the gauge pairs with 5-m spacings are lost, results become invalid at high frequencies due to aliasing. In these cases, directional analysis was truncated at a lower high-frequency limit (generally 0.24 Hz instead of the normal 0.32 Hz). As discussed in the next section, there are additional reasons for eliminating gauges from directional wave estimation at some frequencies in a spectrum. However, fewer than four gauges are never used for any frequency.

To keep track of the set of functioning and not otherwise eliminated gauges, a parameter called the *gauge pattern* was created and stored with the results for each frequency in archived directional spectra. The gauge pattern is a 16-place character string that represents which of the possible gauges (the fifteen 8-m array gauges plus the optional gauge T) were used to compute a directional spectrum at a particular frequency. The string contains the identifying characters (based on the gauge identification scheme shown in Figure 3) of gauges that were used in analysis followed by blank characters (if any) to fill out the string. This parameter can be of use in later analyses for assessing the directional resolving ability of a particular sub-array of gauges. This definition of gauge pattern differs from that used for the first 4 years of archived data, but the automated analysis algorithm was modified in September 1990 to be more dynamic in gauge selection (as described in the next section), and so necessitated this change.

Frequency-Direction Spectra

Two types of spectra

Data from the array of gauges are processed as two separate entities, both of which are frequency-direction spectra, but having different properties. One of the entities is a frequency-direction spectrum using only the original nine gauges (gauges 1, 2, 3, 4, 5, 6, 7, 8, and 9 in Figure 3) of the alongshore linear array. Directional spectra from this set of gauges are referred to as *linear array* results. The other entity is a frequency-direction spectrum using all gauges. Directional spectral estimates using all gauges are called *8-m array* or *full array* results.

There are several reasons for this distinction. One is that the database for the first 4 years of this study is based on results from the linear array. Comparisons of results over the full duration of the study and the accumulation of climatological statistics require a continued analysis of the linear array as a unique entity. A shortcoming of the linear array is that it can not distinguish seaward-propagating waves from incident waves. In processing linear array

data, it must be assumed that all wave energy is incident, which does not allow for the possibility of reflections from the nearshore. This problem is overcome by using the full array, which includes gauges at cross-shore locations (gauges 0, A, B, C, D, and E in Figure 3) off the line of the linear array. The full array can detect wave energy propagating in all directions, and so can be used to estimate the amount of wave energy reflected (and otherwise propagating) from the nearshore.

Ideally, the full array would be adequate for all directional spectral estimates. However, the analysis algorithm for the full array is based on the assumption that waves are propagating through water of constant depth. In fact, the depth changes by about 0.8 m over the cross-shore breadth of the array (from gauge E to gauge A), or roughly 10 percent of the total depth. Intermediate- and shallow-water waves transform, largely by refraction, as they propagate through water of changing depth. This transformation introduces a slight shift in the phase difference between waves at two cross-shore locations relative to the phase difference of waves that are not transformed. Directional spectral estimates depend critically on accurate estimates of phase difference, and the effect of transforming waves, though slight, is to introduce an increased spread in the directional distribution of wave energy, especially for waves at high angles of attack. An optical analogy is a camera with a poorly ground lens that will focus clearly at the center but is slightly blurred at the edges.

The linear array does not have this blurring effect because waves have the proper phase difference as they cross a line of constant depth. Consequently, directional spectral estimates from the linear array are better resolved in their detailed structure. Because of this better resolution, linear array results are used for all characterizing parameters except reflection coefficients in this report. Though full array results are somewhat blurred, reflection coefficients are based on total energy in 180-deg arcs of direction, and so are less sensitive to a lack of detailed resolution than are other parameters like peak direction and directional spread. Note, however, that both linear array and full array spectra and associated parameters are computed, archived, and available through the mechanisms described in this report for all collections listed in Appendix A.

Spectral estimation

Estimation of the frequency-direction spectrum is done in five parts. First, a working gauge set is identified. Second, time series of pressure data from each of the working gauges are Fourier transformed to the frequency domain. Third, these transforms are converted to sea-surface displacement transforms. Fourth, cross spectra of sea-surface displacement are computed between all unique gauge pairs for each frequency. Finally, an estimate is made of a directional distribution of wave energy that corresponds to the computed spatial variation in cross-spectral density for each frequency.

The choice of gauges to be used in a frequency-direction spectrum at a particular frequency depends on available gauges after error checking (de-

scribed previously), the wavelengths of the waves to be resolved, and somewhat on the nature of the directional distribution of wave energy being estimated. Ocean wave signals at a given frequency tend to become uncorrelated over distances of a few wavelengths. Cross spectra of signals from two gauges of high-frequency (short wavelength) waves are reduced to noise if the gauge separation is too great. Conversely, cross spectra of signals from two closely spaced gauges do not yield a great deal of information about very long waves because the two signals are almost identical. Because of these characteristics of ocean waves, sub-arrays of both the linear and 8-m arrays are defined so that minimum gauge spacing and maximum array extent are tuned to ranges of wind wave frequencies, and directional spectra are estimated from the gauges in these sub-arrays.

An additional constraint on gauge usage is based on the observation by Davis and Regier (1977) that occasionally the directional spectrum is of sufficiently simple shape that some of the cross-spectral information becomes redundant, meaning that too many gauges (or, perhaps, gauges in less than ideal locations) have been employed in the directional estimate. An indication of this condition is that the matrix of cross-spectral estimates becomes singular in the mathematical sense. When this occurs in the course of a computation, the procedure is to eliminate a gauge from the sub-array being used, and restart the computation. To avoid eliminating a critical gauge, an order for gauge elimination was established that retained gauges known to be important. Because this procedure occurred in automated processing, a complete gauge elimination pattern was defined, but if fewer than four gauges remained at any point in processing, the entire analysis was aborted for that collection.

Table 1 shows the wind wave frequency band sub-ranges, the sub-array of gauges to be used with each frequency sub-range, and the elimination order of gauges in each sub-array for the nine gauges of the linear array. A column under a gauge number that contains an integer indicates a gauge to be used for the frequency range shown in the left column. The integers in each row indicate the order in which gauges are to be eliminated. For example, in the next-to-highest frequency range (next-to-last row of Table 1), gauges 1, 2, 3, 4, 5, and 6 define the sub-array. In the event that a gauge must be eliminat-

Table 1
Linear Array Gauge Usage

Frequency Range (Hz)	Gauge								
	1	2	3	4	5	6	7	8	9
$0.04 < f \leq 0.08$	5	1		7	4	6	8	2	3
$0.08 < f \leq 0.14$	5	2	1	6	4	7	3		
$0.14 < f \leq 0.19$	5	6	1	4	3	2			
$0.19 < f \leq 0.32$	2	3	4	5	1				

ed, gauge 3 is eliminated first. If a second gauge must be eliminated, it is gauge 6, and so on, until the four-gauge limit is reached. Table 2 shows the same type of information for the full array.

Because gauge set definition varies with frequency and is somewhat data-adaptive in that some spectra require gauge elimination and others do not, it is important that a record be kept of the set of gauges used for each frequency in a collection analysis. That is the primary purpose of the gauge pattern parameter defined previously. If data from a given gauge do not exist because the gauge has failed to perform properly, the gauge usage patterns defined by Tables 1 and 2 can be redefined as necessary, although this procedure was not required during this collection year. In any case, the gauge pattern parameter is always kept with the archived results, and the limit of a minimum of four gauges for each directional estimate is never violated. Once the appropriate set of gauges has been identified, the subsequent analysis operations of Fourier transformation, surface correction, cross-spectral computation, and directional spectral estimation can proceed.

The Fourier transform is conventional. An 8,192-sec time series is divided into 15 half-overlapping segments of 1,024 sec. Segments are tapered with a Kaiser-Bessel window (a modified Bessel function of the first kind, compensated uniformly for loss of variance due to windowing) and fast Fourier transformed. An intermediate-resolution transform is found by averaging the 15 transformed segments, frequency by frequency. Final transforms are found by then averaging results over 10 adjacent frequency bands. Final resolution bandwidth is 0.00976 Hz, and degrees of freedom are at least 150 (assuming eight contiguous segments and ignoring any gain from lapped segments). Transform estimates are retained for 29 frequency bands with band-center frequencies ranging from 0.044 to 0.318 Hz.

Conversion of pressure signals at depth to water-surface displacement is done through the linearized wave theory pressure response factor as described in the *Shore Protection Manual* (1984). After this conversion, complex cross spectra in the form of coincident and quadrature spectra are computed in the conventional way (Bendat and Piersol 1971, Jenkins and Watts 1968) between all unique gauge pairs for each frequency.

Table 2
8-m Array Gauge Usage

Frequency Range (Hz)	Gauge														
	1	2	3	4	5	6	7	8	9	0	A	B	C	D	E
$0.04 < f \leq 0.08$	1	11			12	8	6	5	2		9	10	7	4	3
$0.08 < f \leq 0.12$	5	7			10	11	2	1			3	6	8	9	4
$0.12 < f \leq 0.21$	7	10	11	6	3	1				8		4	9	5	2
$0.21 < f \leq 0.32$	3	5	7	6						4			2	1	

Conversion of cross-spectral patterns in lag space to directional spectra is done with the Iterative Maximum Likelihood Estimation algorithm derived and described by Pawka (1982, 1983). The algorithm is also described in application to data from heave-pitch-roll buoys by Oltman-Shay and Guza (1984). Accuracy of directional estimates depends on frequency, with high-frequency waves (short wavelengths) being better resolved by an array of finite length. Tests with artificial data indicate that the FRF linear array generally can resolve the direction of a unidirectional wave train to within 5 deg and can distinguish two wave trains at the same frequency if their directions differ by at least 15 deg.

The algorithm used here employs discrete direction "bandwidths" or arcs of about 1.0 deg for all frequencies. Because this increment is finer than the resolution of any of the arrays, directional results were integrated over 2-deg arcs and renormalized with this arc width to create evenly spaced directional spectra at all frequencies. Because linear array results are valid only in the 180-deg arc representing seaward approach directions, dividing this range into 2-deg arcs results in 91 arc center directions with which to characterize discretely the directional distribution of wave energy from the linear array. The full array can detect wave energy from all directions, so results are represented in 181 directional bins of 2-deg width (the terminal bins are redundant).

The primary result of data processing is an estimate of the discrete frequency-direction spectrum $S(f_n,\theta_m)$, which represents the variance of sea-surface displacement per frequency resolution bandwidth df (= 0.00976 Hz) per direction resolution arc $d\theta$ (= 2 deg), where f_n is the n^{th} of N = 29 discrete frequencies and θ_m is the m^{th} of M = 91 (for the linear array) or 181 (for the full array) discrete directions. In this work, direction is considered to be the angle from which wave energy is coming, measured counterclockwise from shore-normal (Figure 2).

Numerical values of $S(f_n,\theta_m)$ can range over many orders of magnitude, depending on the amount of energy in a given frequency band and direction arc, and this can require space-consuming formats for archiving data. To simplify this problem, frequency-direction spectra can be saved in the form of directional distribution functions $D(f_n,\theta_m)$ defined by

$$D(f_n,\theta_m) = \frac{S(f_n,\theta_m)}{S(f_n)} \qquad (1)$$

The directional distribution function has units of deg^{-1}, and its integral with respect to direction over all directions is unity.

The frequency spectrum in Equation 1 represents the sum over all directions of sea-surface variance per frequency bandwidth and is defined in terms of the frequency-direction spectrum by

$$S(f_n) = \sum_{m=1}^{M} S(f_n,\theta_m)\, d\theta \qquad (2)$$

where the variables on the right-hand side are defined on the previous page. Note that this is identical to a conventional frequency spectrum that would result from a time series of sea-surface displacements at a single point in space. Because it is an integral of the frequency-direction spectrum, it is called the integrated frequency spectrum.

A directional analog of the frequency spectrum is the integrated direction spectrum, found by summing the frequency-direction spectrum over all frequencies for a fixed-direction arc. It is computed from

$$S(\theta_m) = \sum_{n=1}^{N} S(f_n,\theta_m)\, df \qquad (3)$$

Figures 5 and 6 show ways to display frequency-direction spectra and the corresponding integrated frequency and integrated direction spectra from the two types of array analysis for the same collection time. Figure 5 displays results from the linear array, with some characterizing parameters shown in the figure header. Note that energy is displayed only for incident waves (-90 deg $< \theta <$ 90 deg). Figure 6 shows results from the full array. The characterizing parameters derived from this spectral estimate are nearly the same as those for the linear array results in Figure 5, showing that the two estimates are consistent in this regard, as expected. In Figure 6, directional energy estimates cover a complete circle. The small lumps near directions of 150 deg, 180 deg, and -150 deg are indications of reflected energy.

Bulk Parameters

Several parameters have been computed to characterize the observed spectra. There are five basic types of parameters: (a) characteristic wave height, (b) peak frequency (or its inverse, peak period), (c) peak direction, (d) directional spread, and (e) reflection coefficient. In this report, the first four of these parameters are computed from linear array results. The fifth is computed using results from the full array. Because there is more than one way to define some of these parameters, several alternate forms are presented here.

Characteristic wave height

Characteristic wave heights from spectral observations are most frequently given as H_{mo}, which is four times the standard deviation of sea-surface displacement. It can be determined from the volume under the frequency-direction spectrum by the equation

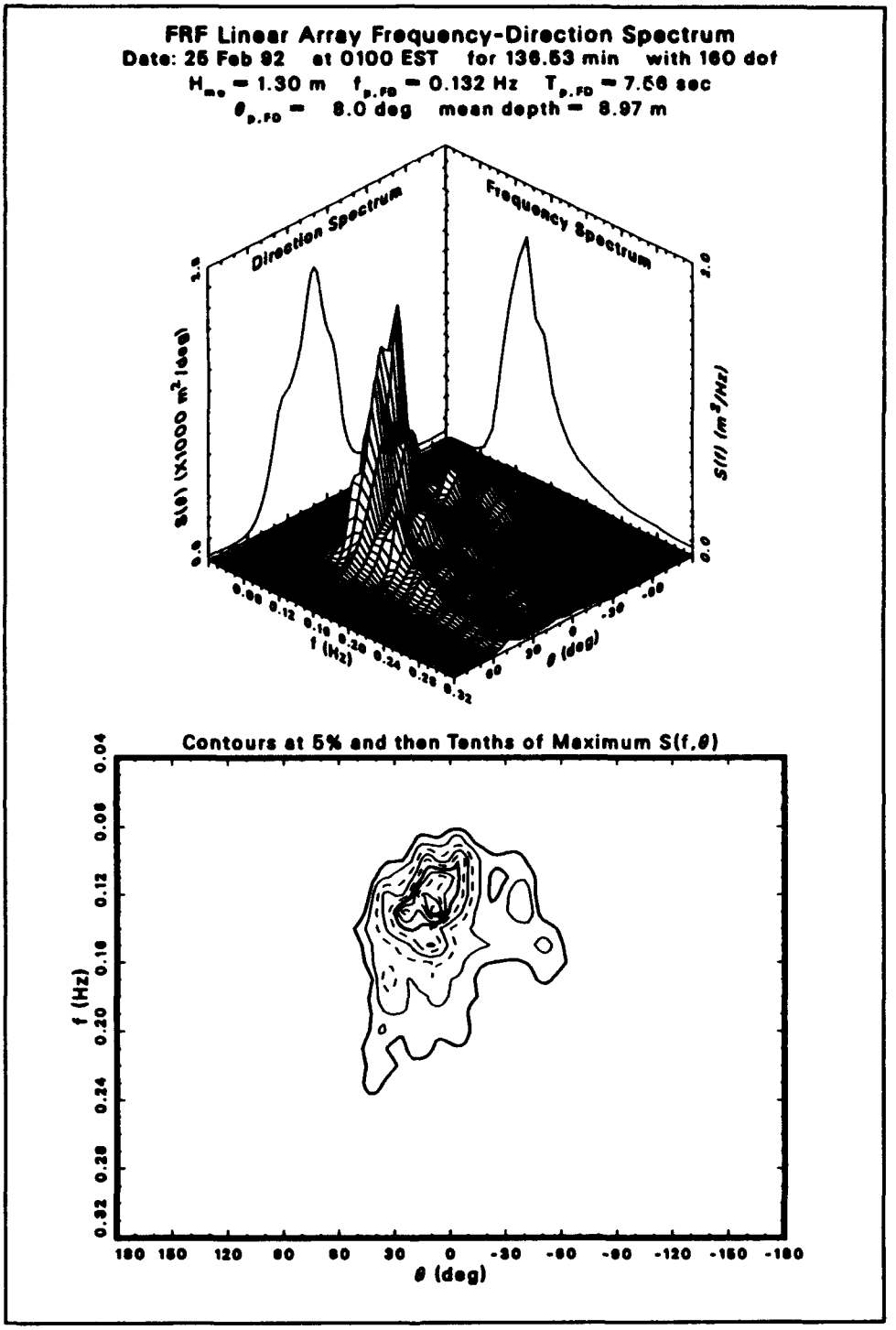

Figure 5. Example of a linear-array frequency-direction spectrum

$$H_{mo}^2 = 16 \sum_{n=1}^{N} \sum_{m=1}^{M} S(f_n,\theta_m)\, df\, d\theta \qquad (4)$$

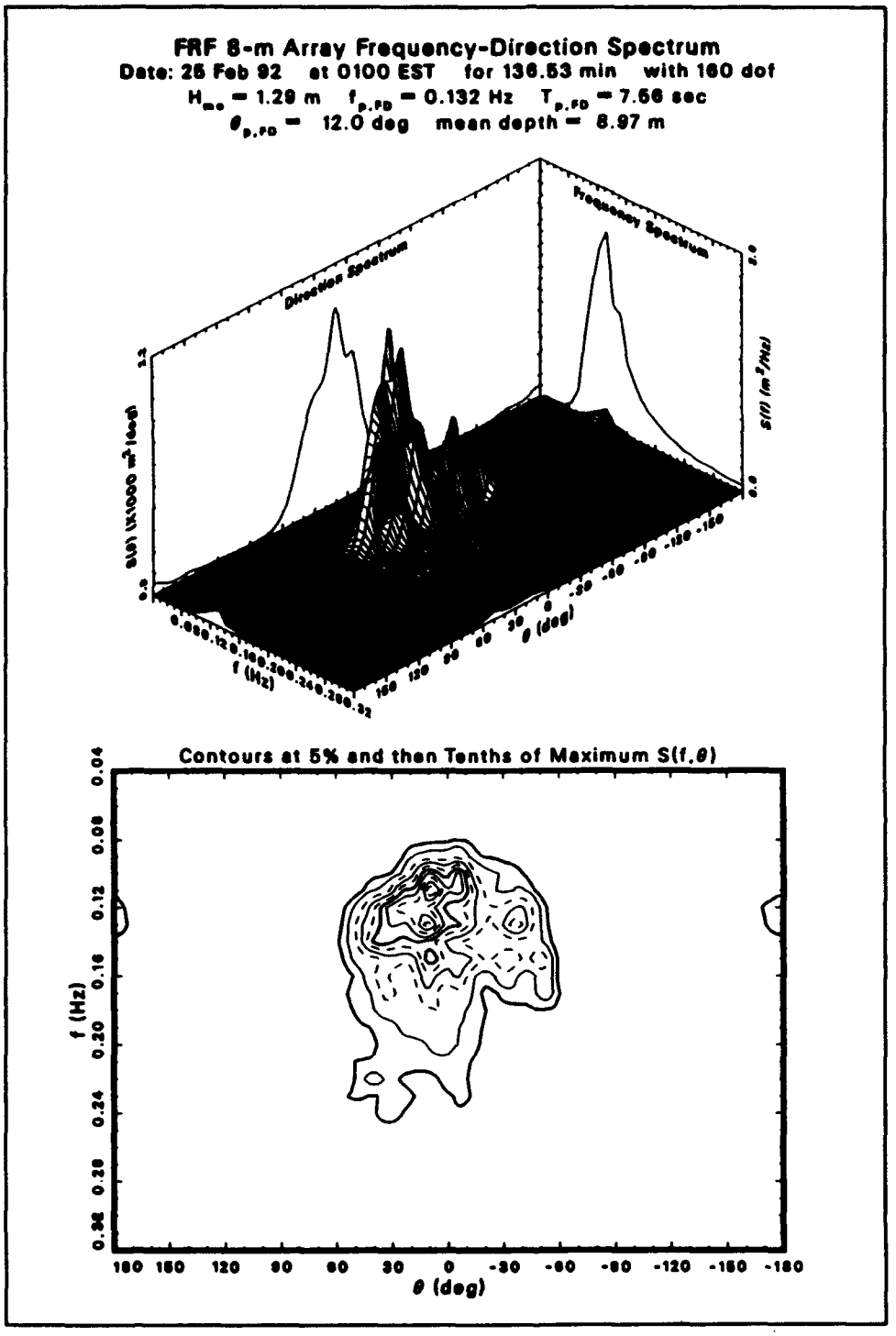

Figure 6. Example of a full-array frequency-direction spectrum

It can also be found from the integrated frequency spectrum by

$$H_{mo}^2 = 16 \sum_{n=1}^{N} S(f_n)\, df \qquad (5)$$

which is its more conventional definition, or from the integrated direction spectrum (Equation 3) by

$$H_{mo}^2 = 16 \sum_{m=1}^{M} S(\theta_m)\, d\theta \tag{6}$$

Peak frequency

Peak frequency, which has the generic notation f_p, can be defined in at least two ways. One way is to find the frequency (and direction) at which the frequency-direction spectrum is maximum. This peak frequency is denoted $f_{p,FD}$. Another way is to find the frequency at which the integrated frequency spectrum is maximum. This is the more conventional definition, because of the plethora of measured frequency spectra, and it is denoted $f_{p,IFS}$. The two peak frequencies may not be the same. If the directional distribution is broad at the frequency for which the integrated frequency spectrum is maximum, it is possible that another frequency, at which the frequency-direction spectrum has a narrow directional distribution, will denote the maximum of the frequency-direction spectrum.

Peak period

Peak period is the characteristic wave period associated with spectral peak frequency. Denoted generically by T_p, it is related to peak frequency by $T_p = 1/f_p$. Peak period from the frequency-direction spectrum is given by $T_{p,FD} = 1/f_{p,FD}$. Conventional peak period, derived from the integrated frequency spectrum, is given by $T_{p,IFS} = 1/f_{p,IFS}$.

Peak direction

Peak direction is the direction representing the most energy. Given the generic symbol θ_p, it, too, can be defined in several ways. One peak direction can be defined from the maximum of the frequency-direction spectrum. It is denoted by $\theta_{p,FD}$. Another peak direction can be associated with the maximum of the integrated direction spectrum, defined previously. This peak direction is denoted $\theta_{p,IDS}$. It can differ from $\theta_{p,FD}$ if energy in the frequency-direction spectrum is centered at different directions for different frequencies. This condition tends to smear energy along the direction axis in the integrated direction spectrum, thereby shifting the peak relative to the peak of the frequency-direction spectrum. A third measure of peak direction is a weighted average peak direction defined by

$$\theta_{p,SW} = \frac{1}{\left(\frac{1}{4}H_{mo}\right)^2} \sum_{n=1}^{N} S(f_n)\, \theta_{p,n} \tag{7}$$

where

$\theta_{p,n}$ = peak direction of the directional distribution at the n^{th} frequency of the frequency-direction spectrum

$S(f_n)$ = integrated frequency spectrum from Equation 2

and H_{mo} is defined by Equation 4. This definition gives higher weights to the more energetic peak directions but does not rely on the single distribution with the most energy.

Directional spread

A fourth type of characteristic parameter is directional spread. This parameter, denoted generically as $\Delta\theta$, gives a measure of the range of directions from which some significant fraction of energy is propagating. The basic definition used here is the arc subtended by the middle two quartiles of a directional distribution. As illustrated in Figure 7, the directional distribution function $D(f_n,\theta_m)$ for a particular frequency f_n can be integrated from one bounding direction (here the shore-parallel direction at +90 deg) to some arbitrary direction θ_j to make a kind of cumulative distribution function $I(f_n,\theta_j)$. The formal definition is

$$I(f_n,\theta_j) = \sum_{m=1}^{j} D(f_n,\theta_m)\, d\theta \tag{8}$$

where j is the index of a discrete angle bin. The three quartile directions, called $\theta_{25\%,n}$, $\theta_{50\%,n}$, and $\theta_{75\%,n}$, respectively, satisfy the equations

$$I(f_n,\theta_{25\%,n}) = 0.25 \tag{9}$$

$$I(f_n,\theta_{50\%,n}) = 0.50 \tag{10}$$

$$I(f_n,\theta_{75\%,n}) = 0.75 \tag{11}$$

A directional spread parameter for the n^{th} frequency is defined by

$$\Delta\theta_n = \theta_{25\%,n} - \theta_{75\%,n} \tag{12}$$

If Equation 12 is applied at the frequency where the frequency-direction spectrum is maximum, a measure of directional spread at the peak of the frequency-direction spectrum is obtained. This parameter is denoted $\Delta\theta_{FDP}$.

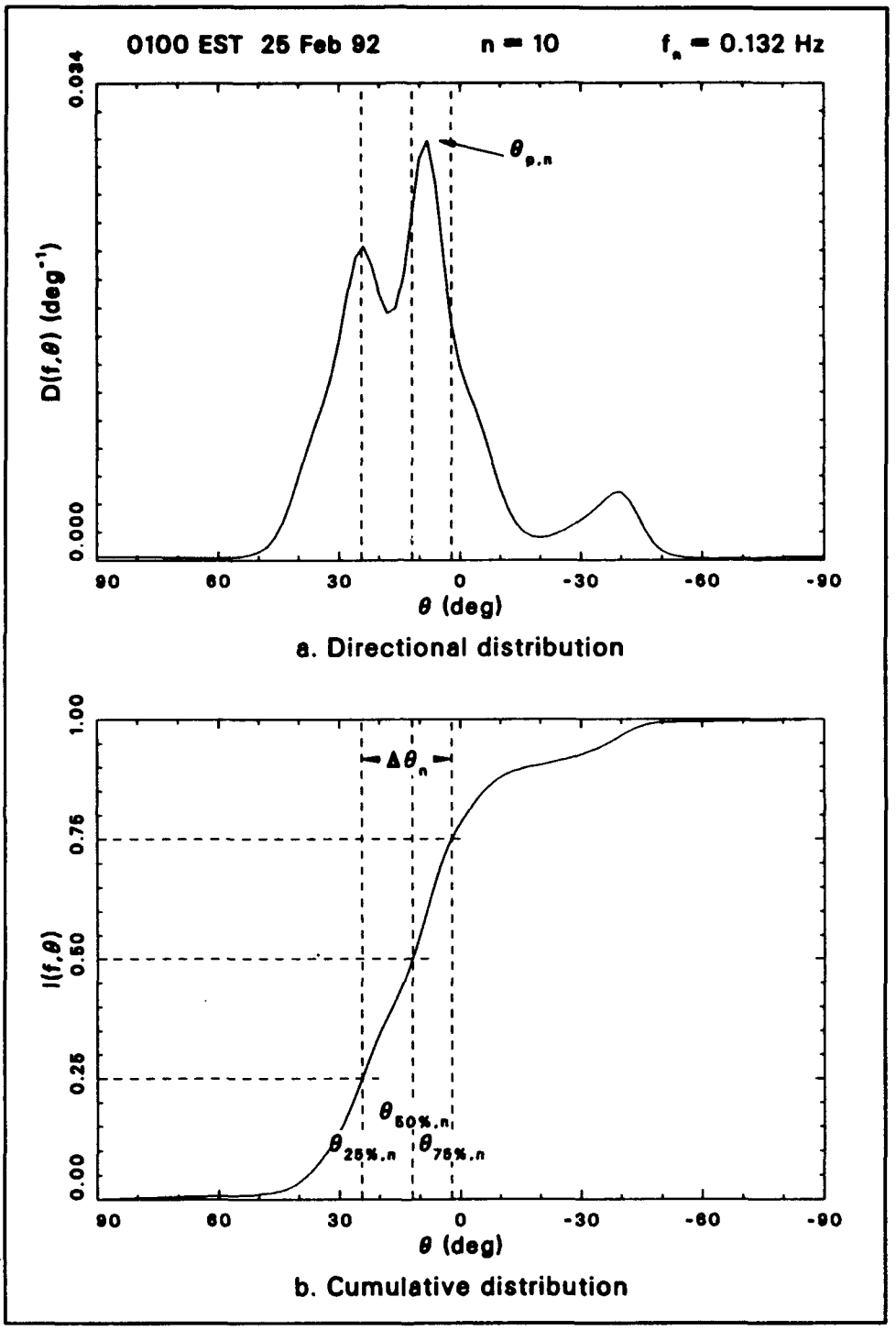

Figure 7. Directional spread computation

If, instead of a directional distribution function at a single frequency, the normalized integrated direction spectrum is used in the set of Equations 8 to 12, a measure of bulk directional spread is obtained. This parameter is given the symbol $\Delta\theta_{IDS}$. A third measure of directional spread is found from a

spectrally weighted average of the spreads at each frequency. Denoted as $\Delta\theta_{SW}$, this parameter is found from

$$\Delta\theta_{SW} = \frac{1}{\left(\frac{1}{4}H_{mo}\right)^2} \sum_{n=1}^{N} S(f_n)\ \Delta\theta_n \tag{13}$$

Equation 13 is like Equation 7 for the spectrally weighted peak direction.

Reflection coefficient

Following the definition in the *Shore Protection Manual* (1984), a reflection coefficient is a ratio of incident wave height to reflected wave height. This simple definition is based on the concept of unidirectional, monochromatic waves, which almost never occur in the real ocean. An adaptation of this definition for the purposes of this report is to use characteristic incident wave height $H_{mo,i}$ and characteristic reflected wave height $H_{mo,r}$ to define an energy-based reflection coefficient χ as

$$\chi = \frac{H_{mo,r}}{H_{mo,i}} \tag{14}$$

Incident and reflected wave heights are defined in terms of incident and reflected energy. Squaring both sides of Equation 14 then yields an estimate of the ratio of total reflected to total incident wind wave energy, a characteristic that may be useful in consideration of nearshore dynamics.

Some care must be exercised both in defining and interpreting the characteristic wave heights and their ratio. Intrinsic in all spectral estimates is some level of background system and analysis noise that is not related to wave signals, is often unevenly distributed in direction, and is capable of severely degrading a ratio of entities like that in Equation 14. In a rough attempt to minimize the effects of background noise, a noise estimate is made by finding the minimum of the frequency-direction spectrum at each frequency $S_{min}(f_n)$, and computing incident energy E_i and reflected energy E_r relative to these minima. Using the full-array frequency-direction spectrum for these computations, the incident energy is

$$E_i = \rho g \sum_{n=1}^{N} \sum_{m=46}^{136} w_m \left[S(f_n,\theta_m) - S_{min}(f_n) \right] d\theta\ df \tag{15}$$

and the reflected energy is

$$E_r = \rho g \sum_{n=1}^{N} \sum_{m=1}^{46} w_m \left[S(f_n,\theta_m) - S_{min}(f_n) \right] d\theta \, df$$

$$+ \rho g \sum_{n=1}^{N} \sum_{m=136}^{M} w_m \left[S(f_n,\theta_m) - S_{min}(f_n) \right] d\theta \, df \qquad (16)$$

where all $w_m = 1$, except $w_1 = w_{46} = w_{136} = w_M = \frac{1}{2}$. The w_m are simply convenient notations that show the proper contributions of the spectrum to the end points of the sums in Equations 15 and 16, and do not otherwise affect the integrations. In terms of incident and reflected energies, the corresponding characteristic wave heights are $H_{mo,i} = 4\sqrt{E_i/\rho g}$ and $H_{mo,r} = 4\sqrt{E_r/\rho g}$, so that, on substitution into Equation 14, the reflection coefficient becomes

$$\chi = \sqrt{\frac{E_r}{E_i}} \qquad (17)$$

The simple noise estimate used here does not eliminate the effects of noise in computing Equation 17 using Equations 15 and 16. This condition is evident in the tabular listings in Appendix A and the plotted results in Appendix B. There is a persistent background level of $\chi \approx 0.1$, which suggests that there is always about 1 percent of incident wave energy propagating back out to sea, a condition that is unlikely to be true. Synthetic data tests by Long and Oltman-Shay (1993) using the algorithms described in this report with a similar array of gauges indicate errors as large as 200 percent for $\chi \approx 0.1$, but with the error dropping rapidly for larger χ. A reasonable way to interpret the results in this report is to consider $\chi \geq 0.2$ as indicative of some reflection, and then to examine such spectra in detail for verification. In the spectrum shown in Figure 6, for example, the tabulated reflection coefficient is 0.23, and the figure does indeed indicate some reflection peaks.

Parameter summary

Together, the 12 parameters H_{mo}, $f_{p,FD}$, $f_{p,IFS}$, $T_{p,FD}$, $T_{p,IFS}$, $\theta_{p,FD}$, $\theta_{p,IDS}$, $\theta_{p,SW}$, $\Delta\theta_{IDS}$, $\Delta\theta_{SW}$, $\Delta\theta_{FDP}$, and χ give a bulk characterization of some properties of the frequency-direction spectra discussed in this report. There are, of course, many other parameters that can be defined, but the present set is simple and is easier to use than the 2,639 discrete spectral densities (29 frequencies × 91 directions) required for a full description of any linear array spectrum, or the 5,249 elements (29 frequencies × 181 directions) of any full-array spectrum discussed here.

6 Archived Results

Optical disks containing the sets of observed linear-array and full-array frequency-direction spectra from this sixth year of data collection have been created to archive the observations. Appendix A contains a listing of the date, starting time, and the characterizing parameters defined previously for each case archived for the present year. It is intended to be used as a kind of index or catalog of the set of available cases. For reasons explained below, dates in Appendix A are given in the form *yymmdd* where *yy* is a two-digit year indicator (e.g., 92 means 1992), *mm* is the numeric index of the calendar month (i.e, 01 is January, 12 is December, etc.), and *dd* is day of the month. All times are Eastern Standard Time. A 24-hr clock is used.

Graphic representations of data collection times, some bulk parameters, and some auxiliary environmental variables are contained in Appendix B. One graph is shown for each month of the collection year. The upper part of each graph has time series plots of the bulk parameters H_{mo}, $T_{p,IFS}$, $\theta_{p,IDS}$, and $\Delta\theta_{IDS}$ derived from the linear array, and χ derived from the full array. The lower part of each graph has stick figure plots of three environmental variables. First is a kind of crude wave vector in which the stick vector has a length proportional to H_{mo} and a direction given by $\theta_{p,IDS}$ + 180 deg. The 180 deg is added to provide a physical frame of reference consistent with a vector pointing in the direction of energy propagation. Because peak wave energy is always directed onshore, all stick vectors in this part of the graph will have a component directed upward on the page.

The second stick figure plot is a wind vector as measured with one of the FRF anemometers, preferentially the pier-end anemometer with the building anemometer as a backup. Mounted at either end of the FRF pier (Figure 2) at elevations 19.5 m above mean sea level, these instruments give reasonable estimates of the wind climate in the vicinity of the 8-m array.

Because winds are very important in wave generation and modification, wind data from both of the anemometers indicated in Figure 2 are archived with spectral results. Both anemometers are of the impeller-vane type. Anemometer data are vector averaged and wind velocity variances are computed both in and perpendicular to the mean wind direction. Archived with wave spectral results are mean wind speed, maximum wind speed, wind speed standard deviation, mean wind direction, and a measure of wind direction

standard deviation (defined as the arc tangent of the ratio of cross-stream standard deviation of wind velocity to the mean wind speed).

The third stick figure plot is the current vector as measured with a current meter located on the line of the linear array, about 5 m northward of gauge 1 (Figure 2). Note that this current meter is in a different location from the one used in the first three directional spectral index reports (Long 1991a, 1991b; Long and Smith 1993). This instrument was approximately 2.4 m off the bottom in water about 8 m deep and, therefore, sensed currents near the bottom. All available current data are plotted. The current meter was subject to storm damage, biological fouling, and duration-related electronic problems, so that data are not available for all of the time covered by this report. Of existing data, the reader may note a significant anticorrelation between cross-shore winds and cross-shore currents. This is consistent with the behavior of wall-bounded, shallow-water, wind-generated currents. Additional details about the anemometers and current meter are given by Birkemeier et al. (1985).

7 Retrieving Processed Data

The electro-optical medium containing the directional-spectral data archive is compact, but not very transportable. Consequently, a conversion program has been written to transform the data into a rather conventional, 80-column, formatted form that is much more easily distributed on common magnetic media. A user requesting some or all of the data will, by default, receive the data in formatted form. It may be possible to transfer the data in other ways, and specific requests can be coordinated with the FRF.

The data archive for the period covered by this report contains two sets of 2,779 files, one set for linear array results, and the other for full array results, with a file for each collection. When converted to formatted form, a linear array file has a length of about 30,000 bytes and a full array file is about twice this size, so the complete archive for the sixth collection year contains roughly 250 MB of information. A user may wish to consider whether this quantity of information will take too much system space before trying to copy the whole archive. Subsets of data can be created by reading the data archive one file at a time.

A formatted file is usually named *layymmddhhmm.asc*, where *la* stands for linear-array frequency-direction spectrum, or *fdyymmddhhmm.asc*, where *fd* means a full-array frequency-direction spectrum, and *asc* indicates that the files are in ASCII form. The character grouping *yymmdd* represents the data collection date (as listed in Appendix A), and the character grouping *hhmm* represents the data collection start time (also from Appendix A).

Once a file is on equipment and in a position to be read, it can be input to a computer program through any ASCII-formatted read statement. Appendix C contains a listing of a FORTRAN program that can read the formatted data files. The variables contained in a data file are listed in the header of the program in Appendix C. A listing of a sample data file of linear-array results is given in Appendix D. The read statements in the program in Appendix C can be visually aligned with the data fields of the listing in Appendix D if the user wishes to edit or visually read a data file. Program variable names, especially those that have parallel symbols in this text, are also listed in the Notation (Appendix E).

A user can obtain data by directing a request to:

Chief, Field Research Facility
1261 Duck Road
Kitty Hawk, NC 27949-4472
Phone: (919) 261-3511
Fax: (919) 261-4432

8 Summary of Results

Data from the sixth collection year of high-resolution, directional-spectral observations at the FRF have been put in a form that is easily accessible to researchers interested in nearshore processes. Directional gauge array, directional analysis algorithms, and definitions of characterizing parameters are described in the body of this report, as are the location and form of archived data. Both a listing and a graphic presentation of data collection times and characteristic parameters are given in the appendixes. The appendixes also contain a sample data file and a listing of a FORTRAN program that can be used to read a data file.

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Appendix A
Table of Collection Times and Bulk Parameters

Table A1
Collection Times and Bulk Parameters

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{WP}$ deg	χ
910901	0100	0.78	0.220	0.220	4.54	4.54	56.0	62.0	40.8	46.7	18.2	8.2	0.18
910901	0700	1.55	0.191	0.191	5.24	5.24	38.0	36.0	38.3	24.7	22.2	14.8	0.13
910901	1000	2.25	0.152	0.152	6.59	6.59	36.0	36.0	36.2	22.6	22.7	16.1	0.17
910901	1300	2.49	0.132	0.132	7.56	7.56	24.0	24.0	30.2	23.0	22.9	16.1	0.17
910901	1600	2.50	0.132	0.132	7.56	7.56	20.0	22.0	25.1	24.8	23.8	18.2	0.14
910901	1900	2.33	0.132	0.132	7.56	7.56	14.0	14.0	20.9	24.7	24.2	16.9	0.13
910901	2200	2.05	0.162	0.132	6.19	7.56	20.0	18.0	24.8	28.1	26.6	20.5	0.14
910902	0100	2.03	0.132	0.132	7.56	7.56	24.0	16.0	24.3	29.3	27.5	20.1	0.13
910902	0400	1.88	0.171	0.132	5.83	7.56	22.0	16.0	21.8	32.9	30.7	26.7	0.12
910902	0700	1.80	0.103	0.152	9.71	6.59	2.0	2.0	11.6	33.8	34.4	32.0	0.10
910902	1000	1.76	0.103	0.162	9.71	6.19	2.0	10.0	13.1	35.0	36.0	32.4	0.10
910902	1300	1.65	0.103	0.103	9.71	9.71	-2.0	0.0	16.2	37.3	38.0	24.6	0.11
910902	1900	1.51	0.113	0.113	8.87	8.87	-8.0	-8.0	6.8	32.9	35.1	23.6	0.10
910903	0100	1.39	0.113	0.113	8.87	8.87	12.0	-2.0	9.0	32.6	34.0	19.6	0.12
910903	0700	1.08	0.113	0.113	8.87	8.87	10.0	4.0	5.9	37.6	39.4	21.7	0.12
910903	1300	1.02	0.152	0.142	6.59	7.04	-26.0	-22.0	-10.0	38.3	39.5	32.2	0.14
910903	1900	0.90	0.132	0.132	7.56	7.56	-32.0	-34.0	-26.4	37.8	40.4	33.5	0.11
910904	0100	0.93	0.142	0.142	7.04	7.04	-34.0	-26.0	-21.9	35.4	35.0	32.1	0.12
910904	0700	0.85	0.142	0.142	7.04	7.04	-38.0	-30.0	-24.0	35.1	30.6	28.3	0.10
910904	1300	0.85	0.123	0.132	8.16	7.56	-38.0	-38.0	-38.5	35.4	34.8	36.0	0.15
910904	1900	0.74	0.132	0.132	7.56	7.56	-28.0	-38.0	-36.2	32.2	29.1	22.7	0.11
910905	0100	0.72	0.132	0.132	7.56	7.56	-28.0	-28.0	-33.1	28.5	27.5	24.8	0.13
910905	0700	0.66	0.132	0.132	7.56	7.56	-28.0	-28.0	-33.4	27.1	26.1	20.9	0.11
910905	1300	0.71	0.123	0.123	8.16	8.16	-34.0	-34.0	-35.6	22.7	22.9	16.5	0.13
910905	1900	0.66	0.123	0.123	8.16	8.16	-42.0	-32.0	-33.0	23.0	22.8	20.7	0.13
910906	0100	0.62	0.123	0.123	8.16	8.16	-38.0	-28.0	-32.8	20.7	21.0	16.5	0.13
910906	0700	0.66	0.113	0.113	8.87	8.87	-30.0	-28.0	-29.8	20.2	21.9	17.4	0.16
910906	1300	0.81	0.103	0.103	9.71	9.71	-14.0	-16.0	-21.2	18.2	16.2	12.0	0.14
910906	1900	0.83	0.103	0.103	9.71	9.71	-22.0	-20.0	-20.7	18.1	18.8	15.6	0.15
910907	0100	0.99	0.113	0.103	8.87	9.71	-22.0	-16.0	-8.1	30.0	27.7	24.8	0.10
910907	0700	0.98	0.113	0.113	8.87	8.87	-8.0	-8.0	9.0	43.5	28.5	21.7	0.10
910907	1300	1.01	0.113	0.103	8.87	9.71	-18.0	8.0	6.9	35.1	27.5	26.5	0.11
910907	1900	1.02	0.113	0.103	8.87	9.71	-14.0	16.0	11.9	32.8	26.4	23.1	0.10

(Sheet 1 of 49)

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{WP}$ deg	χ
910908	0100	1.02	0.171	0.171	5.83	5.83	20.0	14.0	14.6	29.4	25.3	15.8	0.09
910908	0700	1.03	0.103	0.113	9.71	8.87	0.0	14.0	14.9	34.5	27.0	28.8	0.12
910908	1300	1.01	0.123	0.123	8.16	8.16	8.0	6.0	3.8	30.9	27.2	25.5	0.09
910908	1900	1.13	0.113	0.113	8.87	8.87	-10.0	10.0	-0.1	29.5	30.0	27.3	0.11
910909	0100	1.07	0.123	0.123	8.16	8.16	-10.0	4.0	-7.8	28.2	27.0	20.8	0.09
910909	0700	1.12	0.083	0.083	11.98	11.98	-28.0	-20.0	-16.3	32.1	29.7	22.9	0.13
910909	1300	1.03	0.083	0.083	11.98	11.98	-38.0	-22.0	-20.5	28.7	26.0	15.6	0.11
910909	1900	0.96	0.093	0.103	10.72	9.71	-28.0	-24.0	-22.0	32.4	32.2	29.3	0.15
910910	0100	0.87	0.093	0.093	10.72	10.72	-12.0	-18.0	-20.2	26.2	26.8	16.8	0.10
910910	0700	0.81	0.093	0.093	10.72	10.72	-22.0	-22.0	-28.8	29.0	29.5	17.7	0.14
910910	1300	0.70	0.093	0.093	10.72	10.72	-22.0	-24.0	-27.4	27.4	27.0	21.7	0.10
910910	1900	0.67	0.103	0.103	9.71	9.71	-24.0	-20.0	-27.2	26.6	24.1	20.0	0.16
910911	0100	0.55	0.123	0.113	8.16	8.87	-24.0	-24.0	-27.1	26.4	21.6	21.7	0.12
910911	0700	0.51	0.103	0.103	9.71	9.71	-16.0	-20.0	-28.4	27.4	20.5	15.6	0.19
910911	1300	0.46	0.103	0.103	9.71	9.71	-18.0	-20.0	-25.0	25.1	21.8	18.1	0.13
910911	1900	0.47	0.103	0.103	9.71	9.71	-12.0	-16.0	-26.4	26.3	21.2	18.2	0.18
910912	0100	0.42	0.103	0.103	9.71	9.71	-14.0	-16.0	-25.1	22.8	21.7	17.2	0.15
910912	0700	0.59	0.113	0.113	8.87	8.87	-12.0	-16.0	23.5	77.8	29.3	14.3	0.18
910912	1300	0.68	0.093	0.093	10.72	10.72	-22.0	-18.0	20.1	72.9	29.6	18.5	0.15
910912	1900	0.69	0.103	0.103	9.71	9.71	-24.0	-24.0	14.5	58.5	29.1	14.6	0.13
910913	0100	0.67	0.181	0.093	5.52	10.72	34.0	34.0	20.5	58.1	28.2	22.1	0.11
910913	0700	0.67	0.171	0.103	5.83	9.71	24.0	24.0	11.8	45.3	23.4	23.0	0.13
910913	1300	0.56	0.181	0.103	5.52	9.71	28.0	28.0	11.0	47.6	27.7	24.4	0.13
910913	1900	0.50	0.113	0.113	8.87	8.87	-16.0	-14.0	1.5	43.1	32.7	30.4	0.16
910914	0100	0.45	0.074	0.074	13.56	13.56	-30.0	-28.0	-6.0	39.6	30.1	16.2	0.16
910914	0700	0.50	0.083	0.083	11.98	11.98	-28.0	-28.0	-24.7	27.3	26.0	16.2	0.16
910914	1300	0.48	0.083	0.083	11.98	11.98	-30.0	-30.0	-24.2	27.7	23.9	15.3	0.23
910914	1900	0.56	0.083	0.083	11.98	11.98	-26.0	-26.0	-21.7	26.6	26.4	20.3	0.19
910915	0100	0.74	0.093	0.093	10.72	10.72	-26.0	-26.0	-15.0	23.9	23.2	17.2	0.16
910915	0700	0.79	0.093	0.093	10.72	10.72	-28.0	-28.0	-20.5	25.6	22.3	19.9	0.12
910915	1300	0.73	0.103	0.103	9.71	9.71	-28.0	-30.0	-26.0	25.9	31.1	15.8	0.14
910915	1900	0.67	0.103	0.103	9.71	9.71	-36.0	-26.0	-30.5	23.1	27.5	18.5	0.13
910916	0100	0.72	0.103	0.113	9.71	8.87	-28.0	-28.0	-24.4	24.5	24.2	1[illegible].3	0.14
910916	0700	0.81	0.113	0.113	8.87	8.87	-26.0	-24.0	-20.8	25.3	24.8	21.4	0.11
910916	1300	0.78	0.123	0.123	8.16	8.16	-28.0	-18.0	-21.9	26.5	25.8	16.0	0.15
910916	1900	0.66	0.123	0.123	8.16	8.16	-36.0	-24.0	-28.2	26.1	24.3	24.6	0.14
910917	0100	0.60	0.132	0.132	7.56	7.56	-36.0	-38.0	-36.4	25.8	24.3	23.7	0.16
910917	0700	0.50	0.142	0.142	7.04	7.04	-38.0	-36.0	-30.8	23.9	21.6	20.3	0.13
910917	1300	0.50	0.152	0.123	6.59	8.16	-38.0	-38.0	-33.8	24.0	20.6	17.8	0.21
910917	1900	0.44	0.132	0.123	7.56	8.16	-30.0	-30.0	-31.5	22.6	16.5	15.4	0.17
910918	0100	0.44	0.152	0.113	6.59	8.87	-28.0	-28.0	-34.2	23.5	19.7	24.3	0.21
910918	0400	0.43	0.152	0.113	6.59	8.87	-38.0	-30.0	-36.0	25.3	21.9	24.5	0.18
910918	0700	0.46	0.113	0.113	8.87	8.87	-28.0	-30.0	-35.3	25.2	21.1	20.7	0.14
910918	1000	0.47	0.113	0.113	8.87	8.87	-32.0	-30.0	-37.9	24.3	21.4	18.3	0.16
910918	1600	0.44	0.113	0.113	8.87	8.87	-32.0	-40.0	-36.1	26.2	20.6	17.7	0.24
910918	1900	0.44	0.289	0.113	3.47	8.87	-52.0	-42.0	-39.9	25.3	16.4	18.4	0.18
910918	2200	0.46	0.240	0.113	4.17	8.87	-50.0	-54.0	-41.2	23.9	16.8	21.1	0.16
910919	0100	0.59	0.201	0.201	4.98	4.98	-52.0	-50.0	-43.4	22.9	19.7	18.0	0.16
910919	0400	0.57	0.201	0.191	4.98	5.24	-52.0	-50.0	-43.4	27.5	22.1	20.5	0.17
910919	0700	0.55	0.181	0.181	5.52	5.52	-46.0	-42.0	-41.4	25.5	20.1	14.9	0.13
910919	1000	0.55	0.171	0.191	5.83	5.24	-44.0	-46.0	-42.9	25.9	21.5	23.4	0.13
910919	1300	0.53	0.191	0.191	5.24	5.24	-44.0	-46.0	-40.6	22.6	17.3	11.3	0.18
910919	1600	0.50	0.191	0.181	5.24	5.52	-46.0	-44.0	-40.8	22.8	16.5	10.2	0.21
910919	1900	0.68	0.210	0.210	4.75	4.75	58.0	60.0	39.2	91.2	27.7	11.6	0.20

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,MS}$ deg	$\theta_{p,MW}$ deg	$\Delta\theta_{90,S}$ deg	$\Delta\theta_{90,W}$ deg	$\Delta\theta_{90,P}$ deg	χ
910919	2200	1.56	0.171	0.171	5.83	5.83	42.0	40.0	45.0	16.8	13.5	9.6	0.18
910920	0100	2.14	0.162	0.152	6.19	6.59	34.0	36.0	37.1	20.1	17.7	13.7	0.20
910920	0400	2.20	0.142	0.142	7.04	7.04	24.0	32.0	33.2	21.1	18.9	12.0	0.22
910920	0700	2.04	0.132	0.132	7.56	7.56	26.0	26.0	34.1	25.2	19.5	17.6	0.21
910920	1000	2.15	0.132	0.132	7.56	7.56	22.0	24.0	33.5	26.0	21.7	18.1	0.20
910920	1300	2.28	0.123	0.123	8.16	8.16	10.0	26.0	32.3	26.6	22.4	18.1	0.19
910920	1600	1.92	0.123	0.123	8.16	8.16	10.0	24.0	33.7	28.6	23.5	18.8	0.19
910920	1900	1.80	0.132	0.123	7.56	8.16	14.0	18.0	30.1	29.3	22.0	20.2	0.18
910920	2200	1.83	0.142	0.123	7.04	8.16	18.0	20.0	29.7	27.6	24.1	18.6	0.16
910921	0100	1.84	0.132	0.142	7.56	7.04	20.0	20.0	24.6	29.3	25.6	20.2	0.13
910921	0400	1.68	0.152	0.132	6.59	7.56	20.0	20.0	27.2	31.9	25.7	18.7	0.14
910921	0700	1.64	0.132	0.132	7.56	7.56	14.0	16.0	29.8	33.0	25.5	13.8	0.16
910921	1000	1.54	0.132	0.132	7.56	7.56	8.0	22.0	24.0	32.7	26.1	21.9	0.12
910921	1300	1.52	0.103	0.113	9.71	8.87	-16.0	14.0	15.7	36.7	28.4	24.6	0.12
910921	1600	1.53	0.103	0.103	9.71	9.71	2.0	10.0	12.8	29.9	26.7	19.7	0.12
910921	1900	1.36	0.103	0.103	9.71	9.71	14.0	14.0	13.9	29.6	26.9	22.9	0.12
910921	2200	1.30	0.103	0.103	9.71	9.71	-4.0	-2.0	9.0	28.5	26.7	20.0	0.09
910922	0100	1.29	0.103	0.103	9.71	9.71	14.0	12.0	10.0	29.2	28.4	25.1	0.09
910922	0400	1.08	0.113	0.113	8.87	8.87	10.0	10.0	14.5	35.5	33.0	27.4	0.11
910922	0700	1.03	0.103	0.113	9.71	8.87	-2.0	12.0	14.1	36.4	33.8	33.4	0.11
910922	1000	1.06	0.113	0.113	8.87	8.87	12.0	10.0	10.3	33.7	34.1	28.6	0.09
910922	1300	1.04	0.113	0.113	8.87	8.87	12.0	10.0	1.2	32.4	33.1	25.6	0.09
910922	1600	1.02	0.123	0.123	8.16	8.16	10.0	8.0	0.5	34.7	35.0	31.1	0.10
910922	1900	0.91	0.113	0.123	8.87	8.16	2.0	6.0	-0.9	36.1	35.6	35.5	0.10
910922	2200	0.87	0.123	0.123	8.16	8.16	4.0	-14.0	-3.9	34.4	34.0	27.9	0.09
910923	0100	0.90	0.123	0.123	8.16	8.16	8.0	-22.0	-9.4	34.6	34.5	31.2	0.09
910923	0400	0.90	0.103	0.113	9.71	8.87	-22.0	-22.0	-11.9	35.5	36.3	30.7	0.12
910923	0700	0.93	0.103	0.103	9.71	9.71	-24.0	-26.0	-20.9	36.9	35.0	24.9	0.12
910923	1000	0.93	0.103	0.113	9.71	8.87	-24.0	-38.0	-25.2	36.0	34.4	32.1	0.10
910923	1300	1.00	0.152	0.113	6.59	8.87	-34.0	-34.0	-28.1	30.9	29.1	28.4	0.10
910923	1600	0.96	0.113	0.113	8.87	8.87	-36.0	-24.0	-28.4	31.1	29.1	28.6	0.13
910923	1900	0.88	0.113	0.113	8.87	8.87	-38.0	-38.0	-34.9	30.8	28.2	30.0	0.15
910923	2200	0.80	0.113	0.113	8.87	8.87	-20.0	-22.0	-34.3	32.5	30.3	29.2	0.10
910924	0100	0.82	0.113	0.113	8.87	8.87	-22.0	-38.0	-30.8	30.7	28.7	27.3	0.10
910924	0400	0.83	0.113	0.113	8.87	8.87	-18.0	-22.0	-30.4	32.0	30.0	23.2	0.13
910924	0700	0.75	0.113	0.113	8.87	8.87	-16.0	-20.0	-32.3	35.4	34.5	29.5	0.12
910924	1000	0.70	0.113	0.113	8.87	8.87	-36.0	-38.0	-33.8	34.2	33.3	26.6	0.11
910924	1300	0.68	0.113	0.113	8.87	8.87	-18.0	-18.0	-28.4	33.4	31.6	28.9	0.11
910924	1600	0.83	0.123	0.113	8.16	8.87	-16.0	-38.0	-32.4	29.8	26.9	26.8	0.14
910924	1900	0.78	0.113	0.113	8.87	8.87	-18.0	-38.0	-39.0	32.6	30.6	27.3	0.16
910924	2200	0.89	0.113	0.113	8.87	8.87	-24.0	-54.0	-40.8	31.0	21.3	23.2	0.14
910925	0100	1.08	0.181	0.162	5.52	6.19	-46.0	-44.0	-36.9	25.7	20.6	19.2	0.10
910925	0400	1.18	0.162	0.162	6.19	6.19	-32.0	-32.0	-36.4	25.5	22.6	16.9	0.12
910925	0700	1.26	0.142	0.123	7.04	8.16	-44.0	-44.0	-39.5	25.8	23.2	20.3	0.12
910925	1000	1.08	0.113	0.113	8.87	8.87	-26.0	-40.0	-40.1	22.3	20.9	20.1	0.12
910925	1300	1.01	0.123	0.113	8.16	8.87	-40.0	-40.0	-40.2	26.3	24.4	25.9	0.09
910925	1600	1.05	0.113	0.113	8.87	8.87	-34.0	-32.0	-39.6	24.4	22.0	24.2	0.12
910925	1900	0.95	0.132	0.113	7.56	8.87	-36.0	-42.0	-41.1	26.6	22.9	29.0	0.15
910925	2200	0.97	0.123	0.123	8.16	8.16	-38.0	-40.0	-43.7	23.9	18.4	17.2	0.15
910926	0100	0.87	0.142	0.123	7.04	8.16	-42.0	-40.0	-39.4	20.3	18.2	16.7	0.12
910926	0400	0.75	0.132	0.113	7.56	8.87	-34.0	-42.0	-38.7	20.9	17.5	19.1	0.14
910926	0700	0.77	0.113	0.113	8.87	8.87	-40.0	-40.0	-10.5	74.2	28.1	26.7	0.20
910926	1000	1.14	0.191	0.191	5.24	5.24	50.0	52.0	30.3	72.3	17.7	8.5	0.16
910926	1300	1.02	0.201	0.181	4.98	5.52	46.0	46.0	21.4	65.7	22.6	12.5	0.11
910926	1600	0.97	0.113	0.113	8.87	8.87	-38.0	28.0	11.8	64.5	27.5	24.7	0.09
910926	1900	0.85	0.113	0.113	8.87	8.87	-40.0	-42.0	4.3	64.5	37.4	26.6	0.12
910926	2200	0.72	0.103	0.113	9.71	8.87	-38.0	-38.0	-2.0	62.5	37.5	24.6	0.12

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,FFT}$ Hz	$T_{p,PD}$ sec	$T_{p,FFT}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DM}$ deg	$\theta_{p,EW}$ deg	$\Delta\theta_{RMS}$ deg	$\Delta\theta_{EW}$ deg	$\Delta\theta_{NS}$ deg	χ
910927	0100	0.69	0.103	0.103	9.71	9.71	-38.0	-28.0	-5.7	57.8	30.1	33.9	0.10
910927	0400	1.05	0.113	0.113	8.87	8.87	-28.0	46.0	25.1	59.5	24.2	21.7	0.13
910927	0700	1.37	0.201	0.181	4.98	5.52	50.0	40.0	35.6	32.0	25.2	19.2	0.15
910927	1000	1.38	0.171	0.171	5.83	5.83	36.0	38.0	34.4	28.8	24.2	15.4	0.16
910927	1300	1.16	0.181	0.181	5.52	5.52	40.0	40.0	29.0	32.5	25.0	19.0	0.12
910927	1600	1.02	0.171	0.171	5.83	5.83	30.0	28.0	21.4	40.1	29.2	18.7	0.09
910927	1900	0.91	0.171	0.181	5.83	5.52	28.0	28.0	19.7	44.9	32.9	18.9	0.10
910927	2200	0.92	0.171	0.113	5.83	8.87	28.0	36.0	25.3	46.6	29.7	34.4	0.11
910928	0100	0.94	0.123	0.123	8.16	8.16	0.0	36.0	22.8	44.7	30.1	32.0	0.10
910928	0400	1.00	0.132	0.132	7.56	7.56	2.0	4.0	26.1	45.7	32.6	31.0	0.09
910928	0700	1.02	0.132	0.142	7.56	7.04	4.0	0.0	17.3	45.2	36.7	28.8	0.10
910928	1000	0.96	0.201	0.201	4.98	4.98	30.0	4.0	19.1	42.8	36.9	35.5	0.11
910928	1300	0.85	0.132	0.201	7.56	4.98	0.0	0.0	16.1	43.0	35.7	34.3	0.10
910928	1600	0.77	0.132	0.132	7.56	7.56	4.0	2.0	8.8	39.0	36.5	29.8	0.10
910928	1900	0.74	0.142	0.142	7.04	7.04	2.0	-2.0	6.4	34.8	36.8	27.2	0.11
910928	2200	0.78	0.123	0.132	8.16	7.56	4.0	2.0	3.8	33.8	36.8	29.5	0.11
910929	0100	0.83	0.123	0.123	8.16	8.16	6.0	0.0	4.3	28.1	31.1	19.0	0.10
910929	0400	0.78	0.123	0.123	8.16	8.16	4.0	0.0	-2.6	33.4	36.7	22.1	0.10
910929	0700	0.75	0.132	0.132	7.56	7.56	-2.0	-2.0	-5.6	37.5	40.1	21.5	0.12
910929	1000	0.67	0.132	0.132	7.56	7.56	8.0	-26.0	-27.5	41.2	43.1	37.8	0.12
910929	1300	0.58	0.132	0.132	7.56	7.56	8.0	-22.0	-22.1	38.1	38.7	31.7	0.12
910929	1600	0.54	0.132	0.123	7.56	8.16	-26.0	-24.0	-28.4	31.1	32.3	26.8	0.12
910929	1900	0.57	0.142	0.142	7.04	7.04	-22.0	-22.0	-27.8	30.7	29.6	22.3	0.13
910929	2200	0.59	0.132	0.123	7.56	8.16	-14.0	-20.0	-24.5	30.5	28.8	20.4	0.14
910930	0100	0.55	0.132	0.132	7.56	7.56	-22.0	-22.0	-28.6	29.7	28.6	21.7	0.12
910930	0400	0.55	0.123	0.123	8.16	8.16	-38.0	-22.0	-31.3	27.2	26.3	21.5	0.10
910930	0700	0.59	0.123	0.132	8.16	7.56	-34.0	-34.0	-32.7	25.9	25.4	23.6	0.13
910930	1000	0.58	0.132	0.132	7.56	7.56	-28.0	-28.0	-32.2	29.5	28.4	27.2	0.16
910930	1300	0.54	0.132	0.132	7.56	7.56	-26.0	-28.0	-30.8	28.5	28.3	18.6	0.15
910930	1600	0.57	0.142	0.142	7.04	7.04	-24.0	-26.0	-29.2	38.5	37.4	41.6	0.14
910930	1900	0.95	0.152	0.152	6.59	6.59	28.0	30.0	19.0	47.1	27.9	14.7	0.10
910930	2200	0.98	0.142	0.152	7.04	6.59	32.0	34.0	22.1	49.3	35.1	46.3	0.11
911001	0100	0.93	0.142	0.142	7.04	7.04	20.0	24.0	19.3	39.3	28.9	22.0	0.11
911001	0400	0.90	0.152	0.152	6.59	6.59	30.0	26.0	21.1	37.4	30.9	22.6	0.10
911001	0700	0.89	0.132	0.142	7.56	7.04	2.0	12.0	16.0	39.0	37.2	30.6	0.09
911001	1300	0.90	0.123	0.123	8.16	8.16	-38.0	6.0	5.3	46.4	45.5	40.3	0.11
911001	1600	0.80	0.142	0.123	7.04	8.16	0.0	2.0	5.3	46.0	46.5	40.4	0.11
911001	1900	0.78	0.123	0.123	8.16	8.16	-38.0	2.0	-7.0	43.4	44.1	40.1	0.10
911001	2200	0.82	0.142	0.123	7.04	8.16	-38.0	-38.0	-35.1	41.0	41.6	45.9	0.11
911002	0100	0.84	0.123	0.123	8.16	8.16	-38.0	-40.0	-39.0	37.0	37.8	41.3	0.11
911002	0400	0.87	0.123	0.123	8.16	8.16	-36.0	-38.0	-41.1	34.1	35.3	33.2	0.10
911002	0700	0.89	0.142	0.132	7.04	7.56	-40.0	-42.0	-40.0	32.8	33.3	30.0	0.10
911002	1000	0.91	0.152	0.152	6.59	6.59	-42.0	-42.0	-40.5	32.1	32.1	26.7	0.12
911002	1300	0.94	0.113	0.113	8.87	8.87	-28.0	-28.0	-37.0	29.1	30.4	15.7	0.14
911002	1600	0.91	0.113	0.113	8.87	8.87	-28.0	-30.0	-37.1	27.7	28.3	14.5	0.12
911002	1900	0.97	0.123	0.123	8.16	8.16	-28.0	-30.0	-35.5	29.5	29.3	20.3	0.09
911002	2200	1.09	0.123	0.123	8.16	8.16	-28.0	-28.0	-26.5	32.3	30.3	19.7	0.10
911003	0100	1.25	0.123	0.123	8.16	8.16	-42.0	-28.0	-32.4	31.3	31.9	20.5	0.13
911003	0700	2.05	0.191	0.181	5.24	5.52	44.0	42.0	21.0	63.7	28.5	30.6	0.13
911003	1000	2.25	0.162	0.152	6.19	6.59	30.0	28.0	23.8	42.8	31.0	29.5	0.13
911003	1300	1.80	0.152	0.152	6.59	6.59	28.0	22.0	20.5	46.0	31.8	23.1	0.12
911003	1600	1.42	0.162	0.162	6.19	6.19	24.0	8.0	18.1	41.4	29.7	23.6	0.11
911003	1900	1.24	0.123	0.123	8.16	8.16	6.0	8.0	16.2	38.1	30.5	24.6	0.10
911003	2200	1.14	0.123	0.123	8.16	8.16	8.0	6.0	11.8	35.2	31.8	29.3	0.09
911004	0100	1.05	0.113	0.123	8.87	8.16	10.0	10.0	12.5	36.1	34.6	34.8	0.13
911004	1000	0.84	0.113	0.123	8.87	8.16	-6.0	4.0	1.4	32.7	33.5	29.4	0.11
911004	1300	0.86	0.123	0.113	8.16	8.87	-20.0	6.0	-4.3	32.7	33.1	30.8	0.13
911004	1600	0.80	0.113	0.113	8.87	8.87	-6.0	-4.0	-6.4	32.1	32.1	24.0	0.15

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
911004	1900	0.74	0.103	0.113	9.71	8.87	8.0	6.0	-5.3	34.0	32.2	30.1	0.13
911004	2200	0.71	0.123	0.113	8.16	8.87	-36.0	4.0	-8.8	36.0	33.2	31.7	0.10
911005	0100	0.72	0.113	0.113	8.87	8.87	4.0	4.0	-0.1	35.8	34.8	36.6	0.13
911005	0400	0.70	0.123	0.113	8.16	8.87	6.0	0.0	-5.6	38.5	36.6	39.2	0.16
911005	0700	0.64	0.103	0.113	9.71	8.87	14.0	4.0	-0.3	38.3	36.8	35.3	0.14
911005	1000	0.70	0.113	0.113	8.87	8.87	10.0	-4.0	-17.9	38.4	30.7	34.9	0.11
911005	1300	0.81	0.103	0.113	9.71	8.87	4.0	-56.0	-29.8	44.2	28.4	32.7	0.17
911005	1600	0.77	0.210	0.103	4.75	9.71	-54.0	-54.0	-30.0	41.2	28.7	27.7	0.17
911005	1900	0.68	0.113	0.113	8.87	8.87	-12.0	-38.0	-31.5	39.1	29.5	30.3	0.12
911005	2200	0.70	0.123	0.113	8.16	8.87	4.0	-12.0	-18.7	36.9	29.2	33.9	0.10
911006	0100	0.89	0.142	0.132	7.04	7.56	-14.0	-12.0	-15.1	28.3	26.0	21.6	0.12
911006	0400	1.04	0.132	0.132	7.56	7.56	-18.0	-16.0	-23.5	29.6	26.7	16.6	0.13
911006	0700	0.79	0.152	0.132	6.59	7.56	-24.0	-24.0	-26.9	32.6	27.5	27.5	0.13
911006	1000	0.70	0.162	0.152	6.19	6.59	-28.0	-28.0	-24.0	31.9	28.3	18.0	0.10
911006	1300	1.08	0.250	0.250	4.01	4.01	58.0	60.0	35.1	72.1	24.2	11.6	0.15
911006	1600	1.38	0.201	0.181	4.98	5.52	54.0	54.0	47.1	18.9	17.8	10.5	0.22
911006	1900	1.21	0.171	0.171	5.83	5.83	40.0	42.0	44.4	20.7	16.2	10.1	0.21
911006	2200	1.19	0.171	0.171	5.83	5.83	30.0	32.0	36.2	21.5	15.2	10.2	0.16
911007	0100	1.68	0.162	0.162	6.19	6.19	36.0	34.0	37.7	23.2	17.1	14.3	0.18
911007	0400	1.88	0.152	0.152	6.59	6.59	32.0	20.0	35.6	26.3	18.8	15.1	0.22
911007	0700	1.65	0.142	0.142	7.04	7.04	24.0	26.0	34.8	22.6	18.2	13.0	0.18
911007	1000	1.33	0.142	0.152	7.04	6.59	22.0	26.0	36.2	24.4	17.9	14.7	0.18
911007	1300	1.10	0.152	0.152	6.59	6.59	24.0	26.0	31.5	23.7	20.0	14.6	0.13
911007	1600	0.95	0.152	0.162	6.59	6.19	26.0	32.0	31.1	24.7	22.0	13.9	0.14
911007	1900	0.79	0.142	0.142	7.04	7.04	34.0	34.0	29.2	30.2	23.0	24.0	0.18
911007	2200	0.74	0.152	0.152	6.59	6.59	28.0	30.0	25.6	32.1	19.1	14.0	0.14
911008	0100	0.82	0.152	0.162	6.59	6.19	12.0	14.0	21.7	31.8	22.0	19.3	0.12
911008	0400	0.82	0.162	0.162	6.19	6.19	16.0	26.0	24.0	30.8	24.3	18.2	0.14
911008	0700	0.90	0.181	0.171	5.52	5.83	28.0	22.0	23.8	30.8	24.5	14.8	0.13
911008	1000	0.89	0.171	0.171	5.83	5.83	26.0	22.0	24.9	35.7	25.1	15.5	0.13
911008	1300	0.87	0.181	0.103	5.52	9.71	28.0	14.0	17.3	40.9	25.7	24.8	0.11
911008	1600	0.81	0.103	0.103	9.71	9.71	-10.0	14.0	10.3	40.1	29.6	28.3	0.13
911008	1900	0.70	0.113	0.103	8.87	9.71	-6.0	16.0	11.5	37.4	30.6	30.6	0.16
911008	2200	0.70	0.152	0.103	6.59	9.71	12.0	12.0	11.5	35.1	28.1	26.1	0.14
911009	0100	0.69	0.113	0.103	8.87	9.71	-14.0	10.0	8.9	34.5	29.5	27.7	0.12
911009	0400	0.69	0.064	0.083	15.63	11.98	-10.0	-10.0	-0.6	33.5	31.1	29.8	0.18
911009	0700	0.65	0.093	0.093	10.72	10.72	-6.0	-8.0	-2.1	35.0	34.5	29.0	0.21
911009	1000	0.64	0.093	0.093	10.72	10.72	-18.0	-12.0	-11.4	34	36.7	32.6	0.20
911009	1300	0.69	0.093	0.093	10.72	10.72	-18.0	-8.0	-17.2	32.3	33.7	31.9	0.13
911009	1600	0.73	0.093	0.103	10.72	9.71	-18.0	-14.0	-18.7	32.4	31.5	28.5	0.16
911009	1900	0.72	0.103	0.103	9.71	9.71	-12.0	-10.0	-20.0	33.0	31.4	26.2	0.18
911009	2200	0.77	0.103	0.093	9.71	10.72	-18.0	-16.0	-23.6	34.1	29.7	24.5	0.15
911010	0100	0.75	0.093	0.093	10.72	10.72	-16.0	-10.0	-22.3	32.6	31.0	28.2	0.12
911010	0400	0.76	0.103	0.103	9.71	9.71	-20.0	-20.0	-24.8	32.4	30.1	28.0	0.15
911010	0700	0.78	0.103	0.103	9.71	9.71	-18.0	-12.0	-25.8	34.5	31.2	26.5	0.18
911010	1000	0.94	0.142	0.103	7.04	9.71	-40.0	-42.0	-30.7	37.8	27.1	28.0	0.14
911010	1300	1.01	0.162	0.103	6.19	9.71	-42.0	-30.0	-31.0	31.1	24.7	24.3	0.11
911010	1600	1.01	0.171	0.103	5.83	9.71	-44.0	-40.0	-30.7	34.2	29.4	32.8	0.13
911010	1900	0.99	0.162	0.103	6.19	9.71	-40.0	-40.0	-30.1	36.6	32.6	29.8	0.14
911010	2200	0.93	0.103	0.103	9.71	9.71	-12.0	-10.0	-30.4	34.0	31.7	27.6	0.14
911011	0100	0.87	0.142	0.103	7.04	9.71	-36.0	-24.0	-24.1	32.5	29.1	27.9	0.13
911011	0400	0.86	0.103	0.103	9.71	9.71	-20.0	-22.0	-24.5	31.2	29.1	23.7	0.14
911011	0700	0.86	0.103	0.103	9.71	9.71	-12.0	-20.0	-27.3	33.1	31.6	29.1	0.19
911011	1000	0.87	0.103	0.103	9.71	9.71	-20.0	-22.0	-26.0	27.4	28.2	21.3	0.17
911011	1300	0.84	0.113	0.103	8.87	9.71	-16.0	-20.0	-22.0	28.2	27.9	31.3	0.14
911011	1600	0.83	0.103	0.103	9.71	9.71	-26.0	-22.0	-24.5	28.2	28.4	26.5	0.13
911011	1900	0.85	0.113	0.103	8.87	9.71	-16.0	-18.0	-26.6	32.0	26.7	28.2	0.15
911011	2200	0.83	0.103	0.103	9.71	9.71	-20.0	-20.0	-23.5	32.4	30.3	28.6	0.16

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,JPS}$ Hz	$T_{p,PD}$ sec	$T_{p,JPS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SDS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SDS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PDP}$ deg	χ
911012	0100	0.95	0.103	0.103	9.71	9.71	-20.0	-20.0	2.7	52.8	28.8	27.7	0.11
911012	0400	0.87	0.113	0.113	8.87	8.87	-12.0	-14.0	7.3	57.0	31.5	27.4	0.12
911012	0700	0.77	0.113	0.103	8.87	9.71	-10.0	-12.0	3.3	41.4	42.9	30.4	0.18
911012	1000	0.63	0.103	0.103	9.71	9.71	-18.0	-16.0	-10.4	40.9	44.3	27.2	0.21
911012	1300	0.59	0.113	0.103	8.87	9.71	-16.0	-16.0	-16.8	40.6	44.4	29.0	0.18
911012	1600	0.60	0.093	0.103	10.72	9.71	-14.0	-10.0	0.8	37.2	39.6	29.5	0.17
911012	1900	0.82	0.250	0.103	4.01	9.71	64.0	64.0	27.1	66.0	24.2	28.8	0.18
911012	2200	0.86	0.083	0.083	11.98	11.98	-14.0	50.0	25.0	53.7	23.2	25.2	0.19
911013	0100	0.83	0.210	0.093	4.75	10.72	46.0	46.0	29.5	46.5	23.0	27.6	0.15
911013	0400	0.72	0.093	0.093	10.72	10.72	-12.0	-10.0	21.2	48.3	26.0	26.7	0.15
911013	0700	0.68	0.083	0.093	11.98	10.72	-12.0	-12.0	9.8	39.8	29.6	27.3	0.17
911013	1000	0.68	0.093	0.093	10.72	10.72	-12.0	18.0	13.3	46.8	28.7	30.5	0.20
911013	1300	0.69	0.093	0.093	10.72	10.72	18.0	16.0	17.3	44.3	25.7	27.4	0.19
911013	1600	0.81	0.093	0.093	10.72	10.72	12.0	14.0	22.4	46.9	24.0	24.4	0.15
911013	1900	0.76	0.103	0.103	9.71	9.71	12.0	2.0	20.9	45.5	25.3	25.1	0.15
911013	2200	0.66	0.093	0.093	10.72	10.72	0.0	6.0	16.2	44.3	27.4	25.9	0.18
911014	0100	0.61	0.093	0.093	10.72	10.72	-6.0	-6.0	13.1	40.1	27.2	25.3	0.15
911014	0400	0.56	0.083	0.083	11.98	11.98	-6.0	-8.0	5.4	37.3	26.7	23.2	0.16
911014	0700	0.56	0.083	0.083	11.98	11.98	-10.0	-10.0	5.4	36.3	28.1	28.1	0.17
911014	1000	0.55	0.083	0.083	11.98	11.98	-8.0	-8.0	4.8	40.7	28.1	24.0	0.20
911014	1300	0.54	0.083	0.083	11.98	11.98	-4.0	-6.0	5.7	39.1	31.7	27.7	0.17
911014	1600	0.53	0.093	0.083	10.72	11.98	-8.0	-6.0	-1.9	35.0	32.9	27.5	0.17
911014	1900	0.55	0.093	0.093	10.72	10.72	16.0	-8.0	3.8	36.5	36.9	27.0	0.19
911014	2200	0.72	0.093	0.083	10.72	11.98	-2.0	-12.0	-24.6	50.8	31.3	28.2	0.18
911015	0100	0.93	0.220	0.220	4.54	4.54	-56.0	-56.0	-43.5	40.6	21.4	17.6	0.17
911015	0400	1.04	0.191	0.191	5.24	5.24	-50.0	-50.0	-47.0	28.1	18.9	10.8	0.16
911015	0700	1.23	0.152	0.152	6.59	6.59	-42.0	-44.0	-41.0	22.8	20.5	13.8	0.12
911015	1000	1.36	0.142	0.142	7.04	7.04	-44.0	-42.0	-39.1	25.0	22.7	20.6	0.14
911015	1600	1.30	0.132	0.123	7.56	8.16	-30.0	-26.0	-34.9	27.0	22.9	23.4	0.12
911015	1900	1.22	0.132	0.123	7.56	8.16	-32.0	-40.0	-32.6	26.2	23.0	21.7	0.12
911015	2200	1.26	0.113	0.123	8.87	8.16	-26.0	-24.0	-30.9	25.9	23.3	23.7	0.14
911016	0100	1.33	0.113	0.113	8.87	8.87	-30.0	-26.0	-28.1	24.8	23.0	22.4	0.14
911016	0400	1.31	0.113	0.113	8.87	8.87	-30.0	-28.0	-28.6	25.9	24.0	22.1	0.13
911016	0700	1.67	0.113	0.113	8.87	8.87	-28.0	-24.0	7.8	78.4	21.6	17.7	0.15
911016	1000	1.90	0.181	0.171	5.52	5.83	48.0	48.0	25.5	68.3	20.6	12.9	0.16
911016	1300	2.02	0.171	0.171	5.83	5.83	44.0	42.0	22.2	66.9	23.0	16.3	0.16
911016	1600	2.27	0.152	0.152	6.59	6.59	32.0	34.0	26.0	41.8	23.2	18.2	0.16
911016	1900	2.45	0.152	0.152	6.59	6.59	30.0	30.0	25.3	28.6	23.9	12.9	0.15
911016	2200	2.64	0.142	0.142	7.04	7.04	32.0	18.0	24.8	37.1	27.6	17.4	0.18
911017	0100	2.51	0.142	0.142	7.04	7.04	26.0	30.0	26.7	31.9	24.5	15.8	0.21
911017	0400	2.15	0.132	0.132	7.56	7.56	20.0	20.0	29.4	30.0	19.5	15.1	0.21
911017	0700	1.77	0.132	0.123	7.56	8.16	28.0	28.0	27.8	27.7	21.8	19.2	0.15
911017	1000	1.44	0.113	0.113	8.87	8.87	22.0	24.0	29.8	28.6	21.1	22.8	0.15
911017	1300	1.20	0.113	0.113	8.87	8.87	16.0	22.0	30.6	33.9	23.9	27.6	0.17
911017	1600	0.89	0.103	0.113	9.71	8.87	18.0	20.0	17.2	43.8	28.7	35.9	0.16
911017	1900	0.72	0.113	0.113	8.87	8.87	16.0	18.0	8.3	42.8	37.0	36.1	0.14
911017	2200	0.59	0.113	0.113	8.87	8.87	14.0	22.0	8.8	45.6	45.5	37.6	0.16
911018	0100	0.52	0.123	0.113	8.16	8.87	-36.0	-36.0	-13.6	47.5	44.2	41.6	0.18
911018	0400	0.47	0.113	0.113	8.87	8.87	-38.0	-38.0	-26.2	47.6	43.9	48.1	0.19
911018	0700	0.43	0.123	0.113	8.16	8.87	-40.0	-38.0	-17.1	46.6	42.3	47.8	0.17
911018	1000	0.44	0.123	0.123	8.16	8.16	-32.0	-40.0	-14.0	45.6	40.1	39.4	0.17
911018	1300	0.41	0.132	0.123	7.56	8.16	-42.0	-40.0	-19.6	44.6	44.2	43.3	0.20
911018	1600	0.42	0.132	0.123	7.56	8.16	-42.0	-40.0	-21.0	46.1	37.6	35.4	0.19
911018	1900	0.42	0.142	0.132	7.04	7.56	-38.0	-40.0	-22.8	46.0	34.7	47.6	0.20
911018	2200	0.40	0.123	0.123	8.16	8.16	-40.0	-40.0	-24.1	43.5	37.0	20.7	0.22
911019	0100	0.39	0.142	0.132	7.04	7.56	-42.0	-42.0	-20.5	40.8	36.7	30.1	0.24
911019	0400	0.38	0.074	0.132	13.56	7.56	-12.0	-12.0	-19.3	39.1	37.0	36.8	0.26
911019	0700	0.37	0.074	0.074	13.56	13.56	-10.0	-12.0	-23.9	33.9	33.2	22.4	0.28

Table A1 (Continued)

Date	Time EST	H_{m_o} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
911019	1000	0.39	0.083	0.083	11.98	11.98	-18.0	-16.0	-23.8	30.6	26.7	19.4	0.24
911019	1300	0.43	0.083	0.083	11.98	11.98	-18.0	-20.0	-23.5	27.8	25.0	19.8	0.25
911019	1600	0.43	0.083	0.083	11.98	11.98	-20.0	-18.0	-25.3	34.1	24.3	23.0	0.27
911019	1900	0.46	0.083	0.083	11.98	11.98	-20.0	-16.0	-26.2	33.9	24.0	22.3	0.31
911019	2200	1.17	0.230	0.230	4.35	4.35	54.0	56.0	45.2	20.1	14.8	8.9	0.24
911020	0100	1.65	0.171	0.171	5.83	5.83	44.0	46.0	43.4	22.3	18.3	13.6	0.20
911020	0400	1.79	0.152	0.152	6.59	6.59	28.0	34.0	36.4	23.6	20.7	12.8	0.17
911020	0700	1.80	0.142	0.142	7.04	7.04	26.0	32.0	33.6	24.4	21.6	14.1	0.16
911020	1000	1.60	0.152	0.152	6.59	6.59	22.0	30.0	31.0	28.8	22.7	16.9	0.15
911020	1300	1.43	0.171	0.142	5.83	7.04	30.0	28.0	31.5	29.7	22.6	18.5	0.16
911020	1600	1.23	0.152	0.152	6.59	6.59	22.0	26.0	31.2	28.1	22.6	14.0	0.16
911020	1900	1.12	0.074	0.074	13.56	13.56	-10.0	30.0	25.3	30.7	23.0	17.6	0.15
911020	2200	0.99	0.074	0.074	13.56	13.56	-8.0	30.0	17.6	32.9	25.4	24.8	0.13
911021	0100	1.01	0.074	0.074	13.56	13.56	-10.0	16.0	13.9	33.6	24.7	19.6	0.12
911021	0400	0.97	0.074	0.074	13.56	13.56	-8.0	20.0	13.0	36.8	25.7	19.3	0.15
911021	0700	0.96	0.074	0.074	13.56	13.56	-10.0	22.0	13.9	36.8	29.6	24.6	0.14
911021	1000	0.95	0.074	0.074	13.56	13.56	-8.0	-8.0	10.2	32.6	28.7	17.1	0.13
911021	1300	0.93	0.074	0.074	13.56	13.56	-8.0	-8.0	4.8	30.6	28.7	19.6	0.13
911021	1600	0.88	0.074	0.074	13.56	13.56	-12.0	-12.0	5.2	31.2	29.2	23.1	0.15
911021	1900	0.82	0.074	0.074	13.56	13.56	-8.0	-10.0	1.4	28.6	27.8	20.1	0.17
911021	2200	0.74	0.074	0.074	13.56	13.56	-10.0	-8.0	2.8	28.5	28.2	23.5	0.22
911022	0100	0.70	0.074	0.074	13.56	13.56	-10.0	-10.0	-2.4	26.9	27.5	21.8	0.25
911022	0400	0.64	0.083	0.074	11.98	13.56	-10.0	-10.0	-4.6	28.8	29.1	26.5	0.25
911022	0700	0.61	0.083	0.083	11.98	11.98	-10.0	-8.0	-3.2	26.2	28.7	20.2	0.28
911022	1000	0.61	0.083	0.083	11.98	11.98	-12.0	-10.0	-5.8	28.1	30.5	27.8	0.21
911022	1300	0.59	0.074	0.083	13.56	11.98	-8.0	-8.0	-5.1	28.4	29.5	27.6	0.22
911022	1600	0.58	0.074	0.074	13.56	13.56	-22.0	-6.0	-9.4	30.6	31.4	23.2	0.27
911022	1900	0.57	0.064	0.064	15.63	15.63	-12.0	-12.0	-12.8	28.3	28.9	17.1	0.28
911022	2200	0.58	0.074	0.074	13.56	13.56	-10.0	-10.0	-12.9	25.7	27.2	18.3	0.28
911023	0100	0.61	0.074	0.074	13.56	13.56	-4.0	-8.0	-12.0	26.8	28.4	23.8	0.23
911023	0400	0.60	0.064	0.074	15.63	13.56	-10.0	-8.0	-14.3	29.4	29.7	22.0	0.29
911023	0700	0.59	0.074	0.064	13.56	15.63	-12.0	-12.0	-16.4	30.5	31.1	25.0	0.33
911023	1000	0.58	0.083	0.083	11.98	11.98	-8.0	-8.0	-12.1	28.0	29.7	21.2	0.27
911023	1300	0.59	0.064	0.064	15.63	15.63	-6.0	-8.0	-10.7	29.7	31.2	22.6	0.25
911023	1600	0.58	0.074	0.074	13.56	13.56	-6.0	-10.0	-14.9	31.8	33.0	25.9	0.31
911023	1900	0.56	0.064	0.064	15.63	15.63	-8.0	-8.0	-12.1	31.1	31.9	24.7	0.33
911023	2200	0.53	0.064	0.064	15.63	15.63	-8.0	-6.0	-13.3	31.0	31.0	22.8	0.28
911024	0100	0.55	0.064	0.074	15.63	13.56	-4.0	-16.0	-13.9	29.1	29.7	25.9	0.25
911024	0400	0.55	0.074	0.064	13.56	15.63	-6.0	-6.0	-7.8	30.3	30.5	23.8	0.32
911024	0700	0.53	0.083	0.064	11.98	15.63	-2.0	-16.0	-9.3	35.1	35.0	32.8	0.32
911024	1000	0.55	0.064	0.064	15.63	15.63	-10.0	-12.0	-9.6	33.3	33.6	28.5	0.26
911024	1300	0.57	0.074	0.074	13.56	13.56	-4.0	-6.0	-11.6	33.8	33.5	19.6	0.20
911024	1600	0.57	0.093	0.074	10.72	13.56	-4.0	-4.0	-20.0	38.4	37.5	25.5	0.24
911024	1900	0.58	0.064	0.074	15.63	13.56	-10.0	-10.0	-27.8	43.3	40.1	27.2	0.25
911024	2200	0.58	0.064	0.064	15.63	15.63	-10.0	-12.0	-26.7	38.7	39.9	19.8	0.23
911025	0100	0.56	0.132	0.083	7.56	11.98	-42.0	-12.0	-12.5	34.4	34.6	30.3	0.19
911025	0400	0.65	0.142	0.074	7.04	13.56	-42.0	-42.0	-24.7	39.9	36.0	25.1	0.21
911025	0700	0.76	0.142	0.103	7.04	9.71	-44.0	-44.0	-24.4	43.5	36.4	27.1	0.19
911025	1000	0.76	0.123	0.113	8.16	8.87	-40.0	-16.0	-25.1	42.3	41.5	35.3	0.16
911025	1300	0.83	0.123	0.123	8.16	8.16	-40.0	-38.0	-22.6	40.1	39.6	37.3	0.11
911025	1600	0.98	0.123	0.123	8.16	8.16	-42.0	-40.0	-30.9	40.4	39.8	41.7	0.12
911025	1900	0.95	0.123	0.113	8.16	8.87	-42.0	-42.0	-28.8	45.4	44.8	46.9	0.16
911025	2200	0.91	0.113	0.113	8.87	8.87	-40.0	-40.0	-33.7	41.4	40.9	33.8	0.15
911026	0100	0.94	0.113	0.113	8.87	8.87	-22.0	-42.0	-31.0	35.4	35.5	29.4	0.11
911026	0400	1.07	0.113	0.113	8.87	8.87	-40.0	-24.0	-29.0	29.8	30.3	30.2	0.13
911026	0700	1.09	0.113	0.113	8.87	8.87	-28.0	-26.0	-30.5	32.3	32.9	28.3	0.17
911026	1000	1.02	0.113	0.113	8.87	8.87	-24.0	-40.0	-31.7	33.6	33.5	25.5	0.15
911026	1300	0.96	0.113	0.113	8.87	8.87	-24.0	-24.0	-31.7	30.9	32.2	25.6	0.11

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,BDS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{BDJ}$ deg	$\Delta\theta_{SWJ}$ deg	$\Delta\theta_{PDP}$ deg	χ
911026	1600	0.96	0.113	0.113	8.87	8.87	-16.0	-18.0	-27.0	32.0	32.5	29.8	0.11
911026	1900	1.04	0.103	0.113	9.71	8.87	-26.0	-26.0	-26.1	32.7	32.8	27.4	0.15
911026	2200	1.08	0.103	0.103	9.71	9.71	-42.0	-24.0	-22.5	34.2	33.8	31.6	0.15
911027	0100	1.14	0.103	0.103	9.71	9.71	-20.0	-24.0	-19.7	33.3	32.6	26.7	0.11
911027	0400	1.26	0.093	0.093	10.72	10.72	-26.0	-26.0	-25.7	32.8	33.0	27.9	0.12
911027	0700	1.56	0.103	0.093	9.71	10.72	-26.0	-26.0	-29.4	29.1	30.2	30.2	0.15
911027	1000	1.70	0.093	0.093	10.72	10.72	-32.0	-24.0	-26.8	30.3	30.5	31.7	0.15
911027	1300	1.66	0.074	0.093	13.56	10.72	-34.0	-20.0	-18.9	30.8	27.9	31.5	0.13
911027	1600	1.74	0.083	0.083	11.98	11.98	-28.0	-22.0	-16.4	30.4	27.4	27.4	0.11
911027	1900	1.81	0.074	0.093	13.56	10.72	-32.0	-20.0	-22.7	33.1	31.4	35.0	0.13
911027	2200	1.86	0.074	0.083	13.56	11.98	-38.0	-18.0	-25.3	32.3	31.7	35.2	0.15
911028	0100	1.87	0.083	0.083	11.98	11.98	-22.0	-18.0	-16.0	28.4	28.1	22.0	0.13
911028	0400	1.99	0.074	0.074	13.56	13.56	-14.0	-12.0	-8.8	26.6	26.6	20.5	0.12
911028	0700	2.16	0.074	0.083	13.56	11.98	-14.0	-14.0	-8.5	28.7	27.9	32.1	0.12
911028	1000	2.30	0.083	0.083	11.98	11.98	-14.0	-14.0	7.3	49.6	28.1	30.3	0.16
911028	1300	2.89	0.162	0.083	6.19	11.98	32.0	40.0	17.5	48.1	25.5	25.6	0.16
911028	1600	3.52	0.132	0.132	7.56	7.56	30.0	18.0	14.1	37.8	27.9	17.3	0.16
911028	1900	3.66	0.123	0.113	8.16	8.87	22.0	14.0	10.7	34.9	30.7	28.4	0.16
911028	2200	3.67	0.103	0.093	9.71	10.72	16.0	16.0	19.6	35.2	30.8	35.9	0.15
911029	0100	3.59	0.083	0.093	11.98	10.72	-18.0	14.0	9.1	32.4	31.3	33.2	0.14
911029	0400	3.41	0.083	0.083	11.98	11.98	-8.0	4.0	5.8	29.2	29.8	27.4	0.13
911029	0700	3.40	0.074	0.074	13.56	13.56	-8.0	-6.0	0.0	25.8	26.9	19.5	0.12
911029	1000	3.53	0.074	0.074	13.56	13.56	-8.0	-6.0	5.1	28.3	28.9	21.0	0.13
911029	1300	3.36	0.074	0.074	13.56	13.56	-8.0	-8.0	6.4	31.5	29.4	17.5	0.13
911029	1600	3.26	0.064	0.074	15.63	13.56	-8.0	4.0	5.7	28.9	29.2	23.7	0.13
911029	1900	3.52	0.074	0.074	13.56	13.56	-8.0	-4.0	0.8	22.9	24.9	18.7	0.13
911029	2200	3.48	0.074	0.074	13.56	13.56	-10.0	-6.0	-3.2	27.9	28.3	23.3	0.14
911030	0100	3.46	0.074	0.074	13.56	13.56	-8.0	-6.0	-6.7	26.0	27.0	24.8	0.13
911030	0400	3.44	0.074	0.074	13.56	13.56	-8.0	-6.0	-4.9	24.4	27.0	20.0	0.13
911030	0700	3.83	0.064	0.064	15.63	15.63	-8.0	-4.0	-3.9	24.0	24.9	20.2	0.14
911030	1000	4.17	0.064	0.064	15.63	15.63	-8.0	-6.0	-3.7	23.8	25.4	21.4	0.16
911030	1300	4.37	0.054	0.054	18.45	18.45	-2.0	-2.0	-2.4	18.8	19.8	12.3	0.17
911030	1600	4.37	0.054	0.054	18.45	18.45	-8.0	-2.0	-1.7	17.0	17.2	20.3	0.19
911030	1900	4.20	0.044	0.054	22.51	18.45	-4.0	2.0	0.1	18.9	19.6	22.5	0.20
911030	2200	4.56	0.044	0.044	22.51	22.51	-4.0	-4.0	-2.6	18.4	19.0	13.3	0.24
911031	0100	4.66	0.044	0.054	22.51	18.45	-2.0	-2.0	-2.7	17.8	18.2	16.6	0.22
911031	0400	4.47	0.054	0.054	18.45	18.45	0.0	0.0	-1.3	16.3	16.9	11.5	0.23
911031	0700	4.30	0.054	0.054	18.45	18.45	-2.0	0.0	-0.3	20.1	20.7	19.8	0.19
911031	1000	4.15	0.054	0.054	18.45	18.45	-6.0	-2.0	-1.8	20.0	20.5	16.1	0.17
911031	1300	3.69	0.054	0.054	18.45	18.45	-4.0	-2.0	-1.7	22.5	23.2	18.8	0.17
911031	1600	3.52	0.054	0.054	18.45	18.45	0.0	0.0	2.8	21.8	23.5	12.8	0.16
911031	1900	3.25	0.064	0.064	15.63	15.63	-8.0	-4.0	-2.2	24.0	24.4	25.5	0.16
911031	2200	3.13	0.064	0.064	15.63	15.63	-8.0	-4.0	-3.5	25.3	25.4	24.4	0.13
911101	0100	2.76	0.064	0.064	15.63	15.63	-10.0	-6.0	-1.4	27.0	26.5	27.8	0.17
911101	0400	2.30	0.074	0.074	13.56	13.56	-6.0	-4.0	2.1	27.4	27.1	26.1	0.19
911101	0700	2.12	0.074	0.074	13.56	13.56	-10.0	-6.0	1.9	28.5	26.5	23.1	0.14
911101	1000	1.78	0.074	0.074	13.56	13.56	-8.0	-6.0	7.9	28.8	27.0	23.6	0.13
911101	1300	1.59	0.074	0.074	13.56	13.56	-8.0	18.0	4.8	29.9	27.9	26.6	0.23
911101	1600	1.39	0.074	0.074	13.56	13.56	-8.0	18.0	5.1	30.2	27.5	29.2	0.22
911101	1900	1.29	0.083	0.083	11.98	11.98	16.0	16.0	11.2	30.2	27.5	31.4	0.15
911101	2200	1.29	0.083	0.083	11.98	11.98	20.0	18.0	8.9	29.2	27.5	30.2	0.14
911102	0100	1.25	0.083	0.083	11.98	11.98	-6.0	-2.0	0.5	27.0	25.4	22.6	0.27
911102	0400	1.12	0.083	0.083	11.98	11.98	-2.0	14.0	3.6	28.0	27.0	28.4	0.30
911102	0700	0.98	0.083	0.083	11.98	11.98	-4.0	-2.0	-0.3	28.5	26.7	26.6	0.19
911102	1000	0.87	0.083	0.083	11.98	11.98	-4.0	-2.0	0.1	27.5	26.8	25.7	0.15
911102	1300	0.81	0.083	0.083	11.98	11.98	-6.0	-4.0	-8.7	29.2	26.7	25.5	0.26
911102	1600	0.86	0.083	0.083	11.98	11.98	-8.0	-8.0	-17.3	36.9	22.9	22.8	0.25
911102	1900	0.85	0.093	0.093	10.72	10.72	-2.0	-2.0	-15.2	33.5	23.7	20.5	0.19

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{PS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSW}$ deg	χ
911102	2200	0.77	0.093	0.093	10.72	10.72	14.0	-2.0	-8.5	37.1	27.9	30.0	0.14
911103	0100	0.74	0.103	0.093	9.71	10.72	0.0	0.0	-21.5	45.1	30.9	33.2	0.18
911103	0400	0.74	0.093	0.083	10.72	11.98	-20.0	2.0	-6.9	49.9	35.3	26.7	0.19
911103	0700	0.80	0.269	0.083	3.72	11.98	58.0	58.0	22.3	64.9	26.5	25.9	0.18
911103	1000	0.79	0.220	0.093	4.54	10.72	48.0	54.0	22.7	59.1	25.6	29.2	0.14
911103	1300	0.81	0.201	0.093	4.98	10.72	44.0	48.0	28.9	53.1	29.3	30.7	0.16
911103	1600	0.84	0.171	0.181	5.83	5.52	36.0	36.0	32.2	46.8	32.1	17.6	0.14
911103	1900	0.76	0.171	0.181	5.83	5.52	30.0	32.0	23.4	48.6	30.6	18.6	0.14
911103	2200	0.74	0.181	0.093	5.52	10.72	34.0	34.0	29.2	50.9	29.2	31.3	0.13
911104	0100	0.70	0.191	0.093	5.24	10.72	30.0	30.0	18.7	51.8	36.0	31.3	0.17
911104	0400	0.69	0.074	0.093	13.56	10.72	-10.0	22.0	11.6	51.0	36.0	28.9	0.17
911104	0700	0.75	0.250	0.250	4.01	4.01	50.0	24.0	24.6	48.3	39.6	31.3	0.13
911104	1000	0.75	0.250	0.230	4.01	4.35	44.0	6.0	11.7	41.3	34.6	31.0	0.13
911104	1300	1.35	0.191	0.191	5.24	5.24	44.0	44.0	42.2	22.1	16.5	12.5	0.23
911104	1600	1.86	0.152	0.152	6.59	6.59	40.0	40.0	39.8	18.4	17.1	10.3	0.21
911104	1900	1.69	0.142	0.142	7.04	7.04	24.0	38.0	34.3	22.1	19.4	15.9	0.19
911104	2200	1.45	0.142	0.142	7.04	7.04	22.0	24.0	26.8	24.0	20.6	16.6	0.14
911105	0100	1.35	0.152	0.142	6.59	7.04	26.0	28.0	26.6	25.8	21.5	20.3	0.14
911105	0400	1.38	0.152	0.152	6.59	6.59	18.0	18.0	27.0	28.2	22.4	17.9	0.19
911105	0700	1.35	0.152	0.152	6.59	6.59	16.0	16.0	28.6	29.8	21.4	16.7	0.19
911105	1000	1.28	0.162	0.162	6.19	6.19	20.0	16.0	23.8	29.5	20.1	16.4	0.14
911105	1300	1.15	0.162	0.162	6.19	6.19	20.0	32.0	23.7	32.8	22.4	17.8	0.12
911105	1600	1.02	0.162	0.162	6.19	6.19	26.0	12.0	23.3	33.7	24.3	20.7	0.13
911105	1900	0.95	0.171	0.171	5.83	5.83	26.0	12.0	18.4	36.7	23.3	15.9	0.14
911105	2200	0.83	0.113	0.123	8.87	8.16	-6.0	8.0	14.0	33.5	22.3	23.1	0.13
911106	0100	0.77	0.123	0.123	8.16	8.16	-6.0	10.0	10.8	31.4	23.7	24.2	0.12
911106	0400	0.75	0.123	0.123	8.16	8.16	12.0	-8.0	11.4	31.3	25.3	27.5	0.19
911106	0700	0.68	0.123	0.123	8.16	8.16	10.0	-8.0	10.1	34.5	26.2	22.3	0.23
911106	1000	0.64	0.123	0.123	8.16	8.16	-8.0	-8.0	6.9	33.7	26.8	25.7	0.16
911106	1300	0.69	0.132	0.123	7.56	8.16	-8.0	-8.0	9.7	31.8	26.4	22.9	0.14
911106	1600	0.68	0.054	0.123	18.45	8.16	-4.0	-4.0	10.6	31.8	28.2	25.8	0.21
911106	1900	0.67	0.132	0.123	7.56	8.16	10.0	8.0	2.2	33.6	30.8	30.7	0.20
911106	2200	0.64	0.064	0.123	15.63	8.16	-10.0	-10.0	5.9	34.4	33.8	33.3	0.14
911107	0100	0.68	0.123	0.123	8.16	8.16	4.0	2.0	-4.4	33.4	35.2	29.4	0.15
911107	0400	0.72	0.064	0.064	15.63	15.63	-8.0	-8.0	-6.4	36.9	36.5	17.0	0.18
911107	0700	0.73	0.064	0.064	15.63	15.63	-8.0	-6.0	-5.7	37.1	36.1	18.1	0.22
911107	1000	0.77	0.064	0.064	15.63	15.63	-10.0	6.0	-9.6	41.1	34.4	20.5	0.13
911107	1300	0.85	0.142	0.142	7.04	7.04	-36.0	-36.0	-4.4	49.5	29.7	22.6	0.14
911107	1600	1.00	0.269	0.142	3.72	7.04	56.0	56.0	7.7	66.9	28.0	34.5	0.17
911107	1900	1.04	0.230	0.123	4.35	8.16	40.0	50.0	13.2	59.8	28.3	29.6	0.15
911107	2200	1.13	0.210	0.210	4.75	4.75	44.0	44.0	21.0	50.2	24.3	17.6	0.14
911108	0100	1.42	0.201	0.191	4.98	5.24	38.0	38.0	29.0	33.5	22.1	17.5	0.14
911108	0400	1.90	0.171	0.162	5.83	6.19	28.0	36.0	31.8	30.2	23.0	22.2	0.16
911108	0700	2.32	0.152	0.152	6.59	6.59	26.0	40.0	36.9	26.2	24.0	20.0	0.20
911108	1000	2.31	0.152	0.142	6.59	7.04	40.0	40.0	36.7	26.9	23.1	25.2	0.20
911108	1300	2.25	0.132	0.142	7.56	7.04	24.0	36.0	30.8	28.4	20.4	18.7	0.19
911108	1600	2.49	0.132	0.132	7.56	7.56	20.0	18.0	28.8	29.6	22.6	20.5	0.19
911108	1900	2.74	0.132	0.132	7.56	7.56	14.0	20.0	28.9	27.3	22.4	20.3	0.20
911108	2200	2.82	0.123	0.123	8.16	8.16	24.0	22.0	29.7	30.2	24.1	19.7	0.20
911109	0100	3.04	0.123	0.113	8.16	8.87	20.0	20.0	22.9	30.3	24.3	21.3	0.18
911109	0400	3.36	0.132	0.103	7.56	9.71	24.0	22.0	20.6	29.2	26.0	24.3	0.18
911109	0700	3.84	0.123	0.113	8.16	8.87	14.0	14.0	18.5	30.9	29.2	25.0	0.20
911109	1000	3.86	0.123	0.123	8.16	8.16	28.0	16.0	22.1	30.0	27.8	23.0	0.18
911109	1300	4.06	0.103	0.103	9.71	9.71	14.0	14.0	15.2	27.7	27.3	22.4	0.19
911109	1600	4.26	0.083	0.083	11.98	11.98	-8.0	8.0	13.6	28.0	27.9	21.1	0.19
911109	1900	4.42	0.083	0.083	11.98	11.98	-8.0	6.0	10.9	29.2	28.4	21.5	0.19
911109	2200	4.34	0.083	0.083	11.98	11.98	-6.0	6.0	9.2	27.1	26.8	19.0	0.18

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,SPE}$ Hz	$T_{p,PD}$ sec	$T_{p,SPE}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,ZMA}$ deg	$\theta_{p,SIM}$ deg	$\Delta\theta_{RMS}$ deg	$\Delta\theta_{SIM}$ deg	$\Delta\theta_{PEAK}$ deg	χ
911110	0100	4.12	0.083	0.093	11.98	10.72	-2.0	4.0	6.8	26.1	26.4	24.8	0.16
911110	0400	4.01	0.083	0.083	11.98	11.98	-4.0	6.0	8.3	27.6	28.5	25.9	0.16
911110	1300	2.41	0.083	0.083	11.98	11.98	18.0	18.0	15.2	31.1	33.0	26.5	0.13
911110	1600	2.22	0.083	0.083	11.98	11.98	12.0	12.0	6.2	32.6	34.7	23.2	0.12
911110	1900	1.83	0.083	0.083	11.98	11.98	12.0	14.0	8.8	34.3	37.6	19.5	0.15
911110	2200	1.66	0.093	0.093	10.72	10.72	16.0	6.0	6.9	35.6	38.3	24.4	0.15
911111	0100	1.33	0.093	0.093	10.72	10.72	18.0	16.0	19.0	37.6	39.8	30.8	0.16
911111	0400	1.10	0.093	0.093	10.72	10.72	-6.0	16.0	-1.9	36.9	40.5	25.9	0.20
911111	0700	0.97	0.093	0.103	10.72	9.71	-2.0	-2.0	-4.4	38.3	42.0	32.1	0.22
911111	1000	0.88	0.103	0.103	9.71	9.71	16.0	16.0	7.0	43.4	47.2	37.7	0.23
911111	1300	0.81	0.103	0.103	9.71	9.71	14.0	12.0	2.3	48.3	48.5	36.3	0.25
911111	1600	0.78	0.103	0.113	9.71	8.87	14.0	16.0	15.5	43.9	39.7	42.4	0.17
911111	1900	0.78	0.113	0.113	8.87	8.87	16.0	22.0	21.5	43.7	31.5	39.2	0.21
911111	2200	0.75	0.162	0.113	6.19	8.87	28.0	26.0	9.8	42.6	28.1	46.1	0.22
911112	0100	1.04	0.259	0.181	3.86	5.52	50.0	56.0	37.9	29.6	16.8	12.9	0.22
911112	0400	0.93	0.171	0.171	5.83	5.83	40.0	46.0	38.4	26.9	15.8	9.1	0.16
911112	0700	0.95	0.171	0.171	5.83	5.83	36.0	38.0	37.2	25.6	17.1	9.1	0.18
911112	1300	0.92	0.152	0.152	6.59	6.59	26.0	26.0	34.8	22.2	17.4	7.5	0.19
911112	1900	0.78	0.171	0.171	5.83	5.83	32.0	30.0	30.1	27.5	21.8	10.3	0.17
911113	0100	0.68	0.171	0.191	5.83	5.24	26.0	28.0	24.0	36.1	22.2	18.5	0.19
911113	0700	0.84	0.230	0.230	4.35	4.35	56.0	58.0	41.5	34.8	21.6	23.9	0.16
911113	1300	0.89	0.181	0.181	5.52	5.52	42.0	42.0	34.7	21.5	17.4	16.7	0.21
911113	1900	0.65	0.191	0.181	5.24	5.52	36.0	28.0	21.5	29.9	16.9	11.0	0.20
911114	0100	0.42	0.191	0.191	5.24	5.24	38.0	-8.0	13.0	40.6	22.1	12.5	0.23
911114	0700	0.32	0.123	0.123	8.16	8.16	-6.0	-8.0	-2.7	26.0	28.4	16.1	0.22
911114	1000	0.32	0.093	0.093	10.72	10.72	-2.0	-8.0	-2.9	28.5	30.7	26.3	0.22
911114	1300	0.33	0.093	0.093	10.72	10.72	-8.0	-12.0	-2.6	29.0	29.6	22.7	0.22
911114	1900	0.32	0.103	0.103	9.71	9.71	-12.0	-12.0	-7.0	30.0	31.7	29.0	0.21
911115	0100	0.35	0.171	0.103	5.83	9.71	20.0	22.0	3.9	38.6	24.0	27.4	0.20
911115	0700	0.31	0.103	0.103	9.71	9.71	-10.0	-12.0	-2.8	37.6	28.3	23.5	0.23
911115	1300	0.28	0.103	0.103	9.71	9.71	-20.0	-16.0	-17.5	34.3	34.5	28.6	0.20
911115	1900	0.28	0.054	0.054	18.45	18.45	-10.0	-12.0	-26.1	29.1	23.4	12.8	0.36
911116	0100	0.27	0.054	0.054	18.45	18.45	-6.0	-8.0	-21.1	32.7	27.7	18.8	0.34
911116	0700	0.28	0.054	0.054	18.45	18.45	-10.0	-10.0	-25.1	34.1	24.2	20.1	0.42
911116	1300	0.29	0.064	0.064	15.63	15.63	-10.0	-8.0	-20.5	26.9	26.8	22.4	0.53
911116	1900	0.32	0.064	0.064	15.63	15.63	-10.0	-10.0	-14.4	29.1	31.0	22.6	0.35
911117	0100	1.35	0.201	0.201	4.98	4.98	50.0	58.0	50.7	26.3	23.2	18.3	0.20
911117	0400	1.64	0.191	0.171	5.24	5.83	44.0	44.0	41.4	22.6	19.3	17.5	0.16
911117	0700	1.83	0.142	0.142	7.04	7.04	28.0	32.0	34.2	24.9	21.0	16.7	0.16
911117	1000	1.85	0.132	0.132	7.56	7.56	16.0	22.0	27.8	26.9	23.4	18.6	0.16
911117	1300	1.54	0.162	0.123	6.19	8.16	22.0	22.0	28.4	26.3	24.3	21.4	0.15
911117	1900	1.11	0.132	0.113	7.56	8.87	26.0	22.0	25.1	30.1	24.6	23.6	0.15
911118	0100	1.02	0.123	0.123	8.16	8.16	12.0	14.0	17.0	32.0	24.8	24.2	0.18
911118	0700	0.93	0.093	0.093	10.72	10.72	-10.0	-8.0	12.6	34.2	25.0	21.4	0.17
911118	1300	0.96	0.093	0.093	10.72	10.72	12.0	-10.0	8.6	29.9	25.8	24.6	0.19
911118	1900	0.82	0.103	0.103	9.71	9.71	-4.0	-8.0	5.4	29.5	27.9	19.9	0.19
911119	0100	0.79	0.103	0.103	9.71	9.71	6.0	-10.0	4.8	27.3	29.1	21.3	0.18
911119	0700	0.73	0.103	0.103	9.71	9.71	-10.0	-10.0	-9.7	24.7	27.1	21.2	0.20
911119	1900	0.51	0.103	0.103	9.71	9.71	-14.0	-14.0	-14.2	28.9	27.7	24.9	0.23
911120	0100	0.45	0.113	0.113	8.87	8.87	-14.0	-14.0	-18.6	28.8	24.4	21.3	0.23
911120	0700	0.43	0.093	0.093	10.72	10.72	-14.0	-14.0	-17.8	23.9	22.4	16.9	0.23
911120	1300	0.41	0.074	0.074	13.56	13.56	-10.0	-14.0	-24.8	31.3	21.9	20.8	9.99
911120	1900	0.43	0.064	0.074	15.63	13.56	-10.0	-12.0	-30.5	34.4	20.4	21.1	0.19
911121	0100	0.40	0.074	0.074	13.56	13.56	-10.0	-10.0	-32.0	33.9	19.0	18.9	0.20

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PM}$ Hz	$f_{p,JPA}$ Hz	$T_{p,PM}$ sec	$T_{p,JPA}$ sec	$\theta_{p,PM}$ deg	$\theta_{p,JPA}$ deg	$\theta_{p,MM}$ deg	$\Delta\theta_{PM}$ deg	$\Delta\theta_{MM}$ deg	$\Delta\theta_{PMP}$ deg	χ
911121	0700	0.47	0.191	0.074	5.24	13.56	-52.0	-52.0	-39.6	31.0	17.8	20.5	0.18
911121	1300	0.43	0.152	0.074	6.59	13.56	-44.0	-44.0	-38.4	29.6	18.0	22.8	0.17
911121	1900	0.46	0.142	0.074	7.04	13.56	-42.0	-56.0	-43.6	32.6	20.5	19.3	0.15
911122	0100	0.47	0.191	0.162	5.24	6.19	-52.0	-52.0	-41.0	29.4	21.3	17.9	0.16
911122	0700	0.60	0.162	0.162	6.19	6.19	-44.0	-46.0	-45.3	24.9	19.6	17.6	0.16
911122	1000	0.64	0.308	0.318	3.25	3.15	-58.0	-48.0	-47.3	21.9	15.4	9.0	0.22
911122	1300	0.79	0.308	0.279	3.25	3.59	-56.0	-56.0	-49.3	18.2	12.5	7.8	0.33
911122	1600	0.76	0.142	0.142	7.04	7.04	-42.0	-42.0	-47.3	21.9	16.7	21.0	0.20
911122	1900	0.80	0.142	0.142	7.04	7.04	-44.0	-44.0	-45.7	21.1	18.8	14.0	0.13
911122	2200	0.73	0.142	0.132	7.04	7.56	-44.0	-44.0	-45.2	22.2	18.5	17.3	0.10
911123	0100	0.71	0.142	0.132	7.04	7.56	-40.0	-40.0	-42.1	24.6	21.4	24.1	0.10
911123	0400	0.73	0.142	0.142	7.04	7.04	-42.0	-42.0	-40.0	24.5	22.5	20.1	0.13
911123	0700	0.69	0.123	0.123	8.16	8.16	-40.0	-42.0	-44.0	22.6	20.8	18.8	0.15
911123	1000	0.65	0.123	0.113	8.16	8.87	-42.0	-42.0	-42.4	22.4	20.8	22.5	0.14
911123	1300	0.60	0.123	0.123	8.16	8.16	-40.0	-40.0	-40.9	23.8	21.1	22.3	0.11
911123	1600	0.62	0.142	0.123	7.04	8.16	-42.0	-42.0	-40.3	26.4	21.5	27.9	0.13
911123	1900	0.60	0.132	0.132	7.56	7.56	-42.0	-42.0	-42.5	28.2	22.7	19.0	0.16
911123	2200	0.55	0.132	0.123	7.56	8.16	-42.0	-42.0	-39.3	28.6	24.3	26.0	0.15
911124	0100	0.57	0.132	0.132	7.56	7.56	-40.0	-40.0	-38.7	28.8	26.3	22.6	0.12
911124	0400	0.64	0.132	0.132	7.56	7.56	-42.0	-40.0	-43.6	23.5	21.5	20.1	0.14
911124	0700	0.86	0.142	0.162	7.04	6.19	-44.0	-42.0	-47.5	21.3	20.1	15.1	0.17
911124	1000	0.68	0.142	0.142	7.04	7.04	-44.0	-44.0	-42.7	22.2	19.1	14.8	0.16
911124	1300	0.59	0.132	0.113	7.56	8.87	-42.0	-42.0	-41.9	22.3	21.6	26.9	0.12
911124	1600	0.58	0.113	0.113	8.87	8.87	-38.0	-40.0	-42.1	21.8	21.0	18.5	0.13
911124	1900	0.57	0.113	0.113	8.87	8.87	-40.0	-42.0	-33.0	27.2	21.4	22.2	0.15
911124	2200	0.56	0.123	0.113	8.16	8.87	-42.0	-42.0	-8.0	93.8	20.8	26.4	0.20
911125	0100	0.63	0.269	0.113	3.72	8.87	58.0	60.0	14.6	81.2	17.5	28.3	0.19
911125	0400	0.68	0.269	0.113	3.72	8.87	62.0	58.0	20.4	75.0	17.8	28.5	0.15
911125	0700	0.79	0.171	0.181	5.83	5.52	30.0	32.0	23.8	43.0	18.8	11.7	0.16
911125	1000	0.75	0.171	0.171	5.83	5.83	34.0	34.0	27.3	35.5	18.7	7.0	0.18
911125	1300	0.63	0.162	0.113	6.19	8.87	28.0	32.0	23.3	50.2	21.1	31.2	0.16
911125	1600	0.54	0.191	0.113	5.24	8.87	38.0	34.0	13.4	52.6	23.7	31.6	0.15
911125	1900	0.53	0.113	0.113	8.87	8.87	-36.0	38.0	15.7	57.8	28.0	32.2	0.17
911125	2200	0.49	0.103	0.113	9.71	8.87	-38.0	38.0	9.3	58.8	27.6	36.0	0.18
911126	0100	0.49	0.113	0.113	8.87	8.87	-36.0	-14.0	6.0	63.6	24.6	27.5	0.17
911126	0400	0.81	0.240	0.220	4.17	4.54	44.0	42.0	30.9	40.3	22.4	17.8	0.15
911126	0700	0.97	0.181	0.171	5.52	5.83	42.0	40.0	41.6	30.8	24.8	13.4	0.17
911126	1000	0.97	0.181	0.181	5.52	5.52	36.0	36.0	42.6	31.4	24.3	13.6	0.20
911126	1300	0.88	0.181	0.171	5.52	5.83	36.0	36.0	34.8	33.7	22.4	12.3	0.17
911126	1600	0.82	0.181	0.181	5.52	5.52	42.0	42.0	34.9	35.5	23.5	14.4	0.12
911126	1900	0.82	0.191	0.191	5.24	5.24	44.0	42.0	34.8	36.9	24.6	17.2	0.14
911126	2200	0.83	0.191	0.191	5.24	5.24	36.0	30.0	32.5	36.1	25.0	14.9	0.16
911127	0100	0.77	0.191	0.210	5.24	4.75	36.0	36.0	28.0	39.1	24.8	18.9	0.14
911127	0400	0.70	0.210	0.210	4.75	4.75	40.0	40.0	28.8	47.4	25.3	15.3	0.11
911127	0700	0.70	0.220	0.220	4.54	4.54	42.0	40.0	22.4	50.8	30.9	21.8	0.12
911127	1000	0.68	0.074	0.230	13.56	4.35	-8.0	26.0	17.2	52.3	33.7	32.8	0.14
911127	1300	0.65	0.113	0.240	8.87	4.17	-38.0	30.0	14.2	52.5	31.3	28.6	0.15
911127	1600	0.64	0.113	0.113	8.87	8.87	-40.0	28.0	13.4	50.9	31.9	27.3	0.12
911127	1900	0.61	0.113	0.113	8.87	8.87	-38.0	26.0	10.5	48.0	30.5	24.8	0.12
911127	2200	0.57	0.113	0.113	8.87	8.87	-38.0	2.0	1.3	47.4	31.9	22.2	0.13
911128	0100	0.50	0.113	0.113	8.87	8.87	-38.0	-18.0	-1.2	45.0	28.9	24.1	0.18
911128	0400	0.45	0.113	0.113	8.87	8.87	-42.0	-16.0	-12.2	35.0	28.8	29.8	0.18
911128	0700	0.44	0.113	0.113	8.87	8.87	-40.0	-16.0	-13.9	34.3	26.5	24.5	0.22
911128	1000	0.44	0.113	0.123	8.87	8.16	-40.0	-16.0	-15.9	30.8	26.6	25.7	0.22
911128	1300	0.43	0.113	0.113	8.87	8.87	-42.0	-18.0	-20.6	31.4	27.4	30.4	0.21
911128	1600	0.43	0.123	0.113	8.16	8.87	-38.0	-38.0	-22.4	32.3	27.2	30.5	0.23
911128	1900	0.43	0.123	0.113	8.16	8.87	-38.0	-18.0	-24.4	30.7	26.6	24.8	0.24
911128	2200	0.44	0.113	0.113	8.87	8.87	-38.0	-18.0	-28.9	29.6	24.4	26.2	0.20

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{NSP}$ deg	χ
911129	0100	0.42	0.123	0.113	8.16	8.87	-38.0	-18.0	-32.9	29.4	24.6	26.6	0.21
911129	0400	0.42	0.064	0.064	15.63	15.63	-14.0	-18.0	-29.9	29.1	22.1	14.8	0.20
911129	0700	0.41	0.113	0.123	8.87	8.16	-40.0	-38.0	-31.7	29.2	23.5	22.7	0.20
911129	1000	0.40	0.123	0.123	8.16	8.16	-36.0	-18.0	-32.0	26.5	21.0	21.6	0.19
911129	1300	0.37	0.123	0.123	8.16	8.16	-34.0	-36.0	-31.7	25.8	19.3	16.1	0.20
911129	1600	0.35	0.132	0.123	7.56	8.16	-38.0	-38.0	-27.7	25.1	18.7	18.6	0.21
911129	1900	0.37	0.123	0.123	8.16	8.16	-36.0	-38.0	-31.1	24.4	19.1	20.3	0.18
911129	2200	0.39	0.123	0.123	8.16	8.16	-38.0	-38.0	-33.4	23.7	19.0	19.4	0.22
911130	0100	0.40	0.132	0.123	7.56	8.16	-40.0	-40.0	-35.4	25.3	20.2	23.4	0.18
911130	0400	0.43	0.123	0.123	8.16	8.16	-38.0	-40.0	-33.1	24.9	22.2	22.3	0.18
911130	0700	0.42	0.123	0.123	8.16	8.16	-38.0	-40.0	-38.1	25.0	23.0	24.0	0.15
911130	1000	0.42	0.123	0.123	8.16	8.16	-38.0	-40.0	-37.8	24.7	22.5	19.9	0.19
911130	1300	0.45	0.132	0.123	7.56	8.16	-40.0	-40.0	-40.3	25.9	21.7	25.6	0.17
911130	1600	0.49	0.220	0.123	4.54	8.16	-56.0	-42.0	-39.5	26.8	19.8	21.5	0.15
911130	1900	0.48	0.123	0.123	8.16	8.16	-38.0	-40.0	-41.1	25.4	21.6	20.8	0.13
911130	2200	0.49	0.132	0.123	7.56	8.16	-36.0	-38.0	-41.7	26.5	21.1	23.2	0.15
911201	0100	0.54	0.132	0.123	7.56	8.16	-42.0	-40.0	-43.0	26.8	22.1	23.3	0.14
911201	0400	0.53	0.132	0.123	7.56	8.16	-42.0	-40.0	-41.9	31.3	22.3	25.0	0.15
911201	0700	0.54	0.123	0.123	8.16	8.16	-38.0	-38.0	-41.0	27.2	21.1	24.0	0.12
911201	1000	0.59	0.171	0.123	5.83	8.16	-46.0	-38.0	-41.5	26.6	20.9	27.3	0.12
911201	1300	0.57	0.181	0.123	5.52	8.16	-48.0	-50.0	-40.6	27.3	19.4	21.0	0.15
911201	1600	0.57	0.132	0.123	7.56	8.16	-38.0	-40.0	-42.9	26.4	17.1	25.6	0.15
911201	1900	0.66	0.152	0.142	6.59	7.04	-44.0	-44.0	-43.9	22.1	16.0	15.8	0.11
911201	2200	0.67	0.152	0.142	6.59	7.04	-42.0	-42.0	-43.5	21.6	16.1	19.6	0.12
911202	0100	0.67	0.162	0.142	6.19	7.04	-44.0	-46.0	-45.6	23.2	17.9	15.0	0.14
911202	0400	0.64	0.162	0.123	6.19	8.16	-48.0	-46.0	-45.7	23.9	18.1	24.4	0.15
911202	0700	0.54	0.152	0.123	6.59	8.16	-42.0	-42.0	-45.1	26.6	19.5	27.9	0.12
911202	1000	0.51	0.152	0.113	6.59	8.87	-42.0	-42.0	-43.0	27.0	18.9	23.8	0.11
911202	1300	0.53	0.113	0.113	8.87	8.87	-40.0	-42.0	-43.2	27.1	19.3	23.3	0.13
911202	1600	0.56	0.113	0.113	8.87	8.87	-40.0	-42.0	-46.6	26.3	19.3	22.9	0.14
911202	1900	0.54	0.142	0.113	7.04	8.87	-44.0	-44.0	-44.8	29.2	19.7	23.9	0.14
911202	2200	0.59	0.132	0.113	7.56	8.87	-40.0	-42.0	-45.8	29.7	18.3	26.4	0.12
911203	0100	0.67	0.152	0.113	6.59	8.87	-46.0	-46.0	-47.8	30.7	30.8	27.8	0.14
911203	0400	0.80	0.152	0.142	6.59	7.04	-46.0	-44.0	-48.1	33.1	41.3	16.5	0.15
911203	0700	0.79	0.132	0.132	7.56	7.56	-44.0	-44.0	-47.8	25.6	30.2	12.3	0.16
911203	1300	0.90	0.132	0.132	7.56	7.56	-42.0	-44.0	-43.9	20.3	15.8	7.9	0.13
911203	1600	0.93	0.142	0.132	7.04	7.56	-42.0	-44.0	-47.2	20.5	17.2	21.3	0.15
911203	1900	0.83	0.132	0.113	7.56	8.87	-42.0	-44.0	-45.9	21.7	19.2	19.4	0.13
911203	2200	0.70	0.113	0.113	8.87	8.87	-42.0	-42.0	-43.6	28.9	28.6	24.5	0.13
911204	0100	0.76	0.123	0.113	8.16	8.87	-44.0	-44.0	-24.7	41.8	32.2	47.3	0.15
911204	0400	0.88	0.113	0.113	8.87	8.87	-44.0	58.0	-3.4	95.7	29.2	43.5	0.16
911204	0700	0.81	0.191	0.103	5.24	9.71	46.0	48.0	10.2	79.7	27.9	36.2	0.15
911204	1000	0.77	0.191	0.113	5.24	8.87	42.0	42.0	24.3	49.6	20.1	47.8	0.13
911204	1300	0.87	0.152	0.162	6.59	6.19	26.0	64.0	31.7	39.8	16.0	12.0	0.12
911204	1600	0.94	0.201	0.171	4.98	5.83	56.0	60.0	40.7	31.8	16.4	18.0	0.15
911204	1900	0.79	0.210	0.191	4.75	5.24	56.0	58.0	39.9	31.9	16.6	6.7	0.16
911204	2200	0.84	0.171	0.171	5.83	5.83	42.0	62.0	40.2	34.6	14.7	6.4	0.13
911205	0100	0.90	0.171	0.171	5.83	5.83	42.0	44.0	38.9	31.4	15.5	7.6	0.13
911205	0400	1.00	0.162	0.152	6.19	6.59	44.0	44.0	40.8	28.6	17.2	12.5	0.15
911205	0700	1.01	0.171	0.152	5.83	6.59	42.0	38.0	40.9	27.6	17.2	12.4	0.16
911205	1000	0.94	0.162	0.171	6.19	5.83	40.0	42.0	41.2	25.0	17.0	10.6	0.12
911205	1300	0.85	0.171	0.171	5.83	5.83	40.0	44.0	38.2	30.0	20.1	12.6	0.12
911205	1600	0.79	0.181	0.171	5.52	5.83	44.0	44.0	39.1	33.0	25.0	15.6	0.14
911205	1900	0.73	0.171	0.171	5.83	5.83	36.0	34.0	31.7	35.3	24.5	12.5	0.16
911205	2200	0.57	0.191	0.191	5.24	5.24	34.0	30.0	20.3	44.9	27.3	14.4	0.16
911206	0100	0.49	0.054	0.054	18.45	18.45	-12.0	-10.0	7.5	36.8	30.3	19.2	0.20
911206	0400	0.42	0.054	0.103	18.45	9.71	-6.0	-10.0	-4.7	30.0	30.2	24.1	0.23
911206	0700	0.32	0.054	0.093	18.45	10.72	-8.0	-10.0	-16.2	30.9	31.0	28.3	0.24

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,ww}$ Hz	$f_{p,sw}$ Hz	$T_{p,ww}$ sec	$T_{p,sw}$ sec	$\theta_{p,ww}$ deg	$\theta_{p,sw1}$ deg	$\theta_{p,sw}$ deg	$\Delta\theta_{sw1}$ deg	$\Delta\theta_{sw}$ deg	$\Delta\theta_{ww}$ deg	χ
911206	1000	0.27	0.054	0.093	18.45	10.72	-4.0	-10.0	-13.9	28.2	28.3	28.8	0.26
911206	1300	0.24	0.064	0.103	15.63	9.71	-10.0	-12.0	-24.8	31.5	29.9	29.5	0.25
911206	1600	0.22	0.113	0.093	8.87	10.72	-36.0	-12.0	-17.5	34.9	34.8	32.3	0.28
911206	1900	0.22	0.064	0.064	15.63	15.63	-14.0	-14.0	-21.3	38.3	44.7	20.7	0.26
911206	2200	0.24	0.064	0.103	15.63	9.71	-10.0	-24.0	-16.9	42.9	47.1	35.0	0.25
911207	0100	0.25	0.103	0.103	9.71	9.71	-28.0	-10.0	-25.9	35.4	36.9	28.9	0.24
911207	0400	0.26	0.113	0.103	8.87	9.71	-36.0	-12.0	-30.7	35.4	35.2	30.7	0.28
911207	0700	0.29	0.064	0.113	15.63	8.87	-12.0	-28.0	-28.4	36.7	36.9	22.5	0.29
911207	1000	0.29	0.064	0.064	15.63	15.63	-6.0	-10.0	-21.1	38.7	36.2	23.6	0.25
911207	1300	0.28	0.064	0.064	15.63	15.63	4.0	-14.0	-22.2	38.6	37.2	23.9	0.22
911207	1600	0.28	0.064	0.064	15.63	15.63	6.0	-14.0	-11.7	43.2	39.9	28.4	0.27
911207	1900	0.29	0.064	0.064	15.63	15.63	-8.0	-10.0	-19.7	45.3	34.3	18.0	0.24
911207	2200	0.26	0.064	0.064	15.63	15.63	-12.0	-12.0	-24.9	36.7	29.3	20.6	0.25
911208	0100	0.23	0.123	0.064	8.16	15.63	-38.0	-38.0	-31.5	34.4	26.7	27.6	0.26
911208	0400	0.22	0.113	0.074	8.87	13.56	-36.0	-38.0	-32.1	35.3	26.7	22.9	0.32
911208	0700	0.23	0.113	0.113	8.87	8.87	-32.0	-42.0	-26.7	37.6	36.6	17.1	0.30
911208	1000	0.24	0.113	0.113	8.87	8.87	-40.0	-40.0	-35.9	32.7	26.1	16.6	0.26
911208	1300	0.25	0.142	0.113	7.04	8.87	-42.0	-42.0	-33.3	32.1	26.0	16.2	0.22
911208	1600	0.25	0.113	0.113	8.87	8.87	-32.0	-42.0	-32.3	31.4	25.7	12.1	0.23
911208	1900	0.26	0.113	0.113	8.87	8.87	-32.0	-44.0	-34.0	32.7	26.3	14.3	0.24
911208	2200	0.26	0.123	0.123	8.16	8.16	-34.0	-42.0	-36.9	31.8	22.8	12.8	0.21
911209	0100	0.26	0.123	0.123	8.16	8.16	-42.0	-42.0	-38.9	30.4	22.0	18.5	0.23
911209	0400	0.27	0.123	0.123	8.16	8.16	-38.0	-40.0	-35.2	31.9	23.5	19.0	0.26
911209	0700	0.26	0.123	0.123	8.16	8.16	-32.0	-44.0	-34.9	33.3	22.9	19.4	0.30
911209	1000	0.27	0.064	0.064	15.63	15.63	-10.0	-44.0	-37.3	35.4	21.5	21.3	0.26
911209	1300	0.26	0.123	0.064	8.16	15.63	-44.0	-44.0	-37.4	34.5	23.1	29.7	0.24
911209	1600	0.29	0.123	0.064	8.16	15.63	-44.0	-44.0	-42.5	38.7	26.0	27.9	0.23
911209	1900	0.30	0.064	0.064	15.63	15.63	-10.0	-46.0	-42.2	40.9	21.6	27.4	0.26
911209	2200	0.32	0.142	0.064	7.04	15.63	-46.0	-46.0	-46.1	36.9	24.5	25.3	0.22
911210	0100	0.75	0.308	0.240	3.25	4.17	60.0	58.0	48.8	10.9	9.3	6.5	0.33
911210	0400	1.62	0.171	0.171	5.83	5.83	44.0	44.0	46.3	16.6	13.9	9.1	0.17
911210	0700	1.74	0.142	0.142	7.04	7.04	32.0	36.0	41.2	23.0	17.1	13.1	0.21
911210	1000	1.82	0.142	0.142	7.04	7.04	24.0	24.0	37.4	26.6	20.0	16.8	0.20
911210	1300	1.56	0.142	0.142	7.04	7.04	24.0	24.0	32.0	24.1	21.6	16.4	0.15
911210	1600	1.39	0.142	0.132	7.04	7.56	20.0	24.0	26.0	24.0	22.1	19.8	0.13
911210	1900	1.29	0.132	0.132	7.56	7.56	28.0	20.0	22.8	23.2	23.8	19.6	0.12
911210	2200	1.21	0.113	0.113	8.87	8.87	22.0	18.0	18.7	25.7	25.0	22.8	0.14
911211	0100	1.14	0.103	0.103	9.71	9.71	16.0	16.0	18.5	26.3	25.1	23.4	0.14
911211	0400	1.16	0.103	0.103	9.71	9.71	20.0	16.0	12.2	25.9	25.2	25.1	0.14
911211	0700	1.15	0.093	0.093	10.72	10.72	-2.0	12.0	9.7	26.8	27.0	23.6	0.15
911211	1000	1.14	0.103	0.093	9.71	10.72	20.0	18.0	12.1	27.8	27.9	28.2	0.15
911211	1300	1.20	0.093	0.093	10.72	10.72	16.0	12.0	6.6	27.5	27.3	27.7	0.16
911211	1600	1.29	0.093	0.093	10.72	10.72	-12.0	-10.0	-1.0	27.4	27.5	25.4	0.12
911211	1900	1.19	0.093	0.103	10.72	9.71	-4.0	-6.0	3.1	27.1	27.8	25.8	0.14
911211	2200	1.24	0.093	0.093	10.72	10.72	-6.0	-10.0	-4.5	26.5	27.4	26.2	0.16
911212	0100	1.09	0.083	0.093	11.98	10.72	-10.0	-8.0	-4.5	25.4	27.0	24.3	0.18
911212	0400	1.01	0.093	0.093	10.72	10.72	2.0	10.0	1.6	27.6	28.4	26.5	0.13
911212	0700	0.99	0.093	0.093	10.72	10.72	-2.0	-4.0	-3.5	28.0	28.7	24.5	0.16
911212	1000	1.04	0.093	0.093	10.72	10.72	-6.0	-8.0	-6.6	25.7	27.2	25.5	0.20
911212	1600	1.05	0.083	0.083	11.98	11.98	18.0	-10.0	2.1	28.9	29.1	31.9	0.14
911212	1900	0.98	0.083	0.083	11.98	11.98	-8.0	-8.0	-6.8	26.6	28.8	23.8	0.16
911212	2200	0.85	0.083	0.083	11.98	11.98	-4.0	-4.0	-7.1	30.8	31.8	28.1	0.20
911213	0100	0.84	0.083	0.083	11.98	11.98	-8.0	-8.0	-19.9	38.1	31.4	25.0	0.22
911213	0400	0.76	0.083	0.083	11.98	11.98	-6.0	-8.0	-21.7	39.2	32.0	29.1	0.17
911213	0700	0.77	0.093	0.093	10.72	10.72	-6.0	-38.0	-27.3	39.4	29.5	32.9	0.14
911213	1000	0.71	0.083	0.083	11.98	11.98	-10.0	-12.0	-26.3	43.9	29.4	27.8	0.16
911213	1300	0.66	0.093	0.083	10.72	11.98	-8.0	-44.0	-29.4	43.8	26.5	31.4	0.18
911213	1600	0.62	0.083	0.083	11.98	11.98	-10.0	-10.0	-26.2	39.5	25.5	20.6	0.15

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{NW}$ deg	χ
911213	1900	0.58	0.093	0.083	10.72	11.98	-14.0	-12.0	-25.0	40.8	27.1	31.4	0.14
911213	2200	0.59	0.083	0.083	11.98	11.98	-6.0	-42.0	-30.0	43.1	25.8	26.6	0.15
911214	0100	0.55	0.093	0.083	10.72	11.98	-12.0	-40.0	-26.2	40.6	25.9	31.0	0.17
911214	0400	0.50	0.083	0.083	11.98	11.98	-8.0	-10.0	-25.9	37.4	23.7	23.6	0.16
911214	0700	0.47	0.083	0.093	11.98	10.72	-6.0	-40.0	-26.4	36.6	23.4	31.2	0.16
911214	1000	0.47	0.083	0.093	11.98	10.72	-8.0	-32.0	-28.0	36.6	25.8	35.4	0.17
911214	1300	0.47	0.093	0.093	10.72	10.72	-10.0	-42.0	-32.2	35.1	22.3	30.6	0.17
911214	1600	0.46	0.162	0.093	6.19	10.72	-48.0	-48.0	-38.6	33.3	18.2	29.4	0.16
911214	1900	0.41	0.152	0.152	6.59	6.59	-44.0	-44.0	-36.9	30.6	18.0	8.6	0.16
911214	2200	0.61	0.250	0.250	4.01	4.01	68.0	68.0	41.2	61.4	15.2	7.0	0.28
911215	0100	0.96	0.191	0.191	5.24	5.24	52.0	54.0	51.6	13.8	13.7	6.0	0.20
911215	0400	1.04	0.162	0.162	6.19	6.19	40.0	44.0	45.5	20.3	11.9	9.4	0.18
911215	0700	0.89	0.132	0.142	7.56	7.04	28.0	28.0	37.4	29.2	15.0	12.2	0.14
911215	1000	0.73	0.142	0.142	7.04	7.04	30.0	34.0	40.1	37.3	18.0	14.4	0.17
911215	1300	0.57	0.152	0.162	6.59	6.19	32.0	32.0	43.2	40.2	19.2	13.3	0.21
911215	1600	0.45	0.171	0.171	5.83	5.83	28.0	28.0	36.2	42.1	22.0	11.5	0.20
911215	1900	0.34	0.142	0.142	7.04	7.04	14.0	14.0	20.6	43.7	26.4	23.7	0.17
911215	2200	0.24	0.113	0.142	8.87	7.04	-14.0	-12.0	2.3	41.6	39.4	37.0	0.22
911216	0100	0.18	0.093	0.113	10.72	8.87	-22.0	-14.0	-16.9	33.9	36.3	23.0	0.26
911216	0400	0.16	0.103	0.103	9.71	9.71	-22.0	-14.0	-14.5	35.0	37.3	22.4	0.28
911216	0700	0.56	0.240	0.240	4.17	4.17	66.0	68.0	64.4	20.5	12.9	10.4	0.22
911216	1000	0.92	0.181	0.171	5.52	5.83	52.0	54.0	56.5	15.0	11.0	8.0	0.19
911216	1300	0.73	0.171	0.171	5.83	5.83	48.0	64.0	55.5	20.7	13.3	8.9	0.20
911216	1600	0.81	0.181	0.181	5.52	5.52	46.0	46.0	44.1	24.2	14.7	9.0	0.14
911216	1900	0.79	0.152	0.152	6.59	6.59	36.0	38.0	38.3	25.3	16.0	14.3	0.12
911216	2200	0.60	0.171	0.171	5.83	5.83	44.0	44.0	43.8	26.3	19.3	12.1	0.14
911217	0100	0.39	0.201	0.201	4.98	4.98	50.0	48.0	44.0	34.7	23.7	13.8	0.19
911217	0400	0.26	0.162	0.162	6.19	6.19	22.0	24.0	28.2	42.9	27.1	11.7	0.22
911217	0700	0.20	0.162	0.152	6.19	6.59	18.0	12.0	3.5	42.2	33.4	30.4	0.21
911217	1000	0.22	0.318	0.113	3.15	8.87	-60.0	-58.0	-17.9	53.7	42.8	23.0	0.21
911217	1300	0.37	0.298	0.308	3.35	3.25	-58.0	-58.0	-47.6	19.6	13.1	8.2	0.20
911217	1600	0.54	0.308	0.308	3.25	3.25	-60.0	-58.0	-53.0	11.9	9.4	7.2	0.19
911217	1900	0.46	0.230	0.279	4.35	3.59	-56.0	-58.0	-53.8	12.6	8.5	8.3	0.13
911217	2200	0.40	0.142	0.142	7.04	7.04	-40.0	-58.0	-49.2	17.1	7.7	5.3	0.14
911218	0100	0.40	0.132	0.142	7.56	7.04	-40.0	-40.0	-46.9	14.4	7.3	5.8	0.15
911218	0400	0.36	0.132	0.132	7.56	7.56	-40.0	-42.0	-45.6	10.8	7.9	4.8	0.17
911218	0700	0.31	0.132	0.132	7.56	7.56	-40.0	-42.0	-43.0	13.5	16.2	6.2	0.18
911218	1000	0.28	0.132	0.132	7.56	7.56	-42.0	-42.0	-27.8	42.8	30.6	6.9	0.17
911218	1300	0.72	0.230	0.230	4.35	4.35	50.0	52.0	44.2	29.0	25.1	17.7	0.12
911218	1600	0.88	0.181	0.181	5.52	5.52	30.0	32.0	38.6	28.2	24.4	15.4	0.15
911218	1900	1.41	0.171	0.191	5.83	5.24	26.0	40.0	39.6	22.5	18.1	15.2	0.18
911218	2200	1.66	0.162	0.162	6.19	6.19	40.0	42.0	41.9	21.0	16.1	15.6	0.20
911219	0100	1.75	0.152	0.152	6.59	6.59	38.0	36.0	40.7	21.5	17.1	14.6	0.21
911219	0400	1.94	0.152	0.142	6.59	7.04	40.0	40.0	39.0	22.9	17.0	16.4	0.23
911219	0700	2.09	0.152	0.132	6.59	7.56	44.0	42.0	41.2	21.4	19.0	21.1	0.21
911219	1000	2.18	0.132	0.132	7.56	7.56	24.0	40.0	36.0	23.9	20.1	17.8	0.19
911219	1300	1.93	0.142	0.123	7.04	8.16	24.0	52.0	35.6	28.9	20.3	18.4	0.21
911219	1600	1.97	0.132	0.132	7.56	7.56	26.0	40.0	36.1	27.7	19.9	18.9	0.21
911219	1900	1.77	0.123	0.152	8.16	6.59	8.0	40.0	35.0	27.3	20.4	19.6	0.19
911219	2200	1.63	0.152	0.123	6.59	8.16	20.0	22.0	30.3	28.9	20.9	22.8	0.14
911220	0100	1.71	0.142	0.162	7.04	6.19	20.0	22.0	32.8	28.9	23.8	18.3	0.15
911220	0400	1.54	0.152	0.152	6.59	6.59	16.0	18.0	29.6	28.3	23.7	22.1	0.17
911220	0700	1.38	0.142	0.132	7.04	7.56	20.0	22.0	26.2	31.6	22.2	19.7	0.17
911220	1000	1.32	0.132	0.103	7.56	9.71	22.0	18.0	23.0	29.6	23.3	23.9	0.13
911220	1300	1.34	0.103	0.093	9.71	10.72	0.0	16.0	14.2	29.1	23.5	24.0	0.12
911220	1600	1.17	0.142	0.103	7.04	9.71	14.0	14.0	20.2	30.2	23.0	23.3	0.14
911220	1900	0.98	0.103	0.103	9.71	9.71	-2.0	16.0	16.3	30.4	21.9	23.2	0.15
911220	2200	0.85	0.103	0.103	9.71	9.71	-8.0	14.0	9.0	31.7	22.4	23.0	0.13

Table A1 (Continued)

Date	Time EST	H_{m_o} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
911221	0100	0.74	0.103	0.103	9.71	9.71	-4.0	14.0	5.0	30.1	23.3	21.9	0.13
911221	0400	0.63	0.103	0.103	9.71	9.71	0.0	-2.0	0.9	32.7	29.5	27.5	0.20
911221	0700	0.53	0.103	0.103	9.71	9.71	-10.0	-10.0	-13.8	32.6	29.1	32.9	0.21
911221	1000	0.43	0.103	0.103	9.71	9.71	-36.0	-12.0	-25.1	30.5	21.8	27.7	0.17
911221	1300	0.33	0.083	0.083	11.98	11.98	-12.0	-12.0	-21.8	29.7	23.4	21.6	0.18
911221	1600	0.28	0.083	0.083	11.98	11.98	-12.0	-12.0	-27.2	35.7	37.2	19.7	0.28
911221	1900	0.30	0.142	0.083	7.04	11.98	-44.0	-44.0	-21.8	44.8	41.5	24.5	0.23
911221	2200	0.31	0.083	0.083	11.98	11.98	-18.0	-14.0	-12.1	41.3	37.7	21.2	0.22
911222	0100	0.39	0.083	0.083	11.98	11.98	-18.0	42.0	17.1	55.6	26.8	20.2	0.17
911222	0400	1.08	0.152	0.162	6.59	6.19	24.0	36.0	38.8	22.2	19.2	15.0	0.15
911222	0700	1.22	0.162	0.162	6.19	6.19	38.0	34.0	38.8	22.4	19.7	12.4	0.18
911222	1000	1.04	0.162	0.162	6.19	6.19	34.0	42.0	39.8	22.1	18.4	10.5	0.16
911222	1300	0.90	0.152	0.152	6.59	6.59	24.0	28.0	35.4	23.3	18.8	11.8	0.11
911222	1600	0.82	0.162	0.162	6.19	6.19	30.0	30.0	29.9	23.0	19.5	12.4	0.15
911222	1900	0.69	0.142	0.152	7.04	6.59	18.0	20.0	25.5	20.9	19.8	14.7	0.22
911222	2200	0.54	0.152	0.152	6.59	6.59	18.0	20.0	20.7	24.7	19.5	14.0	0.23
911223	0100	0.42	0.152	0.162	6.59	6.19	16.0	16.0	14.5	32.6	23.5	15.5	0.17
911223	0400	0.34	0.123	0.171	8.16	5.83	-4.0	-6.0	7.7	37.1	31.1	27.4	0.22
911223	0700	0.29	0.113	0.123	8.87	8.16	-4.0	-4.0	-5.6	37.7	36.6	21.9	0.21
911223	1000	0.28	0.113	0.123	8.87	8.16	-10.0	-8.0	-11.8	35.2	33.3	25.8	0.25
911223	1300	0.29	0.113	0.113	8.87	8.87	-6.0	-10.0	-18.4	33.2	29.2	32.4	0.23
911223	1600	0.33	0.318	0.123	3.15	8.16	-64.0	-6.0	-19.3	37.7	24.2	24.5	0.26
911223	1900	0.34	0.083	0.083	11.98	11.98	-10.0	-10.0	-25.7	43.3	23.6	17.9	0.21
911223	2200	0.40	0.074	0.074	13.56	13.56	-12.0	-12.0	-30.9	44.0	21.1	17.3	0.18
911224	0100	0.41	0.132	0.083	7.56	11.98	-42.0	-42.0	-29.6	39.5	21.7	20.1	0.18
911224	0400	0.50	0.132	0.083	7.56	11.98	-40.0	-42.0	0.2	64.1	27.8	25.0	0.21
911224	0700	1.57	0.201	0.201	4.98	4.98	50.0	50.0	44.8	24.0	20.9	15.9	0.18
911224	1000	1.93	0.162	0.152	6.19	6.59	42.0	42.0	41.6	21.7	17.4	15.7	0.22
911224	1300	1.66	0.142	0.152	7.04	6.59	22.0	36.0	35.2	26.0	18.5	15.9	0.20
911224	1600	1.45	0.152	0.152	6.59	6.59	20.0	22.0	29.4	27.6	20.5	15.9	0.16
911224	1900	1.38	0.152	0.152	6.59	6.59	22.0	24.0	26.3	27.1	21.1	15.6	0.18
911224	2200	1.31	0.142	0.083	7.04	11.98	26.0	28.0	25.2	29.0	21.3	24.7	0.19
911225	0100	1.25	0.142	0.074	7.04	13.56	22.0	24.0	26.2	27.2	20.0	21.7	0.18
911225	0400	1.07	0.142	0.083	7.04	11.98	18.0	20.0	19.4	27.6	20.0	23.1	0.15
911225	0700	0.90	0.181	0.083	5.52	11.98	24.0	22.0	19.3	28.0	21.9	27.8	0.17
911225	1000	0.85	0.074	0.083	13.56	11.98	-4.0	22.0	15.6	28.8	21.7	26.7	0.19
911225	1300	0.81	0.142	0.083	7.04	11.98	16.0	20.0	14.4	28.9	21.4	26.8	0.19
911225	1600	0.83	0.162	0.083	6.19	11.98	20.0	22.0	15.3	28.9	21.8	30.8	0.14
911225	1900	0.78	0.162	0.083	6.19	11.98	18.0	18.0	15.5	26.1	21.9	27.2	0.15
911225	2200	0.66	0.171	0.083	5.83	11.98	18.0	18.0	15.4	29.7	22.3	27.0	0.17
911226	0100	0.56	0.171	0.083	5.83	11.98	20.0	16.0	11.4	33.3	24.5	28.3	0.18
911226	0400	0.55	0.083	0.083	11.98	11.98	-6.0	20.0	18.0	40.7	27.6	27.9	0.16
911226	0700	0.53	0.093	0.093	10.72	10.72	-2.0	-6.0	14.9	40.1	29.2	24.6	0.16
911226	1000	0.53	0.230	0.093	4.35	10.72	42.0	32.0	17.9	46.4	29.1	30.6	0.14
911226	1300	0.48	0.142	0.093	7.04	10.72	-2.0	0.0	12.1	39.4	29.7	28.3	0.19
911226	1600	0.45	0.093	0.093	10.72	10.72	-6.0	-4.0	7.8	38.7	31.4	27.3	0.16
911226	1900	0.44	0.093	0.093	10.72	10.72	-6.0	-4.0	9.4	37.5	33.7	23.1	0.16
911226	2200	0.54	0.171	0.171	5.83	5.83	34.0	34.0	18.3	42.0	27.2	19.9	0.16
911227	0100	0.53	0.181	0.181	5.52	5.52	26.0	22.0	16.3	42.0	27.7	18.2	0.18
911227	0400	0.53	0.318	0.123	3.15	8.16	58.0	14.0	20.3	46.6	27.8	28.2	0.16
911227	0700	0.77	0.240	0.279	4.17	3.59	48.0	38.0	33.1	43.9	27.7	24.5	0.14
911227	1000	0.99	0.210	0.220	4.75	4.54	26.0	40.0	30.2	36.4	26.6	27.7	0.13
911227	1300	1.08	0.201	0.201	4.98	4.98	38.0	38.0	37.5	32.0	26.1	18.5	0.14
911227	1600	1.20	0.181	0.181	5.52	5.52	34.0	40.0	38.8	26.2	23.0	16.3	0.11
911227	1900	1.24	0.181	0.181	5.52	5.52	30.0	32.0	32.4	28.2	25.8	18.1	0.10
911227	2200	1.33	0.171	0.181	5.83	5.52	30.0	30.0	33.8	28.7	27.5	20.3	0.11
911228	0100	1.27	0.171	0.171	5.83	5.83	34.0	32.0	29.8	30.1	28.7	18.6	0.12
911228	0400	1.26	0.171	0.171	5.83	5.83	30.0	32.0	27.1	30.5	28.3	21.8	0.11

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DM}$ deg	$\theta_{p,PM}$ deg	$\Delta\theta_{DM}$ deg	$\Delta\theta_{PM}$ deg	$\Delta\theta_{PDP}$ deg	χ
911228	0700	1.26	0.171	0.171	5.83	5.83	28.0	28.0	24.2	30.9	29.0	19.6	0.09
911228	1000	1.21	0.171	0.171	5.83	5.83	24.0	22.0	20.0	32.7	31.4	17.2	0.12
911228	1300	1.05	0.181	0.181	5.52	5.52	24.0	22.0	21.9	46.2	40.4	26.8	0.13
911228	1600	0.96	0.181	0.181	5.52	5.52	26.0	26.0	14.1	54.1	49.4	37.4	0.12
911228	1900	0.92	0.201	0.181	4.98	5.52	18.0	-44.0	-5.1	56.1	48.7	57.2	0.11
911228	2200	0.93	0.152	0.162	6.59	6.19	-46.0	-46.0	-19.5	52.1	47.2	35.1	0.13
911229	0100	1.13	0.142	0.142	7.04	7.04	-44.0	-44.0	-39.7	30.6	30.7	10.3	0.13
911229	0400	1.21	0.132	0.132	7.56	7.56	-46.0	-44.0	-40.2	23.7	26.4	15.7	0.13
911229	0700	1.10	0.132	0.132	7.56	7.56	-32.0	-42.0	-39.7	27.0	28.0	20.5	0.11
911229	1000	1.18	0.132	0.123	7.56	8.16	-44.0	-42.0	-40.7	22.9	24.3	18.0	0.11
911229	1300	0.97	0.123	0.123	8.16	8.16	-34.0	-42.0	-41.2	25.7	26.4	18.6	0.13
911229	1600	0.83	0.132	0.123	7.56	8.16	-44.0	-44.0	-44.1	28.4	27.4	26.3	0.13
911229	1900	0.74	0.123	0.123	8.16	8.16	-32.0	-42.0	-39.4	24.3	23.7	19.2	0.12
911229	2200	0.78	0.103	0.103	9.71	9.71	-40.0	-34.0	-34.8	21.1	21.2	17.9	0.13
911230	0100	0.66	0.113	0.103	8.87	9.71	-42.0	-42.0	-40.1	23.1	22.9	19.6	0.17
911230	0400	0.61	0.103	0.103	9.71	9.71	-42.0	-44.0	-35.9	28.8	27.7	27.2	0.21
911230	0700	0.50	0.103	0.103	9.71	9.71	-32.0	-32.0	-24.1	32.7	30.3	24.4	0.17
911230	1000	0.72	0.103	0.103	9.71	9.71	-16.0	50.0	11.0	66.3	20.0	20.3	0.14
911230	1300	1.25	0.201	0.201	4.98	4.98	46.0	46.0	36.7	19.4	13.6	7.3	0.20
911230	1600	1.45	0.181	0.171	5.52	5.83	38.0	38.0	38.4	19.8	15.0	10.7	0.19
911230	1900	1.83	0.162	0.162	6.19	6.19	38.0	38.0	35.7	22.3	18.9	14.3	0.17
911230	2200	1.94	0.142	0.142	7.04	7.04	22.0	22.0	33.6	24.0	21.9	14.4	0.17
911231	0100	1.98	0.142	0.132	7.04	7.56	20.0	22.0	31.7	27.5	24.4	19.4	0.18
911231	0400	2.02	0.103	0.103	9.71	9.71	16.0	18.0	30.1	31.1	26.3	24.8	0.18
911231	0700	2.12	0.152	0.093	6.59	10.72	22.0	16.0	24.2	27.3	24.6	24.0	0.16
911231	1000	2.12	0.142	0.093	7.04	10.72	16.0	18.0	22.1	29.6	25.6	24.9	0.15
911231	1300	2.12	0.142	0.093	7.04	10.72	14.0	14.0	18.8	31.4	27.5	24.1	0.15
911231	1600	2.10	0.093	0.093	10.72	10.72	-18.0	14.0	21.7	39.8	31.3	29.2	0.16
911231	1900	2.14	0.083	0.093	11.98	10.72	-12.0	14.0	15.8	35.6	29.4	28.8	0.14
911231	2200	2.09	0.083	0.093	11.98	10.72	-10.0	-10.0	8.5	34.0	28.8	27.4	0.12
920101	0100	2.02	0.083	0.083	11.98	11.98	-10.0	12.0	8.2	31.4	29.7	26.4	0.14
920101	0400	1.87	0.083	0.083	11.98	11.98	-10.0	8.0	10.4	33.7	30.9	22.0	0.15
920101	0700	1.77	0.083	0.083	11.98	11.98	-10.0	4.0	9.9	34.4	31.1	21.1	0.14
920101	1000	1.71	0.083	0.083	11.98	11.98	-4.0	-2.0	7.2	31.3	28.9	24.1	0.13
920101	1300	1.62	0.083	0.083	11.98	11.98	-12.0	-6.0	6.3	29.1	27.7	15.6	0.14
920101	1600	1.48	0.083	0.083	11.98	11.98	-10.0	-8.0	4.4	32.8	33.0	29.1	0.15
920101	1900	1.33	0.074	0.083	13.56	11.98	-6.0	-6.0	9.4	34.0	35.4	30.0	0.16
920101	2200	1.37	0.074	0.083	13.56	11.98	-12.0	-10.0	4.8	31.6	32.7	24.8	0.14
920102	0100	1.31	0.083	0.083	11.98	11.98	-12.0	-10.0	-0.2	30.7	33.1	21.9	0.15
920102	0400	1.22	0.093	0.083	10.72	11.98	-4.0	0.0	6.9	34.3	35.6	26.0	0.17
920102	0700	1.10	0.083	0.083	11.98	11.98	-4.0	-2.0	1.9	33.5	35.7	20.8	0.16
920102	1000	1.09	0.093	0.093	10.72	10.72	-4.0	0.0	-0.1	33.2	33.4	23.7	0.14
920102	1300	1.11	0.093	0.093	10.72	10.72	4.0	0.0	-3.6	33.6	33.8	21.9	0.12
920102	1600	1.16	0.132	0.142	7.56	7.04	-36.0	-4.0	-7.0	35.7	35.8	31.6	0.15
920102	1900	1.53	0.113	0.113	8.87	8.87	-20.0	-20.0	-17.0	33.7	34.0	24.1	0.13
920102	2200	1.72	0.113	0.113	8.87	8.87	-22.0	-20.0	-19.5	31.6	33.0	22.9	0.13
920103	0100	1.86	0.113	0.113	8.87	8.87	-28.0	-14.0	-28.9	33.9	35.2	27.7	0.13
920103	0400	1.94	0.123	0.113	8.16	8.87	-28.0	-26.0	-19.6	33.5	35.1	27.3	0.14
920103	0700	2.02	0.113	0.113	8.87	8.87	-26.0	-24.0	-26.6	32.2	33.5	26.1	0.14
920103	1000	2.21	0.103	0.103	9.71	9.71	-40.0	-18.0	-28.7	30.2	31.2	27.6	0.14
920103	1300	2.97	0.103	0.103	9.71	9.71	-26.0	-24.0	-24.7	27.3	29.3	23.9	0.19
920103	1600	3.64	0.093	0.093	10.72	10.72	-36.0	-22.0	-25.0	28.0	27.9	27.8	0.24
920103	1900	3.91	0.093	0.083	10.72	11.98	-14.0	-18.0	-22.8	26.1	25.4	29.9	0.30
920103	2200	3.70	0.083	0.083	11.98	11.98	-32.0	-18.0	-22.8	27.7	27.5	29.6	0.27
920104	0100	3.86	0.083	0.083	11.98	11.98	-22.0	-16.0	-19.9	23.7	23.3	22.3	0.25
920104	0400	4.05	0.074	0.074	13.56	13.56	-18.0	-16.0	-17.2	21.6	21.9	18.3	0.23
920104	0700	4.08	0.064	0.064	15.63	15.63	-14.0	-14.0	-11.4	24.0	25.1	17.4	0.24
920104	1000	3.56	0.074	0.074	13.56	13.56	-28.0	-14.0	-17.5	21.2	21.7	18.7	0.23

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,SPE}$ Hz	$T_{p,PD}$ sec	$T_{p,SPE}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DIR}$ deg	$\theta_{p,SPR}$ deg	$\Delta\theta_{DIR}$ deg	$\Delta\theta_{SPR}$ deg	$\Delta\theta_{PEAK}$ deg	χ
920104	1300	3.38	0.074	0.074	13.56	13.56	-12.0	-14.0	-16.0	19.0	19.3	18.6	0.20
920104	1600	3.37	0.074	0.074	13.56	13.56	-14.0	-14.0	-16.6	21.9	22.3	18.5	0.19
920104	1900	3.19	0.074	0.074	13.56	13.56	-18.0	-16.0	-16.3	26.4	26.8	25.1	0.18
920104	2200	2.91	0.074	0.074	13.56	13.56	-16.0	-16.0	-16.8	23.3	23.3	16.5	0.15
920105	0100	2.61	0.083	0.083	11.98	11.98	-10.0	-14.0	-13.3	20.3	21.8	19.0	0.11
920105	0400	2.43	0.083	0.083	11.98	11.98	-16.0	-16.0	-14.9	21.2	22.8	14.1	0.13
920105	0700	2.28	0.083	0.083	11.98	11.98	-14.0	-16.0	1.8	43.8	22.5	11.6	0.14
920105	1000	2.33	0.083	0.083	11.98	11.98	-18.0	-16.0	8.3	45.8	20.6	16.8	0.13
920105	1300	2.27	0.083	0.083	11.98	11.98	-14.0	-14.0	13.0	42.7	20.5	14.1	0.12
920105	1600	2.13	0.083	0.083	11.98	11.98	-18.0	-18.0	5.7	39.1	21.9	18.9	0.12
920105	1900	1.90	0.093	0.093	10.72	10.72	-24.0	-22.0	2.6	37.3	22.6	18.7	0.14
920105	2200	1.67	0.083	0.083	11.98	11.98	-16.0	-16.0	0.8	36.0	22.4	19.5	0.14
920106	0100	1.68	0.093	0.093	10.72	10.72	-20.0	-16.0	2.1	36.4	21.1	17.7	0.11
920106	0400	1.61	0.083	0.083	11.98	11.98	-14.0	18.0	5.0	35.5	22.0	25.3	0.14
920106	0700	1.55	0.083	0.083	11.98	11.98	-16.0	-16.0	5.4	35.1	22.8	22.6	0.15
920106	1300	1.32	0.083	0.083	11.98	11.98	4.0	2.0	8.3	35.5	25.1	25.5	0.12
920106	1600	1.17	0.093	0.083	10.72	11.98	-20.0	16.0	0.3	37.1	23.6	27.4	0.14
920106	1900	1.08	0.093	0.093	10.72	10.72	-16.0	-12.0	0.6	36.5	23.7	18.7	0.21
920106	2200	1.02	0.083	0.083	11.98	11.98	4.0	2.0	2.4	35.1	24.3	24.4	0.18
920107	0100	0.92	0.083	0.083	11.98	11.98	12.0	-10.0	2.9	35.5	28.4	30.9	0.17
920107	0400	1.12	0.083	0.083	11.98	11.98	14.0	56.0	26.5	56.0	23.7	35.1	0.18
920107	0700	1.35	0.181	0.181	5.52	5.52	50.0	56.0	38.1	37.1	22.2	19.2	0.21
920107	1000	1.24	0.171	0.171	5.83	5.83	38.0	48.0	31.4	35.0	19.6	12.2	0.21
920107	1300	1.17	0.152	0.152	6.59	6.59	24.0	28.0	23.6	29.3	19.3	8.9	0.16
920107	1600	1.09	0.152	0.162	6.59	6.19	20.0	22.0	21.7	30.9	22.7	17.5	0.15
920107	1900	0.99	0.162	0.162	6.19	6.19	32.0	30.0	21.6	31.1	23.2	16.5	0.19
920107	2200	0.85	0.181	0.083	5.52	11.98	30.0	14.0	17.2	34.8	22.9	27.5	0.21
920108	0100	0.77	0.152	0.083	6.59	11.98	14.0	12.0	13.7	33.0	23.1	30.5	0.19
920108	0400	0.82	0.162	0.083	6.19	11.98	14.0	16.0	16.9	33.6	22.7	28.4	0.16
920108	0700	0.98	0.162	0.162	6.19	6.19	20.0	22.0	21.9	28.3	23.0	16.4	0.18
920108	1000	0.97	0.152	0.162	6.59	6.19	22.0	32.0	24.4	28.3	22.8	18.2	0.20
920108	1300	0.93	0.162	0.152	6.19	6.59	30.0	14.0	24.8	26.3	22.5	16.4	0.16
920108	1600	0.91	0.162	0.152	6.19	6.59	22.0	18.0	17.6	23.9	22.4	15.0	0.17
920108	1900	0.88	0.152	0.152	6.59	6.59	20.0	18.0	15.7	22.9	20.9	9.9	0.19
920108	2200	0.72	0.152	0.152	6.59	6.59	18.0	18.0	11.9	34.7	22.8	9.6	0.22
920109	0100	0.64	0.152	0.142	6.59	7.04	16.0	16.0	9.1	33.3	22.6	17.6	0.21
920109	0400	0.62	0.152	0.152	6.59	6.59	14.0	14.0	6.0	36.1	23.7	16.9	0.20
920109	0700	0.55	0.113	0.113	8.87	8.87	-12.0	18.0	3.1	38.3	26.5	19.6	0.22
920109	1000	0.49	0.113	0.113	8.87	8.87	-16.0	-18.0	-6.2	38.5	35.2	24.1	0.20
920109	1300	0.43	0.113	0.113	8.87	8.87	-12.0	-14.0	-7.6	34.1	34.1	21.4	0.27
920109	1600	0.43	0.074	0.123	13.56	8.16	-16.0	-14.0	-17.2	36.3	33.0	30.8	0.20
920109	1900	0.43	0.064	0.074	15.63	13.56	-14.0	-16.0	-28.0	42.7	28.4	17.9	0.18
920109	2200	0.44	0.074	0.074	13.56	13.56	-12.0	-58.0	-36.4	46.2	26.9	20.4	0.18
920110	0100	0.48	0.152	0.152	6.59	6.59	-50.0	-52.0	-43.7	39.9	23.7	10.6	0.20
920110	0400	0.43	0.152	0.152	6.59	6.59	-50.0	-50.0	-41.2	38.3	24.8	12.1	0.23
920110	0700	0.44	0.132	0.132	7.56	7.56	-46.0	-48.0	-43.4	32.8	23.1	10.0	0.22
920110	1000	0.42	0.142	0.123	7.04	8.16	-46.0	-46.0	-42.5	32.3	21.7	15.0	0.21
920110	1300	0.43	0.123	0.113	8.16	8.87	-44.0	-44.0	-41.9	35.1	27.4	22.9	0.21
920110	1600	0.45	0.142	0.123	7.04	8.16	-46.0	-44.0	-20.9	56.3	32.3	36.6	0.18
920110	1900	0.47	0.113	0.113	8.87	8.87	-44.0	-44.0	-24.1	50.3	34.1	36.3	0.18
920110	2200	0.43	0.113	0.113	8.87	8.87	-38.0	-40.0	-22.1	49.1	32.1	26.8	0.17
920111	0100	0.38	0.113	0.113	8.87	8.87	-42.0	-42.0	-9.8	58.1	28.6	26.7	0.20
920111	0400	0.43	0.113	0.113	8.87	8.87	-40.0	46.0	15.5	47.6	22.5	38.0	0.20
920111	0700	0.75	0.171	0.171	5.83	5.83	38.0	40.0	35.1	21.8	13.8	7.7	0.21
920111	1000	1.05	0.162	0.162	6.19	6.19	42.0	42.0	36.2	22.6	17.6	16.2	0.25
920111	1300	0.87	0.142	0.142	7.04	7.04	20.0	20.0	31.9	25.1	18.4	10.2	0.24
920111	1600	0.83	0.152	0.142	6.59	7.04	20.0	32.0	29.5	23.5	19.6	18.6	0.25
920111	1900	0.80	0.132	0.132	7.56	7.56	12.0	16.0	22.5	21.8	19.3	13.6	0.25

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,EFS}$ Hz	$T_{p,PD}$ sec	$T_{p,EFS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DDS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DDS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PDP}$ deg	χ
920111	2200	0.75	0.132	0.132	7.56	7.56	14.0	20.0	20.4	19.5	18.3	15.7	0.30
920112	0100	0.63	0.142	0.142	7.04	7.04	20.0	20.0	17.8	25.5	19.7	13.0	0.31
920112	0400	0.56	0.152	0.142	6.59	7.04	18.0	20.0	18.4	31.6	20.2	13.8	0.28
920112	0700	0.56	0.162	0.162	6.19	6.19	26.0	20.0	13.1	36.6	21.7	12.3	0.25
920112	1000	0.55	0.171	0.113	5.83	8.87	26.0	24.0	8.7	40.1	25.3	26.6	0.21
920112	1300	0.55	0.103	0.103	9.71	9.71	-18.0	-18.0	3.1	38.5	25.5	15.6	0.23
920112	1600	0.56	0.113	0.113	8.87	8.87	-18.0	-18.0	-4.1	36.2	25.2	21.1	0.22
920112	1900	0.58	0.113	0.113	8.87	8.87	-14.0	-14.0	-1.3	34.0	26.6	18.5	0.21
920112	2200	0.57	0.113	0.113	8.87	8.87	-18.0	-16.0	-3.5	35.9	26.4	26.1	0.22
920113	0100	0.53	0.113	0.113	8.87	8.87	-16.0	-14.0	-4.3	30.7	28.8	22.4	0.22
920113	0400	0.47	0.113	0.113	8.87	8.87	-10.0	-12.0	-6.4	27.7	28.8	22.5	0.29
920113	0700	0.43	0.113	0.113	8.87	8.87	-12.0	-12.0	-14.4	27.0	28.2	22.4	0.26
920113	1000	0.41	0.113	0.113	8.87	8.87	-16.0	-16.0	-23.0	30.8	23.6	16.6	0.21
920113	1300	0.42	0.103	0.113	9.71	8.87	-12.0	-48.0	-32.1	40.1	23.1	23.6	0.21
920113	1600	0.44	0.142	0.113	7.04	8.87	-42.0	-48.0	-33.5	37.5	20.8	21.7	0.21
920113	1900	0.45	0.152	0.142	6.59	7.04	-44.0	-44.0	-34.9	34.4	21.7	19.1	0.18
920113	2200	0.47	0.142	0.142	7.04	7.04	-42.0	-44.0	-38.8	29.0	18.6	8.4	0.18
920114	0100	0.50	0.142	0.132	7.04	7.56	-46.0	-46.0	-41.8	27.3	19.5	13.6	0.18
920114	0400	0.70	0.132	0.132	7.56	7.56	-38.0	-44.0	-44.8	15.2	13.8	9.9	0.19
920114	0700	0.89	0.123	0.123	8.16	8.16	-38.0	-42.0	-44.2	15.3	13.1	9.9	0.20
920114	1000	0.81	0.142	0.132	7.04	7.56	-42.0	-42.0	-45.8	16.1	13.8	11.3	0.17
920114	1300	0.73	0.142	0.142	7.04	7.04	-44.0	-44.0	-45.6	19.2	15.7	17.9	0.16
920114	1600	0.57	0.123	0.113	8.16	8.87	-40.0	-42.0	-41.8	19.6	16.3	14.9	0.22
920114	1900	0.53	0.093	0.093	10.72	10.72	-32.0	-34.0	-22.7	28.8	21.5	12.5	0.25
920114	2200	0.69	0.230	0.093	4.35	10.72	68.0	70.0	36.4	80.5	15.3	16.4	0.24
920115	0100	0.79	0.230	0.230	4.35	4.35	64.0	64.0	43.4	22.5	14.9	7.5	0.23
920115	0400	0.84	0.201	0.210	4.98	4.75	52.0	54.0	41.6	19.1	13.5	7.7	0.20
920115	0700	1.17	0.162	0.171	6.19	5.83	36.0	48.0	41.4	21.0	14.7	10.2	0.18
920115	1000	1.29	0.162	0.162	6.19	6.19	42.0	42.0	40.4	24.7	17.7	13.3	0.18
920115	1300	1.10	0.171	0.162	5.83	6.19	42.0	42.0	36.6	26.8	19.6	10.5	0.20
920115	1600	0.85	0.152	0.152	6.59	6.59	30.0	30.0	29.2	33.6	21.3	10.3	0.22
920115	1900	0.66	0.162	0.162	6.19	6.19	34.0	34.0	25.9	45.3	25.4	10.2	0.21
920115	2200	0.51	0.113	0.103	8.87	9.71	-38.0	12.0	17.4	51.5	34.5	33.0	0.24
920116	0100	0.41	0.123	0.123	8.16	8.16	-36.0	10.0	-4.0	36.7	38.7	44.2	0.22
920116	0400	0.33	0.123	0.123	8.16	8.16	10.0	10.0	-5.8	36.6	35.7	33.4	0.25
920116	0700	0.68	0.240	0.240	4.17	4.17	70.0	70.0	59.2	13.9	12.3	6.8	0.34
920116	1000	1.16	0.162	0.162	6.19	6.19	50.0	50.0	52.5	13.9	7.8	5.7	0.21
920116	1300	0.96	0.162	0.162	6.19	6.19	48.0	56.0	51.8	14.8	10.1	6.8	0.21
920116	1600	1.01	0.152	0.152	6.59	6.59	40.0	40.0	43.7	25.4	10.6	6.7	0.21
920116	1900	0.99	0.152	0.152	6.59	6.59	38.0	40.0	35.4	32.1	13.5	10.8	0.20
920116	2200	0.81	0.152	0.152	6.59	6.59	36.0	36.0	34.0	31.9	13.3	12.4	0.20
920117	0100	0.59	0.162	0.103	6.19	9.71	38.0	36.0	30.1	34.0	20.2	24.6	0.29
920117	0400	0.45	0.113	0.113	8.87	8.87	12.0	30.0	24.3	33.8	25.8	21.8	0.32
920117	0700	0.36	0.113	0.113	8.87	8.87	12.0	14.0	8.5	35.5	35.0	17.7	0.35
920117	1000	0.30	0.132	0.123	7.56	8.16	14.0	12.0	-8.6	41.2	29.7	22.0	0.34
920117	1600	0.33	0.132	0.132	7.56	7.56	-38.0	-56.0	-37.6	36.1	14.3	7.9	0.28
920117	1900	0.33	0.132	0.132	7.56	7.56	-40.0	-40.0	-38.8	31.4	15.9	5.5	0.23
920117	2200	0.29	0.132	0.132	7.56	7.56	-38.0	-38.0	-34.5	26.0	14.1	4.2	0.27
920118	0100	0.27	0.142	0.142	7.04	7.04	-42.0	-40.0	-33.5	35.3	21.4	4.2	0.36
920118	0400	0.30	0.132	0.074	7.56	13.56	-42.0	-42.0	-3.3	67.4	32.2	23.0	0.31
920118	0700	0.44	0.250	0.250	4.01	4.01	90.0	90.0	46.2	72.4	27.9	27.1	0.22
920118	1000	0.47	0.269	0.269	3.72	3.72	60.0	58.0	37.3	66.6	25.9	16.6	0.20
920118	1300	0.51	0.142	0.074	7.04	13.56	14.0	16.0	29.8	49.2	23.7	19.2	0.21
920118	1600	0.55	0.162	0.171	6.19	5.83	18.0	20.0	22.6	33.1	28.7	16.4	0.24
920118	1900	0.48	0.201	0.074	4.98	13.56	40.0	26.0	25.2	39.8	31.6	23.6	0.25
920118	2200	0.45	0.201	0.074	4.98	13.56	38.0	38.0	24.5	47.4	28.1	26.1	0.20
920119	0100	1.23	0.201	0.201	4.98	4.98	50.0	52.0	48.8	23.1	21.7	14.1	0.15

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{REF}$ deg	χ
920119	0400	1.76	0.171	0.162	5.83	6.19	44.0	42.0	44.7	23.5	21.0	16.8	0.18
920119	0700	1.76	0.142	0.152	7.04	6.59	26.0	40.0	37.1	26.0	20.7	19.7	0.18
920119	1000	1.42	0.162	0.162	6.19	6.19	34.0	32.0	35.6	26.5	20.3	15.5	0.15
920119	1300	1.29	0.152	0.162	6.59	6.19	30.0	24.0	35.0	26.5	22.1	16.6	0.14
920119	1600	1.22	0.152	0.152	6.59	6.59	22.0	34.0	34.1	24.6	23.4	15.4	0.18
920119	1900	1.00	0.152	0.171	6.59	5.83	24.0	34.0	34.6	25.7	22.0	12.8	0.19
920119	2200	0.80	0.162	0.171	6.19	5.83	26.0	28.0	31.9	27.1	22.6	15.4	0.16
920120	0100	0.73	0.162	0.162	6.19	6.19	22.0	24.0	25.5	34.7	23.7	16.2	0.16
920120	0400	0.65	0.162	0.152	6.19	6.59	24.0	24.0	20.1	41.8	28.9	15.1	0.20
920120	0700	0.54	0.162	0.162	6.19	6.19	24.0	-10.0	16.2	47.4	35.0	17.8	0.19
920120	1000	0.42	0.113	0.113	8.87	8.87	-14.0	-12.0	4.0	35.5	35.1	24.1	0.22
920120	1300	0.30	0.123	0.123	8.16	8.16	-18.0	-14.0	-17.2	32.3	33.0	27.8	0.22
920120	1600	0.27	0.123	0.123	8.16	8.16	-10.0	-20.0	-14.2	32.0	33.8	28.3	0.28
920120	1900	0.26	0.123	0.113	8.16	8.87	-6.0	-6.0	-10.0	36.8	43.5	28.4	0.27
920120	2200	0.25	0.113	0.113	8.87	8.87	-10.0	-12.0	-3.4	39.0	41.8	29.2	0.23
920121	0100	0.24	0.083	0.123	11.98	8.16	-22.0	-16.0	-13.6	36.1	39.4	23.8	0.23
920121	0400	0.27	0.318	0.083	3.15	11.98	42.0	-12.0	4.3	47.5	39.0	26.4	0.21
920121	0700	0.41	0.171	0.152	5.83	6.59	26.0	24.0	30.9	38.5	28.8	12.2	0.21
920121	1000	0.40	0.162	0.162	6.19	6.19	26.0	26.0	31.0	31.9	21.8	11.6	0.25
920121	1300	0.26	0.191	0.191	5.24	5.24	42.0	42.0	18.2	57.0	29.9	11.8	0.20
920121	1600	0.21	0.093	0.093	10.72	10.72	-18.0	-14.0	7.3	49.4	51.8	24.4	0.29
920121	1900	0.27	0.162	0.171	6.19	5.83	22.0	-62.0	-29.3	75.0	43.8	48.4	0.24
920121	2200	0.28	0.191	0.191	5.24	5.24	40.0	-62.0	-30.8	73.7	44.8	95.4	0.25
920122	0100	0.25	0.230	0.191	4.35	5.24	-66.0	-64.0	-46.2	56.1	32.6	74.9	0.22
920122	0400	0.23	0.220	0.132	4.54	7.56	-64.0	-64.0	-41.9	57.0	36.7	30.4	0.25
920122	0700	0.23	0.142	0.152	7.04	6.59	-44.0	-12.0	-41.0	53.9	51.3	58.1	0.25
920122	1000	0.29	0.171	0.171	5.83	5.83	42.0	48.0	7.4	73.6	51.6	12.0	0.23
920122	1600	0.79	0.191	0.191	5.24	5.24	32.0	40.0	30.3	36.8	35.2	24.1	0.14
920122	1900	1.00	0.181	0.191	5.52	5.24	-12.0	-12.0	15.7	41.0	39.3	33.6	0.14
920122	2200	0.94	0.181	0.181	5.52	5.52	4.0	4.0	20.0	33.2	32.6	22.4	0.17
920123	0100	0.82	0.171	0.181	5.83	5.52	8.0	8.0	19.9	31.7	30.2	20.1	0.16
920123	0400	0.71	0.181	0.181	5.52	5.52	12.0	6.0	12.4	30.1	28.3	18.8	0.17
920123	0700	1.20	0.142	0.142	7.04	7.04	-44.0	-44.0	-38.4	40.6	37.7	19.6	0.16
920123	1000	1.30	0.123	0.132	8.16	7.56	-44.0	-44.0	-55.2	36.9	38.3	34.2	0.20
920123	1300	1.49	0.113	0.132	8.87	7.56	-42.0	-60.0	-52.0	23.1	17.5	27.4	0.25
920123	1600	1.75	0.113	0.103	8.87	9.71	-38.0	-38.0	-42.7	17.6	17.0	13.6	0.18
920123	1900	1.84	0.093	0.093	10.72	10.72	-32.0	-32.0	-38.7	17.4	17.4	14.4	0.16
920123	2200	1.69	0.083	0.093	11.98	10.72	-34.0	-36.0	-37.3	14.5	14.9	12.3	0.16
920124	0100	1.28	0.093	0.093	10.72	10.72	-34.0	-34.0	-39.1	20.2	18.8	18.2	0.16
920124	0400	1.21	0.093	0.093	10.72	10.72	-32.0	-32.0	-36.1	17.1	17.6	9.5	0.14
920124	0700	0.92	0.093	0.093	10.72	10.72	-32.0	-32.0	-29.8	24.7	24.3	21.2	0.17
920124	1000	0.73	0.103	0.103	9.71	9.71	-38.0	-40.0	-29.3	26.2	23.1	16.3	0.24
920124	1300	0.68	0.093	0.093	10.72	10.72	-40.0	-40.0	-28.7	30.4	27.8	25.9	0.28
920124	1600	0.66	0.103	0.093	9.71	10.72	-26.0	-26.0	-7.7	39.7	21.8	24.1	0.24
920124	1900	0.76	0.083	0.083	11.98	11.98	-14.0	-14.0	20.8	86.0	19.3	15.1	0.22
920124	2200	1.08	0.191	0.210	5.24	4.75	52.0	52.0	38.6	43.3	14.7	13.5	0.24
920125	0100	0.95	0.191	0.083	5.24	11.98	52.0	62.0	36.2	51.6	15.8	23.5	0.23
920125	0400	0.87	0.171	0.083	5.83	11.98	40.0	40.0	29.9	46.5	17.3	31.3	0.17
920125	0700	0.79	0.191	0.093	5.24	10.72	44.0	42.0	26.5	48.4	21.0	26.9	0.18
920125	1000	0.73	0.181	0.093	5.52	10.72	42.0	42.0	24.1	49.7	24.2	25.0	0.22
920125	1300	0.66	0.083	0.074	11.98	13.56	-6.0	12.0	15.0	45.2	26.4	26.4	0.24
920125	1600	0.64	0.083	0.083	11.98	11.98	-6.0	-12.0	8.1	38.1	29.8	25.1	0.18
920125	1900	0.64	0.074	0.083	13.56	11.98	-8.0	-12.0	-5.0	35.2	28.4	26.5	0.18
920125	2200	0.59	0.093	0.093	10.72	10.72	-16.0	-10.0	-9.6	41.5	28.5	27.8	0.22
920126	0100	0.46	0.093	0.093	10.72	10.72	-10.0	-12.0	-10.4	35.5	30.1	26.3	0.24
920126	0400	0.36	0.093	0.083	10.72	11.98	-8.0	-10.0	-4.2	31.7	34.1	26.9	0.31
920126	0700	0.84	0.201	0.220	4.98	4.54	54.0	64.0	51.4	20.5	12.8	11.0	0.23
920126	1000	1.75	0.162	0.162	6.19	6.19	44.0	46.0	48.7	14.1	11.8	8.6	0.23

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,EW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{EW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
920126	1300	1.68	0.152	0.152	6.59	6.59	42.0	44.0	43.4	17.6	15.2	13.3	0.20
920126	1600	1.32	0.162	0.162	6.19	6.19	36.0	38.0	40.2	19.8	16.3	11.2	0.17
920126	1900	1.15	0.162	0.162	6.19	6.19	30.0	30.0	34.4	22.6	18.2	11.8	0.15
920127	1000	0.87	0.142	0.142	7.04	7.04	12.0	14.0	14.6	32.6	26.3	22.0	0.19
920127	1300	0.77	0.142	0.113	7.04	8.87	12.0	12.0	10.8	30.8	25.1	22.1	0.21
920127	1600	0.75	0.113	0.113	8.87	8.87	2.0	10.0	7.4	31.5	26.0	24.3	0.22
920127	1900	0.74	0.152	0.113	6.59	8.87	14.0	12.0	7.0	31.4	27.8	24.9	0.19
920127	2200	0.74	0.123	0.113	8.16	8.87	-16.0	-16.0	-2.4	31.6	31.1	25.6	0.20
920128	0100	0.71	0.064	0.123	15.63	8.16	-12.0	-14.0	0.9	32.7	33.0	28.9	0.21
920128	0400	0.71	0.064	0.064	15.63	15.63	-10.0	-12.0	-5.2	36.9	32.3	22.1	0.19
920128	0700	0.68	0.064	0.064	15.63	15.63	-10.0	-10.0	-21.0	36.7	33.3	20.7	0.22
920128	1000	0.76	0.064	0.064	15.63	15.63	-12.0	-12.0	-15.9	38.0	29.4	23.6	0.17
920128	1300	0.90	0.064	0.064	15.63	15.63	-10.0	-6.0	3.0	39.7	32.3	21.8	0.13
920128	1600	1.09	0.181	0.201	5.52	4.98	2.0	4.0	15.0	37.6	26.2	19.9	0.12
920128	1900	1.21	0.181	0.181	5.52	5.52	-2.0	-2.0	9.7	32.6	23.0	12.9	0.12
920128	2200	1.34	0.171	0.171	5.83	5.83	0.0	0.0	10.9	32.0	23.8	15.5	0.12
920129	0100	1.33	0.162	0.181	6.19	5.52	2.0	4.0	18.1	37.3	26.0	27.2	0.15
920129	0400	1.28	0.181	0.181	5.52	5.52	14.0	6.0	17.0	34.7	24.5	23.2	0.17
920129	0700	1.29	0.142	0.162	7.04	6.19	4.0	6.0	12.7	30.0	22.8	18.7	0.16
920129	1000	1.22	0.162	0.162	6.19	6.19	12.0	10.0	12.6	29.7	22.0	14.7	0.16
920129	1300	1.10	0.152	0.162	6.59	6.19	8.0	8.0	12.3	31.1	24.4	20.3	0.18
920129	1600	1.00	0.162	0.113	6.19	8.87	12.0	10.0	10.3	29.4	23.8	20.7	0.19
920129	1900	0.95	0.113	0.113	8.87	8.87	-2.0	8.0	9.1	27.3	23.3	16.0	0.18
920129	2200	1.00	0.113	0.113	8.87	8.87	-12.0	8.0	1.7	28.0	25.6	20.3	0.16
920130	0100	0.98	0.113	0.113	8.87	8.87	-14.0	-6.0	-0.3	27.5	25.7	21.3	0.22
920130	0400	0.89	0.083	0.113	11.98	8.87	-12.0	-10.0	-3.0	27.6	26.5	22.9	0.22
920130	0700	0.81	0.074	0.083	13.56	11.98	-12.0	-12.0	-4.4	29.5	29.7	26.4	0.21
920130	1000	0.79	0.083	0.083	11.98	11.98	-10.0	0.0	-2.4	27.4	27.8	20.2	0.20
920130	1300	0.73	0.113	0.083	8.87	11.98	-10.0	-10.0	-9.9	30.0	30.2	31.8	0.22
920130	1600	0.68	0.074	0.083	13.56	11.98	-8.0	-8.0	-7.5	30.3	30.6	29.7	0.22
920130	1900	0.64	0.074	0.074	13.56	13.56	-8.0	-10.0	-19.5	29.5	29.6	20.0	0.25
920130	2200	0.63	0.074	0.074	13.56	13.56	-10.0	-12.0	-13.9	29.4	29.0	22.6	0.23
920131	0100	0.56	0.083	0.083	11.98	11.98	-8.0	-8.0	-14.3	31.0	29.2	21.4	0.23
920131	0400	0.51	0.074	0.074	13.56	13.56	-8.0	-10.0	-16.1	31.4	29.8	24.3	0.22
920131	0700	0.46	0.074	0.074	13.56	13.56	-10.0	-10.0	-17.1	27.7	28.3	22.7	0.25
920131	1000	0.43	0.074	0.074	13.56	13.56	-10.0	-12.0	-20.0	29.8	30.2	28.7	0.25
920131	1300	0.43	0.074	0.074	13.56	13.56	-12.0	-12.0	-17.6	28.5	29.4	26.3	0.24
920131	1600	0.40	0.074	0.083	13.56	11.98	-12.0	-12.0	-15.4	31.6	32.7	28.3	0.24
920131	1900	0.91	0.269	0.259	3.72	3.86	58.0	58.0	44.2	28.1	22.0	18.9	0.18
920131	2200	0.90	0.220	0.220	4.54	4.54	34.0	36.0	41.1	23.2	18.8	14.7	0.15
920201	0100	0.80	0.210	0.210	4.75	4.75	40.0	34.0	35.0	22.3	18.0	12.2	0.14
920201	0400	1.28	0.181	0.181	5.52	5.52	30.0	42.0	40.1	20.0	16.9	13.5	0.19
920201	0700	1.49	0.162	0.162	6.19	6.19	40.0	42.0	42.5	20.1	15.1	11.8	0.23
920201	1000	1.47	0.162	0.162	6.19	6.19	36.0	36.0	39.7	20.7	14.4	10.2	0.22
920201	1300	1.51	0.142	0.152	7.04	6.59	24.0	34.0	35.5	23.3	14.7	13.8	0.24
920201	1600	1.48	0.152	0.152	6.59	6.59	34.0	28.0	35.4	23.5	15.2	12.4	0.27
920201	1900	1.49	0.142	0.132	7.04	7.56	24.0	26.0	33.8	23.1	16.3	15.2	0.24
920201	2200	1.69	0.162	0.132	6.19	7.56	40.0	40.0	36.8	22.8	15.0	13.4	0.22
920202	0100	1.76	0.132	0.132	7.56	7.56	22.0	40.0	33.0	25.7	15.5	16.3	0.24
920202	0400	1.82	0.132	0.132	7.56	7.56	26.0	24.0	33.4	25.4	18.3	13.4	0.25
920202	0700	1.65	0.132	0.123	7.56	8.16	30.0	28.0	30.4	26.7	18.0	18.0	0.26
920202	1000	1.56	0.123	0.123	8.16	8.16	24.0	24.0	27.2	26.3	17.9	16.5	0.22
920202	1300	1.44	0.113	0.113	8.87	8.87	-6.0	22.0	22.7	27.9	20.4	23.5	0.21
920202	1600	1.26	0.152	0.093	6.59	10.72	24.0	24.0	23.0	29.6	19.9	23.6	0.26
920202	1900	1.18	0.152	0.093	6.59	10.72	24.0	26.0	24.2	29.4	20.6	24.7	0.23
920202	2200	1.17	0.083	0.083	11.98	11.98	-6.0	20.0	13.9	34.3	22.2	27.3	0.22
920203	0100	1.21	0.083	0.083	11.98	11.98	-2.0	24.0	13.5	32.9	20.8	23.9	0.19

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSW}$ deg	χ
920203	0400	1.51	0.162	0.083	6.19	11.98	24.0	24.0	22.2	31.8	20.3	25.5	0.20
920203	0700	1.70	0.083	0.083	11.98	11.98	-6.0	22.0	23.2	32.1	22.2	21.2	0.22
920203	1000	1.62	0.083	0.083	11.98	11.98	-8.0	24.0	17.4	32.9	21.4	21.1	0.19
920203	1300	1.60	0.074	0.083	13.56	11.98	-6.0	22.0	15.6	32.2	21.7	25.1	0.17
920203	1600	1.47	0.093	0.083	10.72	11.98	-6.0	22.0	12.0	30.9	21.9	27.0	0.18
920203	1900	1.27	0.083	0.083	11.98	11.98	-6.0	20.0	11.9	30.5	22.1	22.8	0.22
920203	2200	1.14	0.083	0.083	11.98	11.98	-6.0	-6.0	13.8	30.3	21.3	18.4	0.22
920204	0100	1.10	0.083	0.083	11.98	11.98	2.0	16.0	9.7	27.4	23.1	24.9	0.18
920204	0400	1.01	0.083	0.083	11.98	11.98	-8.0	14.0	7.7	26.0	20.7	19.5	0.22
920204	0700	0.99	0.083	0.083	11.98	11.98	-8.0	-6.0	4.7	27.9	21.9	20.0	0.27
920204	1000	0.92	0.093	0.093	10.72	10.72	0.0	4.0	7.1	27.8	24.1	22.5	0.23
920204	1300	0.87	0.093	0.093	10.72	10.72	-2.0	-2.0	2.0	27.5	27.0	24.4	0.22
920204	1600	0.85	0.103	0.093	9.71	10.72	4.0	4.0	1.6	26.6	26.5	26.0	0.23
920204	1900	0.72	0.093	0.093	10.72	10.72	0.0	2.0	-3.4	31.6	29.0	22.5	0.29
920204	2200	0.60	0.093	0.093	10.72	10.72	-4.0	-4.0	-1.9	28.2	27.7	21.1	0.24
920205	0100	1.00	0.259	0.250	3.86	4.01	58.0	58.0	37.6	41.4	20.7	15.9	0.20
920205	0400	1.66	0.171	0.171	5.83	5.83	38.0	40.0	40.9	20.7	18.0	11.5	0.17
920205	0700	1.61	0.162	0.171	6.19	5.83	38.0	40.0	40.5	23.8	19.2	13.5	0.20
920205	1000	1.68	0.142	0.142	7.04	7.04	24.0	38.0	37.7	27.0	18.9	14.6	0.22
920205	1300	1.52	0.162	0.162	6.19	6.19	32.0	26.0	33.2	25.2	19.6	11.8	0.18
920205	1600	1.35	0.142	0.152	7.04	6.59	20.0	32.0	34.9	25.4	21.1	15.2	0.18
920205	1900	1.19	0.162	0.181	6.19	5.52	28.0	34.0	37.4	26.6	22.0	14.4	0.17
920205	2200	0.95	0.191	0.171	5.24	5.83	38.0	36.0	35.3	31.2	24.7	18.3	0.16
920206	0100	1.12	0.230	0.230	4.35	4.35	36.0	32.0	32.5	31.1	26.0	22.7	0.12
920206	0400	1.37	0.181	0.201	5.52	4.98	26.0	26.0	27.2	26.5	26.2	20.8	0.12
920206	0700	1.67	0.171	0.171	5.83	5.83	22.0	32.0	33.4	31.1	30.6	25.8	0.12
920206	1000	1.98	0.162	0.162	6.19	6.19	20.0	20.0	25.8	30.6	29.7	18.6	0.13
920206	1300	2.09	0.152	0.152	6.59	6.59	14.0	14.0	23.5	31.9	30.0	25.4	0.13
920206	1600	2.32	0.142	0.142	7.04	7.04	16.0	16.0	20.5	30.9	27.1	21.3	0.14
920206	1900	2.36	0.142	0.132	7.04	7.56	10.0	10.0	15.6	32.6	28.5	20.5	0.15
920206	2200	2.36	0.132	0.132	7.56	7.56	10.0	10.0	14.8	35.2	29.6	22.2	0.15
920207	0100	2.57	0.123	0.123	8.16	8.16	8.0	12.0	5.8	39.9	30.2	26.0	0.13
920207	0400	3.07	0.093	0.103	10.72	9.71	-22.0	-20.0	-0.6	37.6	30.7	25.4	0.12
920207	0700	3.07	0.083	0.093	11.98	10.72	-22.0	-20.0	0.6	36.3	31.6	24.8	0.13
920207	1000	3.11	0.083	0.093	11.98	10.72	-14.0	-10.0	0.5	33.0	30.7	29.7	0.13
920207	1300	2.94	0.083	0.093	11.98	10.72	-18.0	-4.0	-2.5	30.2	28.1	27.6	0.13
920207	1600	2.93	0.093	0.093	10.72	10.72	-18.0	-6.0	-1.5	28.6	29.0	27.0	0.13
920207	1900	3.07	0.083	0.083	11.98	11.98	-12.0	-10.0	-4.0	27.3	27.1	17.4	0.13
920207	2200	2.80	0.083	0.083	11.98	11.98	-6.0	-6.0	-0.9	28.7	29.1	31.2	0.14
920208	0100	2.67	0.074	0.083	13.56	11.98	-6.0	-6.0	-3.3	26.5	26.8	26.9	0.13
920208	0400	2.57	0.083	0.083	11.98	11.98	-10.0	-8.0	-4.6	25.6	25.6	18.9	0.13
920208	0700	2.48	0.083	0.083	11.98	11.98	-12.0	-8.0	2.1	28.0	27.8	24.3	0.13
920208	1000	2.27	0.083	0.083	11.98	11.98	-12.0	-6.0	-2.3	27.8	27.7	26.3	0.15
920208	1300	2.25	0.083	0.083	11.98	11.98	-12.0	-6.0	-6.0	26.9	27.2	28.7	0.13
920208	1600	2.13	0.083	0.083	11.98	11.98	-12.0	-6.0	-0.3	27.3	26.5	26.2	0.14
920208	1900	1.94	0.074	0.083	13.56	11.98	-8.0	-8.0	0.2	28.4	27.8	29.1	0.15
920208	2200	1.71	0.083	0.083	11.98	11.98	-14.0	-8.0	1.5	30.4	28.7	28.7	0.19
920209	0100	1.38	0.074	0.083	13.56	11.98	-8.0	-6.0	-0.5	29.6	26.9	29.4	0.19
920209	0400	1.36	0.083	0.083	11.98	11.98	-4.0	-2.0	4.6	28.2	23.8	26.6	0.17
920209	0700	1.30	0.083	0.083	11.98	11.98	-6.0	-4.0	7.7	30.1	23.9	27.3	0.20
920209	1000	1.12	0.083	0.083	11.98	11.98	18.0	18.0	13.6	31.0	25.0	30.2	0.26
920209	1300	1.04	0.083	0.083	11.98	11.98	-8.0	-6.0	7.6	31.2	24.5	24.0	0.20
920209	1600	0.99	0.074	0.083	13.56	11.98	-10.0	-8.0	2.5	30.2	26.4	27.9	0.23
920209	1900	0.91	0.074	0.083	13.56	11.98	-8.0	-8.0	-0.8	31.6	27.1	29.1	0.22
920209	2200	0.85	0.083	0.083	11.98	11.98	-8.0	-8.0	8.3	38.9	27.7	24.9	0.28
920210	0100	1.18	0.201	0.083	4.98	11.98	42.0	32.0	24.5	34.9	24.1	30.4	0.15
920210	0400	1.43	0.171	0.171	5.83	5.83	36.0	24.0	29.9	30.8	25.7	18.4	0.13
920210	0700	1.40	0.162	0.162	6.19	6.19	26.0	26.0	23.8	31.7	28.5	18.3	0.13

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{PS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSW}$ deg	χ
920210	1000	1.30	0.171	0.162	5.83	6.19	30.0	28.0	22.3	35.3	29.6	17.7	0.12
920210	1300	1.09	0.171	0.171	5.83	5.83	32.0	36.0	24.0	44.0	31.9	18.9	0.13
920210	1600	0.98	0.162	0.181	6.19	5.52	28.0	26.0	21.5	47.5	37.4	28.0	0.13
920210	1900	1.07	0.162	0.162	6.19	6.19	26.0	24.0	18.2	46.3	39.6	19.2	0.11
920210	2200	1.03	0.162	0.201	6.19	4.98	24.0	22.0	11.4	47.6	46.2	40.5	0.12
920211	0100	0.95	0.191	0.191	5.24	5.24	-12.0	-12.0	7.2	47.2	46.0	43.4	0.13
920211	0400	0.86	0.171	0.171	5.83	5.83	28.0	-12.0	4.5	47.6	45.8	48.5	0.14
920211	0700	0.85	0.123	0.162	8.16	6.19	-40.0	-14.0	-7.6	49.6	47.9	47.9	0.14
920211	1000	0.76	0.132	0.181	7.56	5.52	-40.0	-12.0	-0.4	53.8	46.6	58.8	0.15
920211	1300	0.74	0.132	0.132	7.56	7.56	-42.0	-12.0	-0.8	56.6	40.4	32.0	0.16
920211	1600	0.71	0.123	0.132	8.16	7.56	-42.0	-10.0	-1.1	44.0	37.0	32.6	0.18
920211	1900	0.74	0.123	0.132	8.16	7.56	-38.0	-40.0	-17.1	35.6	34.6	29.7	0.17
920211	2200	0.74	0.142	0.142	7.04	7.04	-44.0	-42.0	-31.0	34.9	34.9	29.0	0.18
920212	0100	0.67	0.132	0.132	7.56	7.56	-42.0	-42.0	-34.2	31.0	31.0	24.5	0.20
920212	0400	0.60	0.123	0.123	8.16	8.16	-30.0	-32.0	-34.0	29.8	30.2	25.8	0.21
920212	0700	1.40	0.201	0.201	4.98	4.98	36.0	38.0	25.4	29.0	20.1	16.8	0.12
920212	1000	2.11	0.152	0.152	6.59	6.59	32.0	26.0	28.9	24.5	22.4	18.6	0.16
920212	1300	2.00	0.142	0.142	7.04	7.04	16.0	40.0	29.2	28.7	25.4	25.1	0.17
920212	1600	1.73	0.132	0.123	7.56	8.16	12.0	18.0	19.3	29.5	24.7	22.1	0.15
920212	1900	1.55	0.123	0.123	8.16	8.16	28.0	22.0	15.1	33.2	25.4	26.4	0.12
920212	2200	1.34	0.132	0.123	7.56	8.16	12.0	14.0	12.4	41.9	28.8	42.8	0.14
920213	0100	1.29	0.093	0.132	10.72	7.56	-28.0	18.0	5.9	46.2	30.7	35.5	0.15
920213	0400	1.25	0.113	0.113	8.87	8.87	10.0	10.0	10.1	40.4	31.9	30.0	0.15
920213	0700	1.28	0.123	0.123	8.16	8.16	12.0	12.0	10.2	39.5	29.5	33.1	0.12
920213	1000	1.29	0.093	0.093	10.72	10.72	-20.0	10.0	4.5	39.8	32.1	19.8	0.11
920213	1300	1.20	0.093	0.093	10.72	10.72	-18.0	-14.0	6.8	42.5	36.1	20.9	0.13
920213	1600	1.16	0.093	0.093	10.72	10.72	-10.0	-12.0	6.9	42.8	41.4	26.4	0.14
920213	1900	1.40	0.123	0.123	8.16	8.16	-42.0	-40.0	-26.9	35.5	33.6	24.1	0.13
920213	2200	1.29	0.123	0.113	8.16	8.87	-28.0	-18.0	-22.3	28.9	29.2	26.6	0.14
920214	0100	1.02	0.123	0.123	8.16	8.16	-42.0	-14.0	-23.5	32.7	33.8	31.3	0.18
920214	0400	0.75	0.123	0.103	8.16	9.71	-44.0	-42.0	-22.7	35.6	35.1	28.9	0.21
920214	0700	0.63	0.093	0.113	10.72	8.87	-26.0	-38.0	-34.9	32.4	32.9	33.2	0.23
920214	1000	0.63	0.113	0.113	8.87	8.87	-26.0	-26.0	-26.7	31.9	31.7	25.5	0.23
920214	1300	0.62	0.113	0.113	8.87	8.87	-38.0	-38.0	-33.4	34.8	32.9	33.3	0.24
920214	1600	0.59	0.123	0.113	8.16	8.87	-40.0	-40.0	-33.7	34.2	34.2	31.8	0.24
920214	1900	0.56	0.113	0.103	8.87	9.71	-28.0	-10.0	-28.0	33.8	35.1	29.4	0.27
920214	2200	0.60	0.103	0.113	9.71	8.87	-32.0	-30.0	-20.0	37.2	38.6	34.5	0.23
920215	0100	0.65	0.132	0.103	7.56	9.71	-36.0	-10.0	-8.1	43.1	31.7	29.9	0.21
920215	0400	0.61	0.181	0.093	5.52	10.72	30.0	-12.0	-5.4	48.0	30.5	24.9	0.21
920215	0700	0.62	0.142	0.103	7.04	9.71	-40.0	-12.0	-9.3	41.5	33.3	28.7	0.21
920215	1000	0.65	0.103	0.103	9.71	9.71	-28.0	-10.0	-13.9	37.9	34.8	28.7	0.18
920215	1300	0.68	0.103	0.103	9.71	9.71	-34.0	-42.0	-21.1	40.1	35.6	32.9	0.19
920215	1600	0.93	0.152	0.152	6.59	6.59	-48.0	-48.0	-42.9	31.9	26.3	13.4	0.15
920215	1900	1.06	0.132	0.132	7.56	7.56	-44.0	-44.0	-42.6	20.6	20.1	15.2	0.15
920215	2200	0.93	0.142	0.123	7.04	8.16	-40.0	-42.0	-40.4	27.1	23.2	24.2	0.15
920216	0100	0.87	0.132	0.113	7.56	8.87	-42.0	-42.0	-42.5	27.3	23.4	21.4	0.16
920216	0400	0.78	0.113	0.103	8.87	9.71	-40.0	-40.0	-43.4	25.7	24.9	23.0	0.17
920216	0700	0.77	0.103	0.103	9.71	9.71	-32.0	-40.0	-41.4	22.8	21.0	18.1	0.18
920216	1000	0.61	0.123	0.103	8.16	9.71	-40.0	-40.0	-40.0	26.9	22.0	22.4	0.18
920216	1300	0.55	0.113	0.103	8.87	9.71	-36.0	-40.0	-40.4	29.8	25.7	26.4	0.19
920216	1600	0.49	0.132	0.113	7.56	8.87	-46.0	-42.0	-38.2	34.9	30.7	26.5	0.23
920216	1900	0.46	0.113	0.113	8.87	8.87	-38.0	-40.0	-28.1	36.0	29.1	23.2	0.23
920216	2200	0.46	0.123	0.123	8.16	8.16	-40.0	-34.0	-28.1	35.5	32.2	26.9	0.24
920217	0100	0.48	0.132	0.123	7.56	8.16	-40.0	-40.0	-32.2	35.1	31.8	27.3	0.22
920217	0400	0.72	0.259	0.259	3.86	3.86	40.0	40.0	16.3	51.7	28.2	17.0	0.18
920217	0700	0.78	0.240	0.240	4.17	4.17	42.0	20.0	22.6	43.0	30.5	25.3	0.16
920217	1000	0.89	0.162	0.201	6.19	4.98	14.0	14.0	24.3	33.5	29.6	22.7	0.13
920217	1300	0.84	0.181	0.152	5.52	6.59	26.0	10.0	12.5	33.1	30.1	18.5	0.14

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,SPE}$ Hz	$T_{p,PD}$ sec	$T_{p,SPE}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DM}$ deg	$\theta_{p,MV}$ deg	$\Delta\theta_{DM}$ deg	$\Delta\theta_{MV}$ deg	$\Delta\theta_{PDF}$ deg	χ
920217	1600	0.81	0.162	0.162	6.19	6.19	10.0	10.0	15.9	34.9	31.9	18.1	0.16
920217	1900	0.75	0.171	0.181	5.83	5.52	18.0	18.0	18.4	46.1	32.4	16.3	0.16
920217	2200	0.77	0.220	0.123	4.54	8.16	42.0	12.0	16.6	48.3	37.6	22.7	0.13
920218	0100	0.96	0.230	0.240	4.35	4.17	-8.0	-14.0	3.8	44.5	42.0	45.9	0.12
920218	0400	1.06	0.220	0.201	4.54	4.98	12.0	14.0	10.9	39.4	34.5	32.6	0.13
920218	0700	1.21	0.142	0.142	7.04	7.04	-50.0	-48.0	-8.2	62.0	40.4	19.9	0.14
920218	1000	1.31	0.123	0.123	8.16	8.16	-42.0	-42.0	-14.7	43.5	35.1	20.2	0.14
920218	1300	1.19	0.123	0.123	8.16	8.16	-14.0	-14.0	-1.5	34.9	34.0	22.8	0.12
920218	1600	1.09	0.132	0.132	7.56	7.56	-40.0	-2.0	-13.0	42.8	40.1	34.8	0.17
920218	1900	0.92	0.132	0.132	7.56	7.56	-44.0	0.0	-7.2	53.3	45.3	36.8	0.17
920218	2200	0.78	0.142	0.132	7.04	7.56	-44.0	0.0	-0.9	56.5	55.9	38.7	0.19
920219	0100	0.73	0.142	0.132	7.04	7.56	4.0	4.0	-4.6	50.5	55.6	39.9	0.18
920219	0400	0.75	0.113	0.123	8.87	8.16	8.0	8.0	-20.2	49.2	51.2	33.3	0.18
920219	0700	0.65	0.142	0.142	7.04	7.04	-44.0	10.0	-26.4	54.9	53.8	51.4	0.18
920219	1000	0.53	0.152	0.132	6.59	7.56	-54.0	-44.0	-39.7	51.6	51.3	43.1	0.20
920219	1300	0.50	0.162	0.142	6.19	7.04	-48.0	-44.0	-32.0	48.6	43.5	37.7	0.22
920219	1600	0.51	0.171	0.113	5.83	8.87	-50.0	-52.0	-28.6	49.1	35.3	35.2	0.19
920219	1900	0.52	0.103	0.103	9.71	9.71	-4.0	-52.0	-40.9	46.4	32.8	31.5	0.20
920219	2200	0.52	0.142	0.142	7.04	7.04	-48.0	-50.0	-46.6	41.5	30.9	30.3	0.21
920220	0100	0.46	0.152	0.103	6.59	9.71	-46.0	-46.0	-32.4	49.0	31.5	35.8	0.24
920220	0400	0.47	0.152	0.103	6.59	9.71	-50.0	-48.0	-26.3	51.8	35.9	30.6	0.23
920220	0700	0.46	0.152	0.103	6.59	9.71	-50.0	-48.0	-22.8	55.6	33.8	30.4	0.21
920220	1000	0.42	0.093	0.093	10.72	10.72	-4.0	6.0	-17.9	50.8	40.0	23.5	0.22
920220	1300	0.39	0.093	0.113	10.72	8.87	2.0	2.0	-12.4	48.6	38.7	34.9	0.22
920220	1600	0.41	0.103	0.103	9.71	9.71	10.0	12.0	-7.3	47.2	39.1	29.7	0.22
920220	1900	0.39	0.113	0.123	8.87	8.16	6.0	6.0	-14.7	48.3	43.9	42.0	0.21
920220	2200	0.35	0.132	0.123	7.56	8.16	-44.0	-42.0	-26.1	48.3	47.4	44.1	0.21
920221	0100	0.32	0.103	0.113	9.71	8.87	10.0	-2.0	2.7	42.4	42.2	32.9	0.21
920221	0400	0.32	0.132	0.113	7.56	8.87	-40.0	2.0	-10.8	41.8	40.3	39.2	0.23
920221	0700	0.30	0.132	0.113	7.56	8.87	-44.0	-42.0	-19.9	44.1	43.8	41.9	0.29
920221	1000	0.29	0.142	0.113	7.04	8.87	-44.0	-44.0	-30.2	41.7	41.3	36.5	0.23
920221	1300	0.26	0.103	0.103	9.71	9.71	-34.0	-12.0	-35.0	38.3	38.3	37.0	0.25
920221	1600	0.27	0.113	0.113	8.87	8.87	-36.0	-42.0	-33.8	35.9	35.2	35.1	0.26
920221	1900	0.28	0.103	0.113	9.71	8.87	-36.0	-40.0	-37.4	36.1	33.3	30.9	0.30
920221	2200	0.28	0.113	0.113	8.87	8.87	-38.0	-40.0	-42.6	39.2	32.4	26.6	0.27
920222	0100	0.27	0.113	0.113	8.87	8.87	-38.0	-42.0	-42.0	36.3	29.3	29.6	0.24
920222	0400	0.29	0.113	0.113	8.87	8.87	-38.0	-38.0	-32.1	36.7	33.4	18.2	0.26
920222	0700	0.32	0.113	0.113	8.87	8.87	-36.0	-34.0	-34.9	32.1	30.5	18.5	0.25
920222	1000	0.32	0.113	0.113	8.87	8.87	-40.0	-42.0	-31.0	35.1	28.3	23.7	0.25
920222	1300	0.40	0.259	0.103	3.86	9.71	10.0	8.0	-15.3	39.5	31.5	25.2	0.18
920222	1600	0.39	0.113	0.113	8.87	8.87	-42.0	-40.0	-28.3	33.7	29.4	26.9	0.19
920222	1900	0.41	0.113	0.113	8.87	8.87	-40.0	-42.0	-28.0	37.4	30.3	24.1	0.18
920222	2200	0.43	0.113	0.113	8.87	8.87	-44.0	-44.0	-39.2	32.3	30.7	25.5	0.18
920223	0100	0.46	0.113	0.113	8.87	8.87	-40.0	-40.0	-38.5	28.4	28.5	22.7	0.16
920223	0400	0.47	0.113	0.113	8.87	8.87	-40.0	-38.0	-40.2	29.8	27.5	23.7	0.16
920223	0700	0.48	0.113	0.113	8.87	8.87	-42.0	-42.0	-41.0	32.2	30.8	24.4	0.15
920223	1000	0.49	0.123	0.123	8.16	8.16	-36.0	-44.0	-38.1	35.4	33.5	23.5	0.15
920223	1300	0.49	0.113	0.113	8.87	8.87	-40.0	-42.0	-46.0	39.0	34.4	25.0	0.16
920223	1600	0.46	0.113	0.113	8.87	8.87	-42.0	-44.0	-44.9	38.0	31.4	31.9	0.17
920223	2200	0.59	0.123	0.123	8.16	8.16	-42.0	-48.0	-45.6	34.0	31.3	23.4	0.15
920224	0100	0.86	0.142	0.142	7.04	7.04	-48.0	-48.0	-40.1	27.3	26.2	17.4	0.13
920224	0400	0.92	0.132	0.132	7.56	7.56	-30.0	-30.0	-23.1	29.7	29.5	19.5	0.14
920224	0700	0.81	0.132	0.142	7.56	7.04	-46.0	-16.0	-21.6	33.6	34.0	25.6	0.13
920224	1000	0.77	0.162	0.152	6.19	6.59	-12.0	-12.0	-11.6	35.6	32.2	32.1	0.15
920224	1300	0.73	0.142	0.152	7.04	6.59	-44.0	-6.0	-8.1	39.1	34.9	40.6	0.15
920224	1600	0.75	0.162	0.162	6.19	6.19	2.0	0.0	-7.6	38.3	31.8	28.3	0.16
920224	1900	0.90	0.162	0.152	6.19	6.59	0.0	8.0	10.3	39.9	37.8	44.6	0.17
920224	2200	1.21	0.152	0.142	6.59	7.04	10.0	10.0	18.9	33.3	32.3	36.8	0.18

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PM}$ Hz	$f_{p,JPS}$ Hz	$T_{p,PM}$ sec	$T_{p,JPS}$ sec	$\theta_{p,PM}$ deg	$\theta_{p,JPS}$ deg	$\theta_{p,MEM}$ deg	$\Delta\theta_{PM}$ deg	$\Delta\theta_{JPS}$ deg	$\Delta\theta_{MEM}$ deg	χ
920225	0100	1.30	0.132	0.132	7.56	7.56	8.0	10.0	15.9	28.4	28.4	22.3	0.23
920225	0400	1.29	0.123	0.123	8.16	8.16	10.0	10.0	17.4	27.3	26.5	21.2	0.17
920225	0700	1.23	0.123	0.123	8.16	8.16	8.0	8.0	10.3	26.5	25.7	19.7	0.16
920225	1000	1.21	0.123	0.113	8.16	8.87	10.0	10.0	12.4	28.2	26.6	24.4	0.20
920225	1300	1.20	0.113	0.113	8.87	8.87	0.0	10.0	11.7	27.2	26.0	22.8	0.21
920225	1600	1.12	0.113	0.113	8.87	8.87	4.0	6.0	13.2	30.1	29.7	23.2	0.18
920225	1900	1.12	0.113	0.113	8.87	8.87	-2.0	14.0	7.2	27.6	27.7	22.7	0.17
920225	2200	1.15	0.113	0.113	8.87	8.87	16.0	16.0	7.7	33.3	34.3	27.1	0.20
920226	0100	1.08	0.123	0.113	8.16	8.87	14.0	14.0	12.8	33.6	35.6	28.3	0.23
920226	0400	0.97	0.113	0.113	8.87	8.87	12.0	12.0	1.1	35.9	38.1	26.5	0.23
920226	0700	1.03	0.103	0.103	9.71	9.71	-6.0	8.0	-12.5	51.7	49.6	33.7	0.16
920226	1000	1.17	0.113	0.103	8.87	9.71	-40.0	-40.0	-14.1	50.5	46.5	41.7	0.17
920226	1300	1.29	0.083	0.093	11.98	10.72	-30.0	-42.0	-26.3	45.3	39.6	33.1	0.17
920226	1600	1.19	0.083	0.083	11.98	11.98	-32.0	-32.0	1.3	64.4	30.1	10.7	0.18
920226	1900	1.06	0.093	0.093	10.72	10.72	-38.0	30.0	0.4	58.6	28.9	22.3	0.16
920226	2200	0.95	0.162	0.103	6.19	9.71	18.0	20.0	9.9	48.8	32.0	44.1	0.17
920227	0100	0.92	0.152	0.103	6.59	9.71	18.0	16.0	4.5	42.0	30.2	44.7	0.19
920227	0400	0.84	0.123	0.113	8.16	8.87	-40.0	16.0	2.8	49.7	33.0	46.6	0.20
920227	0700	0.82	0.142	0.152	7.04	6.59	12.0	14.0	12.8	40.0	30.3	17.1	0.17
920227	1000	0.81	0.152	0.113	6.59	8.87	14.0	16.0	6.9	44.1	27.1	42.9	0.17
920227	1300	0.69	0.162	0.113	6.19	8.87	14.0	14.0	4.1	46.7	32.8	42.8	0.19
920227	1600	0.60	0.152	0.113	6.59	8.87	14.0	14.0	1.2	43.8	29.0	43.7	0.21
920227	1900	0.53	0.103	0.113	9.71	8.87	-32.0	10.0	-3.3	46.7	30.6	39.5	0.19
920227	2200	0.49	0.113	0.113	8.87	8.87	-34.0	-38.0	-14.8	50.1	37.5	28.9	0.18
920228	0100	0.43	0.103	0.113	9.71	8.87	-36.0	-40.0	-35.3	42.6	39.1	26.4	0.20
920228	0400	0.41	0.123	0.113	8.16	8.87	-40.0	-40.0	-38.7	37.5	32.8	25.8	0.21
920228	0700	0.38	0.103	0.103	9.71	9.71	-34.0	-38.0	-38.4	29.5	23.3	13.3	0.21
920228	1000	0.37	0.113	0.113	8.87	8.87	-36.0	-36.0	-35.7	28.8	25.7	15.7	0.21
920228	1300	0.38	0.123	0.113	8.16	8.87	-36.0	-38.0	-37.0	24.5	21.8	16.5	0.20
920228	1600	0.41	0.113	0.113	8.87	8.87	-40.0	-42.0	-42.4	24.5	17.4	17.2	0.19
920228	1900	0.36	0.113	0.113	8.87	8.87	-40.0	-40.0	-37.5	24.6	20.7	21.0	0.21
920228	2200	0.36	0.113	0.113	8.87	8.87	-32.0	-36.0	-33.9	17.8	16.9	11.9	0.21
920229	0100	0.41	0.123	0.123	8.16	8.16	-36.0	-34.0	-38.2	20.4	14.7	12.2	0.23
920229	0400	0.40	0.132	0.123	7.56	8.16	-40.0	-40.0	-43.3	25.1	15.5	12.7	0.20
920229	0700	0.35	0.132	0.123	7.56	8.16	-40.0	-40.0	-37.3	21.1	23.4	13.1	0.23
920229	1000	1.28	0.181	0.191	5.52	5.24	42.0	50.0	48.5	16.6	14.0	10.7	0.20
920229	1300	2.12	0.152	0.152	6.59	6.59	42.0	42.0	44.3	16.5	15.1	12.0	0.22
920229	1600	1.96	0.152	0.142	6.59	7.04	38.0	40.0	37.8	23.0	16.6	16.0	0.22
920229	1900	1.56	0.142	0.132	7.04	7.56	24.0	24.0	34.5	28.3	20.9	14.5	0.18
920229	2200	1.21	0.123	0.113	8.16	8.87	10.0	24.0	29.4	26.8	24.0	22.3	0.15
920301	0100	1.00	0.113	0.113	8.87	8.87	6.0	18.0	25.4	29.6	27.0	22.1	0.16
920301	0400	0.84	0.113	0.113	8.87	8.87	12.0	26.0	28.9	31.8	27.9	23.6	0.21
920301	0700	0.67	0.132	0.123	7.56	8.16	16.0	34.0	20.8	38.0	30.6	26.9	0.21
920301	1000	0.55	0.132	0.132	7.56	7.56	10.0	12.0	12.1	37.9	29.8	21.5	0.19
920301	1300	0.53	0.142	0.142	7.04	7.04	14.0	14.0	4.4	39.1	30.4	19.1	0.20
920301	1600	0.49	0.152	0.103	6.59	9.71	14.0	12.0	-3.7	38.6	32.4	30.1	0.20
920301	1900	0.41	0.093	0.093	10.72	10.72	-14.0	-14.0	-15.3	41.8	32.5	25.2	0.21
920301	2200	0.35	0.093	0.093	10.72	10.72	-14.0	-14.0	-20.5	31.4	32.9	17.4	0.25
920302	0100	0.32	0.093	0.093	10.72	10.72	-12.0	-12.0	-24.8	28.6	23.5	17.7	0.28
920302	0400	0.30	0.103	0.103	9.71	9.71	-10.0	-40.0	-30.9	37.4	24.3	25.6	0.28
920302	0700	0.28	0.162	0.093	6.19	10.72	-46.0	-54.0	-36.9	37.6	17.1	27.1	0.24
920302	1000	0.29	0.152	0.093	6.59	10.72	-44.0	-44.0	-35.3	34.1	18.2	25.3	0.24
920302	1300	0.29	0.142	0.103	7.04	9.71	-42.0	-42.0	-35.8	32.7	20.4	22.8	0.25
920302	1600	0.30	0.103	0.103	9.71	9.71	-32.0	-42.0	-36.8	33.2	25.8	21.6	0.27
920302	1900	0.30	0.093	0.103	10.72	9.71	-30.0	-30.0	-36.5	27.5	24.7	20.8	0.25
920302	2200	0.29	0.103	0.103	9.71	9.71	-40.0	-38.0	-33.1	31.7	28.8	24.5	0.25
920303	0100	0.30	0.103	0.103	9.71	9.71	-38.0	-38.0	-36.6	31.5	29.4	23.6	0.28
920303	0400	0.30	0.103	0.103	9.71	9.71	-36.0	-34.0	-35.6	36.5	32.1	28.1	0.30

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,dec}$ deg	$\theta_{p,sw}$ deg	$\Delta\theta_{sea}$ deg	$\Delta\theta_{sw}$ deg	$\Delta\theta_{mp}$ deg	χ
920303	0700	0.43	0.132	0.132	7.56	7.56	28.0	28.0	-7.4	61.4	31.9	16.0	0.25
920303	1000	0.61	0.152	0.142	6.59	7.04	32.0	30.0	12.6	35.8	26.9	18.5	0.20
920303	1300	0.84	0.318	0.142	3.15	7.04	58.0	30.0	27.1	32.0	23.6	20.6	0.17
920303	1600	1.02	0.230	0.230	4.35	4.35	36.0	36.0	29.9	28.2	23.9	20.7	0.16
920303	1900	0.99	0.220	0.220	4.54	4.54	40.0	42.0	29.9	28.5	24.0	17.9	0.15
920303	2200	0.95	0.181	0.181	5.52	5.52	28.0	44.0	31.8	30.3	24.7	19.5	0.14
920304	0100	0.90	0.181	0.171	5.52	5.83	32.0	36.0	24.2	32.3	26.6	18.9	0.15
920304	0400	0.83	0.171	0.171	5.83	5.83	24.0	38.0	21.6	35.5	27.0	20.7	0.16
920304	0700	0.77	0.171	0.171	5.83	5.83	32.0	24.0	20.1	37.8	27.6	18.2	0.16
920304	1000	0.88	0.123	0.123	8.16	8.16	6.0	20.0	19.7	30.8	25.8	26.1	0.17
920304	1300	0.96	0.123	0.123	8.16	8.16	16.0	14.0	20.4	26.0	23.7	17.5	0.16
920304	1600	0.98	0.132	0.132	7.56	7.56	6.0	12.0	11.8	29.8	26.9	20.4	0.18
920304	1900	1.01	0.123	0.123	8.16	8.16	14.0	12.0	16.6	32.2	27.8	19.6	0.20
920304	2200	0.95	0.123	0.113	8.16	8.87	12.0	12.0	16.3	35.4	29.9	28.5	0.16
920305	0100	0.93	0.113	0.123	8.87	8.16	6.0	8.0	14.5	35.6	30.9	30.5	0.14
920305	0400	0.91	0.113	0.113	8.87	8.87	-18.0	8.0	1.6	34.2	30.5	26.1	0.16
920305	0700	0.83	0.113	0.113	8.87	8.87	-4.0	8.0	3.2	35.3	30.9	24.3	0.18
920305	1000	0.73	0.103	0.113	9.71	8.87	-28.0	6.0	4.2	37.4	30.4	30.5	0.19
920305	1300	0.71	0.123	0.123	8.16	8.16	2.0	4.0	1.8	36.9	32.4	31.5	0.16
920305	1600	0.73	0.123	0.123	8.16	8.16	-2.0	2.0	-2.3	34.6	31.2	27.6	0.17
920305	1900	0.65	0.113	0.123	8.87	8.16	-22.0	6.0	-1.3	36.5	33.2	28.6	0.19
920305	2200	0.57	0.103	0.103	9.71	9.71	-38.0	6.0	-1.8	38.1	35.5	31.9	0.19
920306	0100	0.55	0.103	0.103	9.71	9.71	-38.0	6.0	-6.4	38.1	35.7	29.7	0.19
920306	0400	0.54	0.103	0.103	9.71	9.71	-40.0	-8.0	-13.1	38.3	37.3	31.2	0.17
920306	0700	0.52	0.103	0.113	9.71	8.87	-26.0	6.0	-15.4	40.0	39.9	34.3	0.17
920306	1000	0.50	0.103	0.103	9.71	9.71	-36.0	-28.0	-22.6	39.5	39.2	32.5	0.19
920306	1300	0.51	0.103	0.103	9.71	9.71	-22.0	-26.0	-30.9	37.8	34.9	23.8	0.18
920306	1600	0.53	0.103	0.103	9.71	9.71	-34.0	-38.0	-31.3	41.0	38.4	25.9	0.17
920306	1900	0.56	0.201	0.103	4.98	9.71	-56.0	-42.0	-41.6	42.6	36.4	32.2	0.17
920306	2200	0.70	0.171	0.103	5.83	9.71	-50.0	-48.0	-45.0	31.5	26.7	25.6	0.18
920307	0100	0.99	0.142	0.142	7.04	7.04	-44.0	-44.0	-46.7	21.1	19.7	8.1	0.14
920307	0400	1.64	0.132	0.132	7.56	7.56	-44.0	-44.0	-49.8	20.2	16.4	12.3	0.19
920307	0700	2.27	0.162	0.162	6.19	6.19	-46.0	-44.0	-47.1	18.4	17.4	12.9	0.23
920307	1000	1.61	0.123	0.123	8.16	8.16	-38.0	-40.0	-44.6	28.3	30.8	35.9	0.17
920307	1300	1.74	0.113	0.113	8.87	8.87	-38.0	-38.0	-32.6	36.2	33.4	32.9	0.12
920307	1600	2.04	0.103	0.103	9.71	9.71	-40.0	-38.0	-36.1	31.7	31.0	24.2	0.14
920307	1900	1.94	0.103	0.103	9.71	9.71	-28.0	-26.0	-25.6	29.4	28.9	18.3	0.15
920307	2200	1.65	0.103	0.103	9.71	9.71	-42.0	-42.0	-32.4	33.7	33.8	30.6	0.15
920308	0100	1.57	0.103	0.103	9.71	9.71	-40.0	-40.0	-30.4	38.1	37.1	37.0	0.13
920308	0400	1.61	0.103	0.103	9.71	9.71	-42.0	-40.0	-33.4	35.2	34.5	32.7	0.13
920308	0700	1.52	0.103	0.103	9.71	9.71	-36.0	-38.0	-32.7	32.9	32.7	27.0	0.14
920308	1000	1.34	0.103	0.103	9.71	9.71	-40.0	-26.0	-31.5	35.4	35.0	34.1	0.14
920308	1300	1.23	0.093	0.093	10.72	10.72	-38.0	-26.0	-26.0	39.1	39.5	42.4	0.14
920308	1600	1.29	0.103	0.103	9.71	9.71	-24.0	-22.0	-21.7	33.3	33.1	29.9	0.14
920308	1900	1.31	0.093	0.093	10.72	10.72	-12.0	-14.0	-20.2	33.6	31.9	27.4	0.16
920308	2200	1.20	0.093	0.103	10.72	9.71	-12.0	-18.0	-22.7	34.4	33.8	34.6	0.17
920309	0100	1.06	0.103	0.103	9.71	9.71	-40.0	-22.0	-23.1	35.4	34.0	28.4	0.17
920309	0400	1.07	0.103	0.103	9.71	9.71	-16.0	-10.0	-19.7	33.5	32.3	31.1	0.14
920309	0700	1.07	0.103	0.103	9.71	9.71	-28.0	-10.0	-20.6	32.8	31.5	27.7	0.16
920309	1000	1.02	0.103	0.103	9.71	9.71	-20.0	-14.0	-17.4	33.9	32.9	29.3	0.18
920309	1300	1.04	0.103	0.103	9.71	9.71	-34.0	-12.0	-15.5	32.3	31.4	27.9	0.15
920309	1600	1.00	0.103	0.103	9.71	9.71	-18.0	-12.0	-13.8	30.8	30.3	28.2	0.16
920309	1900	0.98	0.103	0.103	9.71	9.71	-16.0	-14.0	-17.7	30.8	29.1	27.8	0.17
920309	2200	0.93	0.103	0.103	9.71	9.71	-26.0	-10.0	-22.1	33.1	31.4	27.7	0.20
920310	0100	0.92	0.103	0.103	9.71	9.71	-20.0	-16.0	-13.2	33.4	31.0	25.8	0.17
920310	0400	0.87	0.103	0.103	9.71	9.71	-18.0	-18.0	-13.2	33.1	30.9	27.5	0.17
920310	0700	0.84	0.103	0.103	9.71	9.71	-34.0	-16.0	-20.8	35.5	34.1	31.8	0.18
920310	1000	0.79	0.113	0.093	8.87	10.72	-28.0	-26.0	-18.2	37.9	35.5	35.5	0.20

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PM}$ Hz	$f_{p,JPM}$ Hz	$T_{p,PM}$ sec	$T_{p,JPM}$ sec	$\theta_{p,PM}$ deg	$\theta_{p,DIR}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DIR}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{TOT}$ deg	χ
920310	1300	0.92	0.093	0.093	10.72	10.72	-4.0	-26.0	-28.5	35.7	29.6	31.0	0.15
920310	1600	0.96	0.103	0.093	9.71	10.72	-26.0	-28.0	-32.6	35.3	27.0	29.9	0.14
920310	1900	1.02	0.142	0.103	7.04	9.71	-44.0	-44.0	-37.7	36.8	28.6	33.0	0.14
920310	2200	1.04	0.142	0.103	7.04	9.71	-46.0	-44.0	-40.0	35.6	28.5	32.0	0.17
920311	0100	1.15	0.113	0.113	8.87	8.87	-40.0	-44.0	-40.4	27.5	22.9	24.3	0.17
920311	0400	0.98	0.103	0.103	9.71	9.71	-36.0	-42.0	-39.1	28.7	26.2	25.6	0.15
920311	1000	0.73	0.103	0.103	9.71	9.71	-24.0	-40.0	-29.7	34.7	32.6	26.7	0.18
920311	1300	0.65	0.103	0.103	9.71	9.71	-26.0	-24.0	-18.7	40.4	36.1	34.7	0.21
920311	1600	0.68	0.318	0.093	3.15	10.72	64.0	64.0	-0.8	82.9	27.8	39.8	0.22
920311	1900	0.70	0.308	0.103	3.25	9.71	66.0	66.0	12.0	83.6	25.7	35.6	0.19
920311	2200	0.72	0.318	0.103	3.15	9.71	68.0	68.0	17.9	81.7	22.3	37.7	0.22
920312	0100	0.63	0.103	0.093	9.71	10.72	-24.0	68.0	19.3	83.8	25.1	34.5	0.26
920312	0400	0.58	0.103	0.103	9.71	9.71	-36.0	70.0	19.9	83.4	26.9	34.4	0.19
920312	0700	0.53	0.103	0.103	9.71	9.71	-24.0	82.0	15.7	83.3	29.5	32.5	0.19
920312	1000	0.50	0.113	0.103	8.87	9.71	-28.0	90.0	13.6	80.8	30.6	35.4	0.20
920312	1300	0.42	0.103	0.103	9.71	9.71	-36.0	-36.0	-5.4	46.3	33.1	29.5	0.22
920312	1600	0.38	0.103	0.103	9.71	9.71	-26.0	-26.0	-15.2	38.5	35.2	29.1	0.20
920312	1900	0.39	0.103	0.103	9.71	9.71	-22.0	-36.0	-22.1	38.2	29.1	28.0	0.19
920312	2200	0.39	0.113	0.113	8.87	8.87	-38.0	-38.0	-23.6	40.1	28.9	18.1	0.22
920313	0100	0.39	0.113	0.103	8.87	9.71	-36.0	-40.0	-25.9	39.3	27.0	24.8	0.23
920313	0400	0.36	0.074	0.083	13.56	11.98	-8.0	-38.0	-23.6	37.2	27.9	28.7	0.24
920313	0700	0.73	0.230	0.230	4.35	4.35	40.0	56.0	33.0	42.1	23.9	16.3	0.15
920313	1000	1.16	0.181	0.181	5.52	5.52	48.0	46.0	41.1	31.4	26.6	18.8	0.14
920313	1300	1.05	0.171	0.181	5.83	5.52	32.0	32.0	34.0	31.1	26.2	19.0	0.15
920313	1600	0.93	0.152	0.152	6.59	6.59	22.0	26.0	26.6	31.3	26.5	12.4	0.15
920313	1900	0.79	0.162	0.162	6.19	6.19	30.0	28.0	23.5	42.0	31.8	19.1	0.14
920313	2200	0.67	0.162	0.083	6.19	11.98	26.0	28.0	19.4	47.9	33.5	25.8	0.16
920314	0100	0.60	0.171	0.083	5.83	11.98	28.0	28.0	18.0	50.3	32.9	30.0	0.16
920314	0400	0.81	0.240	0.220	4.17	4.54	56.0	60.0	39.7	39.4	23.8	23.2	0.18
920314	0700	0.90	0.191	0.191	5.24	5.24	34.0	32.0	34.6	28.4	22.6	17.2	0.13
920314	1000	0.84	0.171	0.171	5.83	5.83	30.0	34.0	31.2	29.4	22.5	16.0	0.14
920314	1300	0.65	0.171	0.181	5.83	5.52	28.0	30.0	20.6	34.4	21.3	17.0	0.17
920314	1600	0.48	0.093	0.093	10.72	10.72	8.0	32.0	13.7	46.2	26.9	28.0	0.21
920314	1900	0.38	0.093	0.093	10.72	10.72	-18.0	-20.0	4.2	44.0	32.9	30.2	0.22
920314	2200	0.33	0.093	0.093	10.72	10.72	-10.0	-14.0	-1.6	40.7	33.2	28.7	0.26
920315	0100	0.27	0.123	0.103	8.16	9.71	-40.0	-14.0	-9.9	37.7	32.7	30.4	0.30
920315	0400	0.22	0.093	0.093	10.72	10.72	-4.0	-2.0	-14.7	38.1	34.0	27.0	0.33
920315	0700	0.23	0.064	0.093	15.63	10.72	-8.0	-6.0	-3.5	33.9	28.3	21.7	0.31
920315	1000	0.24	0.064	0.064	15.63	15.63	-12.0	-16.0	2.4	43.9	28.1	23.8	0.30
920315	1300	0.46	0.230	0.210	4.35	4.75	54.0	54.0	35.9	37.2	22.6	16.8	0.20
920315	1600	0.59	0.201	0.201	4.98	4.98	44.0	36.0	38.1	21.6	19.3	13.2	0.17
920315	1900	0.52	0.220	0.201	4.54	4.98	46.0	44.0	35.0	25.9	20.2	13.4	0.14
920315	2200	0.79	0.230	0.250	4.35	4.01	48.0	48.0	41.0	25.2	21.4	23.9	0.11
920316	0100	1.46	0.191	0.191	5.24	5.24	46.0	48.0	43.1	23.3	20.5	21.5	0.17
920316	0400	1.77	0.162	0.162	6.19	6.19	42.0	42.0	42.1	19.1	18.0	14.1	0.21
920316	0700	1.61	0.152	0.152	6.59	6.59	38.0	42.0	39.9	20.2	17.3	16.8	0.22
920316	1000	1.36	0.162	0.162	6.19	6.19	40.0	40.0	35.3	19.5	16.5	15.2	0.17
920316	1300	1.36	0.162	0.162	6.19	6.19	26.0	40.0	35.6	19.8	16.4	16.7	0.20
920316	1600	1.11	0.162	0.162	6.19	6.19	22.0	44.0	36.0	23.6	19.7	20.3	0.23
920316	1900	0.91	0.162	0.162	6.19	6.19	28.0	28.0	29.8	18.4	16.3	10.6	0.21
920316	2200	0.89	0.142	0.142	7.04	7.04	16.0	24.0	23.6	20.9	17.0	16.8	0.16
920317	0100	0.87	0.132	0.132	7.56	7.56	12.0	16.0	18.8	23.6	19.7	13.4	0.18
920317	0400	0.70	0.142	0.142	7.04	7.04	18.0	20.0	13.2	35.5	21.4	13.2	0.26
920317	0700	0.60	0.113	0.113	8.87	8.87	-12.0	-12.0	-1.2	35.7	20.4	15.3	0.26
920317	1000	0.50	0.103	0.103	9.71	9.71	-14.0	-12.0	-9.8	21.4	19.9	14.7	0.20
920317	1600	0.41	0.230	0.113	4.35	8.87	-54.0	-54.0	-34.0	43.0	15.8	18.0	0.24
920317	1900	0.36	0.191	0.064	5.24	15.63	-50.0	-54.0	-40.9	35.1	15.7	25.6	0.22
920317	2200	0.26	0.132	0.064	7.56	15.63	-42.0	-42.0	-33.5	35.2	20.9	24.8	0.25

Table A1 (Continued)

Date	Time EST	H_{m0} m	$f_{p,PM}$ Hz	$f_{p,JPS}$ Hz	$T_{p,PM}$ sec	$T_{p,JPS}$ sec	$\theta_{p,PM}$ deg	$\theta_{p,JPS}$ deg	$\theta_{p,DW}$ deg	$\Delta\theta_{SD}$ deg	$\Delta\theta_{DW}$ deg	$\Delta\theta_{MEM}$ deg	χ
920318	0100	0.28	0.132	0.132	7.56	7.56	-40.0	-40.0	-33.6	29.6	17.0	4.8	0.29
920318	0400	0.29	0.132	0.142	7.56	7.04	-42.0	-42.0	-36.2	31.7	19.3	11.5	0.29
920318	0700	0.28	0.142	0.074	7.04	13.56	-44.0	-44.0	-38.1	36.4	25.4	23.8	0.28
920318	1000	0.57	0.269	0.269	3.72	3.72	52.0	54.0	25.1	55.7	37.4	35.5	0.17
920318	1300	0.91	0.181	0.201	5.52	4.98	42.0	42.0	28.5	41.0	36.6	29.2	0.13
920318	1600	0.94	0.191	0.191	5.24	5.24	42.0	42.0	23.3	45.6	39.5	23.1	0.14
920318	1900	0.88	0.191	0.191	5.24	5.24	30.0	26.0	19.5	41.3	38.0	29.7	0.15
920318	2200	0.75	0.201	0.181	4.98	5.52	34.0	28.0	21.3	40.7	34.2	25.3	0.15
920319	0100	0.72	0.171	0.171	5.83	5.83	24.0	26.0	15.6	38.9	31.0	15.6	0.16
920319	0400	0.65	0.181	0.181	5.52	5.52	30.0	28.0	13.9	39.7	30.5	14.6	0.22
920319	0700	0.65	0.162	0.074	6.19	13.56	28.0	26.0	-1.2	48.8	38.7	26.3	0.24
920319	1000	0.67	0.074	0.074	13.56	13.56	-6.0	-44.0	-14.9	54.6	43.2	25.4	0.24
920319	1300	0.78	0.074	0.074	13.56	13.56	-6.0	-42.0	-20.1	45.7	34.2	21.2	0.19
920319	1600	0.86	0.123	0.074	8.16	13.56	-44.0	-44.0	-13.6	67.4	37.8	25.3	0.20
920319	1900	1.58	0.181	0.181	5.52	5.52	46.0	52.0	37.8	25.0	17.6	15.0	0.23
920319	2200	2.03	0.152	0.152	6.59	6.59	36.0	38.0	35.6	22.6	19.5	17.0	0.21
920320	0100	1.67	0.142	0.142	7.04	7.04	22.0	24.0	31.4	26.3	19.7	14.6	0.19
920320	0400	1.62	0.132	0.132	7.56	7.56	26.0	24.0	30.1	25.2	22.1	17.2	0.17
920320	0700	1.63	0.162	0.113	6.19	8.87	24.0	22.0	25.4	28.2	24.8	26.0	0.19
920320	1000	1.61	0.103	0.103	9.71	9.71	12.0	16.0	21.0	27.7	25.2	24.4	0.17
920320	1300	1.49	0.103	0.103	9.71	9.71	16.0	16.0	20.4	25.1	24.3	21.7	0.16
920320	1600	1.57	0.093	0.103	10.72	9.71	2.0	14.0	21.0	28.5	23.7	21.8	0.17
920320	1900	1.74	0.103	0.093	9.71	10.72	0.0	12.0	19.1	33.0	23.2	25.5	0.21
920320	2200	1.59	0.093	0.093	10.72	10.72	16.0	16.0	21.5	29.8	23.7	22.6	0.18
920321	0100	1.92	0.093	0.093	10.72	10.72	0.0	14.0	22.5	34.4	23.9	21.8	0.17
920321	0400	1.82	0.103	0.093	9.71	10.72	2.0	18.0	22.2	29.6	25.9	27.4	0.15
920321	0700	1.64	0.083	0.083	11.98	11.98	-8.0	16.0	12.1	26.6	25.5	21.4	0.17
920321	1000	1.52	0.083	0.083	11.98	11.98	-10.0	14.0	6.4	27.8	25.4	24.2	0.17
920321	1300	1.40	0.093	0.083	10.72	11.98	-12.0	14.0	9.3	28.5	27.6	27.0	0.16
920321	1600	1.69	0.093	0.093	10.72	10.72	-6.0	12.0	13.7	38.6	24.1	22.9	0.15
920321	1900	1.64	0.083	0.083	11.98	11.98	-6.0	14.0	10.5	34.8	27.4	28.5	0.16
920321	2200	1.48	0.083	0.083	11.98	11.98	-8.0	14.0	10.1	34.6	27.7	29.8	0.18
920322	0100	1.49	0.083	0.083	11.98	11.98	-12.0	-12.0	-1.2	29.5	25.4	20.9	0.14
920322	0400	1.57	0.083	0.083	11.98	11.98	-10.0	-10.0	-4.6	27.8	27.6	28.6	0.14
920322	0700	1.60	0.083	0.083	11.98	11.98	-10.0	-10.0	-3.3	28.6	26.7	22.7	0.15
920322	1000	1.54	0.083	0.083	11.98	11.98	-6.0	-10.0	-1.8	31.5	31.0	25.3	0.17
920322	1300	1.29	0.083	0.083	11.98	11.98	-10.0	-6.0	0.3	30.7	29.9	29.5	0.17
920322	1600	1.20	0.083	0.083	11.98	11.98	-8.0	-10.0	-5.4	28.6	28.6	27.8	0.17
920322	1900	1.12	0.083	0.083	11.98	11.98	-16.0	-8.0	-4.9	27.7	27.6	30.0	0.22
920322	2200	1.10	0.083	0.083	11.98	11.98	-10.0	-10.0	-2.9	27.9	29.7	25.3	0.26
920323	0100	1.13	0.083	0.083	11.98	11.98	-10.0	-10.0	-17.9	27.9	29.9	21.7	0.23
920323	0400	1.26	0.074	0.083	13.56	11.98	-18.0	-14.0	-18.0	30.3	32.2	27.4	0.19
920323	0700	1.86	0.201	0.074	4.98	13.56	48.0	50.0	27.0	47.4	22.4	24.0	0.20
920323	1000	2.00	0.074	0.074	13.56	13.56	-10.0	52.0	29.6	41.0	20.3	21.1	0.24
920323	1300	2.00	0.171	0.074	5.83	13.56	40.0	52.0	28.7	40.4	20.0	21.0	0.21
920323	1600	1.80	0.152	0.083	6.59	11.98	28.0	28.0	21.6	38.3	23.7	26.0	0.18
920323	1900	1.54	0.162	0.074	6.19	13.56	22.0	22.0	22.4	36.5	24.3	24.5	0.17
920323	2200	1.54	0.162	0.074	6.19	13.56	34.0	34.0	27.6	34.8	23.8	22.7	0.20
920324	0100	1.51	0.074	0.074	13.56	13.56	-8.0	52.0	27.7	37.4	22.0	20.4	0.21
920324	0400	1.33	0.162	0.162	6.19	6.19	22.0	24.0	27.2	32.8	21.8	13.3	0.19
920324	0700	1.15	0.162	0.083	6.19	11.98	22.0	20.0	20.2	32.4	24.2	25.5	0.17
920324	1000	1.03	0.162	0.083	6.19	11.98	18.0	16.0	15.0	33.8	24.5	28.6	0.19
920324	1300	0.96	0.132	0.083	7.56	11.98	12.0	14.0	14.3	34.0	24.7	30.8	0.18
920324	1600	0.88	0.142	0.093	7.04	10.72	12.0	12.0	3.3	38.1	24.9	33.2	0.17
920324	1900	0.82	0.093	0.103	10.72	9.71	-22.0	12.0	0.2	39.2	24.8	31.9	0.17
920324	2200	0.77	0.093	0.093	10.72	10.72	-22.0	12.0	-6.3	41.2	27.6	24.1	0.20
920325	0100	0.76	0.103	0.103	9.71	9.71	-40.0	-14.0	-4.7	40.9	30.0	31.5	0.20
920325	0400	0.74	0.083	0.103	11.98	9.71	-16.0	-18.0	-8.0	36.3	31.0	29.6	0.20

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,JS}$ Hz	$f_{p,PM}$ Hz	$T_{p,JS}$ sec	$T_{p,PM}$ sec	$\theta_{p,JS}$ deg	$\theta_{p,DM}$ deg	$\theta_{p,MM}$ deg	$\Delta\theta_{DM}$ deg	$\Delta\theta_{MM}$ deg	$\Delta\theta_{MP}$ deg	χ
920325	0700	0.74	0.093	0.093	10.72	10.72	-16.0	-16.0	-6.1	34.3	30.7	20.5	0.19
920325	1000	0.72	0.093	0.093	10.72	10.72	-14.0	-8.0	-10.6	33.4	32.9	23.1	0.20
920325	1300	0.72	0.103	0.103	9.71	9.71	-16.0	-14.0	-18.5	31.9	31.8	23.2	0.20
920325	1600	0.75	0.093	0.093	10.72	10.72	-8.0	-8.0	-22.9	34.4	32.0	26.4	0.18
920325	1900	0.79	0.103	0.093	9.71	10.72	-16.0	-22.0	-26.0	34.7	30.4	30.0	0.18
920325	2200	0.82	0.103	0.093	9.71	10.72	-14.0	-26.0	-31.3	34.3	25.9	28.2	0.18
920326	0100	0.86	0.191	0.191	5.24	5.24	-44.0	-26.0	-30.8	31.1	26.5	20.4	0.14
920326	0400	0.94	0.152	0.162	6.59	6.19	-22.0	-24.0	-31.8	29.2	26.3	21.1	0.14
920326	0700	1.34	0.142	0.142	7.04	7.04	-42.0	-42.0	-36.1	26.3	24.5	24.4	0.13
920326	1000	1.83	0.123	0.123	8.16	8.16	-42.0	-42.0	-36.3	25.2	24.2	22.2	0.14
920326	1300	2.47	0.103	0.103	9.71	9.71	-42.0	-28.0	-35.1	21.7	21.6	21.6	0.18
920326	1600	3.38	0.083	0.093	11.98	10.72	-28.0	-26.0	-26.8	18.9	18.8	20.5	0.30
920326	1900	2.61	0.093	0.083	10.72	11.98	-28.0	-24.0	-25.4	23.5	24.1	30.1	0.21
920326	2200	2.54	0.083	0.083	11.98	11.98	-32.0	-28.0	-27.5	22.5	23.0	27.3	0.20
920327	0100	2.13	0.083	0.083	11.98	11.98	-24.0	-24.0	-26.1	20.2	20.9	13.1	0.17
920327	0400	1.93	0.083	0.083	11.98	11.98	-24.0	-24.0	-25.0	23.3	24.6	17.1	0.16
920327	0700	1.97	0.083	0.083	11.98	11.98	-22.0	-22.0	-23.7	21.2	21.6	16.5	0.17
920327	1000	1.93	0.083	0.083	11.98	11.98	-22.0	-22.0	-24.8	21.9	22.5	17.7	0.17
920327	1600	1.49	0.093	0.083	10.72	11.98	-24.0	-22.0	-28.9	28.1	28.5	32.4	0.17
920327	1900	1.48	0.083	0.083	11.98	11.98	-20.0	-20.0	-11.5	33.1	26.0	16.6	0.16
920327	2200	1.27	0.083	0.083	11.98	11.98	-22.0	-14.0	-12.7	38.9	33.1	37.3	0.16
920328	0100	1.13	0.083	0.083	11.98	11.98	-14.0	-12.0	-12.2	35.5	32.0	35.5	0.20
920328	0400	1.01	0.074	0.093	13.56	10.72	-8.0	-8.0	-1.3	41.2	29.5	34.2	0.23
920328	0700	1.00	0.083	0.083	11.98	11.98	-6.0	-8.0	-2.1	36.6	29.4	32.8	0.21
920328	1000	0.98	0.074	0.093	13.56	10.72	-8.0	-8.0	6.6	41.6	28.8	35.5	0.23
920328	1300	0.94	0.083	0.083	11.98	11.98	-4.0	56.0	7.7	54.9	24.4	27.5	0.21
920328	1600	0.86	0.093	0.093	10.72	10.72	-14.0	60.0	13.3	57.2	23.7	32.9	0.21
920328	1900	0.70	0.083	0.093	11.98	10.72	14.0	12.0	13.1	47.0	27.3	34.6	0.20
920328	2200	0.66	0.083	0.083	11.98	11.98	0.0	0.0	-2.1	38.4	31.4	27.1	0.22
920329	0100	0.59	0.083	0.083	11.98	11.98	-4.0	-6.0	2.8	36.4	32.2	29.7	0.23
920329	0400	0.75	0.191	0.083	5.24	11.98	50.0	46.0	25.9	44.6	20.2	24.1	0.17
920329	0700	0.96	0.171	0.171	5.83	5.83	38.0	38.0	36.7	30.2	17.6	7.2	0.17
920329	1000	1.05	0.171	0.171	5.83	5.83	40.0	40.0	35.8	29.1	19.4	13.2	0.15
920329	1300	0.96	0.132	0.132	7.56	7.56	28.0	28.0	34.8	28.6	22.0	16.3	0.18
920329	1600	0.80	0.142	0.132	7.04	7.56	24.0	26.0	27.2	26.7	24.0	17.1	0.19
920329	1900	0.59	0.142	0.142	7.04	7.04	28.0	28.0	26.9	26.0	24.5	12.1	0.22
920330	0100	0.36	0.142	0.093	7.04	10.72	16.0	18.0	10.8	41.6	30.8	32.1	0.24
920330	0400	0.32	0.152	0.093	6.59	10.72	30.0	30.0	10.4	42.7	33.8	33.7	0.25
920330	0700	0.32	0.162	0.093	6.19	10.72	28.0	28.0	3.3	43.5	33.0	31.5	0.22
920330	1000	0.34	0.093	0.093	10.72	10.72	2.0	6.0	-1.2	40.1	39.1	30.4	0.24
920330	1300	0.37	0.074	0.093	13.56	10.72	-6.0	14.0	-7.4	40.6	37.4	30.6	0.29
920330	1600	0.38	0.074	0.074	13.56	13.56	-8.0	-8.0	-9.5	41.8	35.0	26.0	0.35
920330	1900	0.39	0.083	0.083	11.98	11.98	-8.0	-8.0	-12.0	34.1	34.9	26.8	0.28
920330	2200	0.40	0.083	0.083	11.98	11.98	20.0	18.0	1.1	33.2	33.5	31.0	0.25
920331	0100	0.59	0.171	0.171	5.83	5.83	-50.0	-50.0	-37.8	41.1	19.4	10.6	0.17
920331	0400	0.78	0.142	0.142	7.04	7.04	-48.0	-50.0	-42.0	23.2	16.9	10.3	0.15
920331	0700	0.69	0.142	0.152	7.04	6.59	-46.0	-48.0	-43.7	27.0	19.3	12.5	0.16
920331	1000	1.02	0.240	0.240	4.17	4.17	56.0	62.0	26.5	84.5	17.5	7.7	0.20
920331	1300	1.34	0.210	0.201	4.75	4.98	54.0	56.0	45.0	16.5	14.4	7.7	0.26
920331	1600	0.94	0.191	0.191	5.24	5.24	48.0	48.0	32.8	44.2	16.8	6.2	0.20
920331	1900	0.74	0.201	0.210	4.98	4.75	26.0	24.0	20.0	48.0	27.6	22.9	0.16
920331	2200	0.70	0.201	0.171	4.98	5.83	42.0	28.0	18.8	43.0	23.7	15.8	0.16
920401	0100	0.70	0.181	0.171	5.52	5.83	24.0	22.0	16.4	39.2	27.8	18.6	0.17
920401	0400	0.67	0.162	0.162	6.19	6.19	22.0	22.0	9.6	44.5	28.0	13.9	0.17
920401	0700	0.61	0.181	0.142	5.52	7.04	34.0	22.0	6.3	48.8	32.2	42.2	0.20
920401	1000	0.59	0.123	0.123	8.16	8.16	-32.0	12.0	2.8	49.3	33.5	34.9	0.17
920401	1300	0.61	0.152	0.123	6.59	8.16	12.0	12.0	-3.1	45.4	38.5	34.6	0.17
920401	1600	0.60	0.123	0.132	8.16	7.56	-34.0	-14.0	-8.0	44.7	39.1	35.2	0.20

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
920401	1900	0.58	0.123	0.123	8.16	8.16	-22.0	10.0	-0.2	39.5	40.3	34.7	0.21
920401	2200	0.83	0.298	0.259	3.35	3.86	56.0	56.0	33.3	54.1	19.3	8.7	0.24
920402	0100	1.49	0.171	0.171	5.83	5.83	42.0	44.0	43.5	15.0	13.1	7.6	0.23
920402	0400	1.20	0.181	0.171	5.52	5.83	38.0	42.0	39.4	23.6	16.2	10.6	0.21
920402	0700	0.96	0.171	0.171	5.83	5.83	36.0	28.0	34.4	27.5	16.3	12.6	0.21
920402	1300	0.77	0.171	0.171	5.83	5.83	26.0	28.0	32.5	31.2	17.5	9.8	0.16
920402	1600	0.69	0.191	0.191	5.24	5.24	34.0	48.0	31.7	31.8	17.3	10.2	0.15
920402	1900	0.62	0.201	0.201	4.98	4.98	34.0	50.0	31.3	32.8	15.8	10.0	0.18
920402	2200	0.57	0.269	0.269	3.72	3.72	52.0	52.0	35.9	31.2	14.4	6.4	0.19
920403	0100	0.79	0.201	0.171	4.98	5.83	46.0	46.0	42.7	21.7	14.5	15.0	0.15
920403	0400	0.77	0.181	0.181	5.52	5.52	44.0	46.0	47.3	21.9	13.3	9.6	0.15
920403	0700	0.63	0.269	0.162	3.72	6.19	60.0	58.0	43.5	27.5	12.6	13.7	0.18
920403	1000	0.53	0.181	0.152	5.52	6.59	46.0	46.0	42.7	26.9	14.1	14.5	0.19
920403	1300	0.41	0.181	0.171	5.52	5.83	42.0	44.0	34.8	27.7	17.0	12.5	0.20
920403	1600	0.32	0.181	0.181	5.52	5.52	46.0	46.0	26.9	49.2	30.8	22.5	0.23
920403	1900	0.35	0.289	0.308	3.47	3.25	-64.0	-64.0	-28.9	75.4	27.7	7.3	0.19
920403	2200	0.22	0.279	0.279	3.59	3.59	-64.0	-64.0	-27.6	66.4	32.5	10.0	0.24
920404	0100	0.19	0.074	0.074	13.56	13.56	-8.0	-34.0	-29.4	48.4	36.7	23.1	0.27
920404	0400	0.19	0.074	0.074	13.56	13.56	-12.0	-14.0	-13.0	47.8	50.7	22.9	0.33
920404	0700	0.36	0.289	0.298	3.47	3.35	56.0	56.0	43.4	47.2	29.7	27.7	0.24
920404	1000	0.34	0.240	0.250	4.17	4.01	56.0	56.0	44.6	44.3	26.5	16.4	0.23
920404	1300	0.31	0.220	0.220	4.54	4.54	52.0	52.0	34.8	52.9	28.7	16.0	0.18
920404	1600	0.30	0.220	0.220	4.54	4.54	48.0	46.0	31.4	60.8	32.8	15.4	0.25
920404	1900	0.47	0.269	0.289	3.72	3.47	20.0	32.0	25.3	39.6	34.0	37.4	0.20
920404	2200	0.58	0.259	0.259	3.86	3.86	26.0	26.0	32.5	35.1	32.1	28.1	0.18
920405	0100	0.91	0.230	0.240	4.35	4.17	54.0	58.0	53.0	28.3	25.8	29.3	0.17
920405	0400	0.82	0.230	0.230	4.35	4.35	58.0	56.0	49.5	26.6	21.8	16.7	0.15
920405	0700	0.82	0.210	0.230	4.75	4.35	46.0	56.0	47.2	22.3	15.3	14.1	0.19
920405	1000	1.09	0.210	0.191	4.75	5.24	50.0	48.0	45.3	16.3	11.5	7.3	0.22
920405	1300	0.97	0.171	0.181	5.83	5.52	30.0	40.0	41.3	19.4	15.4	11.9	0.16
920405	1600	0.73	0.171	0.171	5.83	5.83	28.0	26.0	34.2	24.3	19.8	11.2	0.17
920405	1900	0.72	0.171	0.181	5.83	5.52	24.0	26.0	33.5	24.9	21.6	16.6	0.17
920405	2200	0.57	0.162	0.181	6.19	5.52	36.0	24.0	31.7	32.7	23.4	19.4	0.18
920406	0100	0.52	0.191	0.191	5.24	5.24	36.0	32.0	27.5	32.6	21.2	11.9	0.17
920406	0400	0.61	0.171	0.171	5.83	5.83	16.0	14.0	27.6	34.3	18.5	11.6	0.16
920406	0700	0.89	0.220	0.220	4.54	4.54	52.0	52.0	40.7	27.4	16.4	14.6	0.13
920406	1000	0.88	0.181	0.181	5.52	5.52	26.0	42.0	31.0	30.5	16.1	12.8	0.17
920406	1300	0.83	0.171	0.171	5.83	5.83	26.0	26.0	22.0	31.4	17.8	9.5	0.16
920406	1600	1.01	0.152	0.152	6.59	6.59	14.0	14.0	19.0	22.6	19.9	14.3	0.15
920406	1900	0.85	0.142	0.142	7.04	7.04	14.0	16.0	15.9	30.1	22.1	14.3	0.21
920406	2200	0.75	0.132	0.132	7.56	7.56	12.0	14.0	11.0	34.0	20.9	16.3	0.25
920407	0100	0.71	0.074	0.074	13.56	13.56	-10.0	-12.0	4.0	34.6	22.3	18.2	0.20
920407	0400	0.74	0.083	0.083	11.98	11.98	-14.0	-10.0	-0.8	30.9	24.6	23.7	0.19
920407	0700	0.75	0.113	0.083	8.87	11.98	-16.0	-12.0	-0.5	29.5	27.5	28.8	0.25
920407	1000	0.70	0.083	0.083	11.98	11.98	-12.0	-8.0	1.9	28.5	27.6	23.4	0.22
920407	1300	0.76	0.083	0.083	11.98	11.98	-14.0	-10.0	-5.2	28.1	27.6	24.8	0.20
920407	1600	0.85	0.074	0.083	13.56	11.98	-8.0	-10.0	-11.5	29.7	29.8	32.4	0.18
920407	1900	0.92	0.083	0.083	11.98	11.98	-12.0	-12.0	-14.7	27.6	27.3	29.0	0.23
920407	2200	0.85	0.083	0.083	11.98	11.98	-8.0	-10.0	-3.8	29.3	29.0	25.8	0.29
920408	0100	0.96	0.083	0.083	11.98	11.98	-12.0	-12.0	-9.0	28.7	29.1	25.4	0.24
920408	0400	1.00	0.074	0.083	13.56	11.98	-10.0	-10.0	3.0	28.8	27.9	33.9	0.21
920408	0700	0.98	0.074	0.083	13.56	11.98	-10.0	-10.0	-11.1	30.5	30.3	36.1	0.22
920408	1000	0.93	0.074	0.083	13.56	11.98	-10.0	-10.0	-9.0	29.9	29.9	31.2	0.25
920408	1300	0.93	0.074	0.083	13.56	11.98	-14.0	-12.0	-8.4	30.0	29.9	30.4	0.22
920408	1600	0.89	0.074	0.083	13.56	11.98	-14.0	-12.0	-11.2	29.2	29.2	29.0	0.21
920408	1900	0.88	0.083	0.083	11.98	11.98	-8.0	-12.0	-7.7	29.1	28.0	24.7	0.23
920408	2200	0.82	0.083	0.083	11.98	11.98	-14.0	-12.0	-12.0	28.5	27.5	27.1	0.23

Table A1 (Continued)

Date	Time EST	H_{m_o} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{ss}$ deg	$\Delta\theta_{sw}$ deg	$\Delta\theta_{mp}$ deg	χ
920409	0100	0.72	0.074	0.083	13.56	11.98	-10.0	-10.0	-15.0	29.3	29.3	27.9	0.24
920409	0400	0.68	0.074	0.083	13.56	11.98	-10.0	-10.0	-5.7	30.9	29.7	29.7	0.20
920409	0700	0.68	0.083	0.083	11.98	11.98	-6.0	-10.0	-5.7	33.0	29.2	28.3	0.23
920409	1000	0.70	0.083	0.093	11.98	10.72	-12.0	-12.0	-16.2	33.2	30.2	24.3	0.21
920409	1300	0.69	0.083	0.083	11.98	11.98	-14.0	-12.0	-11.5	36.0	31.3	24.6	0.22
920409	1600	0.70	0.093	0.093	10.72	10.72	14.0	-10.0	-18.1	40.4	29.7	29.7	0.18
920409	1900	0.63	0.103	0.103	9.71	9.71	-10.0	-10.0	-22.4	39.5	29.4	26.2	0.20
920409	2200	0.69	0.083	0.083	11.98	11.98	-12.0	-12.0	-25.4	36.6	28.8	23.4	0.19
920410	0100	0.64	0.093	0.093	10.72	10.72	-16.0	-10.0	-23.1	36.5	29.0	26.0	0.21
920410	0400	0.60	0.083	0.083	11.98	11.98	-6.0	-16.0	-27.3	37.3	29.6	28.6	0.18
920410	0700	0.59	0.083	0.083	11.98	11.98	-16.0	-20.0	-23.6	38.3	28.1	26.5	0.19
920410	1000	0.57	0.093	0.083	10.72	11.98	-16.0	-10.0	-24.1	39.7	29.2	29.2	0.23
920410	1300	0.53	0.083	0.083	11.98	11.98	-10.0	-50.0	-22.6	41.7	26.6	22.9	0.23
920410	1600	0.51	0.083	0.083	11.98	11.98	-10.0	-52.0	-20.5	45.7	26.8	29.4	0.21
920410	1900	0.47	0.074	0.083	13.56	11.98	-14.0	-14.0	-20.0	40.4	29.1	31.2	0.22
920410	2200	0.48	0.074	0.074	13.56	13.56	-12.0	-12.0	-18.4	37.7	27.3	21.4	0.30
920411	0100	0.47	0.074	0.074	13.56	13.56	-12.0	-12.0	-23.8	38.7	27.7	28.0	0.25
920411	0400	0.47	0.083	0.083	11.98	11.98	-18.0	-14.0	-22.8	38.6	28.7	29.1	0.24
920411	0700	0.49	0.074	0.083	13.56	11.98	-12.0	-12.0	-22.7	36.8	27.4	28.0	0.21
920411	1000	0.51	0.074	0.074	13.56	13.56	-12.0	-12.0	-25.3	34.2	27.5	20.4	0.21
920411	1300	0.47	0.074	0.083	13.56	11.98	-10.0	-48.0	-23.5	41.6	30.2	32.2	0.25
920411	1600	0.52	0.181	0.083	5.52	11.98	-48.0	-48.0	-31.2	41.4	28.1	27.4	0.21
920411	1900	0.51	0.171	0.083	5.83	11.98	-42.0	-42.0	-31.5	36.3	23.7	29.9	0.18
920411	2200	0.57	0.171	0.083	5.83	11.98	-48.0	-42.0	-37.8	32.3	22.1	27.9	0.18
920412	0100	0.54	0.152	0.083	6.59	11.98	-46.0	-38.0	-38.8	31.7	22.6	28.1	0.19
920412	0400	0.50	0.171	0.083	5.83	11.98	-36.0	-38.0	-39.2	32.3	24.0	27.8	0.20
920412	0700	0.47	0.113	0.083	8.87	11.98	-36.0	-38.0	-34.6	35.2	26.3	32.8	0.19
920412	1000	0.49	0.083	0.083	11.98	11.98	-8.0	-38.0	-26.7	34.6	26.9	25.3	0.19
920412	1300	0.52	0.113	0.083	8.87	11.98	-24.0	-42.0	-21.7	38.7	30.5	23.8	0.19
920412	1600	0.51	0.083	0.083	11.98	11.98	-16.0	-36.0	-17.3	43.8	35.3	20.1	0.20
920412	1900	0.56	0.289	0.103	3.47	9.71	56.0	-40.0	-2.9	69.4	38.4	36.2	0.16
920412	2200	1.05	0.210	0.220	4.75	4.54	52.0	50.0	30.5	34.1	29.1	18.5	0.11
920413	0100	1.61	0.201	0.191	4.98	5.24	34.0	32.0	30.0	28.9	28.7	19.8	0.11
920413	0400	2.08	0.152	0.162	6.59	6.19	14.0	14.0	22.3	30.8	29.7	25.4	0.14
920413	0700	2.73	0.132	0.142	7.56	7.04	16.0	16.0	21.5	27.7	27.1	21.1	0.15
920413	1000	2.85	0.123	0.123	8.16	8.16	8.0	12.0	20.6	30.7	28.1	23.1	0.14
920413	1300	2.63	0.123	0.123	8.16	8.16	22.0	16.0	26.0	31.4	28.6	24.3	0.16
920413	1600	2.20	0.123	0.123	8.16	8.16	8.0	26.0	26.3	34.8	29.9	28.0	0.17
920413	1900	1.83	0.123	0.123	8.16	8.16	24.0	20.0	22.6	32.1	29.4	25.2	0.14
920413	2200	1.67	0.123	0.123	8.16	8.16	12.0	14.0	17.5	33.6	31.1	27.1	0.11
920414	0100	1.51	0.123	0.123	8.16	8.16	16.0	14.0	21.3	37.3	36.4	30.1	0.13
920414	0400	1.44	0.152	0.132	6.59	7.56	10.0	10.0	20.5	41.2	36.9	38.9	0.17
920414	0700	1.30	0.103	0.142	9.71	7.04	8.0	10.0	14.6	39.7	35.4	39.5	0.13
920414	1000	1.20	0.132	0.113	7.56	8.87	-32.0	8.0	10.5	40.8	36.8	36.7	0.12
920414	1300	1.19	0.113	0.113	8.87	8.87	6.0	6.0	10.6	36.9	35.8	35.4	0.14
920414	1600	1.12	0.113	0.103	8.87	9.71	-10.0	8.0	5.6	38.8	36.4	36.0	0.19
920414	1900	1.04	0.113	0.103	8.87	9.71	6.0	8.0	2.0	41.0	37.9	37.3	0.17
920414	2200	1.06	0.113	0.113	8.87	8.87	-40.0	6.0	-7.3	39.1	37.6	37.0	0.12
920415	0100	1.04	0.113	0.113	8.87	8.87	-16.0	2.0	-6.6	34.6	34.4	29.3	0.14
920415	0400	0.99	0.113	0.113	8.87	8.87	-22.0	-18.0	-7.7	34.1	34.4	31.1	0.18
920415	0700	0.86	0.113	0.113	8.87	8.87	-18.0	-18.0	-7.6	35.7	35.2	33.5	0.18
920415	1000	0.82	0.103	0.113	9.71	8.87	-24.0	-24.0	-10.7	34.7	33.7	35.0	0.13
920415	1300	0.80	0.123	0.113	8.16	8.87	6.0	4.0	-3.7	35.9	36.1	36.3	0.16
920415	1600	0.78	0.123	0.123	8.16	8.16	6.0	-12.0	-6.2	35.6	35.2	33.4	0.19
920415	1900	0.75	0.123	0.123	8.16	8.16	-16.0	-18.0	-15.0	35.1	35.2	27.7	0.20
920415	2200	0.75	0.123	0.132	8.16	7.56	4.0	2.0	-14.5	34.3	35.7	32.0	0.16
920416	0100	0.75	0.123	0.123	8.16	8.16	-20.0	-10.0	-12.6	32.8	33.2	26.1	0.15
920416	0700	0.68	0.113	0.113	8.87	8.87	-38.0	2.0	-21.2	36.2	36.1	31.9	0.19

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,JO}$ Hz	$f_{p,JS}$ Hz	$T_{p,JO}$ sec	$T_{p,JS}$ sec	$\theta_{p,JO}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{TOP}$ deg	γ
920416	1000	0.67	0.123	0.123	8.16	8.16	-34.0	2.0	-12.5	39.1	41.0	30.8	0.15
920416	1300	0.71	0.123	0.132	8.16	7.56	-12.0	-14.0	-12.6	41.2	41.3	24.0	0.15
920416	1600	0.77	0.123	0.123	8.16	8.16	-18.0	-40.0	-38.4	37.6	34.0	21.4	0.16
920416	1900	0.83	0.171	0.171	5.83	5.83	-46.0	-48.0	-38.6	36.9	29.8	19.4	0.16
920416	2200	0.78	0.162	0.152	6.19	6.59	-46.0	-48.0	-41.2	34.4	27.9	25.9	0.14
920417	0100	0.76	0.162	0.162	6.19	6.19	-44.0	-44.0	-40.7	30.9	25.5	14.7	0.12
920417	0400	0.79	0.152	0.152	6.59	6.59	-44.0	-42.0	-43.4	26.5	23.2	15.6	0.15
920417	0700	0.68	0.152	0.152	6.59	6.59	-46.0	-46.0	-41.7	24.9	20.5	10.8	0.17
920417	1000	0.56	0.162	0.152	6.19	6.59	-46.0	-46.0	-41.1	27.1	20.0	19.4	0.17
920417	1300	0.56	0.162	0.152	6.19	6.59	-48.0	-48.0	-42.6	26.7	17.9	18.2	0.15
920417	1600	0.65	0.240	0.123	4.17	8.16	-54.0	-50.0	-46.6	22.9	14.9	26.6	0.18
920417	1900	0.61	0.152	0.103	6.59	9.71	-44.0	-44.0	-45.4	22.4	14.9	18.1	0.17
920417	2200	0.51	0.152	0.103	6.59	9.71	-44.0	-48.0	-37.4	27.5	16.3	19.2	0.20
920418	0100	0.49	0.113	0.113	8.87	8.87	-34.0	-32.0	-37.7	26.0	19.9	20.9	0.16
920418	0400	0.50	0.103	0.103	9.71	9.71	-30.0	-32.0	-37.6	26.9	21.3	20.3	0.20
920418	0700	0.49	0.113	0.113	8.87	8.87	-30.0	-42.0	-39.6	24.5	21.2	17.9	0.18
920418	1000	0.42	0.113	0.113	8.87	8.87	-26.0	-46.0	-39.1	28.5	22.2	24.9	0.21
920418	1300	0.40	0.113	0.113	8.87	8.87	-24.0	-40.0	-39.6	29.9	21.7	21.9	0.22
920418	1600	0.45	0.113	0.113	8.87	8.87	-38.0	-54.0	-49.1	35.6	21.3	28.5	0.21
920418	1900	0.42	0.142	0.113	7.04	8.87	-46.0	-46.0	-45.0	40.2	32.6	35.2	0.22
920418	2200	0.43	0.191	0.113	5.24	8.87	38.0	-46.0	-20.6	68.9	57.5	35.1	0.21
920419	0100	0.48	0.171	0.171	5.83	5.83	32.0	32.0	-0.8	68.7	56.1	61.4	0.18
920419	0400	0.55	0.171	0.171	5.83	5.83	22.0	-42.0	3.2	65.2	52.6	25.8	0.17
920419	0700	0.65	0.181	0.181	5.52	5.52	36.0	36.0	10.1	72.7	54.6	23.2	0.15
920419	1000	0.70	0.191	0.181	5.24	5.52	38.0	38.0	20.6	74.3	55.3	20.2	0.17
920419	1300	0.66	0.181	0.181	5.52	5.52	36.0	34.0	14.7	68.8	.6	19.5	0.16
920419	1600	0.77	0.191	0.181	5.24	5.52	32.0	32.0	22.6	66.3	8	19.5	0.15
920419	1900	0.80	0.123	0.171	8.16	5.83	-42.0	24.0	18.3	65.8	36.4	23.9	0.15
920419	2200	0.76	0.132	0.181	7.56	5.52	-44.0	36.0	14.1	66.5	38.4	29.7	0.15
920420	0100	0.69	0.210	0.113	4.75	8.87	46.0	46.0	13.1	65.4	34.9	35.7	0.15
920420	0400	0.72	0.220	0.181	4.54	5.52	48.0	42.0	16.5	62.2	36.1	29.1	0.14
920420	0700	0.75	0.181	0.181	5.52	5.52	38.0	40.0	20.3	61.5	42.3	25.4	0.17
920420	1000	0.72	0.132	0.123	7.56	8.16	-46.0	38.0	10.5	62.0	56.1	46.2	0.21
920420	1300	0.69	0.191	0.123	5.24	8.16	36.0	20.0	18.4	56.5	55.3	39.6	0.18
920420	1600	0.71	0.142	0.113	7.04	8.87	-40.0	16.0	-0.4	53.6	55.7	40.6	0.18
920420	1900	0.76	0.181	0.123	5.52	8.16	-50.0	-44.0	-27.6	53.4	47.6	40.7	0.18
920420	2200	0.82	0.162	0.113	6.19	8.87	-52.0	-52.0	-34.1	56.0	40.7	36.0	0.19
920421	0100	0.90	0.171	0.162	5.83	6.19	-54.0	-52.0	-34.0	54.6	36.3	20.2	0.17
920421	0400	0.92	0.152	0.152	6.59	6.59	-48.0	-48.0	-35.0	47.3	34.9	19.4	0.14
920421	0700	0.95	0.162	0.162	6.19	6.19	-48.0	-46.0	-34.7	44.9	32.3	28.0	0.17
920421	1000	1.05	0.162	0.103	6.19	9.71	-52.0	-66.0	-44.3	46.9	25.3	32.6	0.26
920421	1300	1.06	0.318	0.152	3.15	6.59	-60.0	-60.0	-39.1	43.6	22.9	26.1	0.28
920421	1600	0.93	0.152	0.103	6.59	9.71	-44.0	-46.0	-35.9	43.0	26.8	24.4	0.20
920421	1900	0.90	0.142	0.113	7.04	8.87	-42.0	-46.0	-32.5	41.0	27.9	30.3	0.17
920421	2200	0.91	0.152	0.152	6.59	6.59	-44.0	-44.0	-33.6	38.5	27.3	20.0	0.16
920422	0100	0.96	0.142	0.142	7.04	7.04	-42.0	-44.0	-32.2	34.2	26.2	18.9	0.16
920422	0400	0.94	0.142	0.132	7.04	7.56	-42.0	-42.0	-31.3	33.9	26.9	21.9	0.14
920422	0700	0.96	0.132	0.142	7.56	7.04	-42.0	-42.0	-34.0	35.5	27.8	33.0	0.15
920422	1000	0.92	0.132	0.132	7.56	7.56	-42.0	-44.0	-34.6	37.9	26.5	17.0	0.17
920422	1300	0.90	0.142	0.132	7.04	7.56	-42.0	-44.0	-36.3	40.0	26.8	27.8	0.16
920422	1600	0.92	0.142	0.142	7.04	7.04	-44.0	-44.0	-35.4	40.4	29.1	22.2	0.15
920422	1900	0.90	0.152	0.142	6.59	7.04	-42.0	-44.0	-33.3	39.4	25.2	21.7	0.16
920422	2200	0.90	0.142	0.142	7.04	7.04	-44.0	-46.0	-31.4	38.8	27.1	19.3	0.17
920423	0100	0.83	0.142	0.142	7.04	7.04	-44.0	-46.0	-31.0	42.4	27.8	19.2	0.18
920423	0400	0.78	0.152	0.152	6.59	6.59	-40.0	-42.0	-31.2	37.7	26.8	21.1	0.16
920423	0700	0.71	0.152	0.093	6.59	10.72	-44.0	-42.0	-28.0	42.0	28.6	27.1	0.17
920423	1300	0.65	0.093	0.093	10.72	10.72	14.0	-16.0	-19.2	39.9	34.6	32.2	0.20
920423	1600	0.67	0.074	0.074	13.56	13.56	-18.0	-20.0	-23.2	35.5	32.2	22.9	0.21

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,ZCS}$ Hz	$T_{p,PD}$ sec	$T_{p,ZCS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,EDS}$ deg	$\theta_{p,EMV}$ deg	$\Delta\theta_{EDS}$ deg	$\Delta\theta_{EMV}$ deg	$\Delta\theta_{FDP}$ deg	χ
920423	1900	0.77	0.083	0.083	11.98	11.98	-26.0	-26.0	-29.0	32.1	31.0	33.9	0.21
920423	2200	0.91	0.083	0.083	11.98	11.98	-32.0	-32.0	-22.4	31.0	30.2	29.8	0.20
920424	0100	0.97	0.083	0.083	11.98	11.98	-26.0	-28.0	-27.1	27.7	28.0	27.2	0.19
920424	0400	1.00	0.083	0.083	11.98	11.98	-26.0	-28.0	-29.6	31.6	31.7	35.3	0.17
920424	0700	1.00	0.093	0.093	10.72	10.72	-22.0	-24.0	-23.3	29.3	29.7	30.3	0.19
920424	1000	1.05	0.093	0.093	10.72	10.72	-28.0	-22.0	-25.4	27.7	28.3	29.0	0.20
920424	1300	1.05	0.093	0.093	10.72	10.72	-20.0	-22.0	-24.0	29.0	29.0	29.1	0.20
920424	1600	1.00	0.093	0.093	10.72	10.72	-20.0	-20.0	-26.8	34.0	34.1	35.9	0.20
920424	1900	0.95	0.093	0.093	10.72	10.72	-22.0	-22.0	-27.7	30.0	27.9	30.9	0.17
920424	2200	0.82	0.093	0.093	10.72	10.72	-26.0	-26.0	-23.3	27.5	26.1	24.7	0.22
920425	0100	0.76	0.093	0.093	10.72	10.72	-28.0	-20.0	-26.5	30.5	29.1	30.6	0.23
920425	0400	0.75	0.093	0.093	10.72	10.72	-12.0	-38.0	-22.3	33.8	33.1	35.9	0.22
920425	0700	0.74	0.103	0.093	9.71	10.72	-22.0	-22.0	-24.6	34.3	33.4	36.9	0.20
920425	1000	0.67	0.103	0.103	9.71	9.71	-42.0	-14.0	-28.4	36.8	34.2	35.4	0.22
920425	1300	0.64	0.103	0.103	9.71	9.71	-6.0	-14.0	-15.9	35.5	36.2	30.0	0.23
920425	1600	0.60	0.103	0.103	9.71	9.71	-12.0	-12.0	-19.8	32.0	31.8	26.1	0.23
920425	1900	0.65	0.103	0.103	9.71	9.71	-14.0	-16.0	-23.4	31.5	30.8	31.1	0.18
920425	2200	0.77	0.103	0.103	9.71	9.71	-16.0	-12.0	-16.2	30.6	29.4	30.6	0.15
920426	0100	0.74	0.103	0.103	9.71	9.71	-14.0	-10.0	-15.5	27.7	29.9	28.0	0.17
920426	0400	0.85	0.103	0.103	9.71	9.71	-16.0	-10.0	-8.8	39.9	36.8	35.8	0.14
920426	0700	1.00	0.201	0.201	4.98	4.98	40.0	40.0	19.6	50.3	41.2	46.0	0.12
920426	1000	1.21	0.181	0.181	5.52	5.52	34.0	36.0	33.2	45.6	35.2	32.2	0.12
920426	1300	1.21	0.171	0.181	5.83	5.52	30.0	38.0	30.4	38.8	30.2	27.4	0.13
920426	1600	1.13	0.171	0.162	5.83	6.19	26.0	34.0	25.0	35.0	26.5	24.6	0.14
920426	1900	1.10	0.181	0.181	5.52	5.52	22.0	32.0	23.9	34.7	29.1	22.6	0.13
920426	2200	1.12	0.181	0.113	5.52	8.87	34.0	14.0	19.0	33.5	27.7	34.0	0.16
920427	0100	1.03	0.064	0.113	15.63	8.87	-6.0	12.0	14.6	30.5	27.1	35.4	0.18
920427	0400	1.02	0.064	0.113	15.63	8.87	-10.0	2.0	13.6	30.4	28.0	33.5	0.18
920427	0700	1.03	0.113	0.113	8.87	8.87	-2.0	8.0	9.4	29.5	27.8	29.5	0.18
920427	1000	1.04	0.113	0.113	8.87	8.87	12.0	8.0	6.3	26.6	26.0	30.3	0.20
920427	1300	1.02	0.103	0.103	9.71	9.71	16.0	8.0	9.4	26.4	26.0	29.1	0.21
920427	1600	0.97	0.113	0.103	8.87	9.71	10.0	10.0	7.2	26.1	26.0	28.6	0.25
920427	1900	1.02	0.103	0.103	9.71	9.71	0.0	0.0	2.3	25.8	25.7	22.5	0.21
920427	2200	1.02	0.103	0.113	9.71	8.87	-6.0	-4.0	-3.3	27.5	28.0	25.9	0.24
920428	0100	0.97	0.103	0.103	9.71	9.71	-2.0	-4.0	-3.6	27.6	27.5	25.3	0.24
920428	0400	0.97	0.064	0.103	15.63	9.71	-12.0	-10.0	-4.1	26.3	27.2	23.7	0.26
920428	0700	0.96	0.064	0.103	15.63	9.71	-8.0	-10.0	-1.0	28.8	29.0	28.7	0.27
920428	1000	1.10	0.064	0.064	15.63	15.63	-10.0	10.0	3.1	32.6	29.5	28.1	0.20
920428	1300	1.45	0.250	0.240	4.01	4.17	40.0	14.0	19.2	38.8	28.3	26.0	0.16
920428	1600	1.75	0.191	0.191	5.24	5.24	20.0	16.0	16.8	32.3	25.8	21.4	0.13
920428	1900	1.97	0.142	0.162	7.04	6.19	8.0	8.0	13.3	29.4	25.2	21.5	0.14
920428	2200	2.24	0.123	0.132	8.16	7.56	0.0	4.0	14.0	28.7	25.3	20.3	0.13
920429	0100	2.33	0.132	0.123	7.56	8.16	2.0	4.0	14.2	31.8	25.5	23.7	0.14
920429	0400	2.60	0.113	0.113	8.87	8.87	-2.0	14.0	17.0	30.8	24.7	20.8	0.17
920429	0700	2.90	0.113	0.103	8.87	9.71	-4.0	8.0	13.6	31.5	27.0	25.7	0.15
920429	1000	2.87	0.103	0.103	9.71	9.71	-2.0	0.0	11.0	30.4	28.7	27.1	0.12
920429	1300	2.74	0.113	0.103	8.87	9.71	-2.0	12.0	9.2	33.2	29.8	29.9	0.14
920429	1600	2.35	0.093	0.093	10.72	10.72	-6.0	12.0	6.7	34.5	31.5	28.3	0.14
920429	1900	2.04	0.093	0.093	10.72	10.72	-12.0	12.0	1.9	33.8	32.4	31.7	0.14
920429	2200	1.89	0.093	0.093	10.72	10.72	-20.0	8.0	-3.1	30.1	29.7	28.5	0.14
920430	0100	2.01	0.093	0.093	10.72	10.72	-10.0	-8.0	-1.6	28.0	27.6	22.5	0.13
920430	0400	2.00	0.083	0.083	11.98	11.98	-14.0	-14.0	-7.7	28.2	28.1	20.8	0.14
920430	0700	1.92	0.083	0.083	11.98	11.98	-16.0	-16.0	-7.9	26.6	25.5	18.4	0.14
920430	1000	1.74	0.093	0.093	10.72	10.72	-16.0	-12.0	-6.5	29.2	28.5	28.4	0.13
920430	1300	1.82	0.093	0.093	10.72	10.72	-20.0	-12.0	-13.0	28.5	27.7	27.6	0.15
920430	1600	1.70	0.083	0.083	11.98	11.98	-8.0	-10.0	-10.8	31.6	29.8	31.7	0.16
920430	1900	1.54	0.083	0.083	11.98	11.98	-8.0	-10.0	-7.4	29.9	29.8	31.7	0.18
920430	2200	1.57	0.093	0.093	10.72	10.72	-8.0	-12.0	-8.5	26.8	27.0	23.9	0.14

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PDP}$ deg	χ
920501	0100	1.46	0.083	0.093	11.98	10.72	-10.0	-12.0	-12.0	29.4	29.1	31.9	0.14
920501	0400	1.32	0.083	0.093	11.98	10.72	-12.0	-12.0	-2.9	27.7	27.4	27.5	0.18
920501	0700	1.18	0.093	0.093	10.72	10.72	-10.0	-10.0	-2.8	29.7	30.0	30.4	0.18
920501	1600	1.29	0.083	0.083	11.98	11.98	-10.0	-10.0	-3.2	27.7	29.2	20.8	0.20
920501	1900	1.33	0.083	0.083	11.98	11.98	-12.0	-12.0	-11.9	27.2	28.2	23.4	0.18
920501	2200	1.20	0.074	0.083	13.56	11.98	-10.0	-8.0	-2.6	27.6	28.3	29.9	0.16
920502	0100	1.21	0.074	0.083	13.56	11.98	-12.0	-12.0	2.7	28.0	28.5	29.8	0.17
920502	0400	1.15	0.083	0.083	11.98	11.98	-6.0	-6.0	-2.2	26.8	27.1	28.4	0.20
920502	0700	1.01	0.074	0.083	13.56	11.98	-10.0	-10.0	-7.1	26.9	27.8	28.7	0.22
920502	1000	0.91	0.083	0.083	11.98	11.98	-4.0	-6.0	-2.9	29.2	29.7	30.2	0.16
920502	1300	0.79	0.083	0.083	11.98	11.98	-8.0	-8.0	-5.5	28.1	28.4	30.1	0.17
920502	1600	0.66	0.083	0.083	11.98	11.98	-6.0	-56.0	-14.2	39.3	24.3	28.7	0.33
920502	1900	0.56	0.083	0.083	11.98	11.98	-8.0	-10.0	-12.1	34.5	25.3	25.5	0.33
920502	2200	0.50	0.083	0.083	11.98	11.98	-8.0	-56.0	-8.6	39.0	25.5	28.4	0.24
920503	0100	0.44	0.093	0.093	10.72	10.72	-12.0	-14.0	-18.6	38.7	26.2	28.1	0.18
920503	0400	0.42	0.093	0.093	10.72	10.72	-6.0	-12.0	-16.8	42.8	26.8	25.5	0.26
920503	0700	0.38	0.093	0.093	10.72	10.72	-10.0	-8.0	-20.4	42.5	27.8	27.5	0.25
920503	1000	0.36	0.093	0.093	10.72	10.72	-4.0	-4.0	-20.5	43.9	29.5	22.4	0.25
920503	1300	0.37	0.142	0.093	7.04	10.72	-44.0	-44.0	-19.4	49.5	32.6	27.8	0.22
920503	1600	0.37	0.142	0.093	7.04	10.72	-42.0	-42.0	-21.8	47.8	31.4	28.2	0.25
920503	1900	0.35	0.093	0.093	10.72	10.72	16.0	-14.0	-26.4	47.2	30.2	31.7	0.24
920503	2200	0.33	0.142	0.103	7.04	9.71	-44.0	-14.0	-26.0	43.1	37.5	30.2	0.27
920504	0100	0.33	0.142	0.103	7.04	9.71	-42.0	-42.0	-26.1	42.8	36.3	32.2	0.25
920504	0400	0.55	0.298	0.318	3.35	3.15	64.0	64.0	34.3	65.3	17.8	5.4	0.35
920504	0700	1.01	0.210	0.210	4.75	4.75	48.0	56.0	48.6	18.3	16.7	10.3	0.22
920504	1000	0.90	0.210	0.210	4.75	4.75	52.0	50.0	48.3	18.4	17.2	11.3	0.23
920504	1300	0.66	0.220	0.220	4.54	4.54	54.0	54.0	45.1	25.2	20.2	12.6	0.15
920504	1600	0.46	0.259	0.220	3.86	4.54	50.0	46.0	20.1	47.7	31.7	36.2	0.17
920504	1900	0.43	0.220	0.210	4.54	4.75	44.0	44.0	19.6	47.0	33.6	43.8	0.17
920504	2200	0.38	0.230	0.230	4.35	4.35	42.0	10.0	17.4	38.3	33.0	30.1	0.21
920505	0100	0.40	0.181	0.181	5.52	5.52	20.0	20.0	12.3	33.0	27.0	16.2	0.19
920505	0400	0.44	0.210	0.201	4.75	4.98	24.0	24.0	12.1	32.3	22.0	13.9	0.19
920505	0700	0.48	0.230	0.230	4.35	4.35	24.0	22.0	10.9	35.5	22.9	14.4	0.17
920505	1000	0.86	0.240	0.259	4.17	3.86	28.0	30.0	26.8	24.7	20.0	20.8	0.17
920505	1300	1.18	0.210	0.210	4.75	4.75	24.0	22.0	23.0	28.5	24.4	22.1	0.10
920505	1600	1.31	0.201	0.201	4.98	4.98	18.0	16.0	19.6	30.3	26.6	20.0	0.09
920505	1900	1.38	0.181	0.181	5.52	5.52	8.0	12.0	14.4	36.3	29.3	24.2	0.12
920505	2200	1.55	0.191	0.191	5.24	5.24	34.0	34.0	20.4	42.0	29.8	31.9	0.13
920506	0100	1.87	0.132	0.142	7.56	7.04	-16.0	8.0	17.0	38.9	27.0	29.8	0.12
920506	0400	2.00	0.132	0.132	7.56	7.56	-14.0	32.0	20.9	36.2	28.0	24.5	0.12
920506	0700	2.18	0.132	0.142	7.56	7.04	16.0	24.0	26.7	30.3	26.1	24.5	0.17
920506	1300	2.72	0.142	0.132	7.04	7.56	20.0	20.0	21.7	29.4	24.9	23.7	0.20
920506	1600	2.93	0.132	0.132	7.56	7.56	12.0	14.0	20.5	28.0	26.4	22.4	0.18
920506	1900	3.05	0.132	0.113	7.56	8.87	22.0	18.0	24.1	30.9	28.4	26.4	0.20
920506	2200	3.15	0.123	0.113	8.16	8.87	32.0	18.0	27.4	30.7	27.9	24.6	0.20
920507	0100	3.21	0.093	0.093	10.72	10.72	-2.0	12.0	18.4	30.0	26.7	17.0	0.16
920507	0400	3.20	0.093	0.103	10.72	9.71	0.0	14.0	20.2	30.1	28.0	24.2	0.16
920507	0700	3.35	0.103	0.103	9.71	9.71	2.0	14.0	15.3	30.3	28.0	22.2	0.16
920507	1000	3.42	0.132	0.132	7.56	7.56	16.0	14.0	23.2	31.7	28.0	23.5	0.17
920507	1300	3.48	0.093	0.093	10.72	10.72	-2.0	12.0	12.5	28.4	28.1	20.2	0.16
920507	1600	3.29	0.093	0.093	10.72	10.72	-2.0	2.0	6.0	26.6	27.8	19.7	0.14
920507	1900	2.71	0.093	0.103	10.72	9.71	-4.0	12.0	11.8	31.8	32.0	24.8	0.14
920507	2200	2.33	0.113	0.103	8.87	9.71	12.0	12.0	16.9	35.9	38.2	24.7	0.15
920508	0100	2.09	0.103	0.103	9.71	9.71	14.0	12.0	15.8	36.2	39.5	26.7	0.15
920508	0400	1.93	0.103	0.103	9.71	9.71	12.0	12.0	12.0	33.1	36.0	21.5	0.14
920508	0700	2.40	0.103	0.103	9.71	9.71	-4.0	8.0	1.2	39.4	40.3	30.2	0.13
920508	1000	2.23	0.123	0.113	8.16	8.87	-42.0	8.0	-13.8	45.4	45.3	40.4	0.15
920508	1300	1.83	0.103	0.103	9.71	9.71	-4.0	-2.0	-16.9	46.6	44.2	34.1	0.16

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,JFS}$ Hz	$T_{p,PD}$ sec	$T_{p,JFS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
920508	1600	1.56	0.103	0.113	9.71	8.87	4.0	6.0	-1.1	43.6	44.9	43.4	0.14
920508	1900	1.45	0.113	0.113	8.87	8.87	14.0	12.0	1.4	43.9	44.7	41.9	0.12
920508	2200	1.37	0.113	0.113	8.87	8.87	14.0	12.0	-4.8	44.4	45.2	39.4	0.17
920509	0100	1.33	0.113	0.113	8.87	8.87	-32.0	-14.0	-24.2	37.5	38.6	28.0	0.16
920509	0400	1.21	0.113	0.113	8.87	8.87	-22.0	-16.0	-27.3	36.2	36.9	25.6	0.13
920509	0700	1.10	0.113	0.113	8.87	8.87	-30.0	-24.0	-34.0	36.1	37.3	27.0	0.13
920509	1000	1.04	0.113	0.113	8.87	8.87	-34.0	-32.0	-31.6	37.5	37.7	27.7	9.99
920509	1300	0.94	0.113	0.113	8.87	8.87	-20.0	-40.0	-31.9	37.6	36.4	29.8	9.99
920509	1600	0.84	0.113	0.113	8.87	8.87	-34.0	-36.0	-35.7	34.9	35.5	24.1	9.99
920509	1900	0.78	0.123	0.123	8.16	8.16	-38.0	-40.0	-34.3	41.8	39.8	34.2	9.99
920509	2200	0.78	0.113	0.123	8.87	8.16	-22.0	-40.0	-31.5	36.1	35.6	26.3	9.99
920510	0100	0.74	0.123	0.123	8.16	8.16	-40.0	-40.0	-36.9	34.9	34.4	25.5	9.99
920510	0400	0.64	0.123	0.123	8.16	8.16	-44.0	-44.0	-36.2	40.1	39.1	34.9	9.99
920510	0700	0.58	0.123	0.123	8.16	8.16	-38.0	-40.0	-34.7	37.8	35.1	24.1	9.99
920510	1000	0.53	0.123	0.123	8.16	8.16	-38.0	-42.0	-28.7	45.9	44.7	34.0	9.99
920510	1300	0.47	0.132	0.123	7.56	8.16	-40.0	-40.0	-31.5	45.4	44.0	33.7	9.99
920510	1600	0.45	0.132	0.123	7.56	8.16	-32.0	-42.0	-17.5	44.8	39.6	36.9	9.99
920510	1900	0.38	0.132	0.123	7.56	8.16	-30.0	-30.0	-21.6	41.5	40.5	37.0	9.99
920510	2200	0.36	0.132	0.123	7.56	8.16	-30.0	-38.0	-18.3	42.1	36.9	38.1	9.99
920511	0100	0.34	0.132	0.123	7.56	8.16	-44.0	-42.0	-25.9	43.2	38.1	40.2	9.99
920511	0400	0.34	0.142	0.123	7.04	8.16	-42.0	-42.0	-21.3	43.6	38.3	40.1	9.99
920511	1000	0.45	0.240	0.250	4.17	4.01	46.0	46.0	18.0	55.0	23.8	13.9	9.99
920511	1300	1.04	0.201	0.201	4.98	4.98	42.0	40.0	29.7	31.3	19.2	17.7	0.20
920511	1600	1.46	0.171	0.162	5.83	6.19	38.0	38.0	25.8	26.6	23.0	20.6	0.20
920511	1900	1.82	0.162	0.152	6.19	6.59	36.0	36.0	29.7	24.1	18.7	18.7	0.17
920511	2200	1.83	0.123	0.132	8.16	7.56	2.0	36.0	23.7	27.4	20.9	18.7	0.17
920512	0100	2.00	0.142	0.113	7.04	8.87	20.0	36.0	29.5	28.6	24.7	25.3	0.18
920512	0400	1.83	0.103	0.113	9.71	8.87	14.0	16.0	21.8	28.6	24.7	28.2	0.19
920512	0700	1.81	0.113	0.103	8.87	9.71	12.0	14.0	22.8	29.9	24.4	24.3	0.17
920512	1000	1.81	0.103	0.103	9.71	9.71	12.0	18.0	21.9	28.3	24.5	26.0	0.17
920512	1300	1.73	0.103	0.103	9.71	9.71	-4.0	14.0	16.5	29.2	23.5	22.5	0.18
920512	1600	1.54	0.103	0.103	9.71	9.71	14.0	16.0	16.8	28.3	24.2	22.6	0.19
920512	1900	1.39	0.093	0.113	10.72	8.87	-6.0	14.0	12.3	27.3	24.0	25.6	0.17
920512	2200	1.45	0.103	0.103	9.71	9.71	-6.0	14.0	6.4	26.8	25.3	25.5	0.14
920513	0100	1.41	0.093	0.093	10.72	10.72	-14.0	12.0	4.4	28.1	25.4	23.4	0.16
920513	0400	1.23	0.093	0.093	10.72	10.72	-6.0	14.0	9.6	29.6	27.5	24.2	0.19
920513	0700	1.11	0.093	0.103	10.72	9.71	-14.0	-10.0	2.9	29.8	27.5	26.0	0.17
920513	1000	1.01	0.093	0.103	10.72	9.71	-14.0	14.0	4.3	30.2	28.1	27.4	0.14
920513	1300	0.98	0.103	0.103	9.71	9.71	-16.0	-12.0	0.8	29.2	26.2	27.5	0.16
920513	1600	0.95	0.103	0.103	9.71	9.71	-14.0	14.0	4.6	29.0	26.9	26.7	0.20
920513	1900	0.86	0.103	0.113	9.71	8.87	-10.0	12.0	5.6	28.7	26.9	27.5	0.18
920513	2200	0.85	0.103	0.103	9.71	9.71	-4.0	14.0	0.1	27.5	26.1	23.8	0.16
920514	0100	0.85	0.103	0.103	9.71	9.71	-12.0	-12.0	-1.4	27.0	25.5	22.6	0.18
920514	0400	0.80	0.103	0.103	9.71	9.71	-8.0	-10.0	-2.2	26.7	25.9	23.7	0.21
920514	0700	0.70	0.103	0.103	9.71	9.71	14.0	10.0	5.1	29.1	29.0	24.1	0.21
920514	1000	0.68	0.103	0.103	9.71	9.71	18.0	14.0	5.0	31.2	31.0	26.7	0.17
920514	1300	0.71	0.103	0.103	9.71	9.71	0.0	0.0	-4.1	27.5	28.2	21.0	0.18
920514	1600	0.68	0.103	0.103	9.71	9.71	-4.0	-2.0	-4.8	30.0	30.3	21.8	0.23
920514	1900	0.65	0.093	0.103	10.72	9.71	-4.0	-4.0	-4.6	30.8	31.4	26.0	0.25
920514	2200	0.62	0.103	0.093	9.71	10.72	-10.0	-10.0	-9.0	27.3	28.0	24.9	0.18
920515	0100	0.61	0.093	0.093	10.72	10.72	-20.0	-16.0	-11.2	31.4	32.0	29.6	0.19
920515	0400	0.58	.093	0.093	10.72	10.72	-2.0	-12.0	-4.5	29.9	30.1	25.0	0.21
920515	0700	0.55	.093	0.093	10.72	10.72	-6.0	-12.0	-11.8	30.6	32.5	19.6	0.22
920515	1000	0.52	0.103	0.103	9.71	9.71	-12.0	-12.0	-16.2	35.5	32.1	27.6	0.19
920515	1300	0.51	0.103	0.103	9.71	9.71	-10.0	-12.0	-22.8	38.4	33.2	26.0	0.19
920515	1600	0.53	0.103	0.103	9.71	9.71	16.0	-12.0	-18.1	40.8	36.2	29.1	0.20
920515	1900	0.50	0.103	0.103	9.71	9.71	16.0	-42.0	-18.7	41.2	36.0	32.3	0.21
920515	2200	0.51	0.132	0.103	7.56	9.71	-38.0	-38.0	-32.0	41.1	37.0	30.8	0.22

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{PD}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
920516	0100	0.55	0.093	0.103	10.72	9.71	-28.0	-28.0	-33.8	38.3	35.1	29.1	0.21
920516	0400	0.58	0.103	0.103	9.71	9.71	-28.0	-28.0	-26.4	38.3	37.7	32.0	0.22
920516	0700	0.65	0.093	0.103	10.72	9.71	-26.0	-26.0	-22.5	40.2	37.9	34.3	0.21
920516	1300	0.70	0.103	0.103	9.71	9.71	-22.0	-22.0	-22.1	30.5	29.4	23.3	0.20
920516	1600	0.73	0.113	0.103	8.87	9.71	-34.0	-36.0	-28.0	30.3	30.4	22.3	0.17
920516	1900	0.80	0.103	0.103	9.71	9.71	-40.0	-38.0	-26.9	33.7	32.3	28.5	0.20
920516	2200	0.75	0.103	0.103	9.71	9.71	-24.0	-24.0	-17.2	33.9	32.1	28.4	0.19
920517	0100	0.77	0.103	0.103	9.71	9.71	-30.0	-24.0	-16.9	35.9	30.9	24.7	0.16
920517	0400	0.85	0.103	0.103	9.71	9.71	-22.0	-20.0	-7.2	44.5	34.3	28.2	0.17
920517	0700	0.88	0.103	0.103	9.71	9.71	-22.0	-22.0	-10.1	44.9	34.3	30.7	0.16
920517	1000	0.87	0.103	0.103	9.71	9.71	-38.0	-22.0	-6.9	39.5	31.5	27.5	0.16
920517	1300	0.88	0.103	0.103	9.71	9.71	-22.0	4.0	-7.2	34.0	30.2	28.2	0.14
920517	1600	0.90	0.113	0.113	8.87	8.87	-38.0	4.0	-10.1	34.3	30.6	32.9	0.15
920517	1900	0.91	0.103	0.113	9.71	8.87	-20.0	4.0	-6.7	34.2	30.2	32.7	0.16
920517	2200	0.89	0.103	0.103	9.71	9.71	-20.0	-12.0	-3.6	33.7	31.3	24.5	0.16
920518	0100	0.92	0.113	0.113	8.87	8.87	6.0	8.0	3.4	33.8	34.3	32.9	0.13
920518	0400	0.91	0.113	0.113	8.87	8.87	-14.0	8.0	-1.2	33.3	33.6	27.4	0.14
920518	0700	0.88	0.113	0.113	8.87	8.87	8.0	6.0	3.3	36.3	37.1	38.6	0.17
920518	1000	0.88	0.113	0.113	8.87	8.87	6.0	6.0	-2.7	34.1	35.5	34.7	0.17
920518	1300	0.89	0.103	0.103	9.71	9.71	-16.0	-16.0	-2.1	33.4	34.7	28.1	0.14
920518	1600	0.91	0.093	0.103	10.72	9.71	-4.0	-14.0	-17.9	35.8	35.1	33.0	0.14
920518	1900	0.96	0.093	0.093	10.72	10.72	-6.0	-20.0	-13.2	37.9	36.7	34.1	0.19
920518	2200	0.97	0.093	0.093	10.72	10.72	-4.0	-22.0	-17.1	36.8	37.4	32.8	0.17
920519	0100	0.94	0.093	0.103	10.72	9.71	-22.0	-22.0	-17.5	37.8	38.1	38.7	0.13
920519	0400	1.07	0.093	0.093	10.72	10.72	12.0	10.0	4.1	44.0	35.1	30.5	0.13
920519	0700	1.08	0.103	0.103	9.71	9.71	18.0	14.0	15.0	55.2	34.7	40.8	0.13
920519	1000	1.43	0.201	0.210	4.98	4.75	50.0	48.0	35.4	40.7	29.1	21.5	0.13
920519	1300	1.64	0.191	0.181	5.24	5.52	40.0	42.0	31.4	33.4	24.5	21.1	0.14
920519	1600	1.95	0.162	0.162	6.19	6.19	36.0	40.0	27.4	37.3	26.3	26.3	0.14
920519	1900	2.28	0.113	0.113	8.87	8.87	-2.0	16.0	22.4	35.3	28.6	28.5	0.16
920519	2200	2.14	0.113	0.113	8.87	8.87	14.0	12.0	24.6	33.4	26.0	25.2	0.18
920520	0100	2.15	0.103	0.103	9.71	9.71	10.0	12.0	23.3	34.0	25.6	23.5	0.17
920520	0400	2.11	0.123	0.113	8.16	8.87	10.0	12.0	21.9	33.3	26.9	26.7	0.16
920520	0700	2.14	0.113	0.113	8.87	8.87	14.0	12.0	22.5	38.2	27.6	29.2	0.17
920520	1000	2.07	0.123	0.113	8.16	8.87	10.0	12.0	23.8	36.8	27.2	30.7	0.18
920520	1300	1.92	0.113	0.113	8.87	8.87	2.0	12.0	17.4	36.2	27.9	25.4	0.17
920520	1600	1.97	0.103	0.113	9.71	8.87	-16.0	12.0	15.9	40.7	27.8	28.0	0.15
920520	1900	1.85	0.093	0.093	10.72	10.72	-16.0	12.0	13.8	38.6	31.1	29.3	0.15
920520	2200	1.73	0.083	0.093	11.98	10.72	-14.0	12.0	8.3	35.4	32.2	30.0	0.17
920521	0100	1.67	0.093	0.093	10.72	10.72	-6.0	-16.0	1.9	33.9	32.7	26.9	0.15
920521	0400	1.63	0.093	0.093	10.72	10.72	10.0	8.0	3.1	31.4	30.7	25.4	0.13
920521	0700	1.59	0.093	0.093	10.72	10.72	-6.0	10.0	4.0	33.9	32.1	25.5	0.14
920521	1000	1.47	0.093	0.093	10.72	10.72	-18.0	4.0	5.2	38.1	31.0	24.9	0.16
920521	1300	1.53	0.103	0.103	9.71	9.71	-16.0	12.0	2.1	38.6	31.8	30.8	0.16
920521	1600	1.55	0.113	0.093	8.87	10.72	-18.0	-16.0	-2.3	32.6	31.0	28.7	0.13
920521	1900	1.66	0.103	0.103	9.71	9.71	-16.0	-12.0	-3.4	29.2	29.2	27.4	0.13
920521	2200	1.57	0.093	0.103	10.72	9.71	12.0	-8.0	2.9	31.4	31.6	32.9	0.15
920522	0100	1.59	0.103	0.103	9.71	9.71	-12.0	-12.0	-6.7	31.7	32.3	27.5	0.13
920522	0400	1.68	0.093	0.103	10.72	9.71	-16.0	-12.0	-1.5	33.9	34.1	32.3	0.11
920522	0700	1.52	0.113	0.103	8.87	9.71	-14.0	-14.0	-7.5	34.5	34.8	34.2	0.14
920522	1000	1.39	0.093	0.103	10.72	9.71	16.0	10.0	2.6	35.7	35.8	34.3	0.16
920522	1300	1.27	0.103	0.103	9.71	9.71	12.0	8.0	6.0	34.0	34.2	34.0	0.17
920522	1600	1.19	0.103	0.103	9.71	9.71	0.0	-18.0	-4.6	32.9	32.9	30.8	0.15
920522	1900	1.19	0.103	0.103	9.71	9.71	12.0	-14.0	-6.1	35.0	34.8	35.8	0.16
920522	2200	1.24	0.103	0.103	9.71	9.71	-16.0	-18.0	-17.4	29.2	29.5	28.6	0.17
920523	0100	1.26	0.093	0.093	10.72	10.72	-18.0	-14.0	-15.4	33.3	33.0	33.3	0.16
920523	0400	1.22	0.093	0.093	10.72	10.72	-16.0	-16.0	-9.0	35.1	35.0	35.9	0.15
920523	0700	1.16	0.103	0.093	9.71	10.72	-38.0	-12.0	-16.7	36.2	36.0	38.3	0.15

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,SPE}$ Hz	$T_{p,PD}$ sec	$T_{p,SPE}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DIR}$ deg	$\theta_{p,SDW}$ deg	$\Delta\theta_{DIR}$ deg	$\Delta\theta_{SDW}$ deg	$\Delta\theta_{PDP}$ deg	χ
920523	1000	1.10	0.093	0.093	10.72	10.72	-6.0	-6.0	-6.6	35.2	35.3	30.2	0.17
920523	1300	1.07	0.093	0.093	10.72	10.72	-6.0	-8.0	-15.9	34.0	33.6	29.0	0.18
920523	1600	1.01	0.103	0.093	9.71	10.72	-20.0	-14.0	-13.9	33.2	33.7	39.7	0.16
920523	1900	1.01	0.103	0.103	9.71	9.71	-12.0	-14.0	-17.3	35.4	35.0	35.2	0.16
920523	2200	1.07	0.093	0.093	10.72	10.72	-18.0	-18.0	-17.6	33.4	32.9	33.6	0.16
920524	0100	0.97	0.103	0.093	9.71	10.72	-14.0	-16.0	-10.5	35.1	33.8	34.8	0.19
920524	0400	0.92	0.093	0.093	10.72	10.72	-18.0	-16.0	-18.5	36.2	35.3	33.4	0.17
920524	0700	0.88	0.103	0.103	9.71	9.71	-16.0	-20.0	-20.3	37.9	36.6	36.6	0.17
920524	1000	0.85	0.093	0.103	10.72	9.71	-4.0	-4.0	-17.3	36.2	35.4	33.5	0.20
920524	1300	0.86	0.103	0.103	9.71	9.71	6.0	4.0	-9.2	34.8	33.8	31.9	0.20
920524	1600	0.83	0.103	0.103	9.71	9.71	-18.0	-18.0	-16.5	34.4	33.7	32.4	0.21
920524	1900	0.79	0.103	0.103	9.71	9.71	12.0	-20.0	-12.5	34.5	32.4	33.2	0.19
920524	2200	0.85	0.113	0.113	8.87	8.87	-30.0	-10.0	-0.5	49.1	31.3	32.1	0.19
920525	0100	1.24	0.250	0.250	4.01	4.01	50.0	52.0	32.8	42.9	23.7	15.3	0.20
920525	0400	1.60	0.171	0.181	5.83	5.52	40.0	40.0	34.4	22.1	18.6	13.6	0.19
920525	0700	1.74	0.171	0.162	5.83	6.19	38.0	38.0	32.4	20.9	19.4	16.1	0.17
920525	1000	1.69	0.152	0.152	6.59	6.59	22.0	38.0	31.9	23.3	22.8	21.0	0.17
920525	1300	1.41	0.142	0.142	7.04	7.04	34.0	36.0	28.3	25.0	22.6	22.4	0.19
920525	1600	1.41	0.123	0.123	8.16	8.16	12.0	18.0	26.7	26.2	23.7	18.9	0.19
920525	1900	1.18	0.123	0.123	8.16	8.16	18.0	20.0	22.2	25.8	23.9	23.3	0.15
920525	2200	1.17	0.123	0.123	8.16	8.16	14.0	12.0	21.4	28.4	24.6	27.1	0.17
920526	0100	1.18	0.123	0.123	8.16	8.16	6.0	38.0	20.2	30.0	25.1	26.8	0.19
920526	0400	1.19	0.132	0.132	7.56	7.56	14.0	14.0	23.8	29.3	24.6	19.4	0.20
920526	0700	1.14	0.123	0.132	8.16	7.56	16.0	14.0	19.6	29.7	25.7	24.4	0.17
920526	1000	1.10	0.123	0.123	8.16	8.16	8.0	10.0	19.1	30.0	26.6	23.8	0.16
920526	1300	1.06	0.123	0.123	8.16	8.16	12.0	12.0	21.1	32.9	27.1	28.4	0.20
920526	1600	1.28	0.318	0.259	3.15	3.86	44.0	44.0	32.1	30.3	19.5	13.0	0.27
920526	1900	1.58	0.171	0.171	5.83	5.83	36.0	44.0	35.0	24.2	20.9	15.9	0.16
920526	2200	1.55	0.152	0.152	6.59	6.59	18.0	38.0	27.4	25.9	24.0	20.9	0.16
920527	0100	1.41	0.162	0.142	6.19	7.04	18.0	16.0	23.5	29.4	24.2	19.1	0.19
920527	0400	1.43	0.142	0.142	7.04	7.04	14.0	16.0	25.4	29.1	23.7	15.5	0.21
920527	0700	1.30	0.142	0.142	7.04	7.04	12.0	14.0	21.1	28.8	24.8	18.0	0.17
920527	1000	1.34	0.142	0.142	7.04	7.04	12.0	12.0	17.1	26.9	24.3	15.1	0.16
920527	1300	1.27	0.132	0.142	7.56	7.04	6.0	16.0	17.1	28.8	27.0	20.7	0.18
920527	1600	1.13	0.142	0.142	7.04	7.04	12.0	10.0	14.7	27.7	26.6	17.0	0.19
920527	1900	1.07	0.132	0.123	7.56	8.16	8.0	14.0	12.6	28.8	28.0	27.8	0.17
920527	2200	1.02	0.132	0.132	7.56	7.56	4.0	10.0	10.7	32.1	30.3	29.0	0.15
920528	0100	0.97	0.142	0.113	7.04	8.87	12.0	12.0	7.4	29.6	28.6	34.3	0.18
920528	0400	0.87	0.142	0.113	7.04	8.87	16.0	12.0	7.3	29.7	28.0	32.6	0.19
920528	0700	0.85	0.103	0.103	9.71	9.71	-12.0	12.0	2.0	31.3	28.6	22.0	0.17
920528	1000	0.82	0.113	0.113	8.87	8.87	-10.0	8.0	3.5	33.3	31.1	29.0	0.15
920528	1300	0.79	0.123	0.113	8.16	8.87	-8.0	-8.0	1.4	31.6	31.0	28.2	0.17
920528	1600	0.69	0.113	0.113	8.87	8.87	-42.0	10.0	-4.8	38.2	39.2	34.7	0.20
920528	1900	0.64	0.123	0.123	8.16	8.16	2.0	4.0	4.3	37.5	38.8	40.4	0.21
920528	2200	0.63	0.123	0.123	8.16	8.16	4.0	6.0	-1.5	37.7	37.1	37.0	0.19
920529	0100	0.65	0.113	0.123	8.87	8.16	-6.0	-8.0	-4.9	34.5	33.9	38.2	0.19
920529	0400	0.60	0.123	0.123	8.16	8.16	-38.0	-10.0	-10.6	35.9	35.9	38.4	0.20
920529	0700	0.61	0.123	0.123	8.16	8.16	10.0	-12.0	-3.7	35.7	37.3	36.9	0.19
920529	1000	0.68	0.113	0.113	8.87	8.87	-12.0	-12.0	-12.9	38.1	35.0	28.1	0.17
920529	1300	0.75	0.103	0.123	9.71	8.16	-12.0	-14.0	-13.5	40.2	34.2	35.4	0.15
920529	1600	0.75	0.123	0.123	8.16	8.16	8.0	-14.0	-10.6	39.2	34.3	29.0	0.17
920529	1900	0.81	0.123	0.123	8.16	8.16	6.0	-14.0	-11.6	40.0	36.1	32.5	0.16
920529	2200	0.84	0.230	0.230	4.35	4.35	-14.0	-14.0	-11.5	38.1	36.0	36.5	0.15
920530	0100	0.73	0.123	0.123	8.16	8.16	-4.0	-14.0	-4.6	36.2	34.1	28.3	0.15
920530	0400	0.72	0.201	0.201	4.98	4.98	-10.0	-10.0	-9.3	44.2	43.7	42.0	0.15
920530	0700	0.88	0.171	0.181	5.83	5.52	-52.0	-54.0	-43.3	52.8	38.9	34.5	0.14
920530	1000	0.93	0.152	0.152	6.59	6.59	-46.0	-48.0	-43.9	46.6	37.5	23.8	0.12
920530	1300	0.92	0.162	0.152	6.19	6.59	-48.0	-48.0	-42.6	41.0	37.5	37.6	0.13

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{WP}$ deg	χ
920530	1600	0.93	0.152	0.152	6.59	6.59	-46.0	-46.0	-44.8	39.2	35.9	24.6	0.16
920530	1900	0.87	0.142	0.152	7.04	6.59	-42.0	-44.0	-45.3	34.0	30.7	19.6	0.15
920530	2200	0.76	0.162	0.152	6.19	6.59	-44.0	-44.0	-42.6	35.4	32.1	23.4	0.14
920531	0100	0.80	0.162	0.162	6.19	6.19	-46.0	-46.0	-41.4	35.6	30.3	35.7	0.13
920531	0400	0.81	0.162	0.162	6.19	6.19	-42.0	-44.0	-41.6	35.7	31.4	24.4	0.15
920531	0700	0.76	0.171	0.171	5.83	5.83	-46.0	-46.0	-43.9	34.6	29.3	28.4	0.15
920531	1000	0.69	0.162	0.162	6.19	6.19	-46.0	-46.0	-41.8	40.4	32.9	27.9	0.13
920531	1300	0.74	0.132	0.142	7.56	7.04	2.0	-46.0	-32.9	40.4	30.5	33.4	0.13
920531	1600	0.80	0.132	0.132	7.56	7.56	4.0	0.0	-27.4	41.4	33.7	31.0	0.19
920531	1900	0.81	0.123	0.142	8.16	7.04	4.0	2.0	-28.9	40.0	31.1	32.4	0.18
920531	2200	0.76	0.132	0.142	7.56	7.04	2.0	0.0	-22.2	39.4	33.1	36.3	0.17
920601	0100	0.73	0.142	0.142	7.04	7.04	2.0	-2.0	-19.4	37.2	29.4	28.8	0.14
920601	0400	0.73	0.113	0.132	8.87	7.56	-4.0	2.0	-16.6	39.4	30.5	25.4	0.17
920601	0700	0.63	0.123	0.123	8.16	8.16	2.0	2.0	-16.5	34.7	32.5	22.1	0.20
920601	1300	0.61	0.103	0.113	9.71	8.87	-16.0	2.0	-0.2	35.0	32.4	27.6	0.18
920601	1600	0.57	0.132	0.123	7.56	8.16	2.0	4.0	-4.4	33.2	35.3	25.8	0.21
920601	1900	0.53	0.132	0.123	7.56	8.16	2.0	2.0	-7.3	34.5	34.0	30.6	0.22
920601	2200	0.51	0.103	0.113	9.71	8.87	-8.0	-12.0	-8.9	34.9	35.6	30.5	0.25
920602	0100	0.50	0.113	0.113	8.87	8.87	-12.0	-12.0	-14.3	33.5	34.1	22.9	0.25
920602	0400	0.52	0.083	0.093	11.98	10.72	-14.0	-14.0	-3.3	35.7	37.5	30.8	0.27
920602	0700	0.50	0.093	0.093	10.72	10.72	-10.0	-12.0	2.3	34.5	35.1	28.0	0.29
920602	1600	0.46	0.103	0.103	9.71	9.71	-8.0	-10.0	-4.2	34.9	34.2	29.1	0.25
920602	1900	0.45	0.103	0.103	9.71	9.71	-6.0	-12.0	-3.3	35.9	35.1	25.7	0.23
920602	2200	0.42	0.103	0.103	9.71	9.71	-6.0	-12.0	-0.7	39.2	33.7	26.4	0.26
920603	0100	0.42	0.113	0.113	8.87	8.87	4.0	-14.0	5.6	38.8	32.1	31.5	0.28
920603	0400	0.54	0.171	0.113	5.83	8.87	14.0	14.0	10.0	34.2	25.0	29.3	0.20
920603	0700	0.58	0.171	0.123	5.83	8.16	16.0	18.0	11.5	35.5	24.4	37.7	0.19
920603	1000	0.53	0.142	0.142	7.04	7.04	16.0	14.0	13.6	33.8	25.0	12.5	0.23
920603	1300	0.53	0.162	0.142	6.19	7.04	16.0	16.0	14.5	34.7	26.8	19.1	0.18
920603	1600	0.50	0.152	0.132	6.59	7.56	16.0	14.0	3.7	37.4	31.7	39.6	0.20
920603	1900	0.44	0.123	0.123	8.16	8.16	4.0	14.0	4.0	40.8	36.2	32.0	0.21
920603	2200	0.41	0.132	0.123	7.56	8.16	-16.0	-16.0	1.1	40.3	35.4	29.4	0.21
920604	0100	0.41	0.123	0.123	8.16	8.16	-18.0	-14.0	-4.8	34.0	31.4	26.9	0.23
920604	0400	0.41	0.132	0.123	7.56	8.16	0.0	-14.0	-6.3	32.3	31.0	32.0	0.22
920604	0700	0.41	0.123	0.123	8.16	8.16	-36.0	-12.0	-12.7	34.2	31.5	31.4	0.19
920604	1000	0.38	0.123	0.123	8.16	8.16	-18.0	-16.0	-9.4	35.6	32.7	29.0	0.21
920604	1300	0.37	0.123	0.123	8.16	8.16	-18.0	-14.0	-15.0	34.6	33.4	24.8	0.24
920604	1600	0.45	0.318	0.132	3.15	7.56	-60.0	-60.0	-33.6	46.9	26.7	23.9	0.24
920604	1900	0.51	0.240	0.230	4.17	4.35	-56.0	-56.0	-43.0	37.3	20.4	11.7	0.21
920604	2200	0.59	0.181	0.201	5.52	4.98	-54.0	-54.0	-48.3	30.5	23.7	19.2	0.19
920605	0100	0.77	0.308	0.298	3.25	3.35	-58.0	-50.0	-49.6	26.7	23.1	23.4	0.21
920605	0400	0.75	0.162	0.162	6.19	6.19	-52.0	-52.0	-38.8	34.0	30.3	38.8	0.16
920605	0700	0.87	0.162	0.162	6.19	6.19	-46.0	-46.0	-45.7	35.7	34.9	37.0	0.15
920605	1000	0.96	0.132	0.162	7.56	6.19	4.0	-26.0	-36.8	37.4	33.4	31.0	0.18
920605	1300	0.95	0.132	0.142	7.56	7.04	-14.0	-16.0	-27.6	32.1	28.1	23.5	0.17
920605	1600	0.83	0.142	0.142	7.04	7.04	-2.0	-14.0	-20.7	30.5	28.7	27.1	0.15
920605	1900	0.93	0.142	0.132	7.04	7.56	2.0	-10.0	-17.4	32.4	29.3	21.0	0.20
920605	2200	0.96	0.132	0.132	7.56	7.56	-10.0	0.0	-14.3	33.4	31.0	20.0	0.22
920606	0100	0.92	0.123	0.132	8.16	7.56	6.0	-12.0	-16.8	34.0	30.5	20.4	0.21
920606	0400	1.04	0.113	0.113	8.87	8.87	-18.0	-18.0	-18.1	29.0	29.7	22.9	0.16
920606	0700	0.95	0.113	0.113	8.87	8.87	2.0	2.0	-9.0	33.2	32.7	22.5	0.18
920606	1000	0.97	0.113	0.123	8.87	8.16	-4.0	0.0	-15.2	37.6	35.7	34.1	0.21
920606	1300	0.98	0.142	0.123	7.04	8.16	-42.0	4.0	-14.9	39.0	35.5	32.4	0.21
920606	1600	0.99	0.113	0.113	8.87	8.87	-12.0	-8.0	-18.7	[illegible]	32.7	21.7	0.18
920606	1900	0.96	0.113	0.113	8.87	8.87	-8.0	-6.0	-20.7		1.5	23.4	0.19
920606	2200	0.92	0.093	0.093	10.72	10.72	-16.0	0.0	-24.0		2.3	23.1	0.21
920607	0100	0.83	0.103	0.103	9.71	9.71	-8.0	-8.0	-22.7	37.7	33.7	23.4	0.21

Table A1 (Continued)

Date	Time EST	H_{m_o} m	$f_{p,PM}$ Hz	$f_{p,JPS}$ Hz	$T_{p,PM}$ sec	$T_{p,JPS}$ sec	$\theta_{p,PM}$ deg	$\theta_{p,JPS}$ deg	$\theta_{p,DW}$ deg	$\Delta\theta_{spr}$ deg	$\Delta\theta_{DW}$ deg	$\Delta\theta_{Mayr}$ deg	χ
920607	0400	0.81	0.113	0.113	8.87	8.87	-12.0	-12.0	-16.8	33.6	34.0	25.2	0.18
920607	0700	0.80	0.132	0.113	7.56	8.87	-26.0	-24.0	-15.4	34.1	34.5	29.0	0.17
920607	1000	0.82	0.123	0.123	8.16	8.16	4.0	-14.0	-17.5	36.2	36.3	29.4	0.21
920607	1300	0.77	0.123	0.113	8.16	8.87	-32.0	-30.0	-21.4	39.9	38.3	38.6	0.20
920607	1600	0.70	0.103	0.103	9.71	9.71	14.0	12.0	-9.9	42.2	37.6	31.6	0.20
920607	1900	0.70	0.103	0.113	9.71	8.87	10.0	10.0	-7.1	44.1	38.4	42.9	0.18
920607	2200	0.71	0.113	0.113	8.87	8.87	8.0	8.0	-15.4	41.2	35.1	32.1	0.21
920608	0100	0.67	0.123	0.123	8.16	8.16	10.0	10.0	-9.0	41.0	37.6	37.5	0.22
920608	0400	0.67	0.113	0.113	8.87	8.87	-12.0	-10.0	-9.4	36.9	35.1	30.2	0.21
920608	0700	0.68	0.103	0.113	9.71	8.87	0.0	2.0	-11.7	33.3	31.3	30.4	0.17
920608	1300	0.64	0.093	0.093	10.72	10.72	-6.0	-10.0	-18.6	38.3	33.2	25.2	0.24
920608	1600	0.62	0.093	0.093	10.72	10.72	-14.0	-12.0	-27.2	40.2	29.8	26.0	0.22
920608	1900	0.57	0.103	0.103	9.71	9.71	-16.0	-14.0	-31.9	40.3	27.7	28.9	0.21
920608	2200	0.57	0.103	0.103	9.71	9.71	-8.0	-14.0	-21.7	36.7	25.6	29.4	0.24
920609	0100	0.50	0.113	0.113	8.87	8.87	-12.0	-16.0	-21.3	33.6	29.4	31.7	0.25
920609	0400	0.50	0.093	0.123	10.72	8.16	-24.0	-14.0	-25.1	30.3	28.3	25.7	0.25
920609	0700	0.49	0.103	0.113	9.71	8.87	-4.0	-14.0	-23.5	31.9	28.3	35.2	0.23
920609	1000	0.50	0.103	0.113	9.71	8.87	-28.0	-40.0	-30.4	37.7	31.2	36.6	0.23
920609	1300	0.50	0.093	0.113	10.72	8.87	-26.0	-26.0	-34.5	38.4	29.1	39.7	0.24
920609	1600	0.45	0.113	0.113	8.87	8.87	-36.0	-40.0	-34.5	35.5	29.6	32.8	0.26
920609	1900	0.42	0.103	0.113	9.71	8.87	-26.0	-24.0	-27.8	32.4	32.0	26.9	0.25
920609	2200	0.45	0.103	0.113	9.71	8.87	-30.0	-30.0	-31.7	29.4	30.7	26.3	0.27
920610	0100	0.46	0.113	0.113	8.87	8.87	-38.0	-40.0	-34.0	32.9	32.6	30.2	0.27
920610	0400	0.47	0.113	0.113	8.87	8.87	-40.0	-40.0	-37.9	37.2	35.2	32.3	0.25
920610	0700	0.53	0.113	0.103	8.87	9.71	-36.0	-28.0	-16.5	56.2	29.4	25.7	0.21
920610	1000	0.69	0.113	0.113	8.87	8.87	-28.0	-30.0	6.4	82.0	32.5	18.1	0.21
920610	1300	0.65	0.113	0.113	8.87	8.87	-40.0	54.0	2.4	80.2	28.8	26.9	0.25
920610	1600	0.65	0.103	0.103	9.71	9.71	-40.0	-34.0	-10.0	60.5	27.1	21.8	0.26
920610	1900	0.67	0.113	0.113	8.87	8.87	-42.0	-44.0	-5.1	54.3	29.4	24.8	0.19
920610	2200	0.78	0.230	0.113	4.35	8.87	50.0	48.0	7.3	58.0	30.6	27.2	0.16
920611	0100	0.77	0.103	0.113	9.71	8.87	-26.0	46.0	2.0	58.0	34.3	25.2	0.16
920611	0400	0.70	0.103	0.103	[illegible]	9.71	-20.0	-14.0	6.8	51.3	32.3	24.3	0.18
920611	0700	0.63	0.103	0.103	[illegible]	9.71	-24.0	-22.0	-5.2	38.5	28.6	17.7	0.19
920611	1000	0.65	0.113	0.113	[illegible]	8.87	-18.0	-16.0	-2.0	37.6	28.4	25.2	0.18
920611	1300	0.75	0.103	0.113	[illegible]	8.87	-20.0	-14.0	2.0	35.6	29.7	23.8	0.17
920611	1600	0.79	0.113	0.113	8.87	8.87	-32.0	-10.0	2.1	39.1	30.4	26.8	0.16
920611	1900	0.77	0.132	0.103	7.56	9.71	0.0	-12.0	-3.9	33.0	30.7	20.1	0.17
920611	2200	0.72	0.142	0.103	7.04	9.71	0.0	-10.0	-9.0	30.5	32.5	24.5	0.15
920612	0100	0.74	0.103	0.103	9.71	9.71	-18.0	-16.0	-7.7	32.8	33.3	20.0	0.15
920612	0400	0.73	0.103	0.103	9.71	9.71	-40.0	-18.0	-17.6	38.2	37.3	31.4	0.16
920612	0700	0.77	0.152	0.152	6.59	6.59	-20.0	-20.0	-16.4	36.2	36.3	25.8	0.16
920612	1000	0.92	0.142	0.152	7.04	6.59	-36.0	-26.0	-12.2	38.3	33.0	25.3	0.14
920612	1300	0.96	0.132	0.152	7.56	6.59	-18.0	-20.0	-2.4	39.6	37.1	21.3	0.16
920612	1600	0.87	0.152	0.152	6.59	6.59	-24.0	-22.0	-9.5	38.5	46.3	26.0	0.19
920612	1900	0.78	0.132	0.103	7.56	9.71	-26.0	-28.0	-22.2	39.6	43.6	30.8	0.18
920612	2200	0.72	0.142	0.103	7.04	9.71	-24.0	-16.0	-27.8	38.2	39.4	30.0	0.18
920613	0100	0.77	0.152	0.152	6.59	6.59	-28.0	-38.0	-34.2	37.2	36.9	26.7	0.17
920613	0400	0.83	0.142	0.142	7.04	7.04	-44.0	-42.0	-43.0	34.1	35.3	27.3	0.18
920613	0700	0.88	0.152	0.152	6.59	6.59	-46.0	-42.0	-44.1	35.4	35.1	27.5	0.19
920613	1000	0.83	0.142	0.142	7.04	7.04	-40.0	-40.0	-34.2	30.1	30.3	25.5	0.17
920613	1300	0.82	0.142	0.142	7.04	7.04	-38.0	-38.0	-36.7	25.8	27.8	22.7	0.18
920613	1600	0.90	0.152	0.152	6.59	6.59	-38.0	-38.0	-35.3	29.1	29.4	18.6	0.20
920613	1900	0.87	0.152	0.142	6.59	7.04	-42.0	-42.0	-41.3	33.7	35.0	34.6	0.20
920613	2200	0.81	0.132	0.132	7.56	7.56	-44.0	-42.0	-40.4	32.0	33.1	24.0	0.17
920614	0100	0.87	0.142	0.142	7.04	7.04	-46.0	-46.0	-41.5	30.4	29.4	17.8	0.15
920614	0400	0.86	0.142	0.142	7.04	7.04	-44.0	-44.0	-40.6	30.9	30.3	18.4	0.19
920614	0700	0.79	0.152	0.152	6.59	6.59	-44.0	-44.0	-39.9	31.3	30.0	23.4	0.20
920614	1000	0.72	0.152	0.152	6.59	6.59	-36.0	-38.0	-32.9	32.2	31.9	28.4	0.19

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SW}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{mpr}$ deg	χ
920614	1300	0.65	0.113	0.142	8.87	7.04	-26.0	-28.0	-22.9	31.2	31.1	28.0	0.20
920614	1600	0.67	0.113	0.152	8.87	6.59	-26.0	-14.0	-20.0	29.4	29.7	28.4	0.24
920614	1900	0.75	0.113	0.123	8.87	8.16	-22.0	-22.0	-20.1	25.5	26.8	21.5	0.25
920614	2200	0.75	0.123	0.123	8.16	8.16	-18.0	-20.0	-12.6	27.7	28.3	23.4	0.23
920615	0100	0.72	0.123	0.123	8.16	8.16	-10.0	-10.0	-19.1	27.0	28.2	22.0	0.20
920615	0400	0.76	0.123	0.123	8.16	8.16	-12.0	-10.0	-13.4	26.5	28.2	21.2	0.24
920615	0700	0.68	0.132	0.132	7.56	7.56	-22.0	-12.0	-12.8	27.5	28.6	21.1	0.27
920615	1000	0.60	0.132	0.132	7.56	7.56	-10.0	-10.0	-17.1	27.1	27.1	21.1	0.25
920615	1300	0.55	0.132	0.132	7.56	7.56	-8.0	-10.0	-8.5	29.4	29.3	24.2	0.24
920615	1600	0.53	0.142	0.142	7.04	7.04	-4.0	-10.0	-10.5	29.6	29.7	24.3	0.26
920615	1900	0.51	0.113	0.113	8.87	8.87	-12.0	-14.0	-19.1	29.3	28.3	26.9	0.29
920615	2200	0.52	0.123	0.123	8.16	8.16	-30.0	-10.0	-23.2	32.1	31.9	28.7	0.31
920616	0100	0.48	0.054	0.123	18.45	8.16	-20.0	-20.0	-14.2	31.9	32.1	29.4	0.31
920616	0400	0.50	0.132	0.132	7.56	7.56	-16.0	-16.0	-16.4	33.5	33.5	27.1	0.36
920616	0700	0.58	0.054	0.054	18.45	18.45	-10.0	-12.0	-6.2	30.2	30.6	11.0	0.35
920616	1000	0.77	0.279	0.289	3.59	3.47	44.0	42.0	15.4	50.0	34.5	24.5	0.22
920616	1600	1.22	0.171	0.181	5.83	5.52	8.0	8.0	11.6	30.7	27.8	23.3	0.17
920616	1900	1.29	0.162	0.162	6.19	6.19	6.0	2.0	4.3	30.6	30.6	23.3	0.16
920616	2200	1.30	0.113	0.113	8.87	8.87	2.0	4.0	8.8	33.2	35.2	18.9	0.18
920617	0100	1.33	0.113	0.113	8.87	8.87	-12.0	4.0	8.1	33.9	35.3	20.8	0.15
920617	0400	1.27	0.093	0.152	10.72	6.59	2.0	2.0	8.3	32.9	33.9	25.5	0.17
920617	0700	1.24	0.093	0.093	10.72	10.72	2.0	10.0	9.0	32.9	34.0	17.1	0.19
920617	1000	1.21	0.103	0.103	9.71	9.71	2.0	4.0	7.2	32.5	32.6	20.2	0.19
920617	1300	1.13	0.103	0.103	9.71	9.71	2.0	-2.0	-0.2	32.8	33.8	19.5	0.17
920617	1600	1.04	0.113	0.113	8.87	8.87	-14.0	-12.0	-9.7	31.3	33.4	22.0	0.19
920617	1900	1.02	0.113	0.113	8.87	8.87	-12.0	-12.0	-12.1	32.2	33.2	20.5	0.20
920617	2200	0.90	0.113	0.113	8.87	8.87	-10.0	-12.0	-10.1	32.5	33.7	17.1	0.23
920618	0100	0.85	0.113	0.113	8.87	8.87	-12.0	-12.0	-7.4	30.8	32.5	17.5	0.23
920618	0400	0.81	0.064	0.064	15.63	15.63	-16.0	-14.0	-2.5	30.8	31.3	13.0	0.23
920618	0700	0.85	0.064	0.064	15.63	15.63	-12.0	-12.0	2.5	35.3	35.8	13.9	0.21
920618	1000	0.81	0.064	0.064	15.63	15.63	-12.0	-14.0	-8.8	35.9	37.7	20.4	0.26
920618	1300	0.76	0.064	0.064	15.63	15.63	-12.0	-10.0	-21.1	31.9	32.8	24.9	0.29
920618	1600	0.74	0.064	0.064	15.63	15.63	-10.0	-10.0	-17.8	31.1	29.9	19.9	0.29
920618	1900	0.69	0.064	0.064	15.63	15.63	-24.0	-24.0	-17.5	30.2	29.3	19.3	0.30
920618	2200	0.66	0.064	0.064	15.63	15.63	-22.0	-22.0	-24.7	32.6	30.8	25.7	0.36
920619	0100	0.70	0.064	0.064	15.63	15.63	-10.0	-14.0	-28.6	34.1	28.4	23.4	0.29
920619	0400	0.74	0.064	0.064	15.63	15.63	-10.0	-24.0	-23.0	33.2	26.7	20.0	0.26
920619	0700	0.77	0.064	0.064	15.63	15.63	-12.0	-12.0	-28.8	31.9	27.3	22.9	0.27
920619	1000	0.77	0.064	0.064	15.63	15.63	-14.0	-14.0	-31.0	30.1	27.9	23.5	0.31
920619	1300	0.73	0.064	0.064	15.63	15.63	-12.0	-28.0	-29.1	29.8	26.8	25.2	0.24
920619	1600	0.74	0.152	0.064	6.59	15.63	-42.0	-42.0	-31.9	29.4	26.5	27.0	0.26
920619	1900	0.73	0.064	0.064	15.63	15.63	-10.0	-42.0	-31.9	32.0	25.0	21.6	0.28
920619	2200	0.66	0.064	0.064	15.63	15.63	-14.0	-44.0	-32.8	31.8	27.1	26.8	0.28
920620	0100	0.62	0.064	0.064	15.63	15.63	-10.0	-26.0	-30.0	30.4	26.0	28.8	0.30
920620	0400	0.60	0.064	0.064	15.63	15.63	-14.0	-24.0	-30.0	30.4	25.5	24.3	0.24
920620	0700	0.61	0.064	0.064	15.63	15.63	-12.0	-42.0	-31.9	30.0	24.7	19.8	0.27
920620	1000	0.61	0.064	0.064	15.63	15.63	-14.0	-26.0	-29.7	34.2	30.6	23.9	0.27
920620	1300	0.58	0.064	0.064	15.63	15.63	-26.0	-16.0	-32.7	34.6	31.7	29.4	0.31
920620	1600	0.56	0.074	0.064	13.56	15.63	-16.0	-18.0	-28.7	31.9	27.9	26.4	0.28
920620	1900	0.53	0.064	0.064	15.63	15.63	-10.0	-14.0	-26.5	33.5	28.3	23.0	0.34
920620	2200	0.52	0.074	0.064	13.56	15.63	-14.0	-14.0	-24.3	30.1	28.1	30.0	0.31
920621	0100	0.51	0.074	0.064	13.56	15.63	-12.0	-12.0	-23.9	33.0	30.0	26.8	0.37
920621	0400	0.52	0.074	0.074	13.56	13.56	-12.0	-14.0	-26.7	36.0	34.0	23.3	0.27
920621	0700	1.10	0.201	0.201	4.98	4.98	52.0	52.0	35.0	45.4	31.0	18.8	0.14
920621	1000	0.98	0.201	0.220	4.98	4.54	52.0	56.0	32.9	60.6	41.8	32.7	0.19
920621	1300	0.90	0.201	0.201	4.98	4.98	46.0	42.0	25.0	45.8	26.2	20.1	0.23
920621	1600	0.96	0.201	0.191	4.98	5.24	44.0	42.0	25.9	39.4	23.5	17.0	0.19
920621	1900	0.90	0.210	0.210	4.75	4.75	44.0	42.0	25.0	41.0	23.4	17.6	0.19

Table A1 (Continued)

Date	Time EST	H_{m_o} m	$f_{p,PM}$ Hz	$f_{p,JPM}$ Hz	$T_{p,PM}$ sec	$T_{p,JPM}$ sec	$\theta_{p,PM}$ deg	$\theta_{p,JPM}$ deg	$\theta_{p,DW}$ deg	$\Delta\theta_{PM}$ deg	$\Delta\theta_{JPM}$ deg	$\Delta\theta_{PDW}$ deg	χ
920621	2200	0.86	0.210	0.201	4.75	4.98	42.0	42.0	24.4	45.7	25.3	23.2	0.19
920622	0100	1.20	0.210	0.201	4.75	4.98	46.0	44.0	35.8	22.5	18.4	14.6	0.19
920622	0400	1.20	0.181	0.181	5.52	5.52	40.0	40.0	33.9	18.5	16.4	9.4	0.15
920622	0700	1.09	0.191	0.181	5.24	5.52	40.0	42.0	30.0	25.0	17.8	12.5	0.16
920622	1000	1.03	0.191	0.171	5.24	5.83	42.0	42.0	22.8	32.2	19.9	11.9	0.17
920622	1300	0.89	0.171	0.171	5.83	5.83	36.0	40.0	21.1	41.9	21.8	9.1	0.16
920622	1600	0.67	0.162	0.162	6.19	6.19	32.0	40.0	13.5	52.7	26.8	31.8	0.20
920622	1900	0.61	0.201	0.113	4.98	8.87	40.0	38.0	1.8	57.5	29.5	38.8	0.19
920622	2200	0.55	0.123	0.123	8.16	8.16	-40.0	-42.0	-6.6	56.0	32.3	29.4	0.19
920623	0100	0.50	0.123	0.123	8.16	8.16	-42.0	-14.0	-11.4	50.2	32.1	30.1	0.20
920623	0400	0.46	0.123	0.123	8.16	8.16	-38.0	-40.0	-17.3	42.5	35.1	28.6	0.23
920623	0700	0.47	0.132	0.132	7.56	7.56	-40.0	-42.0	-21.6	39.8	35.2	24.4	0.23
920623	1000	0.49	0.132	0.132	7.56	7.56	-32.0	-30.0	-17.9	37.5	33.8	20.8	0.23
920623	1300	0.49	0.142	0.132	7.04	7.56	-46.0	-46.0	-31.2	37.3	30.8	23.8	0.23
920623	1600	0.58	0.308	0.142	3.25	7.04	-62.0	-42.0	-41.6	36.4	23.0	18.7	0.25
920623	1900	0.55	0.308	0.142	3.25	7.04	-58.0	-58.0	-32.4	37.1	25.4	19.0	0.29
920623	2200	0.47	0.152	0.132	6.59	7.56	-44.0	-42.0	-26.5	39.9	33.0	22.3	0.25
920624	0100	0.45	0.142	0.142	7.04	7.04	-46.0	-46.0	-27.5	41.7	32.5	26.6	0.25
920624	0400	0.40	0.142	0.132	7.04	7.56	-44.0	-44.0	-21.8	40.2	33.5	21.2	0.24
920624	0700	0.41	0.152	0.103	6.59	9.71	-42.0	-32.0	-30.9	38.1	30.6	38.3	0.23
920624	1000	0.47	0.142	0.103	7.04	9.71	-44.0	-44.0	-31.5	38.2	29.9	38.0	0.25
920624	1300	0.51	0.142	0.103	7.04	9.71	-40.0	-48.0	-36.8	33.1	25.6	32.3	0.23
920624	1600	0.52	0.162	0.103	6.19	9.71	-46.0	-46.0	-40.3	31.0	26.3	42.1	0.23
920624	1900	0.51	0.123	0.113	8.16	8.87	-38.0	-38.0	-32.6	26.5	23.3	30.9	0.21
920624	2200	0.48	0.123	0.123	8.16	8.16	-40.0	-40.0	-34.9	27.9	25.3	23.8	0.23
920625	0100	0.46	0.132	0.113	7.56	8.87	-40.0	-40.0	-36.7	31.5	27.1	34.8	0.23
920625	0400	0.45	0.113	0.113	8.87	8.87	-40.0	-40.0	-38.5	27.4	25.3	26.2	0.23
920625	0700	0.48	0.113	0.123	8.87	8.16	-40.0	-40.0	-31.7	32.8	27.9	24.1	0.21
920625	1000	0.55	0.142	0.113	7.04	8.87	-40.0	-40.0	-35.4	31.5	26.9	40.9	0.22
920625	1300	0.56	0.142	0.113	7.04	8.87	-42.0	-40.0	-38.5	29.3	25.3	35.0	0.22
920625	1600	0.57	0.113	0.113	8.87	8.87	-38.0	-38.0	-37.0	24.1	21.0	28.6	0.25
920625	1900	0.49	0.113	0.113	8.87	8.87	-38.0	-38.0	-33.8	28.2	24.3	24.8	0.22
920625	2200	0.48	0.142	0.113	7.04	8.87	-40.0	-40.0	-37.0	30.2	25.6	32.4	0.24
920626	0100	0.48	0.142	0.103	7.04	9.71	-42.0	-42.0	-37.9	36.3	28.0	30.5	0.27
920626	0400	0.44	0.113	0.113	8.87	8.87	-38.0	-40.0	-38.5	41.9	35.6	41.7	0.25
920626	0700	0.46	0.103	0.113	9.71	8.87	-36.0	-38.0	-32.3	39.2	34.2	29.5	0.23
920626	1000	0.49	0.142	0.113	7.04	8.87	-42.0	-40.0	-36.5	36.5	30.4	31.5	0.25
920626	1300	0.55	0.132	0.113	7.56	8.87	-42.0	-42.0	-38.7	32.5	25.4	31.4	0.27
920626	1600	0.48	0.103	0.113	9.71	8.87	-36.0	-40.0	-38.0	30.7	26.8	30.5	0.28
920626	1900	0.48	0.113	0.113	8.87	8.87	-38.0	-42.0	-37.6	28.4	24.9	26.0	0.26
920626	2200	0.47	0.113	0.113	8.87	8.87	-38.0	-38.0	-40.3	25.2	19.7	19.1	0.24
920627	0100	0.45	0.123	0.113	8.16	8.87	-38.0	-40.0	-39.0	30.6	24.8	22.8	0.29
920627	0400	0.50	0.113	0.103	8.87	9.71	-40.0	-42.0	-40.1	33.6	27.2	27.1	0.29
920627	0700	0.50	0.132	0.113	7.56	8.87	-38.0	-38.0	-39.4	33.2	28.9	29.8	0.26
920627	1000	0.53	0.113	0.113	8.87	8.87	-38.0	-42.0	-39.2	25.9	21.1	17.8	0.27
920627	1300	0.51	0.132	0.113	7.56	8.87	-38.0	-40.0	-36.5	27.8	19.1	21.8	0.29
920627	1600	0.44	0.103	0.103	9.71	9.71	-34.0	-42.0	-33.3	28.6	22.3	14.2	0.33
920627	1900	0.49	0.113	0.103	8.87	9.71	-38.0	-38.0	-35.7	24.2	19.1	14.3	0.31
920627	2200	0.55	0.123	0.113	8.16	8.87	-40.0	-40.0	-35.0	21.5	19.2	15.5	0.27
920628	0100	0.61	0.132	0.132	7.56	7.56	-32.0	-34.0	-31.3	20.7	19.4	11.4	0.27
920628	0400	0.58	0.113	0.113	8.87	8.87	-30.0	-32.0	-32.4	22.3	20.4	16.9	0.32
920628	0700	0.62	0.113	0.113	8.87	8.87	-30.0	-30.0	-32.7	20.3	17.8	13.1	0.31
920628	1000	0.66	0.298	0.113	3.35	8.87	48.0	50.0	-2.5	72.5	18.8	19.9	0.28
920628	1300	0.65	0.113	0.113	8.87	8.87	-28.0	52.0	-11.0	71.8	22.1	20.6	0.31
920628	1600	0.60	0.113	0.113	8.87	8.87	-40.0	-42.0	-20.9	42.2	24.9	17.9	0.32
920628	1900	0.58	0.123	0.113	8.16	8.87	-44.0	-42.0	-28.6	32.0	27.3	23.6	0.29
920628	2200	0.58	0.123	0.123	8.16	8.16	-42.0	-42.0	-26.9	33.6	31.3	27.9	0.26

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DS}$ deg	$\theta_{p,DV}$ deg	$\Delta\theta_{DS}$ deg	$\Delta\theta_{DV}$ deg	$\Delta\theta_{PDP}$ deg	χ
920629	0100	0.55	0.074	0.064	13.56	15.63	-14.0	-40.0	-25.2	39.1	33.2	19.5	0.31
920629	0400	0.55	0.123	0.074	8.16	13.56	-42.0	-42.0	-25.2	39.8	34.7	24.4	0.31
920629	0700	0.54	0.074	0.074	13.56	13.56	-10.0	-42.0	-21.7	37.7	34.8	20.5	0.32
920629	1000	0.52	0.064	0.074	15.63	13.56	-12.0	-14.0	-24.3	34.3	32.8	23.1	0.25
920629	1300	0.58	0.074	0.074	13.56	13.56	-12.0	-12.0	-18.9	32.8	33.1	31.7	0.31
920629	1600	0.61	0.083	0.083	11.98	11.98	-4.0	-14.0	-22.4	34.1	31.1	21.2	0.35
920629	1900	0.60	0.074	0.083	13.56	11.98	-10.0	-14.0	-24.1	37.1	30.8	27.5	0.31
920629	2200	0.55	0.074	0.074	13.56	13.56	-12.0	-12.0	-22.5	37.4	28.3	21.2	0.25
920630	0100	0.55	0.074	0.074	13.56	13.56	-18.0	-14.0	-25.1	34.4	27.7	20.7	0.24
920630	0400	0.57	0.074	0.083	13.56	11.98	-12.0	-14.0	-27.2	37.9	29.9	31.7	0.34
920630	0700	0.55	0.083	0.083	11.98	11.98	-12.0	-14.0	-27.8	40.0	34.7	30.7	0.31
920630	1000	0.56	0.083	0.083	11.98	11.98	-6.0	-14.0	-16.3	34.2	30.9	24.1	0.27
920630	1300	0.59	0.074	0.093	13.56	10.72	-14.0	-16.0	-28.0	35.4	28.5	31.3	0.21
920630	1600	0.64	0.113	0.083	8.87	11.98	-40.0	-40.0	-31.6	33.7	28.7	30.8	0.27
920630	1900	0.60	0.123	0.083	8.16	11.98	-38.0	-38.0	-32.3	31.2	28.0	30.5	0.29
920630	2200	0.53	0.113	0.083	8.87	11.98	-36.0	-38.0	-27.9	34.5	29.6	28.9	0.28
920701	0100	0.53	0.123	0.083	8.16	11.98	-34.0	-38.0	-26.7	31.9	27.3	24.2	0.19
920701	0400	0.53	0.103	0.093	9.71	10.72	-34.0	-38.0	-26.8	35.3	31.0	29.9	0.32
920701	0700	0.51	0.083	0.083	11.98	11.98	-20.0	-12.0	-26.4	34.7	32.3	23.0	0.29
920701	1000	0.48	0.103	0.093	9.71	10.72	-32.0	-32.0	-25.4	35.7	33.7	34.9	0.27
920701	1300	0.46	0.083	0.083	11.98	11.98	-20.0	-14.0	-23.2	30.4	28.7	22.7	0.23
920701	1600	0.48	0.093	0.093	10.72	10.72	-12.0	-12.0	-24.1	32.3	30.7	27.2	0.32
920701	1900	0.45	0.074	0.093	13.56	10.72	-12.0	-12.0	-30.1	36.5	33.6	27.9	0.36
920701	2200	0.42	0.093	0.093	10.72	10.72	-10.0	-12.0	-26.8	36.9	33.2	27.6	0.33
920702	0100	0.40	0.093	0.093	10.72	10.72	-2.0	-16.0	-25.3	35.2	33.8	21.8	0.25
920702	0400	0.43	0.083	0.093	11.98	10.72	-12.0	-16.0	-24.9	34.4	33.3	27.2	0.32
920702	0700	0.50	0.132	0.093	7.56	10.72	-42.0	-44.0	-3.5	65.1	33.0	26.9	0.34
920702	1000	0.59	0.142	0.093	7.04	10.72	-42.0	60.0	4.7	70.2	30.0	26.9	0.26
920702	1300	0.65	0.308	0.308	3.25	3.25	60.0	60.0	21.3	76.0	23.5	16.4	0.29
920702	1600	1.01	0.210	0.240	4.75	4.17	56.0	54.0	37.6	35.3	22.4	18.8	0.19
920702	1900	1.01	0.181	0.191	5.52	5.24	50.0	48.0	35.2	33.9	23.7	12.5	0.18
920702	2200	1.23	0.142	0.142	7.04	7.04	38.0	42.0	34.1	28.8	26.6	18.2	0.16
920703	0100	1.19	0.123	0.123	8.16	8.16	8.0	38.0	25.8	32.1	29.9	23.2	0.10
920703	0400	1.17	0.123	0.123	8.16	8.16	22.0	12.0	14.9	30.1	29.7	21.1	0.10
920703	0700	1.09	0.132	0.132	7.56	7.56	12.0	12.0	17.5	27.6	26.5	17.2	0.14
920703	1000	0.93	0.132	0.132	7.56	7.56	12.0	14.0	15.2	29.6	27.1	18.9	0.15
920703	1300	0.86	0.132	0.132	7.56	7.56	16.0	14.0	12.5	33.7	29.9	18.3	0.11
920703	1600	0.91	0.142	0.142	7.04	7.04	12.0	14.0	-0.4	38.2	32.7	23.3	0.12
920703	1900	0.87	0.142	0.142	7.04	7.04	16.0	12.0	1.4	37.5	29.7	18.5	0.17
920703	2200	0.78	0.152	0.113	6.59	8.87	12.0	12.0	-1.9	33.7	29.8	25.0	0.19
920704	0100	0.73	0.113	0.113	8.87	8.87	-16.0	6.0	-6.6	31.2	27.0	21.5	0.16
920704	0400	0.77	0.113	0.113	8.87	8.87	-14.0	-14.0	-12.4	28.8	26.7	22.5	0.13
920704	0700	0.84	0.113	0.113	8.87	8.87	-10.0	-16.0	-20.9	30.9	28.8	17.8	0.16
920704	1000	0.79	0.113	0.113	8.87	8.87	-14.0	-14.0	-19.0	28.5	27.0	14.8	0.20
920704	1300	0.71	0.113	0.113	8.87	8.87	-14.0	-14.0	-12.9	31.9	28.8	20.0	0.17
920704	1600	0.70	0.113	0.113	8.87	8.87	-12.0	-14.0	-13.9	32.2	27.8	22.5	0.13
920704	1900	0.68	0.103	0.103	9.71	9.71	-12.0	-12.0	-15.1	33.8	27.0	12.0	0.19
920704	2200	0.55	0.132	0.123	7.56	8.16	6.0	4.0	-18.4	40.4	31.8	26.5	0.21
920705	0100	0.45	0.113	0.113	8.87	8.87	-16.0	-16.0	-23.9	42.7	29.0	13.4	0.23
920705	0400	0.43	0.132	0.132	7.56	7.56	-24.0	8.0	-19.2	40.7	31.0	32.1	0.16
920705	0700	0.45	0.162	0.123	6.19	8.16	12.0	10.0	-13.4	41.1	34.6	23.2	0.21
920705	1000	0.46	0.162	0.123	6.19	8.16	8.0	-34.0	-21.1	44.2	36.7	26.9	0.19
920705	1300	0.45	0.123	0.123	8.16	8.16	-12.0	-34.0	-24.0	43.0	35.5	23.5	0.20
920705	1600	0.44	0.171	0.181	5.83	5.52	-30.0	-34.0	-29.9	38.4	27.3	22.0	0.19
920705	1900	0.43	0.191	0.181	5.24	5.52	-48.0	-50.0	-32.2	36.4	24.8	19.1	0.20
920705	2200	0.38	0.181	0.113	5.52	8.87	-30.0	-30.0	-37.2	36.3	24.6	31.6	0.22
920706	0100	0.34	0.113	0.123	8.87	8.16	-26.0	-30.0	-31.5	42.2	30.2	32.2	0.24
920706	0400	0.32	0.123	0.123	8.16	8.16	-30.0	-28.0	-29.4	42.7	35.3	30.2	0.24

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SPC}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SPC}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
920706	0700	0.35	0.113	0.113	8.87	8.87	-24.0	-30.0	-28.8	37.9	32.0	27.9	0.24
920706	1000	0.37	0.201	0.201	4.98	4.98	-56.0	-34.0	-35.8	32.2	29.6	25.2	0.28
920706	1300	0.36	0.191	0.113	5.24	8.87	-52.0	-36.0	-39.2	34.4	27.7	24.2	0.22
920706	1600	0.35	0.191	0.113	5.24	8.87	-50.0	-34.0	-36.9	30.6	26.7	20.5	0.21
920706	1900	0.35	0.132	0.132	7.56	7.56	-30.0	-36.0	-31.8	31.1	27.4	22.7	0.22
920706	2200	0.36	0.132	0.132	7.56	7.56	-38.0	-40.0	-18.1	46.3	31.6	23.1	0.24
920707	0100	0.33	0.152	0.152	6.59	6.59	-48.0	-48.0	-28.1	47.5	29.8	18.2	0.24
920707	0400	0.31	0.152	0.113	6.59	8.87	-46.0	-22.0	-31.7	36.3	32.7	25.7	0.28
920707	0700	0.36	0.113	0.123	8.87	8.16	-34.0	-30.0	-36.5	29.8	28.3	22.8	0.23
920707	1000	0.39	0.142	0.123	7.04	8.16	-42.0	-42.0	-36.0	31.3	27.1	24.0	0.26
920707	1300	0.39	0.132	0.132	7.56	7.56	-38.0	-44.0	-37.8	33.9	27.1	23.9	0.27
920707	1600	0.39	0.132	0.123	7.56	8.16	-40.0	-42.0	-31.7	35.2	30.8	20.9	0.27
920707	1900	0.40	0.132	0.132	7.56	7.56	-44.0	-42.0	-36.2	33.4	32.7	28.6	0.26
920707	2200	0.43	0.142	0.142	7.04	7.04	-44.0	-44.0	-37.4	31.3	30.2	24.0	0.25
920708	0100	0.44	0.132	0.142	7.56	7.04	-46.0	-46.0	-41.9	35.5	32.6	31.5	0.24
920708	0400	0.42	0.142	0.142	7.04	7.04	-46.0	-44.0	-40.5	35.3	30.8	24.7	0.26
920708	0700	0.42	0.152	0.142	6.59	7.04	-48.0	-48.0	-42.6	39.2	34.2	31.4	0.23
920708	1000	0.42	0.142	0.142	7.04	7.04	-48.0	-48.0	-29.7	45.2	41.6	35.2	0.27
920708	1300	0.41	0.142	0.142	7.04	7.04	-50.0	-50.0	-26.0	52.3	41.0	25.1	0.27
920708	1600	0.44	0.142	0.142	7.04	7.04	-48.0	-48.0	-44.6	50.3	38.3	34.1	0.29
920708	1900	0.49	0.279	0.142	3.59	7.04	-68.0	-68.0	-44.6	47.4	25.4	35.0	0.21
920709	0100	0.42	0.269	0.074	3.72	13.56	-60.0	-58.0	-41.3	41.5	21.4	26.6	0.26
920709	0400	0.37	0.162	0.074	6.19	13.56	-48.0	-58.0	-37.9	43.2	21.6	25.8	0.26
920709	0700	0.35	0.152	0.083	6.59	11.98	-44.0	-60.0	-35.8	39.6	21.3	19.1	0.24
920709	1000	0.32	0.152	0.074	6.59	13.56	-44.0	-42.0	-33.2	35.4	25.1	23.4	0.27
920709	1300	0.33	0.152	0.074	6.59	13.56	-44.0	-44.0	-36.0	36.2	21.4	22.9	0.32
920709	1600	0.33	0.171	0.074	5.83	13.56	-50.0	-52.0	-34.2	41.1	23.0	27.6	0.35
920709	1900	0.32	0.162	0.083	6.19	11.98	-48.0	-50.0	-35.8	36.0	22.5	31.5	0.31
920709	2200	0.33	0.152	0.083	6.59	11.98	-44.0	-44.0	-34.6	33.2	18.6	20.8	0.31
920710	0100	0.34	0.123	0.113	8.16	8.87	-36.0	-46.0	-35.4	32.5	18.8	22.7	0.32
920710	0400	0.33	0.142	0.083	7.04	11.98	-44.0	-44.0	-35.3	30.6	21.8	25.1	0.32
920710	0700	0.33	0.132	0.113	7.56	8.87	-38.0	-40.0	-34.9	28.2	24.2	14.9	0.24
920710	1000	0.36	0.142	0.113	7.04	8.87	-40.0	-40.0	-36.7	21.0	19.0	14.3	0.23
920710	1300	0.40	0.123	0.113	8.16	8.87	-36.0	-42.0	-36.7	21.7	18.0	15.1	0.30
920710	1600	0.39	0.123	0.123	8.16	8.16	-36.0	-42.0	-38.5	23.9	17.1	13.3	0.31
920710	1900	0.35	0.132	0.113	7.56	8.87	-40.0	-40.0	-35.9	24.1	20.0	18.7	0.27
920710	2200	0.36	0.113	0.113	8.87	8.87	-32.0	-38.0	-36.9	21.3	18.8	12.8	0.21
920711	0100	0.36	0.123	0.123	8.16	8.16	-38.0	-38.0	-35.4	18.8	18.4	12.5	0.27
920711	0400	0.35	0.113	0.123	8.87	8.16	-36.0	-32.0	-32.3	20.4	21.9	12.9	0.29
920711	0700	0.34	0.113	0.113	8.87	8.87	-30.0	-30.0	-33.4	20.9	20.7	13.9	0.24
920711	1000	0.35	0.113	0.113	8.87	8.87	-38.0	-38.0	-37.0	22.1	21.2	17.3	0.22
920711	1300	0.37	0.113	0.113	8.87	8.87	-28.0	-40.0	-37.2	23.3	22.4	14.5	0.28
920711	1600	0.34	0.113	0.113	8.87	8.87	-36.0	-34.0	-35.8	24.6	20.7	15.7	0.30
920711	1900	0.32	0.113	0.113	8.87	8.87	-38.0	-38.0	-39.1	22.8	22.4	19.7	0.31
920711	2200	0.31	0.123	0.123	8.16	8.16	-28.0	-30.0	-34.2	19.5	21.2	13.4	0.22
920712	0100	0.33	0.123	0.113	8.16	8.87	-26.0	-26.0	-31.1	19.9	20.7	15.5	0.24
920712	0400	0.35	0.113	0.113	8.87	8.87	-34.0	-30.0	-29.4	19.6	25.1	15.7	0.29
920712	0700	0.32	0.113	0.113	8.87	8.87	-30.0	-28.0	-35.7	22.4	23.0	16.2	0.29
920712	1000	0.32	0.113	0.113	8.87	8.87	-34.0	-32.0	-34.5	21.8	23.9	14.6	0.22
920712	1300	0.31	0.113	0.113	8.87	8.87	-28.0	-30.0	-36.8	23.2	21.6	16.8	0.27
920712	1600	0.32	0.123	0.123	8.16	8.16	-40.0	-48.0	-40.2	24.3	18.2	16.1	0.34
920712	1900	0.30	0.123	0.113	8.16	8.87	-30.0	-26.0	-36.2	25.8	16.3	17.9	0.32
920712	2200	0.31	0.132	0.123	7.56	8.16	-44.0	-26.0	-37.6	22.5	18.3	15.4	0.22
920713	0100	0.30	0.142	0.123	7.04	8.16	-46.0	-44.0	-38.4	23.9	18.3	17.3	0.22
920713	0400	0.30	0.123	0.113	8.16	8.87	-40.0	-42.0	-43.8	27.2	21.7	22.9	0.33
920713	0700	0.28	0.142	0.123	7.04	8.16	-46.0	-46.0	-43.5	27.4	20.1	18.8	0.32
920713	1000	0.25	0.142	0.113	7.04	8.87	-46.0	-46.0	-39.8	26.2	18.7	18.8	0.23
920713	1300	0.24	0.142	0.142	7.04	7.04	-44.0	-44.0	-42.8	26.5	20.0	9.1	0.29

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,PS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{PD}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
920713	1600	0.28	0.142	0.132	7.04	7.56	-46.0	-44.0	-44.0	25.6	19.3	7.2	0.37
920713	1900	0.33	0.132	0.132	7.56	7.56	-42.0	-46.0	-49.0	26.9	21.5	6.8	0.27
920713	2200	0.32	0.142	0.132	7.04	7.56	-44.0	-42.0	-44.7	20.3	16.4	7.6	0.21
920714	0100	0.26	0.142	0.123	7.04	8.16	-42.0	-42.0	-41.4	26.1	22.1	19.0	0.24
920714	0700	0.22	0.132	0.123	7.56	8.16	-42.0	-44.0	-40.3	31.6	28.5	24.4	0.46
920714	1000	0.23	0.132	0.132	7.56	7.56	-46.0	-46.0	-42.6	29.5	25.0	12.2	0.35
920714	1300	0.26	0.132	0.132	7.56	7.56	-44.0	-44.0	-46.0	29.9	20.2	11.5	0.30
920714	1600	0.29	0.142	0.113	7.04	8.87	-44.0	-44.0	-45.8	34.2	23.8	19.2	0.35
920714	1900	0.38	0.298	0.298	3.35	3.35	-62.0	-56.0	-49.7	22.8	15.0	10.8	0.24
920714	2200	0.25	0.113	0.113	8.87	8.87	-34.0	-58.0	-42.6	31.2	20.2	16.1	0.29
920715	0100	0.22	0.123	0.113	8.16	8.87	-40.0	-40.0	-37.0	25.8	22.9	15.2	0.32
920715	0400	0.24	0.123	0.113	8.16	8.87	-36.0	-36.0	-37.0	31.9	24.6	20.3	0.43
920715	1000	0.25	0.132	0.113	7.56	8.87	-44.0	-44.0	-40.9	29.2	20.6	17.1	0.35
920715	1300	0.31	0.142	0.142	7.04	7.04	-42.0	-42.0	-43.8	23.4	14.0	5.0	0.24
920715	1600	0.49	0.259	0.259	3.86	3.86	-58.0	-56.0	-50.3	15.8	11.6	7.7	0.24
920715	1900	0.41	0.308	0.308	3.25	3.25	-56.0	-56.0	-48.4	17.0	9.6	5.5	0.31
920715	2200	0.30	0.142	0.142	7.04	7.04	-44.0	-50.0	-42.8	23.3	12.6	5.6	0.27
920716	0100	0.25	0.142	0.064	7.04	15.63	-44.0	-40.0	-37.2	26.8	16.7	23.4	0.30
920716	0400	0.26	0.142	0.064	7.04	15.63	-42.0	-42.0	-37.3	32.8	25.3	28.7	0.37
920716	0700	0.30	0.132	0.074	7.56	13.56	-42.0	-44.0	-41.3	37.9	28.6	31.1	0.38
920716	1000	0.34	0.132	0.132	7.56	7.56	-44.0	-44.0	-44.8	35.2	26.0	32.8	0.29
920716	1300	0.35	0.132	0.132	7.56	7.56	-42.0	-42.0	-46.4	32.3	21.7	10.9	0.24
920716	1600	0.40	0.142	0.142	7.04	7.04	-46.0	-46.0	-47.6	27.7	21.8	6.3	0.25
920716	1900	0.34	0.181	0.074	5.52	13.56	-60.0	-64.0	-49.9	41.5	23.0	28.5	0.33
920716	2200	0.30	0.162	0.064	6.19	15.63	-54.0	-56.0	-42.2	43.8	25.4	28.0	0.36
920717	0100	0.30	0.142	0.074	7.04	13.56	-42.0	-42.0	-37.1	44.9	26.3	24.1	0.30
920717	0400	0.33	0.142	0.074	7.04	13.56	-42.0	-44.0	-38.4	47.4	31.5	34.9	0.29
920717	0700	0.38	0.152	0.074	6.59	13.56	-46.0	-48.0	-39.7	47.9	32.7	30.4	0.36
920717	1300	0.36	0.142	0.074	7.04	13.56	-46.0	-58.0	-44.1	61.1	42.7	25.2	0.22
920717	1600	0.40	0.289	0.074	3.47	13.56	-62.0	-60.0	-42.6	49.0	29.0	26.2	0.25
920717	1900	0.38	0.279	0.074	3.59	13.56	-58.0	-58.0	-40.8	45.2	26.1	26.4	0.40
920717	2200	0.33	0.132	0.123	7.56	8.16	-38.0	-44.0	-36.0	41.7	27.5	16.2	0.36
920718	0100	0.32	0.142	0.142	7.04	7.04	-42.0	-42.0	-35.3	36.2	26.3	5.5	0.28
920718	0400	0.33	0.152	0.132	6.59	7.56	-42.0	-42.0	-35.8	38.3	27.2	38.0	0.27
920718	0700	0.35	0.142	0.132	7.04	7.56	-40.0	-48.0	-38.2	38.1	25.9	40.4	0.34
920718	1000	0.33	0.142	0.064	7.04	15.63	-42.0	-44.0	-39.3	37.3	24.4	30.0	0.33
920718	1300	0.30	0.132	0.074	7.56	13.56	-40.0	-52.0	-38.9	37.8	22.2	22.8	0.27
920718	1600	0.32	0.132	0.074	7.56	13.56	-40.0	-56.0	-41.8	38.1	20.4	28.2	0.28
920719	0700	0.36	0.191	0.064	5.24	15.63	-50.0	-50.0	-37.5	31.0	18.6	26.2	0.33
920719	1000	0.35	0.113	0.064	8.87	15.63	-26.0	-54.0	-37.5	34.0	20.0	31.7	0.41
920719	1300	0.36	0.113	0.064	8.87	15.63	-30.0	-30.0	-36.9	30.1	17.7	25.6	0.32
920719	1600	0.37	0.132	0.113	7.56	8.87	-42.0	-42.0	-36.0	23.2	17.1	13.2	0.25
920719	1900	0.43	0.132	0.113	7.56	8.87	-42.0	-46.0	-37.9	25.4	17.6	13.3	0.29
920719	2200	0.50	0.171	0.103	5.83	9.71	-52.0	-54.0	-42.0	26.0	14.7	12.6	0.30
920720	0100	0.51	0.171	0.113	5.83	8.87	-50.0	-50.0	-42.4	21.7	13.8	12.9	0.19
920720	0400	0.49	0.171	0.113	5.83	8.87	-48.0	-46.0	-40.8	20.7	14.7	8.4	0.19
920720	0700	0.48	0.113	0.113	8.87	8.87	-34.0	-52.0	-39.6	24.6	16.6	14.3	0.25
920720	1000	0.48	0.113	0.113	8.87	8.87	-26.0	-36.0	-39.9	26.6	17.3	15.0	0.30
920720	1300	0.48	0.123	0.113	8.16	8.87	-30.0	-30.0	-38.1	26.8	19.2	19.6	0.28
920720	1600	0.51	0.123	0.123	8.16	8.16	-32.0	-44.0	-37.0	21.0	16.4	11.2	0.21
920720	1900	0.55	0.162	0.152	6.19	6.59	-48.0	-48.0	-40.5	22.6	16.3	12.3	0.24
920720	2200	0.52	0.152	0.152	6.59	6.59	-48.0	-48.0	-40.6	20.9	15.7	5.8	0.27
920721	0100	0.44	0.142	0.123	7.04	8.16	-46.0	-48.0	-38.8	23.4	17.6	12.9	0.24
920721	0400	0.40	0.123	0.123	8.16	8.16	-28.0	-30.0	-38.7	26.5	17.1	14.0	0.21
920721	0700	0.40	0.113	0.123	8.87	8.16	-28.0	-28.0	-37.0	30.0	22.1	19.5	0.25
920721	1000	0.41	0.142	0.123	7.04	8.16	-46.0	-46.0	-36.7	32.7	21.8	18.9	0.32
920721	1300	0.41	0.152	0.123	6.59	8.16	-46.0	-46.0	-41.1	26.7	19.8	15.9	0.28

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DM}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DM}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PSP}$ deg	χ
920721	1600	0.40	0.152	0.123	6.59	8.16	-44.0	-44.0	-40.5	25.2	18.0	18.2	0.20
920721	1900	0.40	0.142	0.123	7.04	8.16	-42.0	-44.0	-38.4	22.6	16.2	14.8	0.24
920721	2200	0.38	0.181	0.113	5.52	8.87	-48.0	-48.0	-38.6	25.2	17.1	24.2	0.31
920722	0100	0.36	0.123	0.123	8.16	8.16	-40.0	-54.0	-41.1	30.6	18.4	18.4	0.25
920722	0400	0.33	0.113	0.123	8.87	8.16	-32.0	-42.0	-38.3	29.3	20.9	24.2	0.25
920722	0700	0.34	0.142	0.123	7.04	8.16	-42.0	-42.0	-36.0	28.5	19.7	14.8	0.27
920722	1000	0.37	0.123	0.123	8.16	8.16	-40.0	-44.0	-38.2	26.7	19.3	14.8	0.31
920722	1300	0.39	0.113	0.123	8.87	8.16	-34.0	-44.0	-39.4	28.0	21.3	15.9	0.29
920722	1600	0.34	0.113	0.113	8.87	8.87	-30.0	-42.0	-35.2	26.9	19.0	14.6	0.26
920722	1900	0.34	0.123	0.123	8.16	8.16	-32.0	-42.0	-34.5	25.5	18.7	12.4	0.25
920722	2200	0.35	0.123	0.123	8.16	8.16	-36.0	-42.0	-38.1	29.5	20.1	12.2	0.31
920723	0100	0.35	0.123	0.123	8.16	8.16	-32.0	-44.0	-33.4	40.6	33.5	18.2	0.32
920723	0400	0.62	0.171	0.162	5.83	6.19	44.0	34.0	17.2	56.1	21.2	12.9	0.14
920723	0700	0.61	0.171	0.162	5.83	6.19	40.0	36.0	14.3	65.6	28.9	18.5	0.13
920723	1000	0.55	0.162	0.162	6.19	6.19	26.0	-42.0	0.1	73.6	36.6	16.9	0.19
920723	1300	0.43	0.123	0.123	8.16	8.16	-32.0	-44.0	-22.6	61.0	35.7	12.9	0.24
920723	1600	0.33	0.123	0.123	8.16	8.16	-38.0	-40.0	-32.4	32.0	32.0	10.8	0.25
920723	1900	0.30	0.123	0.123	8.16	8.16	-36.0	-40.0	-37.8	25.0	25.5	14.6	0.27
920723	2200	0.31	0.123	0.123	8.16	8.16	-36.0	-40.0	-37.9	22.1	17.9	12.4	0.27
920724	0100	0.32	0.132	0.132	7.56	7.56	-34.0	-44.0	-41.2	23.3	18.3	14.0	0.28
920724	0400	0.31	0.132	0.132	7.56	7.56	-42.0	-44.0	-41.4	22.2	18.1	11.4	0.25
920724	0700	0.29	0.142	0.142	7.04	7.04	-44.0	-44.0	-41.4	28.1	23.0	15.9	0.27
920724	1000	0.28	0.132	0.132	7.56	7.56	-40.0	-42.0	-42.5	35.2	26.8	13.7	0.37
920724	1300	0.30	0.142	0.142	7.04	7.04	-46.0	-46.0	-44.5	38.6	35.9	16.0	0.37
920724	1600	0.38	0.142	0.308	7.04	3.25	-46.0	-42.0	-37.4	32.1	32.3	31.4	0.20
920724	1900	0.38	0.142	0.142	7.04	7.04	-44.0	-44.0	-36.2	42.8	40.0	15.1	0.16
920724	2200	0.58	0.220	0.220	4.54	4.54	50.0	48.0	17.4	67.2	44.7	23.0	0.13
920725	0100	0.65	0.152	0.152	6.59	6.59	26.0	28.0	23.1	49.6	44.9	65.8	0.15
920725	0400	0.65	0.162	0.152	6.19	6.59	34.0	36.0	19.5	59.5	42.0	31.4	0.13
920725	0700	0.69	0.171	0.152	5.83	6.59	30.0	30.0	23.6	38.2	30.8	18.2	0.10
920725	1000	0.79	0.142	0.152	7.04	6.59	14.0	22.0	23.1	24.2	24.9	17.9	0.12
920725	1300	0.83	0.142	0.171	7.04	5.83	18.0	18.0	25.6	26.9	27.6	18.1	0.15
920725	1600	0.71	0.181	0.181	5.52	5.52	24.0	18.0	22.0	31.0	32.5	15.2	0.15
920725	1900	0.66	0.123	0.123	8.16	8.16	16.0	16.0	19.9	29.8	30.7	19.2	0.12
920725	2200	0.79	0.132	0.132	7.56	7.56	14.0	12.0	19.6	28.4	28.0	25.5	0.11
920726	0100	0.81	0.142	0.142	7.04	7.04	12.0	14.0	15.4	26.5	27.3	17.8	0.14
920726	0400	0.78	0.142	0.113	7.04	8.87	12.0	12.0	15.8	31.5	30.2	30.0	0.15
920726	0700	0.74	0.113	0.113	8.87	8.87	10.0	14.0	14.2	35.2	31.1	32.8	0.12
920726	1000	0.70	0.113	0.113	8.87	8.87	2.0	12.0	15.2	35.9	32.9	27.0	0.11
920726	1300	0.66	0.132	0.113	7.56	8.87	8.0	12.0	7.1	33.8	34.0	35.5	0.17
920726	1600	0.63	0.142	0.113	7.04	8.87	12.0	10.0	6.0	35.8	33.5	34.7	0.20
920726	1900	0.63	0.113	0.113	8.87	8.87	4.0	8.0	4.9	33.5	33.1	29.9	0.18
920726	2200	0.62	0.113	0.113	8.87	8.87	0.0	8.0	1.0	33.8	32.8	32.3	0.12
920727	0100	0.61	0.103	0.113	9.71	8.87	-12.0	-12.0	-5.0	30.5	30.3	28.4	0.18
920727	0400	0.60	0.103	0.103	9.71	9.71	-10.0	-14.0	-10.5	30.9	29.0	27.9	0.26
920727	0700	0.53	0.093	0.113	10.72	8.87	-14.0	-12.0	-12.7	31.4	28.4	32.1	0.22
920727	1000	0.48	0.113	0.113	8.87	8.87	-14.0	-14.0	-16.7	33.2	27.8	29.4	0.16
920727	1300	0.48	0.103	0.113	9.71	8.87	-14.0	-14.0	-24.5	33.6	30.7	23.1	0.26
920727	1600	0.51	0.093	0.113	10.72	8.87	-8.0	-16.0	-18.1	34.6	30.7	27.3	0.26
920727	1900	0.49	0.093	0.103	10.72	9.71	-10.0	-12.0	-23.9	41.9	33.6	34.4	0.25
920727	2200	0.48	0.103	0.103	9.71	9.71	-18.0	-18.0	-5.2	45.7	37.5	26.0	0.17
920728	0100	0.39	0.113	0.103	8.87	9.71	10.0	8.0	-23.5	39.9	37.7	32.1	0.21
920728	0400	0.37	0.103	0.103	9.71	9.71	-8.0	-40.0	-27.3	49.3	41.7	30.4	0.29
920728	0700	0.38	0.113	0.113	8.87	8.87	4.0	8.0	-10.7	49.9	46.1	31.7	0.27
920728	1000	0.91	0.259	0.259	3.86	3.86	50.0	54.0	42.7	16.6	16.6	9.1	0.28
920728	1300	0.81	0.250	0.250	4.01	4.01	54.0	54.0	38.8	35.8	22.2	13.5	0.21
920728	1600	0.71	0.210	0.210	4.75	4.75	52.0	54.0	31.9	40.4	28.4	22.5	0.21
920728	1900	0.60	0.191	0.191	5.24	5.24	44.0	44.0	22.8	35.6	24.8	11.9	0.21

Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,SPE}$ Hz	$T_{p,PD}$ sec	$T_{p,SPE}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,DIR}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{DIR}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{WSP}$ deg	χ
920728	2200	0.47	0.210	0.171	4.75	5.83	42.0	42.0	14.3	50.4	25.5	9.4	0.14
920729	0100	0.45	0.191	0.113	5.24	8.87	42.0	44.0	11.3	60.8	27.3	36.9	0.14
920729	0400	0.45	0.113	0.113	8.87	8.87	-38.0	34.0	-0.2	64.2	34.3	38.0	0.19
920729	0700	0.46	0.201	0.201	4.98	4.98	38.0	38.0	2.5	59.2	33.6	16.2	0.18
920729	1000	0.41	0.103	0.103	9.71	9.71	-26.0	24.0	-0.2	57.3	32.9	31.3	0.16
920729	1300	0.39	0.113	0.113	8.87	8.87	-38.0	-38.0	-20.4	51.1	35.1	21.6	0.16
920729	1600	0.39	0.113	0.113	8.87	8.87	-38.0	-40.0	-41.7	36.4	29.6	25.1	0.28
920729	1900	0.36	0.113	0.113	8.87	8.87	-40.0	-42.0	-38.7	34.4	29.9	37.3	0.29
920729	2200	0.33	0.113	0.113	8.87	8.87	-38.0	-42.0	-31.5	40.6	33.5	37.9	0.21
920730	0100	0.34	0.113	0.113	8.87	8.87	-38.0	-40.0	-34.2	39.2	35.4	36.2	0.15
920730	0400	0.35	0.113	0.113	8.87	8.87	-40.0	-40.0	-31.6	42.5	38.5	40.9	0.24
920730	0700	0.35	0.113	0.113	8.87	8.87	-38.0	-40.0	-39.5	35.8	35.0	34.6	0.27
920730	1000	0.32	0.113	0.113	8.87	8.87	-40.0	-40.0	-29.8	34.4	29.3	33.6	0.22
920730	1300	0.34	0.113	0.113	8.87	8.87	-36.0	-40.0	-36.5	29.9	23.5	31.7	0.20
920730	1600	0.38	0.318	0.113	3.15	8.87	-52.0	-52.0	-40.6	30.4	22.8	35.5	0.26
920730	1900	0.34	0.113	0.113	8.87	8.87	-30.0	-44.0	-37.3	32.7	27.0	29.9	0.34
920730	2200	0.32	0.113	0.113	8.87	8.87	-30.0	-36.0	-36.3	33.8	30.0	25.4	0.25
920731	0100	0.32	0.113	0.113	8.87	8.87	-36.0	-38.0	-34.2	32.2	27.8	24.7	0.17
920731	0400	0.33	0.113	0.113	8.87	8.87	-14.0	-38.0	-33.6	33.6	31.2	30.7	0.23
920731	0700	0.38	0.113	0.113	8.87	8.87	-26.0	-54.0	-38.4	33.7	27.9	27.0	0.29
920731	1000	0.37	0.279	0.113	3.59	8.87	-52.0	-50.0	-41.2	31.1	22.8	32.1	0.20
920731	1300	0.41	0.259	0.250	3.86	4.01	-56.0	-54.0	-46.2	31.6	18.2	11.2	0.15
920731	1600	0.55	0.308	0.220	3.25	4.54	-60.0	-60.0	-51.0	22.7	16.9	16.1	0.22
920731	1900	0.50	0.210	0.210	4.75	4.75	-54.0	-58.0	-47.3	25.3	19.0	11.6	0.23
920801	0100	0.34	0.074	0.123	13.56	8.16	-12.0	-40.0	-38.3	35.0	28.9	24.4	0.14
920801	0400	0.35	0.220	0.113	4.54	8.87	-52.0	-36.0	-36.1	33.8	26.1	27.4	0.18
920801	0700	0.51	0.298	0.298	3.35	3.35	42.0	44.0	22.7	63.5	30.9	25.4	0.29
920801	1000	0.99	0.210	0.210	4.75	4.75	54.0	54.0	48.7	18.0	16.2	12.5	0.15
920801	1300	0.81	0.201	0.201	4.98	4.98	46.0	46.0	43.0	18.6	16.2	9.4	0.12
920801	1600	0.69	0.191	0.191	5.24	5.24	40.0	38.0	37.2	31.9	23.3	10.8	0.10
920801	1900	0.63	0.171	0.181	5.83	5.52	32.0	34.0	33.3	31.8	29.2	16.9	0.17
920801	2200	0.56	0.181	0.191	5.52	5.24	38.0	38.0	33.1	39.0	29.1	22.0	0.15
920802	0100	0.51	0.210	0.191	4.75	5.24	54.0	54.0	35.3	42.7	25.2	16.4	0.10
920802	0400	0.45	0.201	0.201	4.98	4.98	52.0	54.0	24.4	68.3	29.8	19.1	0.12
920802	0700	0.44	0.123	0.123	8.16	8.16	-42.0	-22.0	12.0	63.7	41.9	36.4	0.17
920802	1000	0.45	0.171	0.113	5.83	8.87	30.0	26.0	9.1	54.4	33.4	24.1	0.20
920802	1300	0.43	0.191	0.191	5.24	5.24	40.0	38.0	9.2	57.2	29.3	14.7	0.16
920802	1600	0.40	0.113	0.113	8.87	8.87	-38.0	-22.0	0.7	55.9	30.4	20.6	0.16
920802	1900	0.39	0.113	0.113	8.87	8.87	-24.0	-22.0	-2.2	46.8	40.6	19.8	0.20
920802	2200	0.37	0.113	0.113	8.87	8.87	-24.0	-22.0	-10.3	39.9	42.5	18.3	0.25
920803	0100	0.33	0.113	0.123	8.87	8.16	-22.0	-24.0	-24.4	35.1	37.9	25.1	0.24
920803	0400	0.36	0.113	0.113	8.87	8.87	-38.0	-24.0	-29.4	33.2	36.3	22.2	0.18
920803	0700	0.35	0.123	0.113	8.16	8.87	-42.0	-20.0	-38.4	33.5	34.1	26.1	0.22
920803	1000	0.37	0.113	0.113	8.87	8.87	-42.0	-16.0	-41.3	36.8	39.2	32.1	0.28
920803	1300	0.36	0.113	0.113	8.87	8.87	-18.0	-26.0	-35.6	38.3	37.4	26.0	0.27
920803	1600	0.37	0.123	0.123	8.16	8.16	-28.0	-26.0	1.2	53.7	60.0	23.3	0.19
920803	1900	0.38	0.132	0.123	7.56	8.16	-36.0	-40.0	-40.9	47.7	49.5	35.7	0.19
920803	2200	0.36	0.113	0.113	8.87	8.87	-24.0	-42.0	-40.7	42.3	28.8	29.4	0.22
920804	0100	0.34	0.123	0.113	8.16	8.87	-26.0	-62.0	-42.6	43.5	28.4	27.3	0.20
920804	0400	0.33	0.113	0.113	8.87	8.87	-38.0	-58.0	-44.1	39.9	24.9	22.9	0.19
920804	0700	0.35	0.191	0.210	5.24	4.75	-52.0	-54.0	-44.7	37.2	21.6	13.4	0.20
920804	1000	0.37	0.191	0.201	5.24	4.98	-52.0	-52.0	-42.1	33.6	19.8	12.2	0.22
920804	1300	0.38	0.171	0.113	5.83	8.87	-54.0	-54.0	-45.2	30.6	17.6	23.9	0.20
920804	1600	0.36	0.220	0.113	4.54	8.87	-56.0	-54.0	-43.0	34.4	19.8	24.1	0.20
920804	1900	0.34	0.123	0.123	8.16	8.16	-26.0	-48.0	-39.8	38.0	31.9	26.1	0.20
920804	2200	0.31	0.113	0.103	8.87	9.71	-28.0	-26.0	-29.0	42.4	38.8	36.2	0.24
920805	0100	0.31	0.103	0.103	9.71	9.71	-28.0	-30.0	-38.7	31.5	28.1	22.3	0.23

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Table A1 (Continued)

Date	Time EST	H_{m_0} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PDP}$ deg	χ
920805	0400	0.33	0.113	0.113	8.87	8.87	-28.0	-30.0	-25.2	33.2	30.8	22.0	0.20
920805	0700	0.55	0.298	0.308	3.35	3.25	36.0	34.0	4.3	68.5	26.1	27.7	0.14
920805	1000	0.69	0.259	0.259	3.86	3.86	38.0	40.0	3.6	64.8	38.5	35.6	0.13
920805	1300	0.68	0.220	0.230	4.54	4.35	22.0	12.0	6.9	57.1	42.5	39.3	0.13
920805	1600	0.63	0.220	0.220	4.54	4.54	38.0	-26.0	14.7	55.5	42.6	35.0	0.09
920805	1900	0.68	0.220	0.220	4.54	4.54	-4.0	-2.0	-8.4	43.8	35.2	28.4	0.10
920805	2200	0.79	0.220	0.220	4.54	4.54	20.0	6.0	-1.0	42.2	37.9	35.0	0.11
920806	0100	0.79	0.240	0.230	4.17	4.35	-20.0	-24.0	-8.3	46.3	42.3	42.7	0.13
920806	0400	0.95	0.250	0.230	4.01	4.35	-18.0	-20.0	-4.4	45.3	42.3	42.0	0.09
920806	0700	1.20	0.181	0.201	5.52	4.98	-20.0	-20.0	5.6	44.8	40.4	41.8	0.08
920806	1000	1.37	0.181	0.191	5.52	5.24	22.0	-20.0	14.9	44.3	40.8	36.7	0.09
920806	1300	1.41	0.181	0.181	5.52	5.52	2.0	4.0	2.2	37.8	36.2	26.9	0.11
920806	1600	1.24	0.171	0.171	5.83	5.83	-2.0	-2.0	5.4	41.4	37.5	22.9	0.11
920806	1900	1.33	0.152	0.162	6.59	6.19	-20.0	-20.0	-0.9	35.4	31.1	21.5	0.08
920806	2200	1.32	0.162	0.162	6.19	6.19	-6.0	-16.0	-9.5	28.0	29.0	19.9	0.09
920807	0100	1.26	0.132	0.132	7.56	7.56	-14.0	-14.0	-8.4	28.9	28.1	19.1	0.12
920807	0400	1.26	0.132	0.132	7.56	7.56	-16.0	-14.0	-4.5	27.3	27.4	20.5	0.11
920807	0700	1.28	0.123	0.132	8.16	7.56	-14.0	-16.0	-5.9	28.0	27.9	19.3	0.08
920807	1000	1.24	0.123	0.123	8.16	8.16	-10.0	-10.0	-7.6	26.5	26.5	15.8	0.10
920807	1300	1.18	0.132	0.123	7.56	8.16	-18.0	-4.0	-11.8	27.5	29.4	22.0	0.16
920807	1600	1.08	0.123	0.123	8.16	8.16	-10.0	-10.0	-7.0	27.1	28.7	20.4	0.14
920807	1900	1.06	0.132	0.132	7.56	7.56	-16.0	-14.0	-6.5	28.8	29.1	19.8	0.09
920807	2200	1.14	0.123	0.123	8.16	8.16	-16.0	-10.0	-8.9	28.7	29.1	22.9	0.10
920808	0100	1.28	0.113	0.113	8.87	8.87	-16.0	-16.0	-7.2	26.2	27.0	21.7	0.13
920808	0400	1.13	0.123	0.113	8.16	8.87	-20.0	4.0	-4.7	27.4	28.0	26.4	0.13
920808	0700	0.92	0.132	0.113	7.56	8.87	-16.0	-14.0	-10.7	27.8	28.4	31.4	0.10
920808	1000	0.86	0.103	0.113	9.71	8.87	-4.0	-4.0	-8.4	30.4	30.1	30.2	0.10
920808	1300	0.85	0.113	0.113	8.87	8.87	-10.0	-8.0	-6.9	28.8	28.8	21.2	0.15
920808	1600	0.86	0.113	0.113	8.87	8.87	-6.0	-14.0	-5.6	27.8	28.9	22.7	0.17
920808	1900	0.82	0.123	0.123	8.16	8.16	4.0	2.0	2.5	31.7	32.6	31.6	0.14
920808	2200	0.79	0.113	0.113	8.87	8.87	-12.0	-14.0	-4.4	30.2	30.3	23.9	0.10
920809	0100	0.72	0.123	0.123	8.16	8.16	2.0	2.0	-3.8	33.1	32.9	31.5	0.16
920809	0400	0.66	0.113	0.113	8.87	8.87	-14.0	-16.0	-10.1	32.2	31.6	23.8	0.18
920809	0700	0.63	0.103	0.113	9.71	8.87	-12.0	-12.0	-8.3	31.0	30.6	25.3	0.16
920809	1000	0.63	0.113	0.113	8.87	8.87	-14.0	-16.0	-9.0	29.3	29.5	17.4	0.13
920809	1300	0.57	0.113	0.113	8.87	8.87	-14.0	-14.0	-12.7	31.2	29.9	18.1	0.20
920809	1600	0.51	0.113	0.123	8.87	8.16	-12.0	-56.0	-22.2	37.7	28.7	27.7	0.25
920809	1900	0.50	0.113	0.123	8.87	8.16	-12.0	-12.0	-3.8	50.9	52.8	31.4	0.25
920809	2200	0.41	0.123	0.123	8.16	8.1	-6.0	-36.0	-28.2	36.6	33.9	31.5	0.20
920810	0100	0.36	0.113	0.113	8.87	8.87	-34.0	-34.0	-32.4	37.3	32.4	33.9	0.27
920810	0400	0.36	0.142	0.123	7.04	8.16	-36.0	-36.0	-26.8	38.9	35.5	34.3	0.27
920810	0700	0.38	0.132	0.132	7.56	7.56	0.0	-32.0	-25.3	39.2	36.9	38.0	0.24
920810	1000	0.40	0.152	0.142	6.59	7.04	-40.0	-34.0	-21.6	40.6	36.3	40.9	0.19
920810	1300	0.42	0.132	0.132	7.56	7.56	-36.0	-36.0	-28.4	40.2	36.7	42.4	0.24
920810	1600	0.40	0.132	0.123	7.56	8.16	-36.0	-30.0	-32.8	37.0	34.1	39.8	0.24
920810	1900	0.38	0.142	0.123	7.04	8.16	-26.0	-34.0	-34.5	32.1	24.3	33.0	0.26
920810	2200	0.37	0.123	0.123	8.16	8.16	-24.0	-28.0	-32.9	28.3	24.3	29.6	0.25
920811	0100	0.39	0.142	0.142	7.04	7.04	-36.0	-36.0	-35.7	25.8	23.8	17.1	0.24
920811	0400	0.41	0.132	0.132	7.56	7.56	-36.0	-36.0	-35.6	26.3	25.5	22.8	0.24
920811	0700	0.42	0.123	0.123	8.16	8.16	-26.0	-40.0	-35.1	25.7	25.2	19.1	0.24
920811	1000	0.42	0.123	0.123	8.16	8.16	-32.0	-32.0	-37.5	21.5	19.4	12.9	0.20
920811	1300	0.44	0.123	0.123	8.16	8.16	-32.0	-40.0	-36.4	21.8	16.5	14.8	0.21
920811	1600	0.48	0.132	0.123	7.56	8.16	-40.0	-52.0	-42.6	24.0	14.0	18.0	0.26
920811	1900	0.41	0.123	0.123	8.16	8.16	-38.0	-42.0	-40.5	22.9	14.6	17.0	0.23
920811	2200	0.46	0.123	0.123	8.16	8.16	-36.0	-34.0	-10.1	64.7	23.8	11.9	0.19
920812	0100	0.83	0.191	0.191	5.24	5.24	50.0	50.0	36.9	62.5	34.5	21.2	0.16
920812	0400	0.67	0.132	0.201	7.56	4.98	-40.0	-42.0	-7.0	73.3	44.3	28.9	0.17
920812	0700	0.59	0.123	0.132	8.16	7.56	-30.0	-30.0	-26.3	49.3	38.9	13.5	0.19

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,SPS}$ Hz	$T_{p,PD}$ sec	$T_{p,SPS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,SDS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{SDS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PDP}$ deg	χ
920812	1000	0.51	0.123	0.123	8.16	8.16	-30.0	-30.0	-24.2	39.9	30.5	7.7	0.13
920812	1300	0.46	0.132	0.132	7.56	7.56	-28.0	-42.0	-33.4	24.5	27.0	13.1	0.13
920812	1900	0.38	0.123	0.123	8.16	8.16	-38.0	-40.0	-38.3	27.1	27.5	15.3	0.23
920812	2200	0.40	0.142	0.132	7.04	7.56	-40.0	-40.0	-37.1	26.4	24.4	17.4	0.16
920813	0100	0.45	0.132	0.132	7.56	7.56	-28.0	-40.0	-35.7	21.4	25.0	12.2	0.12
920813	0400	0.47	0.132	0.123	7.56	8.16	-30.0	-28.0	-18.4	32.3	35.9	13.5	0.17
920813	0700	0.48	0.123	0.123	8.16	8.16	-40.0	-42.0	-15.5	65.3	33.8	11.9	0.17
920813	1300	0.45	0.123	0.123	8.16	8.16	-34.0	-40.0	-12.3	47.7	42.7	13.9	0.14
920813	1600	0.57	0.162	0.171	6.19	5.83	-44.0	-42.0	-51.1	34.8	45.1	11.5	0.16
920813	1900	0.65	0.162	0.181	6.19	5.52	-42.0	-42.0	-50.8	39.5	40.3	16.2	0.17
920813	2200	0.53	0.171	0.162	5.83	6.19	-56.0	-56.0	-49.4	36.5	31.5	15.2	0.20
920814	0100	0.49	0.142	0.152	7.04	6.59	-48.0	-48.0	-51.4	24.1	15.8	8.0	0.17
920814	0400	0.75	0.171	0.171	5.83	5.83	40.0	42.0	25.8	34.0	15.4	6.6	0.16
920814	0700	1.03	0.162	0.162	6.19	6.19	38.0	42.0	31.9	16.1	16.3	9.4	0.21
920814	1000	1.23	0.152	0.142	6.59	7.04	34.0	40.0	34.6	23.8	29.9	62.5	0.20
920814	1300	1.28	0.142	0.142	7.04	7.04	38.0	36.0	32.5	29.4	29.2	33.5	0.10
920814	1600	1.40	0.171	0.162	5.83	6.19	34.0	14.0	20.2	33.4	33.8	31.6	0.10
920814	1900	1.05	0.171	0.191	5.83	5.24	34.0	34.0	22.6	53.5	47.5	20.7	0.14
920814	2200	0.82	0.171	0.132	5.83	7.56	32.0	34.0	7.5	67.9	53.6	64.4	0.12
920815	0100	0.84	0.162	0.162	6.19	6.19	32.0	36.0	12.9	73.6	57.3	26.6	0.13
920815	0400	0.91	0.171	0.142	5.83	7.04	34.0	22.0	12.0	67.3	54.4	46.0	0.13
920815	0700	0.91	0.162	0.123	6.19	8.16	20.0	18.0	9.8	62.8	52.6	50.5	0.17
920815	1000	1.02	0.123	0.113	8.16	8.87	14.0	14.0	0.8	59.1	55.9	39.3	0.12
920815	1300	1.02	0.142	0.142	7.04	7.04	-44.0	-44.0	-38.2	59.3	57.0	54.7	0.10
920815	1600	1.04	0.123	0.142	8.16	7.04	10.0	-38.0	-25.6	62.2	56.0	51.7	0.11
920815	1900	0.96	0.142	0.123	7.04	8.16	-50.0	12.0	-24.0	68.5	51.0	31.6	0.17
920815	2200	0.87	0.123	0.123	8.16	8.16	14.0	16.0	-0.8	65.2	54.6	35.6	0.16
920816	0100	0.80	0.132	0.132	7.56	7.56	8.0	30.0	16.9	60.6	61.6	49.3	0.11
920816	0400	0.84	0.123	0.132	8.16	7.56	8.0	8.0	-0.9	64.0	54.5	45.1	0.15
920816	0700	0.85	0.123	0.123	8.16	8.16	8.0	10.0	-22.2	61.1	44.6	34.1	0.17
920816	1000	0.78	0.123	0.123	8.16	8.16	12.0	8.0	-12.2	59.4	47.2	34.7	0.16
920816	1300	0.70	0.123	0.132	8.16	7.56	14.0	12.0	-16.1	58.0	54.8	53.2	0.12
920816	1600	0.71	0.132	0.132	7.56	7.56	12.0	26.0	-13.7	60.8	52.2	42.7	0.12
920816	1900	0.69	0.162	0.132	6.19	7.56	30.0	-52.0	-24.6	62.6	51.6	50.1	0.14
920816	2200	0.66	0.132	0.132	7.56	7.56	12.0	12.0	-19.9	62.4	43.5	39.7	0.15
920817	0100	0.64	0.132	0.132	7.56	7.56	8.0	6.0	-21.3	54.2	45.5	39.7	0.11
920817	0400	0.61	0.142	0.142	7.04	7.04	-46.0	-42.0	-32.2	52.2	47.8	50.9	0.12
920817	1000	0.55	0.152	0.123	6.59	8.16	-48.0	-52.0	-34.5	59.5	47.8	40.6	0.16
920817	1300	0.54	0.181	0.132	5.52	7.56	-52.0	-52.0	-21.0	60.3	53.2	47.0	0.12
920817	1600	0.58	0.142	0.132	7.04	7.56	-40.0	-38.0	-37.6	55.6	48.5	38.6	0.11
920817	1900	0.63	0.142	0.152	7.04	6.59	-22.0	-26.0	-39.0	45.0	40.3	42.6	0.13
920817	2200	0.62	0.142	0.132	7.04	7.56	-44.0	-26.0	-39.3	40.0	38.7	40.9	0.13
920818	0100	0.56	0.142	0.142	7.04	7.04	-42.0	-44.0	-29.0	45.2	40.4	40.8	0.14
920818	0400	0.60	0.152	0.152	6.59	6.59	-44.0	-44.0	-41.6	38.5	34.8	27.7	0.12
920818	0700	0.66	0.142	0.132	7.04	7.56	-42.0	-42.0	-43.1	33.6	32.3	35.0	0.15
920818	1000	0.69	0.123	0.123	8.16	8.16	-36.0	-42.0	-35.0	38.9	34.6	39.0	0.16
920818	1300	0.73	0.123	0.123	8.16	8.16	-28.0	-28.0	-32.2	33.8	34.6	34.2	0.15
920818	1600	0.77	0.113	0.123	8.87	8.16	-30.0	-30.0	-31.4	29.8	31.1	26.1	0.13
920818	1900	0.77	0.123	0.123	8.16	8.16	-32.0	-30.0	-30.6	25.8	26.7	15.0	0.16
920818	2200	0.70	0.123	0.123	8.16	8.16	-28.0	-30.0	-36.1	26.0	26.6	19.0	0.18
920819	0100	0.69	0.113	0.113	8.87	8.87	-30.0	-30.0	-35.0	25.3	26.1	20.2	0.18
920819	0400	0.75	0.123	0.123	8.16	8.16	-40.0	-40.0	-37.0	23.4	24.6	22.0	0.15
920819	0700	0.79	0.123	0.123	8.16	8.16	-32.0	-34.0	-35.4	24.4	25.2	21.9	0.17
920819	1000	0.78	0.132	0.123	7.56	8.16	-38.0	-40.0	-36.3	25.0	26.0	23.3	0.19
920819	1300	0.74	0.123	0.123	8.16	8.16	-42.0	-34.0	-36.9	23.6	24.9	19.1	0.21
920819	1600	0.69	0.113	0.113	8.87	8.87	-40.0	-28.0	-37.1	25.9	26.7	23.6	0.17
920819	1900	0.69	0.123	0.123	8.16	8.16	-42.0	-42.0	-43.8	23.7	23.9	20.5	0.18
920819	2200	0.63	0.123	0.123	8.16	8.16	-42.0	-44.0	-28.3	38.6	37.0	25.3	0.20

Table A1 (Continued)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,BIS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{BIS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{TSP}$ deg	χ
920820	0100	0.59	0.123	0.123	8.16	8.16	-40.0	-44.0	-42.7	28.0	25.6	21.8	0.20
920820	0400	0.63	0.142	0.123	7.04	8.16	-44.0	-44.0	-40.8	31.6	30.0	26.0	0.16
920820	0700	0.66	0.142	0.142	7.04	7.04	-46.0	-42.0	-39.2	36.1	36.5	28.0	0.18
920820	1000	0.63	0.152	0.123	6.59	8.16	-48.0	-44.0	-34.9	35.1	32.2	34.7	0.19
920820	1300	0.59	0.142	0.132	7.04	7.56	-44.0	-44.0	-25.2	46.7	35.5	36.9	0.20
920820	1600	0.60	0.142	0.132	7.04	7.56	-42.0	-44.0	-12.3	68.2	31.7	37.9	0.17
920820	1900	0.66	0.113	0.123	8.87	8.16	-38.0	48.0	-4.5	73.7	29.6	32.8	0.15
920820	2200	0.74	0.279	0.289	3.59	3.47	50.0	48.0	9.5	69.9	30.1	24.3	0.17
920821	0100	0.77	0.269	0.269	3.72	3.72	48.0	48.0	9.7	59.9	32.2	23.8	0.14
920821	0400	0.89	0.250	0.240	4.01	4.17	30.0	28.0	9.4	54.3	28.8	18.7	0.12
920821	0700	1.02	0.220	0.220	4.54	4.54	20.0	20.0	11.3	38.6	27.8	24.7	0.10
920821	1000	1.01	0.201	0.201	4.98	4.98	4.0	4.0	6.8	34.6	27.6	15.5	0.12
920821	1300	0.85	0.201	0.181	4.98	5.52	14.0	10.0	5.6	37.6	29.0	20.9	0.13
920821	1600	0.77	0.123	0.123	8.16	8.16	-16.0	0.0	2.3	38.0	30.7	25.8	0.12
920821	1900	0.83	0.191	0.123	5.24	8.16	6.0	-4.0	-6.0	32.9	30.7	29.8	0.12
920821	2200	0.95	0.191	0.171	5.24	5.83	4.0	-12.0	-6.7	31.2	30.1	25.4	0.13
920822	0100	0.84	0.191	0.123	5.24	8.16	6.0	2.0	-6.9	34.6	32.5	29.3	0.15
920822	0400	0.81	0.074	0.074	13.56	13.56	-18.0	-18.0	-12.2	35.2	32.4	21.4	0.14
920822	0700	0.87	0.074	0.074	13.56	13.56	-20.0	-20.0	-8.2	36.2	31.4	20.3	0.14
920822	1000	0.93	0.083	0.083	11.98	11.98	-30.0	-34.0	-12.0	34.5	29.4	17.0	0.17
920822	1300	0.95	0.083	0.083	11.98	11.98	-28.0	-28.0	-10.4	33.6	27.2	11.8	0.20
920822	1600	0.89	0.083	0.083	11.98	11.98	-28.0	-28.0	-11.6	34.5	26.3	15.4	0.15
920822	1900	0.84	0.083	0.083	11.98	11.98	-34.0	-30.0	-14.2	34.1	29.6	18.4	0.13
920822	2200	0.84	0.093	0.093	10.72	10.72	-30.0	-28.0	-16.6	33.5	29.7	14.1	0.16
920823	0100	0.79	0.093	0.093	10.72	10.72	-30.0	-30.0	-18.1	36.8	32.1	12.6	0.17
920823	0400	0.77	0.093	0.093	10.72	10.72	-32.0	-34.0	-24.8	32.4	29.4	12.6	0.14
920823	0700	0.77	0.093	0.093	10.72	10.72	-32.0	-32.0	-21.1	30.4	26.5	15.1	0.12
920823	1000	0.84	0.093	0.093	10.72	10.72	-30.0	-30.0	-20.8	26.9	24.4	16.3	0.15
920823	1300	0.85	0.093	0.093	10.72	10.72	-26.0	-28.0	-24.3	30.8	29.5	27.4	0.17
920823	1600	0.90	0.103	0.103	9.71	9.71	-30.0	-30.0	-24.7	29.3	28.3	12.8	0.16
920823	1900	0.85	0.103	0.103	9.71	9.71	-30.0	-30.0	-21.9	29.2	26.6	15.0	0.15
920823	2200	0.83	0.103	0.103	9.71	9.71	-40.0	-32.0	-24.2	28.7	25.9	15.2	0.16
920824	0100	0.84	0.093	0.103	10.72	9.71	-32.0	-32.0	-24.1	30.9	27.4	18.7	0.19
920824	0400	0.91	0.093	0.093	10.72	10.72	-34.0	-32.0	-23.3	31.0	26.6	10.3	0.18
920824	0700	0.95	0.103	0.103	9.71	9.71	-38.0	-36.0	-28.5	28.9	25.0	11.0	0.16
920824	1000	1.01	0.103	0.103	9.71	9.71	-32.0	-32.0	-28.3	28.1	25.6	12.7	0.17
920824	1300	1.00	0.103	0.113	9.71	8.87	-30.0	-30.0	-30.5	25.2	26.4	15.1	0.24
920824	1600	0.92	0.103	0.113	9.71	8.87	-30.0	-30.0	-34.2	23.7	27.0	14.7	0.23
920824	1900	0.77	0.113	0.113	8.87	8.87	-32.0	-32.0	-38.8	29.7	31.8	14.4	0.20
920824	2200	0.72	0.152	0.152	6.59	6.59	-44.0	-44.0	-42.4	29.5	31.6	17.8	0.19
920825	0100	0.71	0.123	0.123	8.16	8.16	-32.0	-32.0	-41.5	30.5	32.9	16.2	0.18
920825	0400	0.66	0.123	0.142	8.16	7.04	-30.0	-30.0	-40.5	34.4	35.4	24.4	0.18
920825	0700	0.59	0.132	0.132	7.56	7.56	-32.0	-38.0	-33.4	30.9	31.3	18.7	0.16
920825	1000	0.58	0.142	0.142	7.04	7.04	-42.0	-42.0	-39.8	28.0	29.6	17.4	0.13
920825	1300	0.58	0.142	0.152	7.04	6.59	-40.0	-42.0	-40.9	27.5	28.5	20.4	0.18
920825	1600	0.56	0.132	0.142	7.56	7.04	-32.0	-44.0	-42.6	27.5	26.6	22.5	0.19
920825	1900	0.49	0.142	0.142	7.04	7.04	-44.0	-30.0	-38.1	27.6	26.1	24.0	0.20
920825	2200	0.46	0.132	0.132	7.56	7.56	-40.0	-26.0	-38.1	27.1	25.9	21.4	0.14
920826	0100	0.48	0.152	0.132	6.59	7.56	-22.0	-24.0	-30.2	26.9	26.7	20.6	0.20
920826	0400	0.48	0.132	0.132	7.56	7.56	-22.0	-24.0	-33.4	26.4	26.1	19.7	0.21
920826	0700	0.45	0.132	0.142	7.56	7.04	-18.0	-24.0	-28.9	30.0	29.0	32.7	0.20
920826	1000	0.44	0.113	0.113	8.87	8.87	-18.0	-22.0	-29.2	28.1	26.5	20.4	0.13
920826	1300	0.50	0.113	0.113	8.87	8.87	-22.0	-22.0	-22.6	26.8	24.8	12.3	0.21
920826	1600	0.52	0.123	0.123	8.16	8.16	-26.0	-26.0	-24.1	29.1	26.2	19.6	0.27
920826	1900	0.54	0.123	0.123	8.16	8.16	-18.0	-24.0	-22.9	27.7	25.2	19.0	0.28
920826	2200	0.53	0.132	0.093	7.56	10.72	-24.0	-24.0	-17.8	29.6	26.3	26.1	0.16
920827	0100	0.58	0.093	0.093	10.72	10.72	-8.0	-22.0	-20.3	28.0	26.3	24.3	0.19
920827	0400	0.59	0.123	0.093	8.16	10.72	-14.0	-14.0	-13.6	27.0	25.6	25.0	0.26

Table A1 (Concluded)

Date	Time EST	H_{mo} m	$f_{p,PD}$ Hz	$f_{p,PS}$ Hz	$T_{p,PD}$ sec	$T_{p,PS}$ sec	$\theta_{p,PD}$ deg	$\theta_{p,IDS}$ deg	$\theta_{p,SW}$ deg	$\Delta\theta_{IDS}$ deg	$\Delta\theta_{SW}$ deg	$\Delta\theta_{PDF}$ deg	χ
920827	0700	0.60	0.113	0.093	8.87	10.72	-18.0	-18.0	-14.7	23.4	22.4	22.1	0.27
920827	1000	0.58	0.123	0.093	8.16	10.72	-16.0	-18.0	-18.6	24.5	24.1	25.8	0.16
920827	1300	0.57	0.103	0.103	9.71	9.71	-20.0	-18.0	-17.8	23.0	23.9	22.5	0.17
920827	1600	0.58	0.123	0.113	8.16	8.87	-18.0	-18.0	-19.4	20.6	22.3	16.3	0.35
920827	1900	0.58	0.113	0.113	8.87	8.87	-16.0	-16.0	-18.9	19.5	20.9	13.5	0.28
920827	2200	0.53	0.123	0.113	8.16	8.87	-14.0	-16.0	-15.4	21.9	23.5	20.3	0.20
920828	0100	0.52	0.123	0.123	8.16	8.16	-14.0	-14.0	-18.6	25.8	23.0	21.0	0.15
920828	0400	0.50	0.123	0.113	8.16	8.87	-10.0	-12.0	-18.5	29.6	25.3	28.9	0.26
920828	0700	0.43	0.123	0.123	8.16	8.16	-18.0	-12.0	-22.0	31.4	28.2	24.0	0.27
920828	1000	0.45	0.123	0.113	8.16	8.87	-14.0	-14.0	-30.7	40.3	24.6	27.5	0.20
920828	1300	0.68	0.318	0.308	3.15	3.25	-58.0	-56.0	-45.0	28.1	14.3	7.8	0.27
920828	1600	0.69	0.308	0.308	3.25	3.25	-54.0	-54.0	-44.4	19.2	14.2	5.4	0.26
920828	1900	0.48	0.142	0.123	7.04	8.16	-42.0	-54.0	-42.5	38.5	19.9	35.8	0.24
920828	2200	0.41	0.142	0.103	7.04	9.71	-40.0	-40.0	-36.3	34.2	24.6	26.6	0.22
920829	0100	0.38	0.132	0.132	7.56	7.56	-38.0	-38.0	-35.9	30.2	22.5	19.8	0.13
920829	0400	0.41	0.142	0.123	7.04	8.16	-40.0	-40.0	-35.1	37.9	34.4	35.2	0.25
920829	0700	0.60	0.142	0.269	7.04	3.72	-46.0	-44.0	3.9	90.4	26.9	15.2	0.21
920829	1300	0.57	0.142	0.132	7.04	7.56	-42.0	-42.0	10.7	81.0	35.8	10.7	0.12
920829	1600	0.56	0.132	0.240	7.56	4.17	-42.0	-42.0	4.6	80.9	36.2	38.0	0.15
920829	1900	0.50	0.142	0.220	7.04	4.54	-44.0	-44.0	2.9	78.2	33.8	19.2	0.20
920829	2200	0.46	0.142	0.113	7.04	8.87	-46.0	-40.0	0.1	74.9	29.6	25.0	0.19
920830	0100	0.44	0.152	0.123	6.59	8.16	-44.0	-40.0	0.1	70.3	27.8	28.9	0.12
920830	0400	0.64	0.142	0.240	7.04	4.17	-42.0	60.0	22.0	86.5	28.6	28.6	0.13
920830	0700	0.75	0.142	0.220	7.04	4.54	-44.0	-44.0	21.9	85.8	32.2	28.5	0.17
920830	1000	0.61	0.132	0.132	7.56	7.56	-44.0	-44.0	11.0	82.5	25.1	7.4	0.14
920830	1300	0.44	0.132	0.132	7.56	7.56	-40.0	-40.0	-3.7	77.5	21.5	7.2	0.10
920830	1600	0.38	0.142	0.142	7.04	7.04	-40.0	-42.0	-22.0	46.7	31.3	9.5	0.14
920830	1900	0.40	0.132	0.132	7.56	7.56	-42.0	-42.0	-36.5	30.2	30.1	8.9	0.19
920830	2200	0.39	0.142	0.142	7.04	7.04	-42.0	-42.0	-35.4	29.7	26.3	7.5	0.21
920831	0100	0.38	0.142	0.142	7.04	7.04	-42.0	-40.0	-39.1	21.2	20.7	9.4	0.11
920831	0400	0.40	0.142	0.142	7.04	7.04	-38.0	-40.0	-37.8	17.7	15.6	10.1	0.12
920831	0700	0.40	0.142	0.142	7.04	7.04	-38.0	-40.0	-38.6	17.7	16.2	9.3	0.22
920831	1000	0.35	0.142	0.142	7.04	7.04	-38.0	-40.0	-36.9	17.0	15.8	7.5	0.25
920831	1300	0.32	0.113	0.113	8.87	8.87	-36.0	-38.0	-37.3	15.3	14.9	13.7	0.16
920831	1600	0.33	0.123	0.123	8.16	8.16	-30.0	-38.0	-36.9	16.3	15.4	9.3	0.12
920831	1900	0.36	0.123	0.132	8.16	7.56	-36.0	-36.0	-37.4	16.1	17.4	13.1	0.26
920831	2200	0.39	0.123	0.123	8.16	8.16	-38.0	-36.0	-37.0	17.4	17.7	14.1	0.27

Appendix B
Time Series Graphs of Bulk Parameters

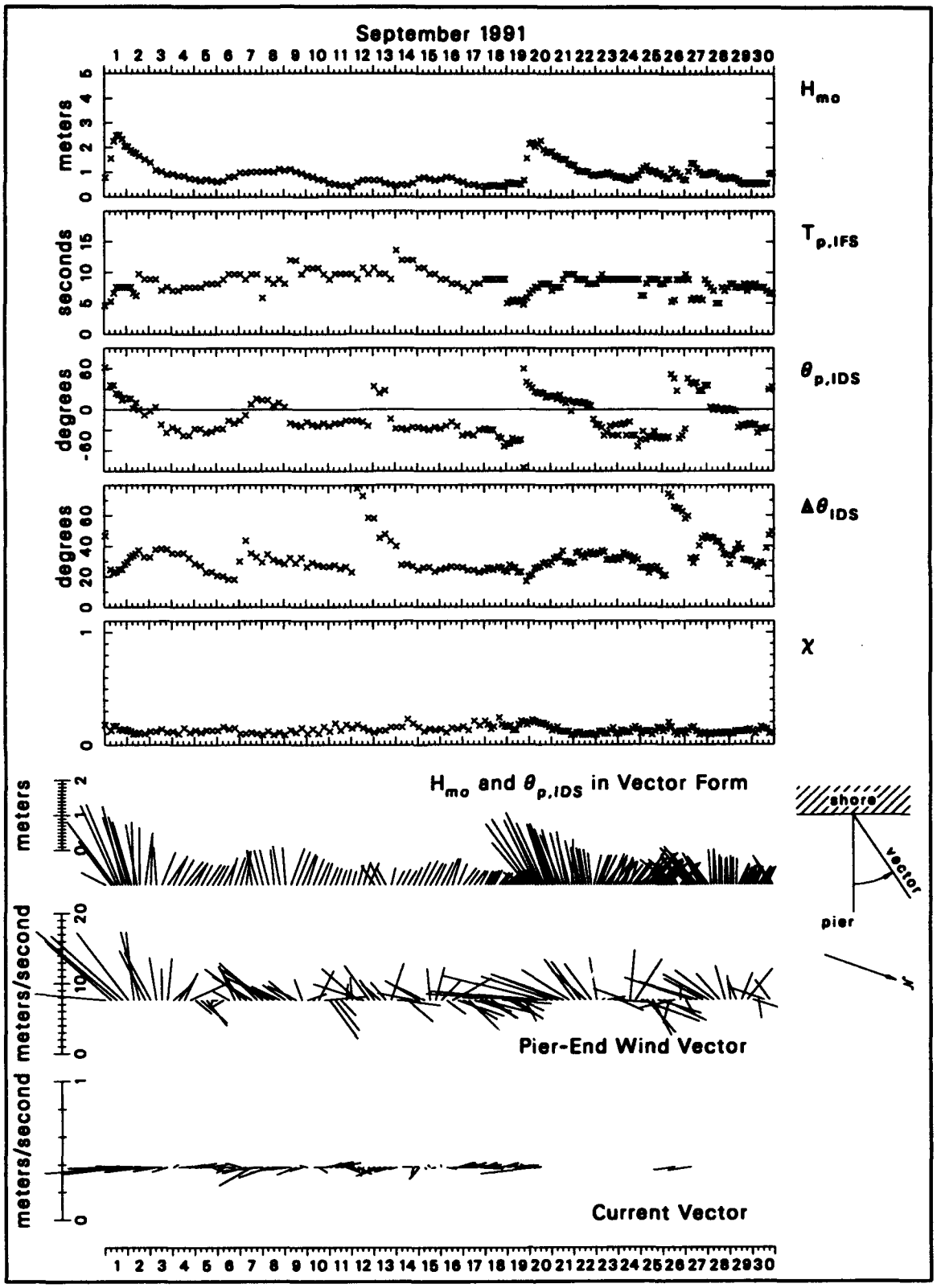

Figure B1. Bulk data for September 1991

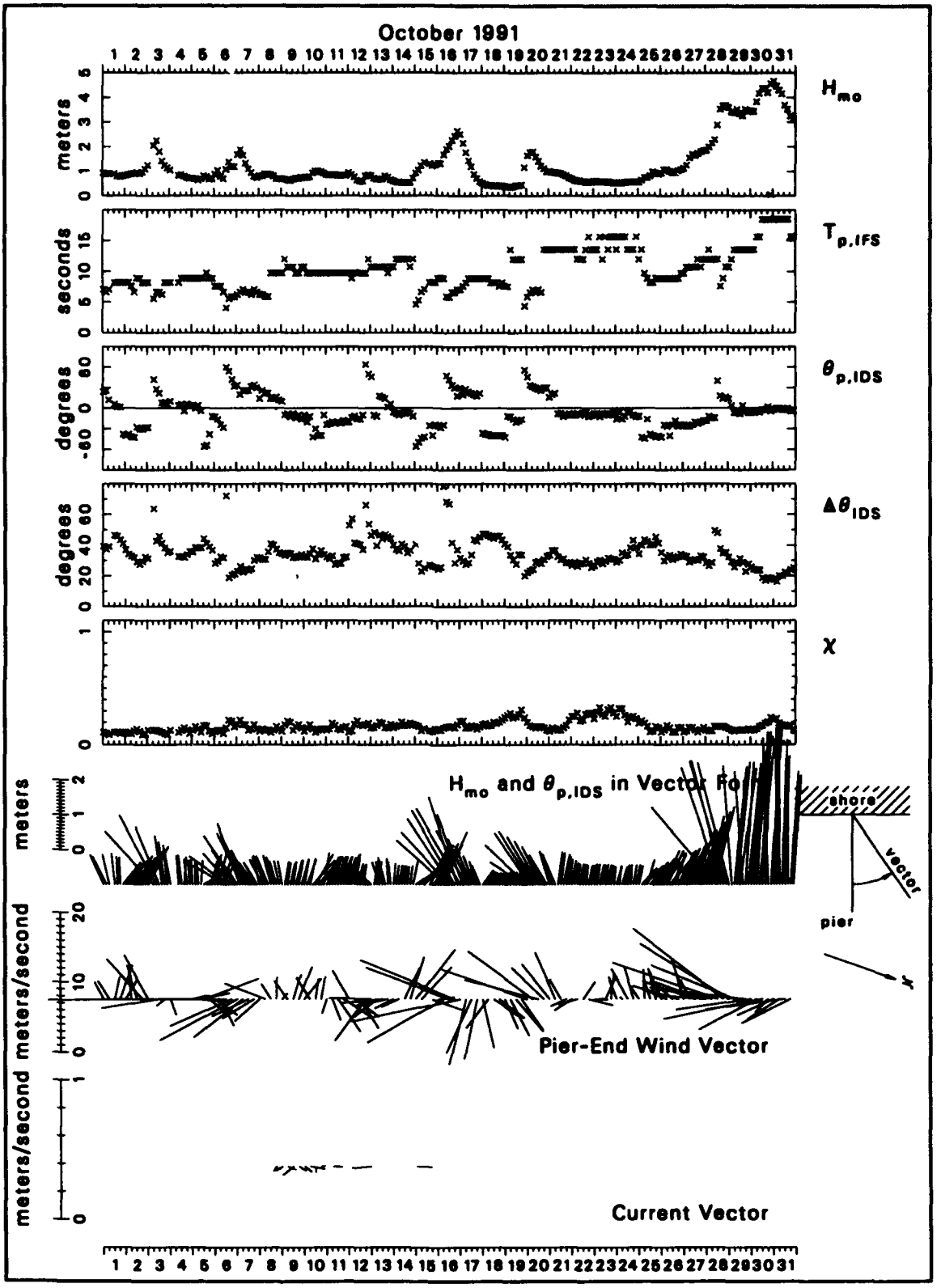

Figure B2. Bulk data for October 1991

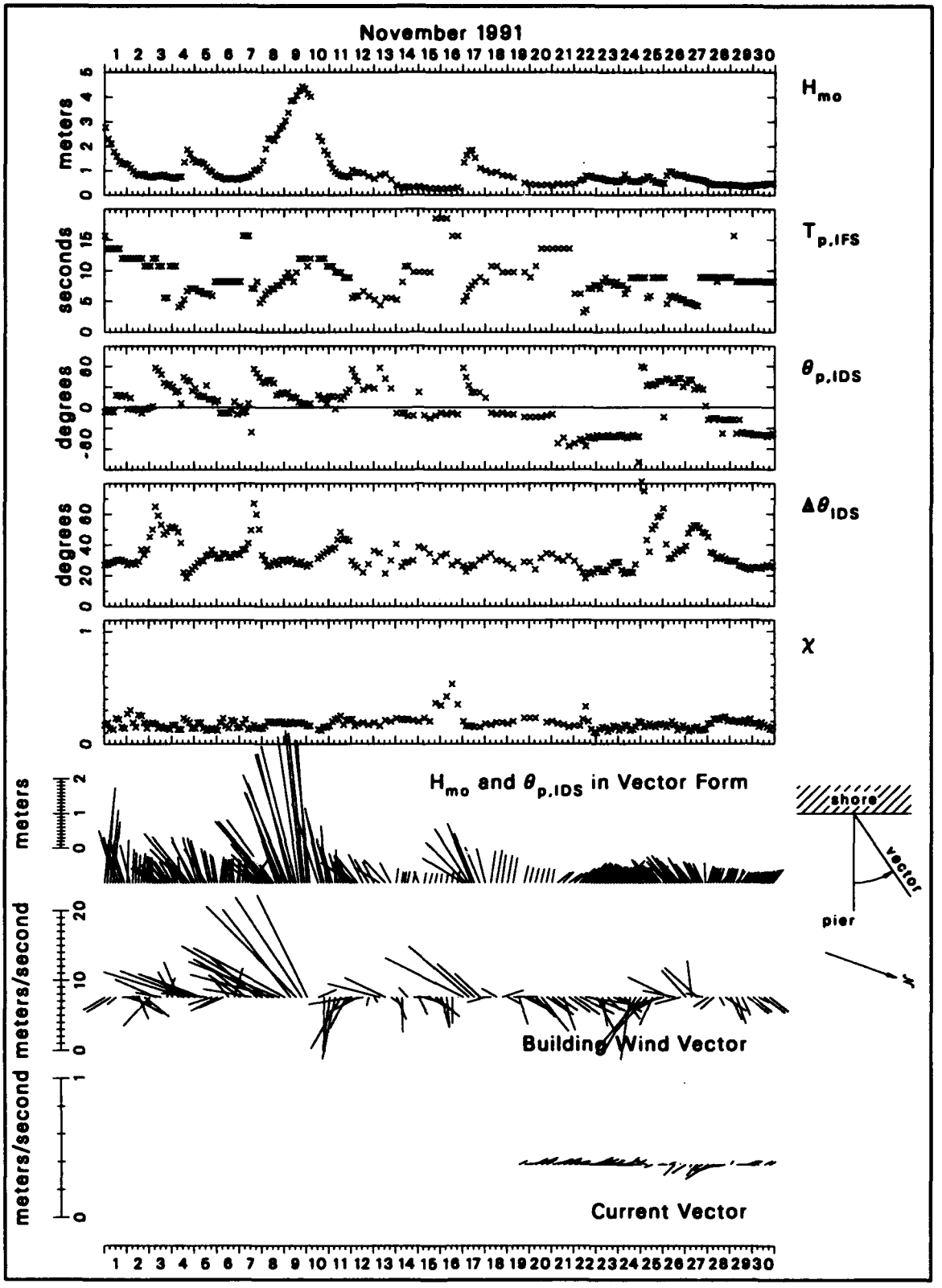

Figure B3. Bulk data for November 1991

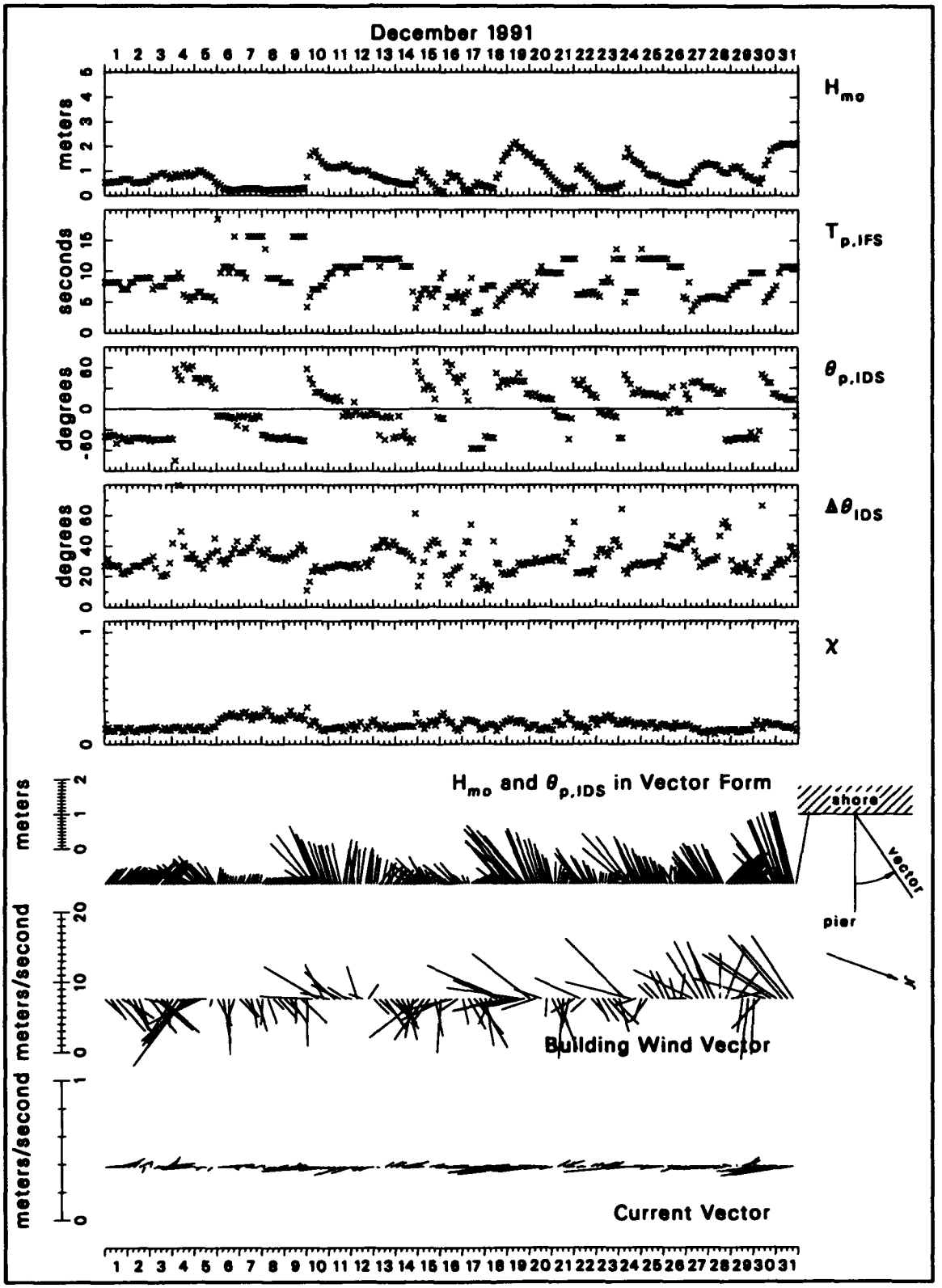

Figure B4. Bulk data for December 1991

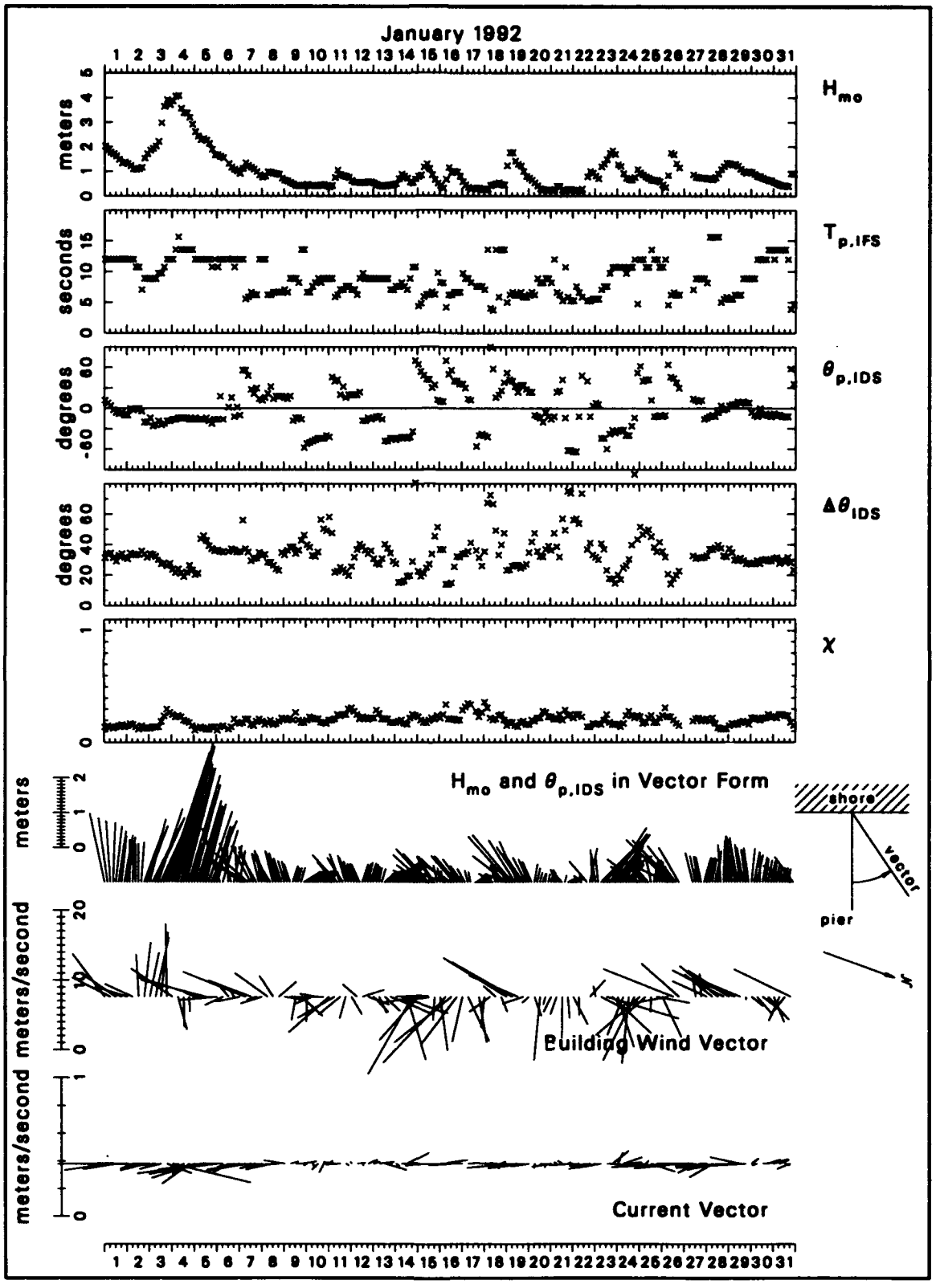

Figure B5. Bulk data for January 1992

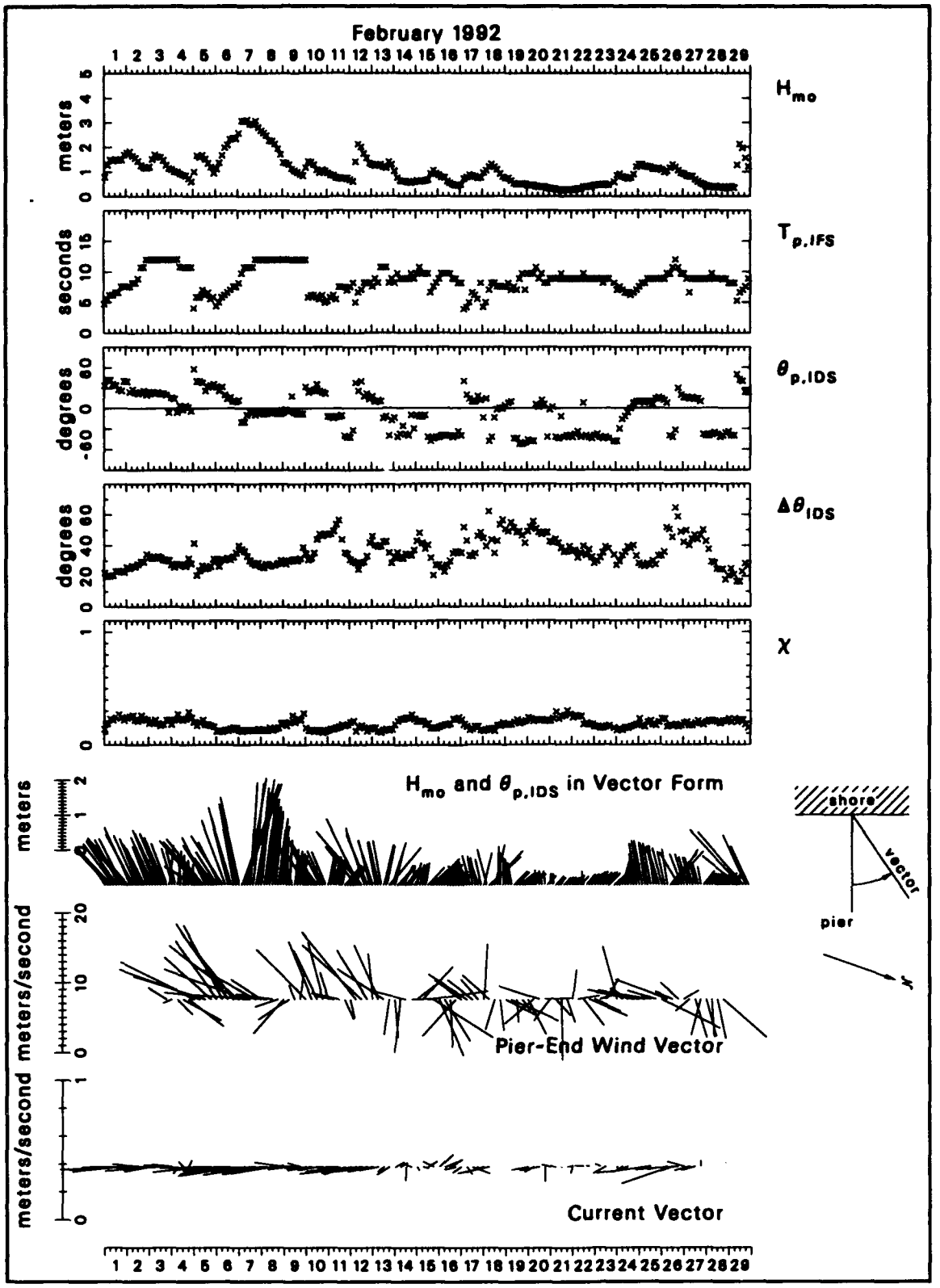

Figure B6. Bulk data for February 1992

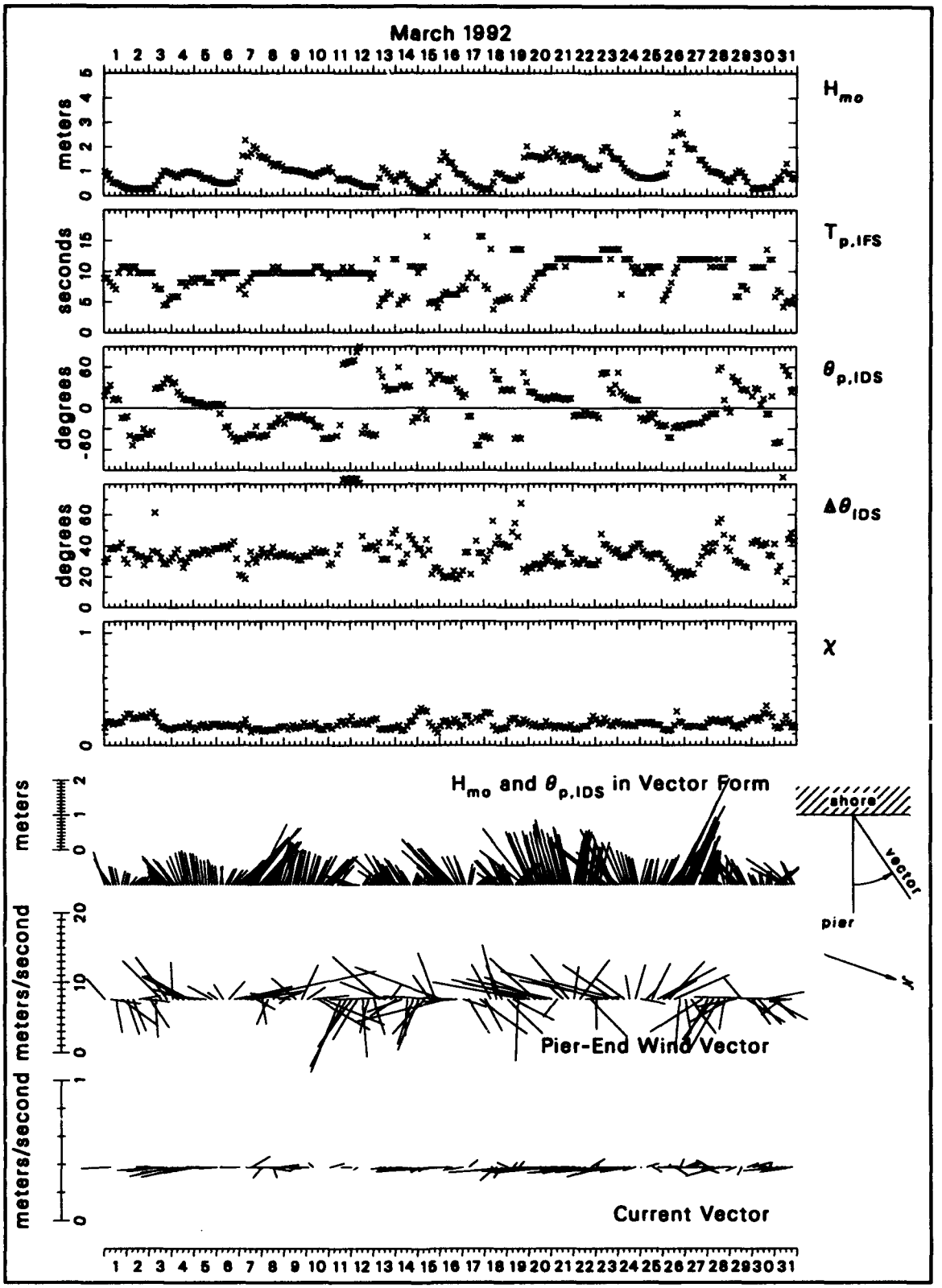

Figure B7. Bulk data for March 1992

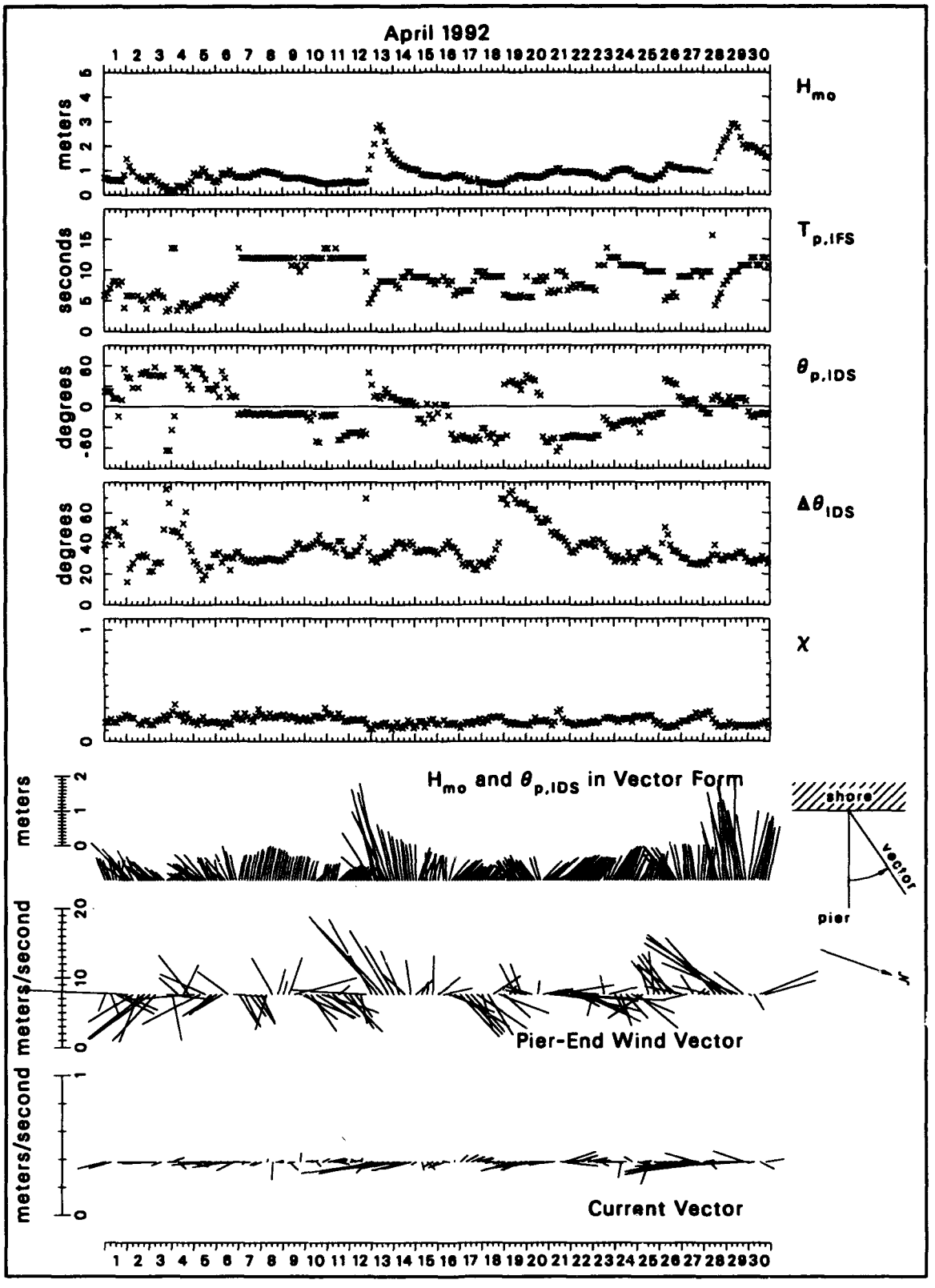

Figure B8. Bulk data for April 1992

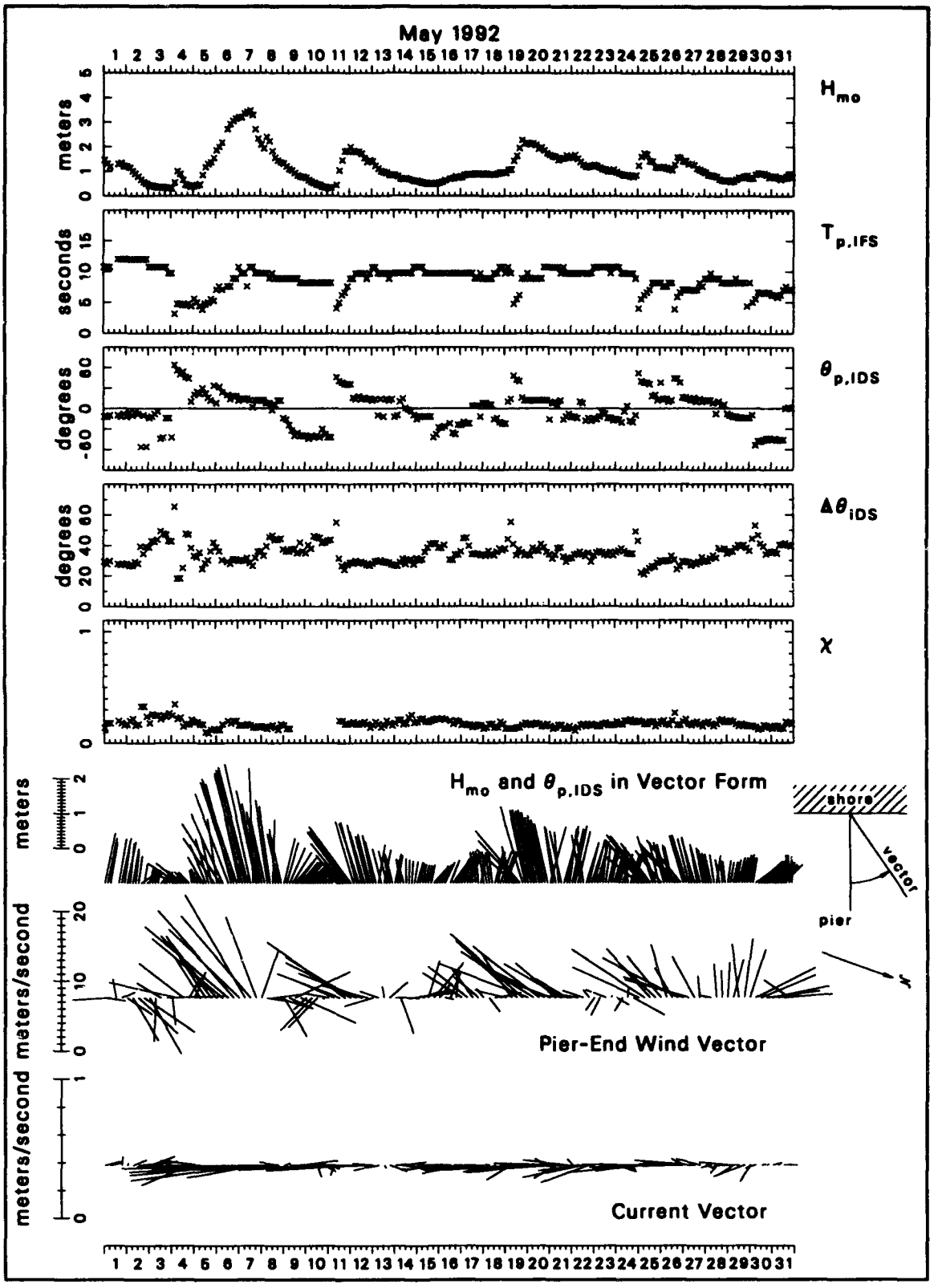

Figure B9. Bulk data for May 1992

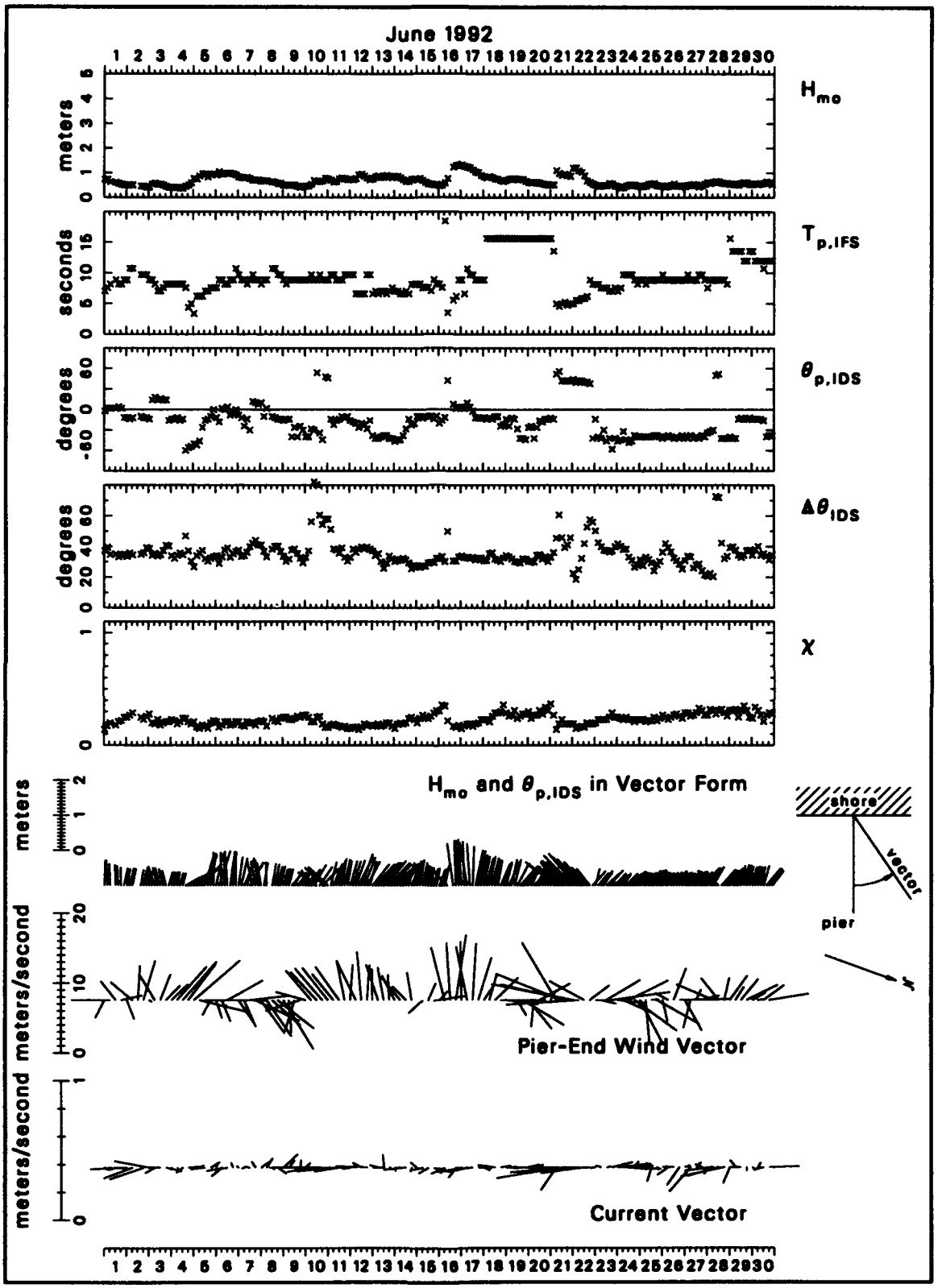

Figure B10. Bulk data for June 1992

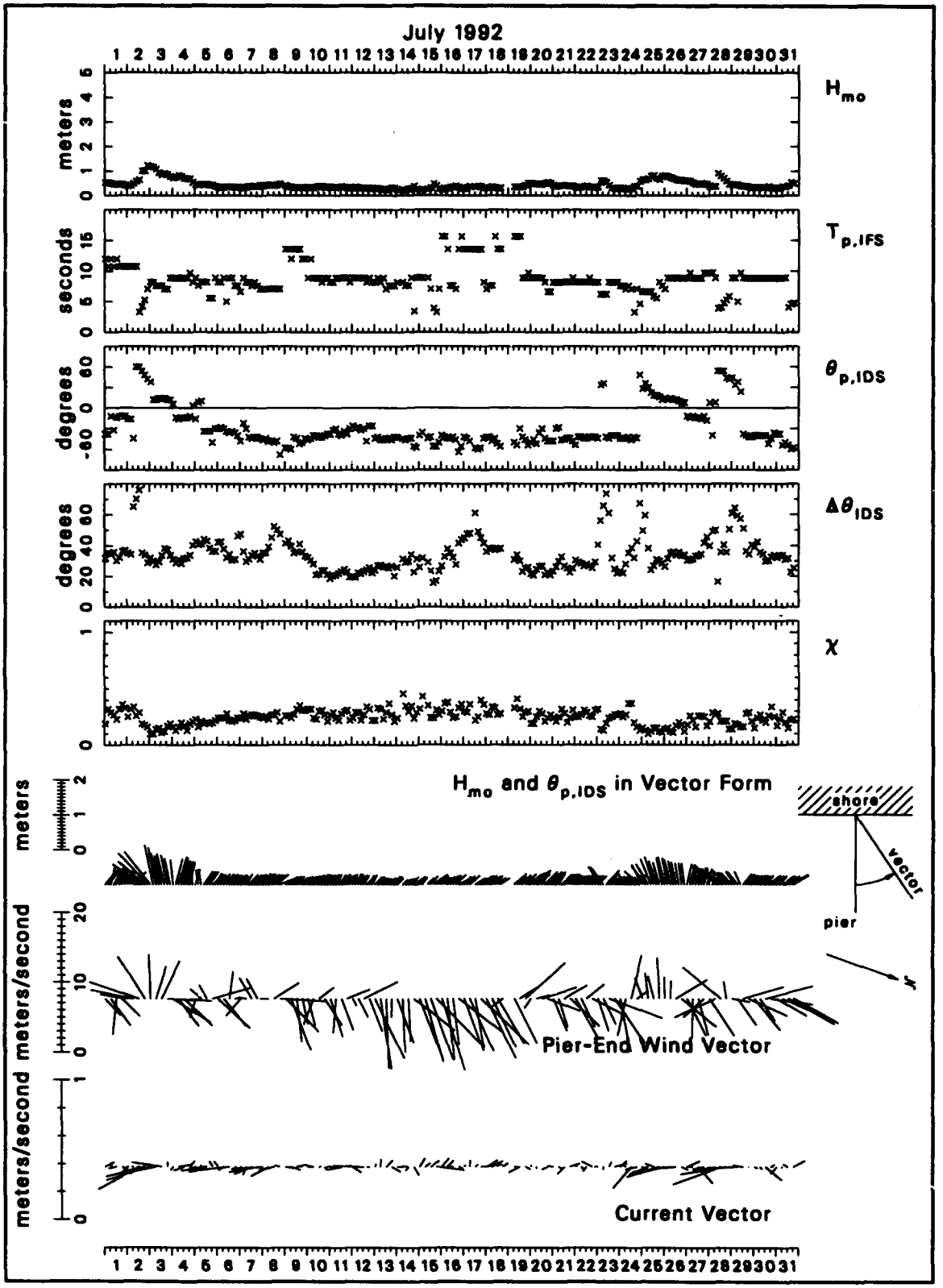

Figure B11. Bulk data for July 1992

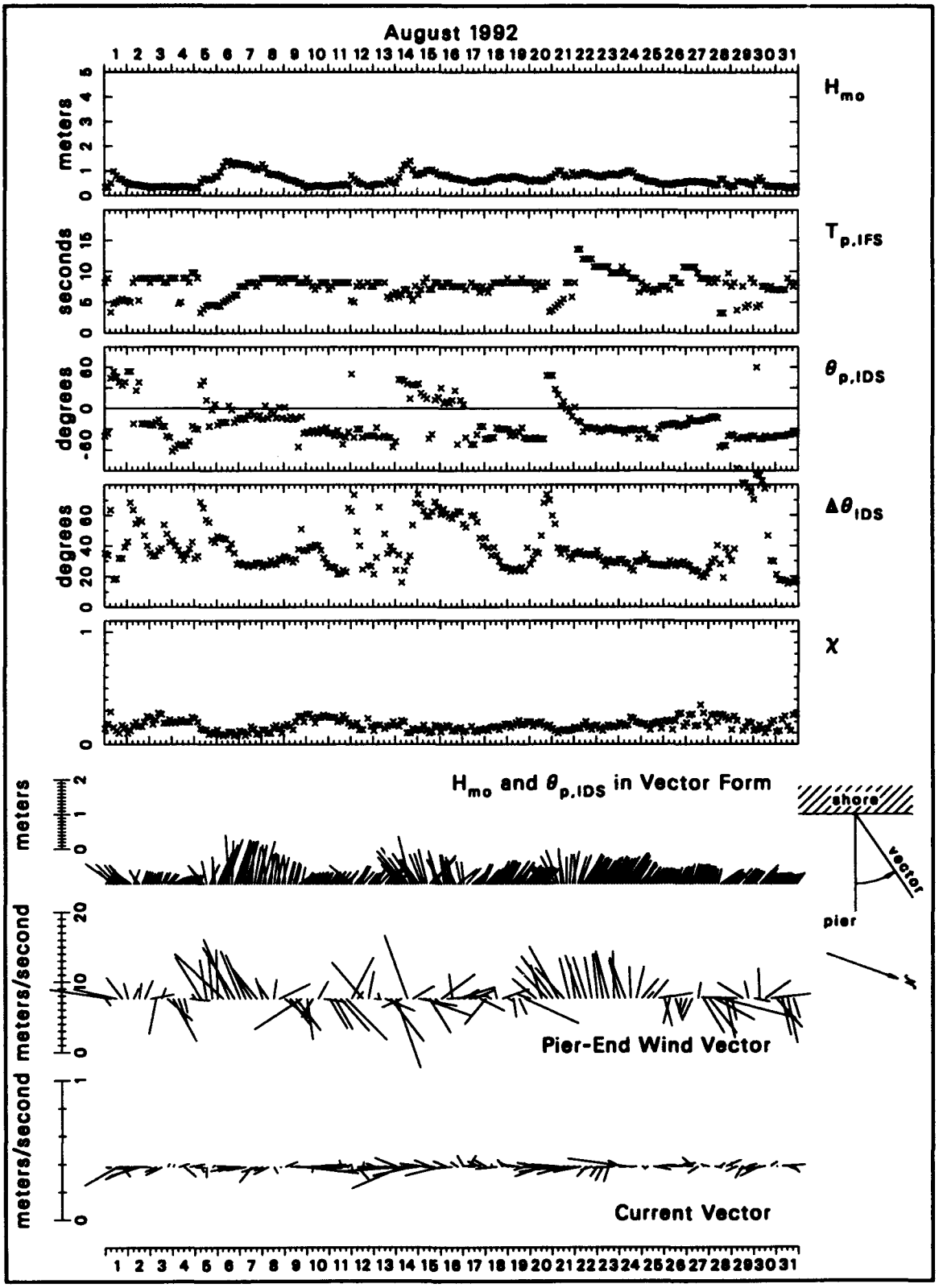

Figure B12. Bulk data for August 1992

Appendix C
Listing of FORTRAN Computer Program

```
      program readascii
c
c  This program has the codes to read FRF 8-m
c  array directional spectral ASCII output files.
c  This program simply reads the ASCII file and
c  writes an ASCII file as a test of the code.
c  You will have to tune the I/O statements to
c  your own system...
c
c  Variable names, units and meanings are:
c
c=====================================================================
c
c       datetime...[character*10] Date and Eastern Standard Time of
c                  beginning of data collection in the order year,
c                  month, day, hour, minute and in the form
c                  yymmddhhmm (2-digit year, no blanks in any field)
c             Hmo...[m] Energy-based characteristic wave height =
c                  4*sigma, where sigma^2 is the variance of sea
c                  surface displacement = volume under frequency-
c                  direction (f-d) spectrum
c              fp...[Hz] Frequency at the peak of the frequency spectrum
c             thp...[deg] Direction at the peak of the directional
c                  distribution at f=fp
c
c         ifimle...Algorithm flag: [1]=IMLE estimate, [0]=MLE estimate
c
c           istot...[sec] Length of time series processed
c            sfrq...[Hz] Data sampling frequency in time series
c
c        ifwindo...Windowing flag: [0]=data segments not windowed,
c                  [1]=data segments windowed (Kaiser-Bessel window)
c        ifdtrnd...Detrending flag: [0]=data segments not detrended,
c                  [1]=data segments detrended (linear trend removed)
c           nfft...Number of data points in a data segment
c          nensb...Number of half-lapped segments analyzed
c          nband...Number of frequency bands averaged for frequency
c                  smoothing
c          idgfr...Degrees of freedom of final frequency spectral
c                  estimates
c
c          nofrq...Number of output frequency bands
c          delfs...[Hz] Width of an output frequency band
c          noang...Number of output direction bins (arcs)
c        odelang...[deg] Width of an output direction bin
c
```

Figure C1. Listing of FORTRAN Computer Program (Sheet 1 of 3)

```
c           dmin...[m] Minimum water depth during time series at
c                  8-m array reference gage 'rname'
c           dbar...[m] Mean water depth during time series at
c                  reference gage
c           dmax...[m] Maximum water depth during time series at
c                  reference gage
c          rname...Reference gage ID (FRF gage name - get help if
c                  you need to know which 8-m array gage it was)
c
c            s9b...[m/sec] Mean wind speed at pier end anemometer
c                  (19.5 m above mean sea level) during time series
c            s9s...[m/sec] Standard deviation of wind speed at pier
c                  end anemometer
c            s9m...[m/sec] Maximum wind speed at pier end anemometer
c            d9b...[deg] Vector averaged mean wind direction at pier
c                  end anemometer - direction from which wind blows
c                  in wave direction coordinates (degrees counter-
c                  clockwise from shore normal)
c            d9s...[deg] Measure of variability of wind direction at pier
c                  end anemometer = arctangent[(standard deviation of
c                  cross-mean-streamline wind speed)/(mean wind speed)]
c
c            s6b...    These are the same as s9b, s9s, s9m, d9b,
c            s6s...       and d9s, except they are from the building
c            s6m...         anemometer at the landward end of the
c            d6b...           pier and 19.5 m above mean sea level
c            d6s...
c
c          oangle...[deg] Array of wave direction coordinates that
c                  aligns with the f-d spectral array
c
c             nof...(Within a loop) Frequency index
c         of(nof)...[Hz] Frequency
c        osf(nof)...[m^2/Hz] Frequency spectral density at frequency
c                  of(nof)
c      ogpat(nof)...[character*16] Encoded list of gages used to compute
c                  directional distribution of energy at this frequency
c      itero(nof)...Number of IMLE iterations used to compute directional
c                  distribution of energy at this frequency
c   ospc(nof,noa)...[1/deg] Normalized frequency-direction spectral den-
c                  sity at frequency of(nof) and direction oangle(noa).
c                  Dimensional frequency-direction spectrum spc(nof,noa)
c                  [in m^2/(Hz deg)] is found from:
c
c                        spc(nof,noa) = osf(nof)*ospc(nof,noa)
c
c=======================================================================
c
c  links:  none
c
      character*4               rname
      character*10             datetime
      character*16            ogpat(29)
      character*16               infile,        outfile
      dimension                  of(29),        osf(29),      itero(29)
      dimension              oangle(181),   ospc(29,181)
c
c  ask user for input and output file names
c
      write(*,'(2x,''Enter input file name...: '')')
      read(*,'(a)') infile
      write(*,'(2x,''Enter output file name...: '')')
      read(*,'(a)') outfile
c
c  open input file and read data
c
      open(10,file=infile,status='unknown',access='sequential',
     &  form='formatted')
c
      read(10,'(a10,f10.2,f10.5,f10.1,2i10,f10.2,i10)')
     &    datetime,      Hmo,       fp,       thp,
     &      ifimle,    istot,     sfrq,  ifwindo
```

Figure C1. (Sheet 2 of 3)

```
c
      read(10,'(6i10,f10.5,i10)')
     &       ifdtrnd,       nfft,      nensb,      nband,
     &         idgfr,      nofrq,      delfs,      noang
c
      read(10,'(4f10.2,6x,a4,3f10.2)')
     &       odelang,       dmin,       dbar,       dmax,
     &         rname,        s9b,        s9s,        s9m
c
      read(10,'(2f10.1,3f10.2,2f10.1)')
     &           d9b,        d9s,        s6b,        s6s,
     &           s6m,        d6b,        d6s
c
      read(10,'(10f8.1)') (oangle(noa),noa=1,noang)
c
      do 700 nof=1,nofrq
c
        read(10,'(i10,f10.5,e20.7,4x,a16,i10)')
     &          nof,    of(nof),   osf(nof), oggat(nof),
     &    itero(nof)
c
        read(10,'(8f10.7)') (ospc(nof,noa),noa=1,noang)
c
700   continue
c
      close(10)
c
c  open output file and write variables just read
c
      open(11,file=outfile,status='unknown',access='sequential',
     &  form='formatted')
c
      write(11,'(a10,f10.2,f10.5,f10.1,2i10,f10.2,i10)')
     &    datetime,      Hmo,       fp,       thp,
     &      ifimle,    istot,     sfrq,  ifwindo
c
      write(11,'(6i10,f10.5,i10)')
     &       ifdtrnd,       nfft,      nensb,      nband,
     &         idgfr,      nofrq,      delfs,      noang
c
      write(11,'(4f10.2,6x,a4,3f10.2)')
     &       odelang,       dmin,       dbar,       dmax,
     &         rname,        s9b,        s9s,        s9m
c
      write(11,'(2f10.1,3f10.2,2f10.1)')
     &           d9b,        d9s,        s6b,        s6s,
     &           s6m,        d6b,        d6s
c
      write(11,'(10f8.1)') (oangle(noa),noa=1,noang)
c
      do 800 nof=1,nofrq
c
        write(11,'(i10,f10.5,e20.7,4x,a16,i10)')
     &          nof,    of(nof),   osf(nof), oggat(nof),
     &    itero(nof)
c
        write(11,'(8f10.7)') (ospc(nof,noa),noa=1,noang)
c
800   continue
c
      close(11)
c
      end
```

Figure C1. (Sheet 3 of 3)

Appendix D
Listing of Sample Data File

```
9202250100       1.30    0.13232        8.0          1        8192        2.00          1
         0       2048         15         10        160          29     0.00977         91
      2.00       8.83       8.97       9.08        191        5.95        0.53       7.63
      79.8        3.1       5.63       0.67       7.50        70.5         4.9
     -90.0      -88.0      -86.0      -84.0      -82.0      -80.0      -78.0      -76.0      -74.0      -72.0
     -70.0      -68.0      -66.0      -64.0      -62.0      -60.0      -58.0      -56.0      -54.0      -52.0
     -50.0      -48.0      -46.0      -44.0      -42.0      -40.0      -38.0      -36.0      -34.0      -32.0
     -30.0      -28.0      -26.0      -24.0      -22.0      -20.0      -18.0      -16.0      -14.0      -12.0
     -10.0       -8.0       -6.0       -4.0       -2.0        0.0        2.0        4.0        6.0        8.0
      10.0       12.0       14.0       16.0       18.0       20.0       22.0       24.0       26.0       28.0
      30.0       32.0       34.0       36.0       38.0       40.0       42.0       44.0       46.0       48.0
      50.0       52.0       54.0       56.0       58.0       60.0       62.0       64.0       66.0       68.0
      70.0       72.0       74.0       76.0       78.0       80.0       82.0       84.0       86.0       88.0
      90.0
         1    0.04443       0.1952826E-01     9871456                    30
 0.0134538 0.0126432 0.0108387 0.0085102 0.0060842 0.0039548 0.0023865 0.0013980
 0.0008683 0.0006589 0.0006593 0.0008659 0.0013701 0.0022698 0.0036256 0.0052734
 0.0068239 0.0078943 0.0081434 0.0076230 0.0065651 0.0052988 0.0041394 0.0032662
 0.0027423 0.0025698 0.0027129 0.0031775 0.0039355 0.0049242 0.0059760 0.0068448
 0.0072960 0.0072333 0.0066752 0.0058431 0.0049856 0.0043062 0.0039261 0.0039009
 0.0042598 0.0049982 0.0060501 0.0072389 0.0082763 0.0088503 0.0087684 0.0080675
 0.0069993 0.0059001 0.0050386 0.0045535 0.0044483 0.0047062 0.0052214 0.0058452
 0.0063780 0.0066829 0.0065852 0.0061137 0.0053583 0.0044795 0.0036326 0.0029797
 0.0025795 0.0024537 0.0026606 0.0032462 0.0042879 0.0058034 0.0076248 0.0093376
 0.0104419 0.0104531 0.0092377 0.0072173 0.0049180 0.0029998 0.0017358 0.0010685
 0.0008274 0.0008844 0.0012460 0.0021061 0.0036977 0.0061545 0.0092902 0.0126482
 0.0155211 0.0173307 0.0177914
         2    0.05420       0.2051499E-01     9871456                    30
 0.0092580 0.0089047 0.0079645 0.0066115 0.0050730 0.0035931 0.0023664 0.0014853
 0.0009367 0.0006461 0.0005351 0.0005635 0.0007389 0.0011081 0.0017203 0.0025684
 0.0035420 0.0044493 0.0050880 0.0053362 0.0051763 0.0046975 0.0040461 0.0033746
 0.0028041 0.0024096 0.0022287 0.0022926 0.0026479 0.0033720 0.0045519 0.0062146
 0.0082430 0.0103154 0.0119719 0.0128183 0.0127694 0.0121478 0.0115179 0.0113910
 0.0120026 0.0131811 0.0143689 0.0148532 0.0141904 0.0124731 0.0102160 0.0080113
 0.0062569 0.0050965 0.0045021 0.0043865 0.0046368 0.0051335 0.0056986 0.0061229
 0.0062233 0.0059174 0.0052499 0.0043740 0.0034720 0.0026922 0.0021145 0.0017597
 0.0016184 0.0016877 0.0019902 0.0025716 0.0034768 0.0046934 0.0060841 0.0073532
 0.0081108 0.0080272 0.0070365 0.0054334 0.0037266 0.0023613 0.0014989 0.0010723
 0.0009615 0.0011088 0.0015441 0.0023472 0.0035734 0.0051878 0.0070256 0.0088360
 0.0103433 0.0113195 0.0116317
         3    0.06396       0.2382696E-01    98712456                    27
 0.0068764 0.0063389 0.0053920 0.0042696 0.0031280 0.0021273 0.0013866 0.0009040
 0.0006550 0.0005969 0.0007048 0.0010405 0.0016657 0.0026020 0.0036942 0.0046456
 0.0051978 0.0051880 0.0046856 0.0039369 0.0031557 0.0025126 0.0020957 0.0019404
 0.0020637 0.0025521 0.0034445 0.0049183 0.0069080 0.0092345 0.0113410 0.0125965
 0.0126714 0.0119550 0.0111187 0.0108745 0.0114375 0.0128574 0.0146581 0.0163716
 0.0173264 0.0172868 0.0164308 0.0153136 0.0144321 0.0138734 0.0133246 0.0123941
 0.0109435 0.0091515 0.0073396 0.0057710 0.0046274 0.0039361 0.0036621 0.0037398
```

Figure D1. Listing of sample data file (Sheet 1 of 6)

```
0.0040681 0.0044891 0.0048038 0.0048367 0.0045084 0.0038792 0.0031310 0.0024117
0.0018421 0.0014734 0.0013028 0.0013239 0.0015564 0.0020242 0.0027347 0.0036458
0.0045409 0.0051424 0.0051378 0.0044657 0.0033701 0.0022215 0.0013433 0.0008392
0.0006327 0.0006331 0.0008205 0.0012179 0.0018475 0.0026606 0.0035571 0.0043775
0.0049712 0.0052560 0.0052464
        4    0.07373        0.2516556E-01     98712456                30
0.0050785 0.0047859 0.0041617 0.0033549 0.0024972 0.0017170 0.0011063 0.0006911
0.0004487 0.0003341 0.0003122 0.0003776 0.0005550 0.0008901 0.0014080 0.0020689
0.0027527 0.0032999 0.0035889 0.0035880 0.0033466 0.0029822 0.0026187 0.0023704
0.0023286 0.0026013 0.0033273 0.0047059 0.0068257 0.0094122 0.0116617 0.0126410
0.0120578 0.0105514 0.0090863 0.0084034 0.0088736 0.0107193 0.0139454 0.0180532
0.0217036 0.0232986 0.0222836 0.0198102 0.0175600 0.0163213 0.0157775 0.0151331
0.0137982 0.0117454 0.0094072 0.0073080 0.0057886 0.0049204 0.0046077 0.0046690
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0.0005815 0.0005691 0.0005506
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0.0001335 0.0001489 0.0001641 0.0001782 0.0001905 0.0002003 0.0002072 0.0002108
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Figure D1. (Sheet 2 of 6)

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0.0001790 0.0001782 0.0001764
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0.0002682 0.0002688 0.0002682
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0.0003298 0.0003268 0.0003265
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0.0001790 0.0001769 0.0001763
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0.0002414 0.0002397 0.0002393
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```

Figure D1. (Sheet 3 of 6)

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0.0001266 0.0001260 0.0001261
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0.0002210 0.0002214 0.0002218
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0.0004894 0.0004566 0.0004333 0.0004168 0.0004051 0.0003970 0.0003913 0.0003875
0.0003851 0.0003837 0.0003831
      19    0.22021        0.1767211E+00     12345                   19
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0.0010803 0.0010181 0.0009705 0.0009341 0.0009065 0.0008859 0.0008710 0.0008612
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Figure D1. (Sheet 4 of 6)

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0.0008806 0.0008787 0.0008767
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Figure D1. (Sheet 5 of 6)

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Figure D1. (Sheet 6 of 6)

Appendix E
Notation

Text	Appendix C	
asc		Mnemonic indicating that an output data file is in ASCII format
	datetime	Ten-character string that contains date and time
dd		Two-digit code for day
	dbar	Mean water depth
	dmax	Maximum segment-averaged water depth in a collection
	dmin	Minimum segment-averaged water depth in a collection
df	delfs	Frequency increment
	d6b	Vector averaged mean wind direction at building anemometer
	d6s	Measure of variability of wind direction at building anemometer
	d9b	Vector averaged mean wind direction at pier-end anemometer
	d9s	Measure of variability of wind direction at pier-end anemometer
$d\theta$	odelang	Direction increment

Text	Appendix C	
$D(f_n,\theta_m)$		Directional distribution function at frequency f_n and direction θ_m
E_i		Incident wave energy
E_r		Reflected wave energy
fd		Mnemonic denoting frequency-direction to distinguish a type of output data file
f_n		n^{th} frequency of a set of N discrete frequencies
f_p		Peak frequency
	fp	Frequency at peak of frequency spectrum
$f_{p,FD}$		Frequency at peak of frequency-direction spectrum
$f_{p,IFS}$		Frequency at peak of integrated frequency spectrum
hh		Two-digit code for hour
hhmm		Four-digit code for time of day using *hh* for hour and *mm* for minute
H_{mo}	Hmo	Characteristic wave height
$H_{mo,i}$		Characteristic incident wave height
$H_{mo,r}$		Characteristic reflected wave height
	idgfr	Degrees of freedom in cross-spectral estimation
	ifdtrnd	Flag indicating whether or not data have been detrended
	ifimle	Flag indicating if maximum likelihood or iterative maximum likelihood estimation is used
	ifwindo	Flag indicating whether or not data segments have been windowed

Text	Appendix C	
	istot	Total number of seconds duration of a time series
	itero(nof)	Number of iterative maximum likelihood iterations used to compute directional distribution at frequency of(nof)
$I(f_n,\theta_j)$		Cumulative distribution function at frequency f_n and direction θ_m
j		Index associated with discrete direction
la		Mnemonic denoting linear array to distinguish a type of output data file
m	noa	Index associated with discrete direction
M	noang	Integer number of discrete directions
mm		Two-digit code for month or minute as dictated by context
n	nof	Index associated with discrete frequency
	nband	Number of frequency bands averaged in spectral estimation
	nensb	Number of segments into which a data record is divided during spectral estimation
	nfft	Number of data points in a data segment
N	nofrq	Integer number of discrete frequencies
	oangle(noa)	Element noa of an array that represents direction coordinates
	of(nof)	Element nof of an array that represents frequency
	ogpat(nof)	Element nof of an array of sixteen-character strings that represent the working gauge pattern
	osf(nof)	Element nof of an array that represents the frequency spectrum

Text	Appendix C	
	ospc(nof,noa)	Array element representing the directional distribution function at frequency of(nof) and direction oangle(noa)
	rname	Four-character string denoting reference gauge
	sfrq	Sampling frequency
	s6b	Mean wind speed at building anemometer
	s6m	Maximum wind speed at building anemometer
	s6s	Standard deviation of wind speed at building anemometer
	s9b	Mean wind speed at pier-end anemometer
	s9m	Maximum wind speed at pier-end anemometer
	s9s	Standard deviation of wind speed at pier-end anemometer
$S(f)$		Frequency spectrum
$S(f_n)$		Integrated frequency spectral density at frequency f_n
$S(\theta_m)$		Integrated direction spectral density at direction θ_m
$S(f_n,\theta_m)$		Frequency-direction spectral density at frequency f_n and direction θ_m
$S_{min}(f_n)$		Minimum of $S(f_n,\theta_m)$ at frequency f_n
	thp	Peak direction of directional distribution at frequency fp
T_p		Spectral peak period
$T_{p,FD}$		Spectral peak period from the frequency at which the frequency-direction spectrum is a maximum

Text	Appendix C	
$T_{p,IFS}$		Peak period from the integrated frequency spectrum
w_m		m^{th} of a set of M weights used in the computation of incident and reflected energy
yy		Two-digit code for year
yymmdd		Six-digit code for date using *yy* for year, *mm* for month, and *dd* for day
$\Delta\theta$		Directional spread parameter
$\Delta\theta_n$		Directional spread parameter of a 180-deg directional distribution at frequency f_n
$\Delta\theta_{FDP}$		Directional spread parameter of the directional distribution at the peak frequency of a frequency-direction spectrum
$\Delta\theta_{IDS}$		Directional spread parameter of integrated direction spectrum
$\Delta\theta_{SW}$		Spectrally weighted directional spread parameter
θ_j		j^{th} direction of a set of M discrete directions
θ_m		m^{th} direction of a set of M discrete directions
θ_p		Peak direction
$\theta_{p,n}$		Direction of peak in directional distribution function at frequency f_n
$\theta_{p,FD}$		Direction at peak of frequency-direction spectrum
$\theta_{p,IDS}$		Direction at peak of integrated direction spectrum
$\theta_{p,SW}$		Spectrally weighted peak direction

Text	Appendix C	
$\theta_{25\%,n}$		Direction at which cumulative distribution function equals 0.25 at frequency f_n
$\theta_{50\%,n}$		Direction at which cumulative distribution function equals 0.50 at frequency f_n
$\theta_{75\%,n}$		Direction at which cumulative distribution function equals 0.75 at frequency f_n
χ		Reflection coefficient

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13. ABSTRACT *(Maximum 200 words)*

A multiyear series of wind wave frequency-direction spectral measurements has been undertaken at the Field Research Facility of the Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station. Cross-spectra of surface-corrected signals from a spatial array of 15 bottom-mounted pressure sensors have been used in conjunction with an iterative maximum likelihood algorithm to estimate frequency-direction spectra in about 8 m of water, approximately 900 m offshore. This report provides an index of an describes a means of access to 2,779 spectral observations obtained from September 1991 to August 1992. This period represents the sixth year of data collection. In addition to a list of data collection start times, bulk parameters are provided to characterize the observations. Included are characteristic wave height, spectral peak frequency and corresponding peak period, peak wave direction, directional spread, and reflection coefficient. Time series graphs of these parameters, as well as local winds and currents, illustrate some of the salient climatology.

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