AD-A070 814 ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/G 4/2
19702A GSRS, ROUND NUMBERS B-2 AND B-3 (21 FEBRUARY 1979).(U)
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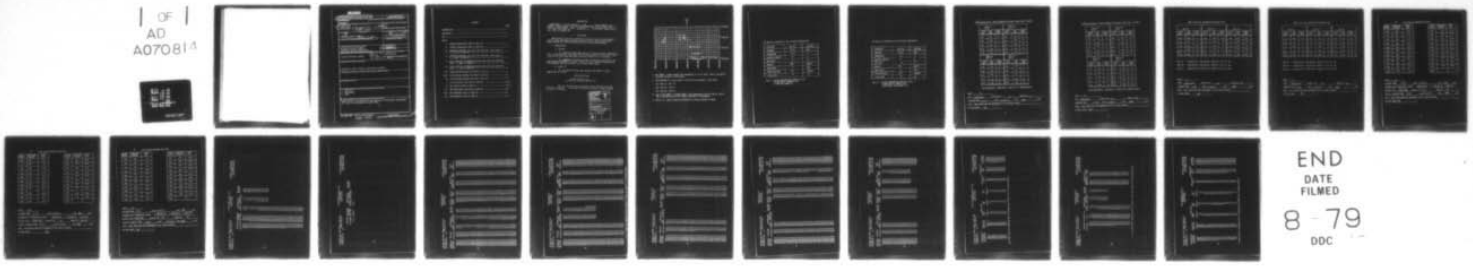

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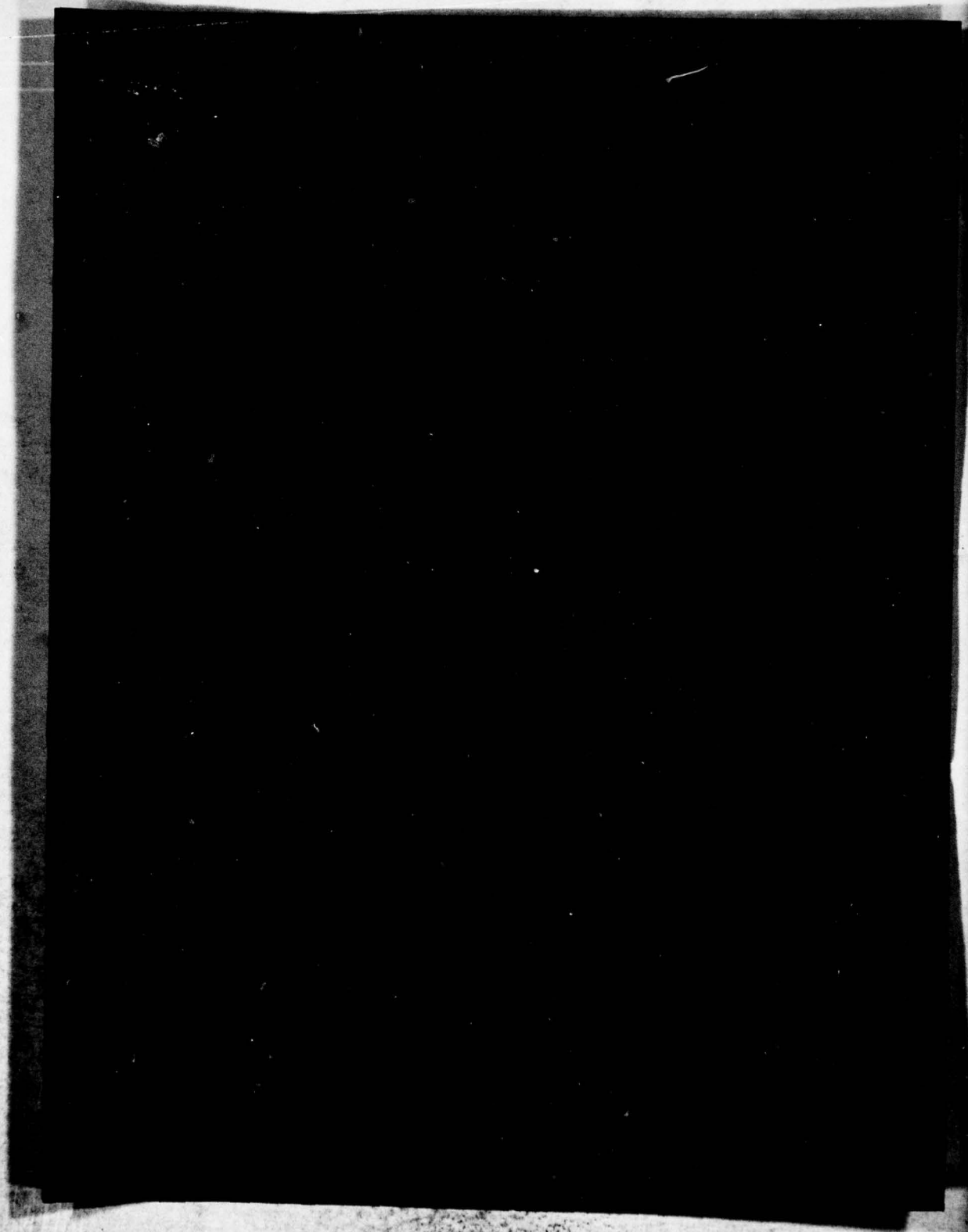
MICROCOPY RESOLUTION TEST CHART



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(14) ECOM — REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

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18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

1. Ballistics
2. Meteorology
3. Wind

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Meteorological data gathered for the launching of 19702A GSRS, Round Numbers B-2 and B-3 are presented in tabular form.

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CONTENTS

INTRODUCTION

19702A GSRS, Missile Number(s) N/A, Round Number(s) B-2 & B-3, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0849 & 0904 MST, 21 Feb 79. The scheduled launch time(s) were 0845 and 0900 MST.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature (°C), relative humidity, dew point (°C), density (gm/m^3), wind direction, wind velocity and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole mounted and tower mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

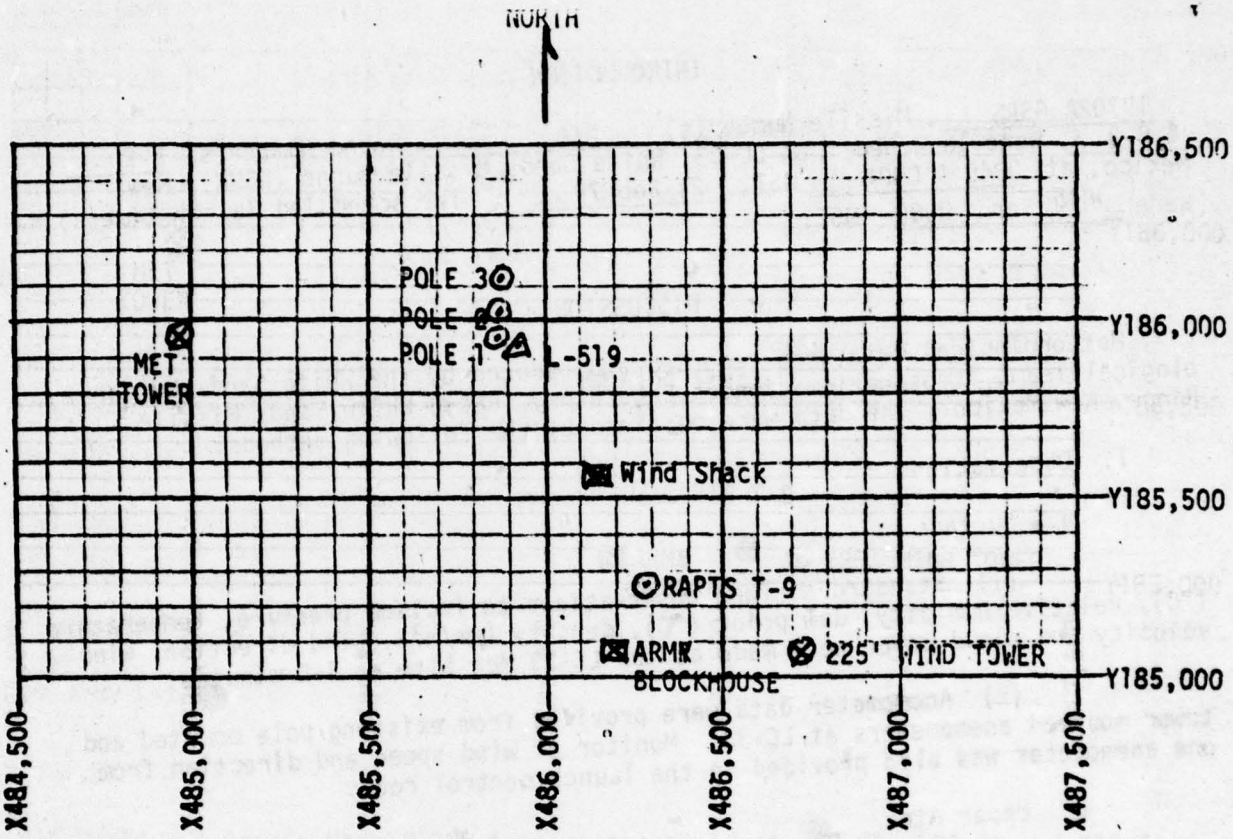
b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation as follows:

SITE AND ALTITUDE

LC-33 1 km (50 m inc)
at 0835 MST, 0849 MST and 0904 MST

(2) Air structure data (rawinsonde) were collected at the WSD Met Site at 0900 MST. Data were collected from surface to 125% of apogee in 500-feet increments.



1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 202 ft with E/A recorders in Wind Shack.

2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders in Wind Shack

   (a) Pole #1 - 38.7 ft

   (b) Pole #2 - 53.0 ft

   (c) Pole #3 - 83.6 ft

3. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.

4. RAPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar

The data are presented in the following tabulations:

ELEVATION	3977.30	FEET/MSL
PRESSURE	877.4	MBS
TEMPERATURE	12.4	°C
RELATIVE HUMIDITY	42	%
DEW POINT	-0.1	°C
DENSITY	1066	GM/M^3
WIND SPEED	12	MPH
WIND DIRECTION	210	DEGREES
CLOUD COVER	10	SC

TABLE I. SURFACE OBSERVATIONS TAKEN AT LC-33
AT 0849 MST/21 FEBRUARY 1979
19702A GSRS, ROUND B-2.

The data are presented in the following tabulations:

ELEVATION	3977.30	FEET/MSL
PRESSURE	877.8	MBS
TEMPERATURE	12.5	°C
RELATIVE HUMIDITY	43	%
DEW POINT	0.2	°C
DENSITY	1066	GM/M^3
WIND SPEED	14	MPH
WIND DIRECTION	210	DEGREES
CLOUD COVER	10	SC

TABLE II. SURFACE OBSERVATIONS TAKEN AT LC-33
AT 0904 MST/21 FEBRUARY 1979
19702A GSRS, Round Number B-3.

LC33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1 12 ft			LEVEL #2 62 ft		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	217	12	-30	233	22
-20	228	14	-20	228	25
-10	222	11	-10	240	20
0.0	225	12	0.0	237	19
+10	229	15	+10	236	21
LEVEL #3 102 ft			**LEVEL #4 202 ft**		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	225	23	-30	222	23
-20	232	24	-20	212	21
-10	222	17	-10	212	19
0.0	223	20	0.0	225	22
+10	238	18	+10	214	19

WTSM COORDINATES: X484,982.64 Y185,057.73 H3983.00(base)

TABLE III

TYPE 19702A GSRS MISSILE NO. n/a ROUND NO. B-2

LAUNCHED FROM LC-33 DATE 21 Feb 79 TIME 0849 MST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH 360.

LC33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1 12 ft			LEVEL #2 62 ft		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	231	13	-30	210	16
-20	208	9	-20	210	17
-10	210	12	-10	219	18
0.0	201	15	0.0	222	16
+10	208	12	+10	217	15
LEVEL #3 102 ft			LEVEL #4 202 ft		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	219	19	-30	216	24
-20	222	19	-20	210	24
-10	207	23	-10	212	23
0.0	211	24	0.0	206	24
+10	204	20	+10	205	23

WTSM COORDINATES: X484,982.64 Y185,957.73 H3983.00(base)

TABLE IV

TYPE 19702 GSRS MISSILE NO. n/a ROUND NO. B3

LAUNCHED FROM LC-33 DATE 21 Feb 79 TIME 0904 MST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH 360°.

LC33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	240	17	-30	259	18	-30	231	25
-20	231	17	-20	246	15	-20	240	25
-10	222	20	-10	240	17	-10	231	23
0.0	225	20	0.0	225	21	0.0	221	29
+10	231	19	+10	249	14	+10	225	28

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL

TABLE V

TYPE 19702A GSRS MISSILE NO. n/a ROUND NO. B-2

LAUNCHED FROM LC-33 DATE 21 Feb 79 TIME 0849 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH 360°.

LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	219	24	-30	231	19	-30	213	34
-20	225	23	-20	234	23	-20	210	30
-10	225	21	-10	246	21	-10	219	34
0.0	222	22	0.0	243	20	0.0	211	35
+10	225	24	+10	249	18	+10	210	34

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL

TABLE VI

TYPE 19702A GSRS MISSILE NO. n/a ROUND NO. B-3

LAUNCHED FROM LC-33 DATE 21 Feb 79 TIME 0904 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH 360°.

PILOT BALLON MEASURED WIND DATA

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
SUR	210	10.0
50	207	8.0
100	228	11.0
150	240	13.0
200	236	14.0
250	239	14.5
300	242	14.0
350	249	16.5
400	235	14.0
450	235	14.0
500	234	13.0

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
550	234	14.0
600	234	14.5
650	225	16.0
700	229	20.0
750	219	21.5
800	217	19.0
850	226	19.5
900	207	20.0
950	211	18.0
1000	218	20.0
1050		

TABLE VII

RELEASED FROM LC-33 DATE 21 Feb 79 TIME 0835 LST

RELEASE POINT COORDINATES (WSTM) X=486,037.24 Y= 182,350.16 H=3977.30

MISSILE TYPE 19702A GSRS MISSILE NO. n/a ROUND NO. B2

MISSILE LAUNCHED FROM LC-33 DATE 21 Feb 79 TIME 0849 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH 360°.

PILOT BALLON MEASURED WIND DATA

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
SUR	210	10.0
50	207	8.5
100	224	13.0
150	218	27.0
200	217	30.0
250	213	30.0
300	212	31.0
350	214	30.5
400	216	29.0
450	218	27.0
500	218	28.0

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
550	220	26.0
600	222	25.0
650	224	24.0
700	220	23.0
750	219	22.5
800	229	23.0
850	222	22.0
900	218	23.0
950	219	18.0
1000	216	24.0
1050		

TABLE VIII

RELEASED FROM LC-33 DATE 21 Feb 79 TIME 0849 LST

RELEASE POINT COORDINATES (WSTM) X= 486,037.24 Y= 182,350.16 H= 3977.30

MISSILE TYPE 19702A GSRS MISSILE NO. n/a ROUND NO. B2 & B3

MISSILE LAUNCHED FROM LC-33 DATE 21 Feb 79 TIME 0849 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH 360°.

PILOT BALLON MEASURED WIND DATA

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
SUR	210	14.0
50	209	8.0
100	218	9.0
150	211	24.0
200	207	23.0
250	218	21.0
300	210	22.5
350	208	23.5
400	216	22.0
450	223	22.0
500	223	23.5

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
550	230	25.0
600	240	25.0
650	247	25.0
700	247	21.5
750	242	25.0
800	237	24.0
850	236	23.5
900	230	22.5
950	218	17.0
1000	229	24.0
1050		

TABLE IX

RELEASED FROM LC-33 DATE 21 Feb 79 TIME 0904 LST

RELEASE POINT COORDINATES (WSTM) X= 486,037.24 Y= 182,350.16 H= 3977.30

MISSILE TYPE 19702A GSRS MISSILE NO. n/a ROUND NO. B3

MISSILE LAUNCHED FROM LC-33 DATE 21 Feb 79 TIME 0904 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH 30°.

STATION ALTITUDE 3989.00 FEET MSL
21 FEB. 79 0900 HRS MST
ASCENSION NO. 93

SIGNIFICANT LEVEL DATA
0520020093
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT
878.0	3989.0	13.0	-1.0	38.0
867.4	4323.6	12.0	-.2	43.0
850.0	4879.1	10.3	-1.4	44.0
817.0	5956.6	7.8	-2.5	48.0
777.0	7307.6	4.1	-4.1	55.0
700.0	10069.4	-1.6	-4.8	79.0
674.4	11059.5	-4.9	-5.0	99.0
654.4	11918.3	-5.1	-6.1	93.0
645.2	12183.5	-6.4	-6.5	99.0
618.6	13264.7	-7.5	-7.9	97.0
592.6	14359.6	-10.1	-10.2	99.0
542.0	16608.0	-13.8	-14.4	95.0
500.0	18608.1	-18.1	-21.6	74.0
412.2	23264.7	-27.9	-30.5	78.0
400.0	23972.1	-29.9	-32.6	77.0
344.6	27406.4	-38.5	-43.3	60.0
300.0	30507.7	-43.7	-48.9	56.0
250.0	34453.8	-53.8		
235.0	35754.8	-56.6		
210.2	38071.0	-59.2		
200.0	39093.0	-61.3		
183.2	40876.4	-63.8		
158.4	43821.7	-63.0		
150.0	44952.4	-61.1		
132.8	47420.0	-62.2		
126.0	48496.1	-60.2		
109.8	51320.0	-61.3		
105.3	52179.8	-59.7		
100.0	53242.3	-60.8		
81.4	57424.6	-65.0		
76.4	58715.6	-60.0		
70.0	60518.0	-60.2		
66.6	61545.1	-59.5		
61.8	63077.5	-63.2		
55.0	65452.4	-61.9		
50.0	67419.1	-57.9		
46.0	69173.4	-53.6		
39.2	72506.7	-58.3		
30.0	78105.8	-55.7		
20.0	86701.7	-54.6		

STATION ALTITUDE 3989.00 FEET MSL
21 FEB. 79 0900 HRS MST
ASCENSION NO. 93

SIGNIFICANT LEVEL DATA
0520020093
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT
13.6	94958.7	-50.2		

STATION ALTITUDE 3989.00 FEET MSL
21 FEB. 79 0900 HRS MST
ASCENSION NO. 93

UPPER AIR DATA
0520020093
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	878.0	13.0	-1.0	38.0	1066.3	659.8	210.0	15.0	1.000264
4000.0	877.6	13.0	-.9	38.2	1066.0	659.8	210.1	15.0	1.000264
4500.0	861.8	11.5	-.6	43.3	1052.2	658.1	215.7	17.8	1.000262
5000.0	846.2	10.0	-1.5	44.4	1038.5	656.4	219.7	20.7	1.000257
5500.0	830.8	8.9	-2.0	46.3	1023.9	655.0	222.7	23.6	1.000253
6000.0	815.7	7.7	-2.6	48.2	1009.5	653.6	225.7	24.1	1.000249
6500.0	800.7	6.3	-3.1	50.8	995.8	652.0	230.3	20.8	1.000245
7000.0	785.9	4.9	-3.7	53.4	982.3	650.4	232.9	19.5	1.000242
7500.0	771.4	3.7	-4.1	56.7	968.5	648.9	232.5	19.9	1.000238
8000.0	756.9	2.7	-4.1	61.0	953.9	647.7	232.2	20.5	1.000235
8500.0	742.8	1.6	-4.1	65.4	939.5	646.5	232.3	21.3	1.000232
9000.0	728.9	.6	-4.3	69.7	925.4	645.3	232.4	22.2	1.000229
9500.0	715.2	-.4	-4.5	74.1	911.5	644.1	233.1	23.0	1.000225
10000.0	701.8	-1.5	-4.7	78.4	897.8	642.9	233.9	23.7	1.000222
10500.0	688.5	-3.1	-4.8	87.9	886.0	641.0	234.7	25.2	1.000220
11000.0	675.4	-4.8	-5.0	98.2	874.6	639.0	235.3	27.9	1.000217
11500.0	662.5	-5.0	-5.6	95.5	858.8	638.7	235.8	30.7	1.000212
12000.0	649.8	-5.7	-6.3	96.0	844.7	637.6	236.6	33.2	1.000208
12500.0	637.3	-6.7	-6.9	98.4	831.5	636.6	237.4	35.8	1.000205
13000.0	625.0	-7.2	-7.6	97.5	817.1	636.0	239.8	36.7	1.000201
13500.0	612.9	-8.1	-8.4	97.4	803.8	634.9	243.4	36.7	1.000197
14000.0	601.0	-9.2	-9.5	98.3	791.9	633.5	246.5	37.2	1.000193
14500.0	589.3	-10.3	-10.5	98.8	779.7	632.1	249.2	38.2	1.000189
15000.0	577.7	-11.2	-11.4	97.9	766.9	631.1	249.4	38.6	1.000185
15500.0	566.4	-12.0	-12.4	97.0	754.3	630.1	248.5	39.4	1.000181
16000.0	555.2	-12.8	-13.3	96.1	741.8	629.1	247.7	42.7	1.000178
16500.0	544.3	-13.6	-14.2	95.2	729.6	628.0	248.9	44.2	1.000174
17000.0	533.5	-14.6	-15.8	90.9	718.0	626.8	250.4	44.4	1.000170
17500.0	522.8	-15.7	-17.6	85.6	706.8	625.4	251.0	43.8	1.000166
18000.0	512.4	-16.8	-19.4	80.4	695.6	624.1	249.8	42.5	1.000163
18500.0	502.2	-17.9	-21.2	75.1	684.7	622.7	247.3	39.8	1.000159
19000.0	491.9	-18.9	-22.3	74.3	673.6	621.4	245.5	39.8	1.000156
19500.0	481.8	-20.0	-23.3	74.8	662.5	620.1	244.9	42.6	1.000153
20000.0	472.0	-21.0	-24.2	75.2	651.7	618.8	244.2	45.2	1.000150
20500.0	462.3	-22.1	-25.2	75.6	641.0	617.5	243.5	47.7	1.000148
21000.0	452.8	-23.1	-26.2	76.1	630.5	616.2	242.8	49.3	1.000145
21500.0	443.5	-24.2	-27.1	76.5	620.2	614.9	242.0	50.2	1.000142
22000.0	434.4	-25.2	-28.1	76.9	610.1	613.6	241.4	50.8	1.000140
22500.0	425.5	-26.3	-29.0	77.3	600.1	612.2	240.9	50.7	1.000137
23000.0	416.7	-27.3	-30.0	77.8	590.4	610.9	240.4	50.6	1.000135

STATION ALTITUDE 3989.00 FEET MSL
21 FEB. 79 0900 HRS MST
ASCENSION NO. 93

UPPER AIR DATA
0520020093
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
23500.0	408.1	-28.6	-31.2	77.7	581.0	609.4	239.2	49.9	1.000132
24000.0	399.5	-30.0	-32.7	76.9	572.1	607.6	237.9	49.5	1.000130
24500.0	390.9	-31.2	-34.2	74.4	562.8	606.0	236.4	49.7	1.000127
25000.0	382.5	-32.5	-35.8	71.9	553.6	604.5	235.1	50.2	1.000125
25500.0	374.3	-33.7	-37.3	69.4	544.5	602.9	234.0	51.1	1.000123
26000.0	366.3	-35.0	-38.9	67.0	535.6	601.3	233.5	52.5	1.000121
26500.0	358.4	-36.2	-40.5	64.5	526.9	599.7	233.1	54.0	1.000119
27000.0	350.7	-37.5	-42.0	62.0	518.4	598.1	232.6	55.2	1.000116
27500.0	343.2	-38.7	-43.5	59.9	509.7	596.6	232.0	56.1	1.000114
28000.0	335.6	-39.5	-44.4	59.2	500.3	595.5	231.5	56.7	1.000112
28500.0	328.2	-40.3	-45.3	58.6	491.0	594.5	231.1	57.9	1.000110
29000.0	320.9	-41.2	-46.2	57.9	481.9	593.4	230.8	59.3	1.000108
29500.0	313.8	-42.0	-47.1	57.3	472.9	592.3	229.9	60.4	1.000106
30000.0	306.9	-42.8	-48.0	56.7	464.2	591.2	229.1	61.5	1.000104
30500.0	300.1	-43.7	-48.8	56.0	455.6	590.2	227.9	61.1	1.000102
31000.0	293.3	-45.0	-51.2	49.0**	447.7	588.5	226.7	60.8	1.000100
31500.0	286.6	-46.2	-53.7	41.9**	439.9	586.9	225.8	60.4	1.000098
32000.0	280.0	-47.5	-56.4	34.8**	432.3	585.2	225.0	60.3	1.000096
32500.0	273.6	-48.8	-59.3	27.7**	424.9	583.5	224.7	61.1	1.000095
33000.0	267.4	-50.1	-62.7	20.6**	417.5	581.9	224.5	62.0	1.000093
33500.0	261.3	-51.4	-66.8	13.5**	410.4	580.2	224.6	63.3	1.000091
34000.0	255.3	-52.6	-73.0	6.4**	403.3	578.5	224.8	64.6	1.000090
34500.0	249.5	-53.9			396.3	576.9	225.6	66.1	1.000088
35000.0	243.6	-55.0			388.9	575.4	226.3	68.0	1.000087
35500.0	237.9	-56.1			381.7	574.0	227.1	70.6	1.000085
36000.0	232.2	-56.9			374.1	572.9	227.8	73.3	1.000083
36500.0	226.7	-57.4			366.1	572.2	228.4	76.1	1.000082
37000.0	221.3	-58.0			358.4	571.4	229.5	77.4	1.000080
37500.0	216.1	-58.6			350.7	570.7	230.8	78.2	1.000078
38000.0	210.9	-59.1			343.3	569.9	233.2	78.8	1.000076
38500.0	205.9	-60.1			336.6	568.7	235.9	79.4	1.000075
39000.0	200.9	-61.1			330.1	567.3	238.9	80.2	1.000074
39500.0	196.0	-61.9			323.2	566.3	241.6	79.9	1.000072
40000.0	191.3	-62.6			316.4	565.3	243.9	78.6	1.000070
40500.0	186.6	-63.3			309.8	564.4	245.6	76.3	1.000069
41000.0	182.1	-63.8			302.9	563.7	247.2	73.8	1.000067
41500.0	177.6	-63.6			295.4	563.9	248.8	74.3	1.000066
42000.0	173.3	-63.5			288.0	564.1	246.0	75.5	1.000064
42500.0	169.1	-63.4			280.8	564.3	244.4	78.3	1.000063
43000.0	165.0	-63.2			273.7	564.5	244.0	77.6	1.000061

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL
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UPPER AIR DATA
0520020093
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
43500.0	160.9	-63.1			266.9	564.6	244.4	74.3	1.000059
44000.0	157.0	-62.7			259.9	565.2	245.4	69.6	1.000058
44500.0	153.2	-61.8			252.6	566.3	247.0	63.9	1.000056
45000.0	149.5	-61.1			245.6	567.3	248.4	60.1	1.000055
45500.0	145.9	-61.4			240.0	567.0	249.4	57.6	1.000053
46000.0	142.4	-61.6			234.4	566.7	250.1	55.8	1.000052
46500.0	138.9	-61.8			229.0	566.4	250.6	54.4	1.000051
47000.0	135.6	-62.0			223.7	566.1	250.8	53.1	1.000050
47500.0	132.3	-62.1			218.3	566.0	251.0	51.9	1.000049
48000.0	129.1	-61.1			212.1	567.3	250.7	51.2	1.000047
48500.0	126.0	-60.2			206.1	568.5	250.3	50.9	1.000046
49000.0	122.9	-60.4			201.3	568.2	249.8	51.1	1.000045
49500.0	120.0	-60.6			196.0	568.0	249.3	51.9	1.000044
50000.0	117.1	-60.8			192.1	567.7	248.9	52.4	1.000043
50500.0	114.3	-61.0			187.6	567.5	248.8	51.3	1.000042
51000.0	111.5	-61.2			183.3	567.2	248.8	50.1	1.000041
51500.0	108.8	-61.0			178.7	567.5	248.0	48.1	1.000040
52000.0	106.2	-60.0			173.6	568.7	246.9	46.4	1.000039
52500.0	103.7	-60.0			169.5	568.7	245.1	46.2	1.000038
53000.0	101.2	-60.5			165.8	568.0	243.4	46.9	1.000037
53500.0	98.7	-61.1			162.2	567.4	241.8	48.6	1.000036
54000.0	96.3	-61.6			158.0	566.7	241.4	49.5	1.000035
54500.0	94.0	-62.1			155.1	566.0	241.5	50.2	1.000035
55000.0	91.7	-62.6			151.7	565.3	242.3	50.3	1.000034
55500.0	89.5	-63.1			148.4	564.7	244.1	49.9	1.000033
56000.0	87.3	-63.6			145.1	564.0	245.9	49.5	1.000032
56500.0	85.2	-64.1			141.9	563.3	247.3	49.9	1.000032
57000.0	83.1	-64.6			138.8	562.6	248.7	50.3	1.000031
57500.0	81.1	-64.7			135.5	562.5	249.0	50.1	1.000030
58000.0	79.1	-62.8			131.0	563.1	249.2	49.9	1.000029
58500.0	77.2	-60.8			126.7	567.7	249.9	46.3	1.000028
59000.0	75.4	-60.0			123.2	568.7	250.9	42.4	1.000027
59500.0	73.5	-60.1			120.2	568.7	252.6	35.2	1.000027
60000.0	71.8	-60.1			117.4	568.6	255.6	27.4	1.000026
60500.0	70.1	-60.2			114.6	568.5	256.2	22.7	1.000026
61000.0	68.4	-59.9			111.7	568.9	255.6	18.8	1.000025
61500.0	66.7	-59.5			108.8	569.4	253.1	16.9	1.000024
62000.0	65.1	-60.6			106.8	568.0	247.8	19.9	1.000024
62500.0	63.6	-61.8			104.8	566.4	243.9	23.0	1.000023
63000.0	62.0	-63.0			102.8	564.7	242.3	25.7	1.000023

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GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	60.5	-63.0			100.3	564.8	241.3	28.3	1.000022
64000.0	59.1	-62.7			97.8	565.2	240.7	29.3	1.000022
64500.0	57.6	-62.4			95.3	565.5	240.5	27.5	1.000021
65000.0	56.2	-62.1			92.8	565.9	240.2	25.9	1.000021
65500.0	54.9	-61.8			90.4	566.4	240.1	26.0	1.000020
66000.0	53.6	-60.8			87.9	567.7	240.0	26.1	1.000020
66500.0	52.3	-59.8			85.5	569.1	240.0	27.9	1.000019
67000.0	51.0	-58.8			82.9	570.4	239.9	30.1	1.000018
67500.0	49.8	-57.7			80.5	571.8	240.7	30.1	1.000018
68000.0	48.6	-56.5			78.2	573.5	242.3	27.9	1.000017
68500.0	47.5	-55.3			75.9	575.1	244.4	25.3	1.000017
69000.0	46.4	-54.0			73.7	576.7	246.7	19.6	1.000016
69500.0	45.3	-54.1			72.0	576.6	256.4	14.1	1.000016
70000.0	44.2	-54.8			70.5	575.7	260.0	11.9	1.000016
70500.0	43.2	-55.5			69.1	574.8	258.9	11.3	1.000015
71000.0	42.2	-56.2			67.7	575.9	256.1	11.4	1.000015
71500.0	41.2	-56.9			66.3	575.0	248.8	14.8	1.000015
72000.0	40.2	-57.5			65.0	572.0	244.3	18.4	1.000014
72500.0	39.3	-58.2			63.7	571.1	242.3	22.8	1.000014
73000.0	38.3	-58.1			62.1	571.3	241.3	27.4	1.000014
73500.0	37.4	-57.9			60.6	571.6	240.8	30.1	1.000013
74000.0	36.6	-57.6			59.1	571.9	240.6	27.0	1.000013
74500.0	35.7	-57.4			57.6	572.2	240.5	24.0	1.000013
75000.0	34.8	-57.2			56.2	572.6	242.1	17.2	1.000013
75500.0	34.0	-56.9			54.8	572.9	248.7	8.6	1.000012
76000.0	33.2	-56.7			53.5	573.2	317.6	2.1	1.000012
76500.0	32.4	-56.5			52.1	573.5	331.5	3.4	1.000012
77000.0	31.7	-56.2			50.9	573.8	337.5	4.7	1.000011
77500.0	30.9	-56.0			49.6	574.1	319.5	5.7	1.000011
78000.0	30.2	-55.8			48.4	574.4	288.6	6.1	1.000011
78500.0	29.5	-55.7			47.2	574.5	274.0	11.7	1.000011
79000.0	28.8	-55.6			46.1	574.6	265.2	15.3	1.000010
79500.0	28.1	-55.5			45.0	574.7	259.4	19.0	1.000010
80000.0	27.5	-55.5			44.0	574.6	256.4	22.1	1.000010
80500.0	26.8	-55.4			42.9	574.9	257.2	22.2	1.000010
81000.0	26.2	-55.3			41.9	575.0	258.0	22.3	1.000009
81500.0	25.6	-55.3			40.9	575.1	261.7	19.6	1.000009
82000.0	25.0	-55.2			39.9	575.1	270.7	15.0	1.000009
82500.0	24.4	-55.1			39.0	575.2	286.7	11.1	1.000009
83000.0	23.8	-55.1			38.1	575.3	301.7	9.1	1.000008

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GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
83500.0	23.3	-55.0			37.2	575.4	318.8	7.9	1.000008
84000.0	22.7	-54.9			36.3	575.5	339.1	7.7	1.000008
84500.0	22.2	-54.9			35.4	575.6	322.3	7.6	1.000008
85000.0	21.7	-54.8			34.6	575.6	305.4	8.2	1.000008
85500.0	21.2	-54.8			33.8	575.7	292.1	9.5	1.000008
86000.0	20.7	-54.7			33.0	575.8	283.6	11.5	1.000007
86500.0	20.2	-54.6			32.2	575.9	277.7	13.6	1.000007
87000.0	19.7	-54.4			31.4	576.1	273.1	15.3	1.000007
87500.0	19.3	-54.2			30.7	576.5	268.7	16.3	1.000007
88000.0	18.8	-53.9			29.9	576.8	264.8	17.4	1.000007
88500.0	18.4	-53.6			29.2	577.2	261.1	18.9	1.000006
89000.0	18.0	-53.4			28.5	577.5	257.7	20.8	1.000006
89500.0	17.5	-53.1			27.8	577.9	254.9	22.8	1.000006
90000.0	17.1	-52.8			27.1	578.2	256.1	23.4	1.000006
90500.0	16.7	-52.6			26.5	578.6	259.3	23.3	1.000006
91000.0	16.4	-52.3			25.8	578.9	262.7	23.2	1.000006
91500.0	16.0	-52.0			25.2	579.3	269.3	21.3	1.000006
92000.0	15.6	-51.8			24.6	579.6	278.3	19.3	1.000005
92500.0	15.3	-51.5			24.0	580.0	289.1	17.9	1.000005
93000.0	14.9	-51.2			23.4	580.3			1.000005
93500.0	14.6	-51.0			22.8	580.7			1.000005
94000.0	14.2	-50.7			22.3	581.0			1.000005
94500.0	13.9	-50.4			21.7	581.4			1.000005

MRN SIGNIFICANT LEVEL DATA

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GEOPOTENTIAL ALTITUDE DECAMETERS	WIND DATA DIRECTION DEG (TN)	SPEED MPS	N-S MPS	E-W MPS	DEW PT DEP DEG C	TEMPERATURE AIR DEG C	PRESSURE MILLIBARS
2880.	9999.**	9999.**	-9999.**	-9999.**	99	-50.2	1.360+1
2630.	276.	7.	-1.	7.	99	-54.6	2.000+1
2572.	283.	5.	-1.	5.	99	-55.7	3.000+1
2202.	242.	12.	6.	11.	99	-58.3	3.920+1
2100.	251.	9.	3.	9.	99	-53.6	4.600+1
2047.	240.	16.	8.	14.	99	-57.9	5.000+1
1988.	240.	15.	7.	12.	99	-61.9	5.500+1
1916.	242.	13.	6.	12.	99	-63.2	6.180+1
1869.	253.	9.	3.	8.	99	-59.5	6.660+1
1838.	256.	12.	3.	11.	99	-60.2	7.000+1
1784.	250.	23.	8.	22.	99	-60.0	7.640+1
1745.	249.	26.	9.	24.	99	-65.0	8.140+1
1618.	243.	25.	11.	22.	99	-60.8	1.000+2

** WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

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MANDATORY LEVELS
0520020093
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	4876.	10.3	-1.4	44.	218.8	19.9
800.0	6519.	6.3	-3.1	51.	230.5	20.6
750.0	8243.	2.2	-4.1	63.	232.3	20.9
700.0	10060.	-1.6	-4.8	79.	234.0	23.8
650.0	11980.	-5.7	-6.3	96.	236.6	33.2
600.0	14028.	-9.3	-9.6	98.	246.7	37.3
550.0	16220.	-13.2	-13.7	96.	248.2	43.5
500.0	18582.	-18.1	-21.6	74.	246.8	39.3
450.0	21139.	-23.4	-26.4	76.	242.5	49.6
400.0	23933.	-29.9	-32.6	77.	238.0	49.5
350.0	27006.	-37.6	-42.2	62.	232.5	55.3
300.0	30448.	-43.7	-48.9	56.	227.9	61.1
250.0	34380.	-53.8			225.5	65.9
200.0	39000.	-61.3			239.4	80.3
175.0	41696.	-63.5			246.5	74.6
150.0	44813.	-61.1			248.2	60.6
125.0	48523.	-60.3			250.2	50.8
100.0	53080.	-60.8			242.7	47.6
80.0	57587.	-63.6			249.1	50.0
70.0	60315.	-60.2			256.2	22.7
60.0	63453.	-62.9			241.1	29.1
50.0	67168.	-57.9			240.3	30.7
40.0	71832.	-57.7			243.8	19.0
30.0	77805.	-55.7			284.9	8.8
25.0	81620.	-55.2			209.3	15.6
20.0	86300.	-54.6			276.2	14.3
15.0	92387.	-51.3				

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MRN MANDATORY LEVELS
0520020093
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

GEOPOTENTIAL ALTITUDE DECAMETERS	WIND DATA DIRECTION DEG (TN)	SPEED MPS	N-S MPS	E-W MPS	DEW PT DEP DEG C	TEMPERATURE AIR DEG C	PRESSURE MILLIBARS
2816.	9999.**	9999.**	-9999.**	-9999.**	99	-51.3	1.500+1
2630.	276.	7.	-1.	7.	99	-54.6	2.000+1
2488.	269.	8.	0.	8.	99	-55.2	2.500+1
2372.	285.	5.	-1.	4.	99	-55.7	3.000+1
2189.	244.	10.	4.	9.	99	-57.7	4.000+1
2047.	240.	16.	8.	14.	99	-57.9	5.000+1
1934.	241.	15.	7.	13.	99	-62.9	6.000+1
1838.	256.	12.	3.	11.	99	-60.2	7.000+1
1755.	249.	26.	9.	24.	99	-63.6	8.000+1
1618.	243.	24.	11.	22.	99	-60.8	1.000+2
1479.	250.	26.	9.	25.	99	-60.3	1.250+2
1366.	248.	31.	12.	29.	99	-61.1	1.500+2
1271.	247.	38.	15.	35.	99	-63.5	1.750+2
1189.	239.	41.	21.	36.	99	-61.3	2.000+2
1048.	225.	34.	24.	24.	99	-53.8	2.500+2
928.	228.	31.	21.	23.	05	-43.7	3.000+2
823.	233.	28.	17.	23.	05	-37.6	3.500+2
729.	238.	25.	13.	22.	03	-29.9	4.000+2
644.	243.	25.	12.	23.	03	-23.4	4.500+2
568.	247.	20.	8.	19.	03	-18.1	5.000+2
494.	248.	22.	8.	21.	01	-13.2	5.500+2
428.	247.	19.	8.	18.	00	-9.3	6.000+2
365.	237.	17.	9.	14.	01	-5.7	6.500+2
307.	234.	12.	7.	10.	03	-1.6	7.000+2
251.	232.	11.	7.	9.	06	2.2	7.500+2
199.	231.	11.	7.	8.	09	6.3	8.000+2
149.	219.	10.	8.	6.	12	10.3	8.500+2

** WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.