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NOVEMBER 1979  
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METEOROLOGICAL DATA REPORT

19701A GSRS  
Missile No. 211  
Round No. B-57  
19 November 1979

by

White Sands Meteorological Team

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APR 2 1980  
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ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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Meteorological data gathered for the launching of the 19701A GSRS, Missile Number 211, Round Number B-57 are presented in tabular form.

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INTRODUCTION

19701A GSRS, Missile Number 211, Round Number B-57, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1100 MST on 19 November 1979. The scheduled launch time was 1100 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/m³), Wind direction and speed, 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 RAPTIS T-9 pibal observation at:

SITE AND ALTITUDE

LC-33 2 km
Nick 2 km

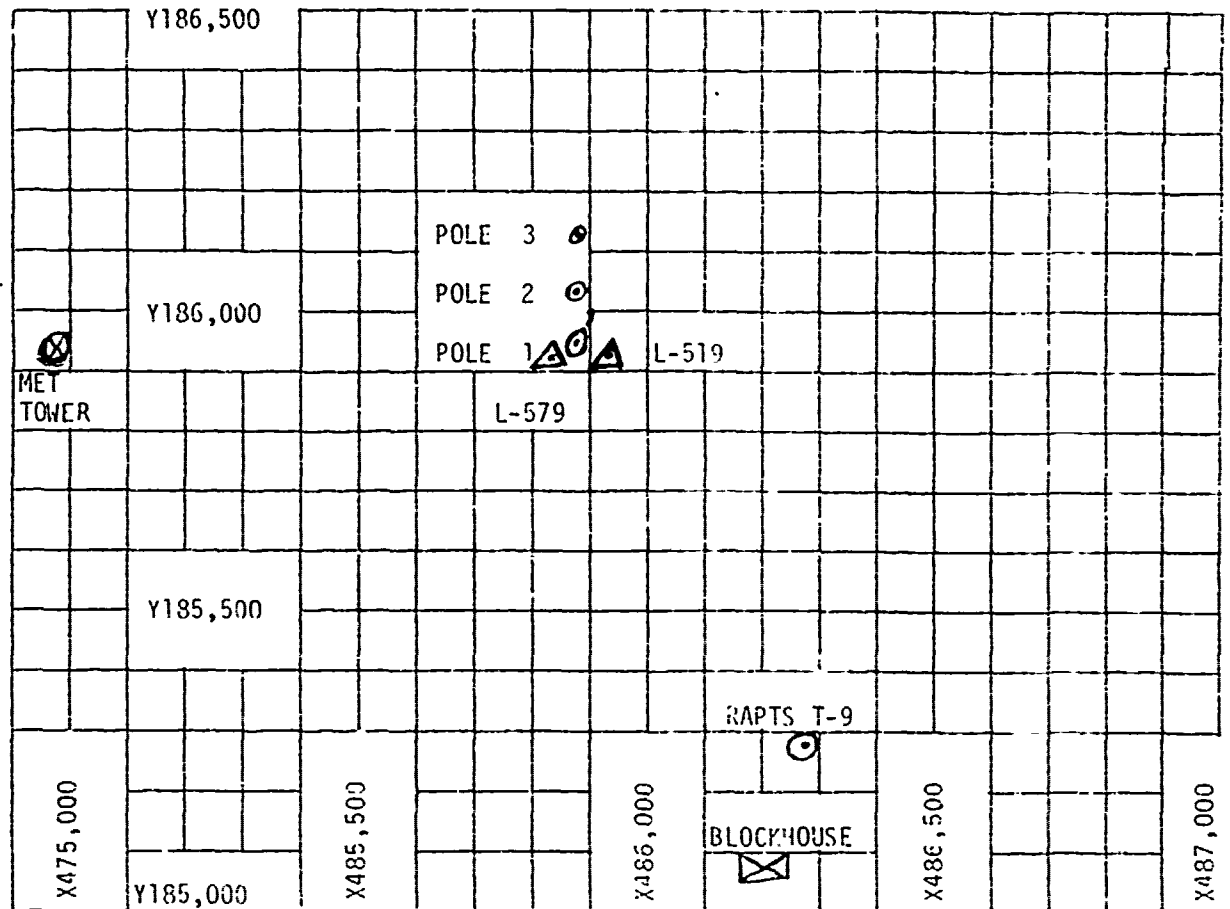
(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 83,000 feet in 500-foot increments.

SITE AND TIME

SMR 1145 MST
WSD 1015 MST

Accession For
NTIS & M&I
DAS TAB
By
Dist 239
Available d/or special
A

NORTH



1. MET TOWER - 4 Bendix Model T-20 Anemometers at 12 ft, 62 ft, 102 ft, and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
  - (a) Pole #1 - 38.7 ft.
  - (b) Pole #2 - 53.0 ft.
  - (c) Pole #3 - 83.6 ft.
3. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

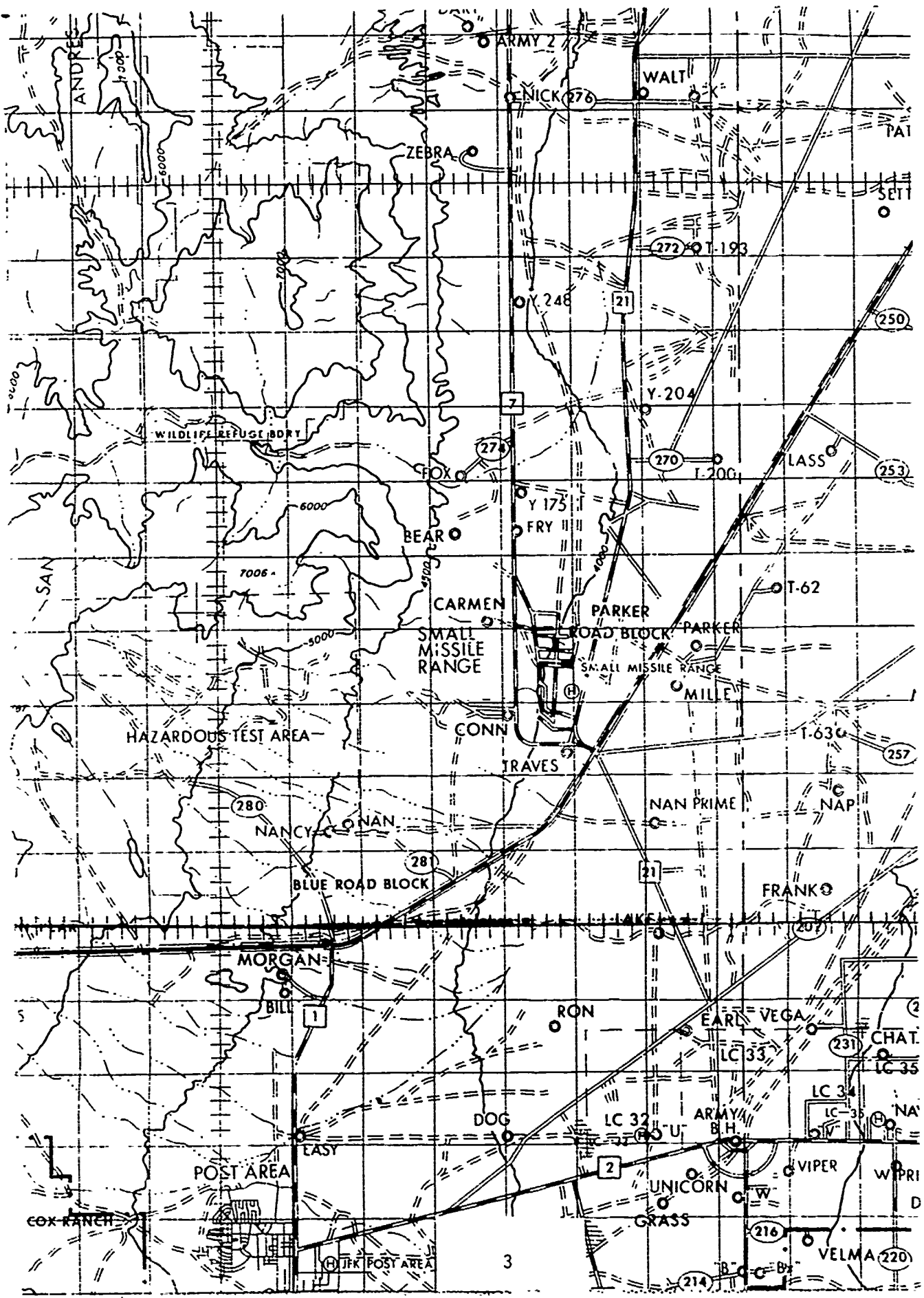


TABLE 1. Surface Observations taken at 1100 MST,  
 19 November 1979, at LC-33, 19701A GSRs,  
 Missile Number 211, Round Number B-57.

ELEVATION	3977.30	FT/MSL
PRESSURE	877.5	MBS
TEMPERATURE	19.5	°C
RELATIVE HUMIDITY	36	%
DEW POINT	4.1	°C
DENSITY	1044.78	GM/M <sup>3</sup>
WIND SPEED	15	KTS
WIND DIRECTION	142	DEGREES
CLOUD COVER	4	Cu

TABLE 2

## LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

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		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	133	10	-30	158	09	-30	143	15
-20	137	17	-20	135	10	-20	153	15
-10	141	16	-10	151	11	-10	147	15
0.0	142	15	0.0	150	10	0.0	144	14
+10	135	16	+10	138	11	+10	146	17

TABLE 3

## LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	136	12	-30	156	15
-20	125	10	-20	154	14
-10	144	08	-10	161	13
0.0	143	11	0.0	163	16
+10	126	10	+10	152	16

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	155	13	-30	144	14
-20	152	16	-20	148	14
-10	150	13	-10	144	15
0.0	160	14	0.0	135	14
+10	150	16	+10	148	18









STATION ALTITUDE 9889.60 FEET MSL  
 18 NOV. 79  
 ASCENSION NO. 489

SIGNIFICANT LEVEL DATA.

2230020400  
 WHITE SANDS

TABLE 8

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM. PERCENT
MILLIBARS	MSL FEET	AIR DEGREES	DEWPOINT CENTIGRADE	
680.0	3269.0	18.9	4.3	38.0
667.2	4299.1	15.0	.1	36.0
550.0	4754.5	13.6	-1.1	39.0
770.4	7545.8	7.4	1.3	65.0
745.1	8546.3	5.0	.9	75.0
720.2	9455.7	3.0	-1.5	79.0
700.0	10212.0	1.6	-2.9	72.0
681.0	10915.7	-1.3	-4.9	71.0
672.0	11289.0	-1.3	-8.9	52.0
653.4	12027.5	.0	-21.4	18.0
644.6	12384.5	.5	-22.4	16.0
600.0	13256.9	-4.0	-25.0	16.0
525.2	17661.8	-11.7	-29.5	21.0
508.0	18092.5	-15.1	-28.0	32.0
472.0	20319.9	-17.1	-34.1	21.0
436.6	22226.2	-22.0	-37.4	23.0
400.0	24327.3	-26.1	-39.1	42.0
371.5	26067.4	-30.0	-43.2	26.0
341.4	28042.5	-32.9	-46.5	19.0
335.6	28439.7	-33.7	-49.2	
300.0	30995.9	-38.6		
250.0	35026.3	-49.0		
215.2	33219.5	-55.5		
202.4	35516.4	-51.7		
209.0	39771.2	-51.2		
194.0	40422.7	-51.2		
162.5	44121.1	-56.1		
150.0	45815.2	-59.7		
133.8	48144.8	-64.5		
123.6	49733.5	-65.7		
110.2	52036.3	-65.0		
100.0	53287.7	-64.6		
70.5	58709.1	-63.9		
75.8	59582.0	-65.2		
70.0	61198.9	-61.0		
58.2	64749.9	-65.2		
50.0	68043.1	-60.1		
32.0	76761.6	-59.0		

UPPER AIR DATA  
 3230020460  
 WHITE SANDS  
 TABLE 9

STATION ALTITUDE 3989.00 FEET MSL  
 19 NOV. 73  
 ASCENSION NO. 450

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	560.0	10.8	38.0	1045.9	667.0	150.0	9.9	1.000270
4000.0	879.7	16.8	37.9	1045.9	666.8			1.000270
4500.0	864.1	14.7	36.5	1042.7	661.9			1.000260
5000.0	840.9	13.5	39.4	1026.5	660.5			1.000257
5500.0	833.2	12.3	44.0	1013.8	659.2			1.000255
6000.0	818.1	11.2	49.1	999.3	657.9			1.000253
6500.0	803.5	10.0	53.9	985.1	656.6	208.3	20.0	1.000251
7000.0	788.8	8.9	58.6	971.2	655.3	211.3	21.5	1.000248
7500.0	774.5	7.7	63.6	957.4	654.0	214.4	22.8	1.000246
8000.0	760.3	6.5	68.9	944.2	652.5	217.1	23.9	1.000243
8500.0	746.4	5.1	74.5	931.3	651.0	219.4	24.2	1.000240
9000.0	732.6	4.0	77.0	917.8	649.6	221.1	23.9	1.000235
9500.0	719.0	2.9	73.6	904.5	648.3	221.9	22.8	1.000231
10000.0	705.6	2.0	74.0	890.9	647.1	222.6	23.3	1.000225
10500.0	692.4	1.8	71.6	878.2	645.7	223.0	24.5	1.000219
11000.0	679.4	1.3	66.7	865.5	644.2	222.3	27.4	1.000213
11500.0	666.6	1.2	42.3	849.6	644.1	221.7	30.5	1.000202
12000.0	654.1	1.0	19.3	833.7	644.1	219.1	32.7	1.000192
12500.0	641.8	1.2	16.0	817.3	644.3	216.2	34.7	1.000187
13000.0	629.6	1.0	16.0	805.4	642.9	214.3	36.1	1.000184
13500.0	617.7	2.2	15.0	793.7	641.5	213.2	36.8	1.000181
14000.0	605.0	3.4	16.0	782.1	640.0	212.1	37.5	1.000178
14500.0	594.4	4.5	15.4	770.5	638.0	214.2	37.5	1.000175
15000.0	582.9	5.7	17.1	758.8	637.3	216.4	37.7	1.000173
15500.0	571.6	6.8	17.8	747.3	635.9	218.9	39.0	1.000170
16000.0	560.5	7.9	18.0	735.9	634.5	221.5	40.6	1.000167
16500.0	549.6	9.1	19.3	724.8	633.2	224.4	42.8	1.000165
17000.0	539.0	10.2	20.0	713.6	631.9	224.9	43.1	1.000162
17500.0	528.5	11.5	20.8	703.0	630.5	223.7	42.7	1.000160
18000.0	518.2	12.5	24.0	692.6	628.9	220.1	43.0	1.000157
18500.0	507.9	14.0	25.5	682.5	627.3	218.0	42.7	1.000155
19000.0	497.8	15.5	31.2	672.2	625.8	216.4	42.3	1.000153
19500.0	487.9	16.0	27.3	660.6	624.9	219.1	42.2	1.000150
20000.0	478.1	16.7	23.5	649.2	624.0	222.1	42.3	1.000147
20500.0	468.5	17.6	21.2	638.4	622.9	224.6	43.1	1.000144
21000.0	459.0	18.8	21.7	620.7	621.3	227.0	44.0	1.000142
21500.0	449.8	20.1	22.2	619.1	619.9	228.7	43.2	1.000140
22000.0	440.6	21.4	22.6	609.7	618.2	230.4	42.4	1.000137
22500.0	431.6	22.5	25.5	599.9	616.8	231.3	42.1	1.000135
23000.0	422.7	23.5	30.0	589.8	615.6	232.1	41.8	1.000133

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

UPPER AIR DATA  
 320020480  
 WHITE SANDS

GEOGETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

STATION ALTITUDE 3989.00 FEET MSL  
 19 NOV. 79  
 ASCENSION NO. 480

TABLE 9 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEW POINT DEGREES				DIRECTION DEGREES(TN)	SPEED KNOTS	
23000.0	614.0	-24.5	-35.6	39.5	579.9	614.4	231.6	41.2	1.000131
24000.0	409.5	-25.5	-35.3	39.0	570.1	613.2	230.4	40.5	1.000129
24500.0	397.1	-26.5	-35.9	39.4	560.7	611.9	228.0	42.0	1.000127
25000.0	385.8	-27.6	-36.1	39.3	551.5	610.5	226.8	44.8	1.000124
25500.0	374.5	-28.7	-36.4	39.2	542.4	609.1	225.6	47.4	1.000122
26000.0	372.7	-29.0	-36.9	39.6	533.5	607.7	225.8	49.2	1.000120
26500.0	364.3	-30.6	-37.6	39.5	523.9	606.7	228.2	47.5	1.000117
27000.0	357.0	-31.4	-38.7	39.7	514.3	605.0	229.0	47.1	1.000115
27500.0	349.4	-32.1	-39.0	39.9	505.0	604.9	229.3	47.9	1.000113
28000.0	342.0	-32.8	-39.4	39.2	495.8	603.9	229.8	48.9	1.000111
28500.0	334.7	-33.0	-39.3	18.5**	487.2	602.7	230.2	49.9	1.000109
29000.0	327.4	-33.6	-39.6	19.2**	478.5	601.2	230.8	50.2	1.000107
29500.0	320.3	-34.1	-39.7	19.1**	470.3	599.8	231.5	50.4	1.000105
30000.0	313.4	-34.3	-39.9	7.4**	462.9	598.3	232.1	51.2	1.000103
30500.0	309.5	-34.5	-40.2	3.7**	455.1	598.8	232.6	52.3	1.000101
31000.0	299.9	-34.6	-40.6		447.4	595.4	233.3	54.3	1.000100
31500.0	293.2	-34.8	-40.8		439.6	593.9	234.0	56.5	1.000098
32000.0	289.7	-34.9	-41.1		431.9	592.4	234.6	56.5	1.000096
32500.0	280.2	-35.1	-41.3		424.4	590.9	235.7	60.2	1.000095
33000.0	274.0	-34.5	-41.5		417.0	589.4	236.9	59.9	1.000093
33500.0	267.8	-34.8	-41.8		409.8	587.9	238.4	58.5	1.000091
34000.0	261.6	-34.5	-41.5		402.6	585.4	239.6	55.9	1.000090
34500.0	255.0	-34.5	-41.5		395.7	584.6	240.7	54.9	1.000088
35000.0	250.2	-34.8	-41.8		388.8	583.3	240.9	53.6	1.000087
35500.0	244.4	-34.9	-41.9		381.5	582.0	239.9	53.4	1.000085
36000.0	238.8	-34.9	-41.9		374.3	580.7	238.5	53.5	1.000083
36500.0	233.2	-34.9	-41.9		367.5	579.5	236.7	54.3	1.000082
37000.0	227.8	-34.9	-41.9		360.4	578.2	234.9	55.1	1.000080
37500.0	222.6	-34.9	-41.9		353.6	576.9	233.0	55.7	1.000079
38000.0	217.4	-34.9	-41.9		347.0	575.6	231.1	56.4	1.000077
38500.0	212.3	-34.5	-41.5		350.3	575.0	229.5	56.8	1.000075
39000.0	207.4	-34.1	-41.1		329.4	577.9	227.8	57.2	1.000073
39500.0	202.5	-34.7	-41.7		316.7	579.7	227.4	58.2	1.000071
40000.0	197.9	-34.7	-41.7		311.2	579.8	227.1	59.3	1.000069
40500.0	193.3	-34.5	-41.5		303.6	580.2	227.2	59.4	1.000068
41000.0	188.8	-34.3	-41.3		297.7	579.0	227.5	59.4	1.000066
41500.0	184.3	-34.2	-41.2		292.0	577.8	227.3	55.2	1.000065
42000.0	180.0	-34.1	-41.1		285.4	576.5	226.3	55.7	1.000064
42500.0	175.8	-34.1	-41.1		280.6	575.3	225.2	53.2	1.000063
43000.0	171.7	-33.9	-40.9		275.4	574.1	222.7	50.4	1.000061

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

UPPER AIR DATA  
 3250320480  
 WHITE SANDS

STATION: ALTITUDE 5939.00 FEET MSL  
 19 NOV. 79  
 1015 HRS MST

ASCENSION NO. 460

TABLE 9 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GR/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TR)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4300.0	167.7	-55.9		270.1	572.0	219.9	47.8	1.000060
4400.0	163.7	-57.9		265.0	571.6	217.7	46.2	1.000059
4500.0	159.8	-58.5		259.4	570.8	215.5	44.8	1.000058
4600.0	156.0	-59.9		253.7	570.2	213.0	43.6	1.000057
4700.0	152.3	-59.4		248.2	569.5	212.2	42.6	1.000055
4800.0	148.6	-60.4		243.0	568.7	210.7	41.6	1.000054
4900.0	145.0	-61.1		238.3	567.3	210.5	40.9	1.000053
5000.0	141.5	-62.1		233.7	565.9	210.3	40.3	1.000052
5100.0	138.1	-63.2		229.1	564.5	211.3	39.5	1.000051
5200.0	134.8	-64.2		224.7	563.1	213.1	38.8	1.000050
5300.0	131.5	-64.8		219.6	562.4	215.1	38.1	1.000049
5400.0	128.2	-65.1		214.7	561.9	216.0	35.8	1.000048
5500.0	125.1	-65.5		209.9	561.4	218.3	33.7	1.000047
5600.0	122.0	-65.7		204.9	561.1	219.3	32.4	1.000046
5700.0	119.0	-65.9		199.9	561.0	219.6	32.0	1.000045
5800.0	116.1	-65.9		195.0	560.9	219.9	32.2	1.000043
5900.0	113.2	-65.9		190.3	560.8	220.0	34.9	1.000042
6000.0	110.4	-65.0		185.7	560.7	220.0	37.6	1.000041
6100.0	107.7	-65.7		180.8	561.2	221.4	39.2	1.000040
6200.0	105.0	-65.3		176.1	561.6	222.9	40.8	1.000039
6300.0	102.5	-64.5		171.4	562.1	224.7	40.2	1.000038
6400.0	99.9	-64.0		166.9	562.6	227.0	38.2	1.000037
6500.0	97.5	-64.5		162.6	562.7	229.2	35.7	1.000036
6600.0	95.1	-64.5		158.3	562.8	230.3	31.8	1.000035
6700.0	92.8	-64.4		154.8	562.9	231.7	27.8	1.000034
6800.0	90.5	-64.3		151.0	563.0	232.2	25.6	1.000034
6900.0	88.3	-64.2		147.2	563.1	232.5	23.7	1.000033
7000.0	86.2	-64.2		143.6	563.2	232.7	22.4	1.000032
7100.0	84.0	-64.1		140.0	563.3	232.7	22.2	1.000031
7200.0	82.0	-64.0		136.6	563.4	232.7	22.0	1.000030
7300.0	80.0	-63.9		133.2	563.5	231.2	21.1	1.000030
7400.0	78.0	-64.2		130.1	563.1	229.4	20.2	1.000029
7500.0	76.1	-64.1		127.4	562.0	227.1	19.1	1.000028
7600.0	74.2	-64.1		125.7	563.3	223.9	17.9	1.000028
7700.0	72.5	-62.8		120.0	565.0	220.4	16.7	1.000027
7800.0	70.7	-61.5		116.4	566.7	217.8	16.1	1.000026
7900.0	69.0	-61.3		113.0	567.0	215.3	15.6	1.000025
8000.0	67.3	-61.9		111.0	566.2	213.7	15.3	1.000025
8100.0	65.7	-62.5		108.5	565.5	213.0	15.0	1.000024
8200.0	64.1	-63.0		106.2	564.7	213.6	14.7	1.000024

UPPER AIR DATA  
3230020400  
WITE SAMPLES

STATION ALTITUDE 3959.00 FEET MSL  
17 NOV. 79  
ASCENSION NO. 430

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 9 (cont)

GEOMETRIC ALTITUDE REL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup>	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
6500.0	62.5	-53.6		135.9	564.0	216.8	14.1	1.000023
6400.0	61.8	-54.1		101.6	563.2	220.8	13.5	1.000023
6300.0	59.5	-55.7		99.4	562.5	223.6	12.8	1.000022
6200.0	58.1	-55.1		97.2	561.9	232.2	11.9	1.000022
6100.0	56.5	-64.3		94.5	563.0	239.7	11.2	1.000021
6000.0	55.0	-57.5		91.0	564.1	246.5	11.1	1.000020
5950.0	53.9	-52.5		89.3	565.2	252.5	11.2	1.000020
5900.0	52.5	-51.5		86.9	565.3	253.2	11.5	1.000019
5850.0	51.4	-51.0		84.3	567.4	254.0	11.2	1.000019
5800.0	50.1	-60.2		82.0	568.5	249.6	10.9	1.000018
5750.0	48.9	-60.0		79.9	565.7	242.9	10.5	1.000019
5700.0	47.7	-60.0		78.0	566.8	231.1	9.6	1.000017
5650.0	46.0	-59.0		76.1	568.9	218.3	9.7	1.000017
5600.0	45.5	-59.5		74.3	569.0	210.2	9.3	1.000017
5550.0	44.4	-59.5		72.5	569.1	220.5	8.8	1.000016
5500.0	43.3	-59.7		70.7	569.1	225.3	8.3	1.000016
5450.0	42.5	-59.7		69.0	569.2	225.4	8.0	1.000015
5400.0	41.3	-59.6		67.4	569.3	225.3	9.3	1.000015
5350.0	40.5	-59.5		65.7	569.4	222.5	9.1	1.000015
5300.0	39.3	-59.5		64.1	569.5	211.0	7.8	1.000014
5250.0	38.4	-59.5		62.6	569.6	195.8	6.9	1.000014
5200.0	37.5	-59.3		61.1	569.5	193.7	4.0	1.000014
5150.0	36.6	-59.3		59.6	569.7	361.1	.9	1.000013
5100.0	35.7	-59.2		58.2	569.8	353.4	4.9	1.000013
5050.0	34.9	-59.2		56.8	569.9			1.000013
5000.0	34.0	-59.1		55.4	570.0			1.000012
4950.0	33.2	-59.0		54.0	570.1			1.000012

MANDATORY LEVELS  
32000000  
WHITE SAHOS

STATION ALTITUDE 3959.00 FEET MSL  
10 NOV. 79  
1015 HRS MST  
ASCENSION NO. 459

GEODEIC COORDINATES  
52.40043 LAT DEG  
106.37033 LON DEG

TABLE 10

PRESSURE GEOPOTENTIAL MILLIBARS	FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA	
				DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4951.	13.6	59.	9999.0	9999.0XX
800.0	5615.	9.8	55.	209.1	20.3
750.0	6363.	5.5	73.	218.8	24.1
700.0	7022.	1.6	72.	222.7	23.3
650.0	7752.	.2	17.	218.2	33.3
600.0	8422.	-4.0	10.	213.2	37.5
550.0	9075.	-9.0	19.	224.3	42.7
500.0	9866.	-15.1	32.	216.8	42.4
450.0	10758.	-20.1	22.	228.6	43.2
400.0	11727.	-26.1	42.	229.4	41.0
350.0	12715.	-32.0	21.	229.3	47.8
300.0	13835.	-39.6		233.3	54.2
250.0	15044.	-49.0		240.9	53.6
200.0	16376.	-51.9		227.2	56.7
175.0	17303.	-55.3		224.8	52.7
150.0	18392.	-59.7		211.3	42.0
125.0	19371.	-65.0		218.2	33.7
100.0	20322.	-64.6		226.8	38.3
80.0	21371.	-63.9		231.3	21.2
70.0	22259.	-61.0		217.0	16.0
60.0	23103.	-54.5		223.4	13.2
50.0	23793.	-60.1		249.5	10.9
40.0	24363.	-59.5		229.2	8.8

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

STATION ALTITUDE 3697.30 FEET MSL  
 19 NOV. 79  
 ASCENSION NO. 377

SIGNIFICANT LEVEL DATA  
 3230069377  
 S H R

GEODETTIC COORDINATES  
 32.48034 LAT DEG  
 106.42307 LON DEG

TABLE 11

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREE DEGREES CENTIGRADE	REL. HUM. PERCENT
877.5	20.7	5.1
850.0	16.0	5.0
776.2	0.5	1.9
700.0	.3	-0.3
665.2	-2.4	-4.1
639.8	-4.9	-6.1
631.2	-4.7	-9.1
622.4	-3.2	-25.4
605.4	-3.4	-24.9
531.5	-10.7	-28.2
500.0	-14.9	-28.2
484.6	-16.1	-35.3
411.6	-25.5	-37.4
400.0	-26.3	-35.1
377.6	-28.9	-40.9
345.0	-33.1	-47.4
332.4	-34.4	-49.4
320.2	-36.7	
300.0	-37.5	
282.2	-45.0	
250.0	-49.3	
236.0	-52.7	
208.0	-53.4	
193.1	-52.7	
150.0	-61.5	
134.5	-63.6	
127.4	-61.5	
104.6	-64.9	
100.0	-62.9	
95.0	-61.5	
88.6	-64.0	
82.4	-62.1	
76.6	-64.0	
70.0	-62.1	
57.0	-64.6	
50.0	-60.2	
46.2	-61.2	
38.0	-59.6	
30.0	-55.8	
24.0	-55.0	

STATION ALTITUDE 3997.30 FEET MSL  
 19 NOV. 79  
 ASCENSION NO. 377

UPPER AIR DATA  
 3230060377  
 5 M R  
 TABLE 12

GEODETIC COORDINATES  
 32.48034 LAT DEG  
 106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	SEAPoint CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
3997.3	877.3	20.7	5.1	36.0	1036.1	659.1	210.0	12.0	1.000269
4000.0	877.2	20.7	5.1	36.0	1036.1	659.1	210.0	12.0	1.000269
4500.0	801.8	18.0	4.4	40.5	1027.2	660.0	212.4	12.7	1.000266
5000.0	846.5	15.7	3.7	44.9	1017.4	663.3	214.6	13.4	1.000263
5500.0	831.3	14.2	3.5	46.7	1004.3	661.5	216.6	14.1	1.000260
6000.0	815.3	12.7	3.2	52.5	991.5	659.8	218.4	14.8	1.000257
6500.0	801.7	11.2	2.8	56.2	979.8	658.1	220.0	15.5	1.000253
7000.0	787.2	9.7	2.3	60.0	969.3	656.3	221.6	16.1	1.000250
7500.0	773.0	8.2	1.9	64.5	953.9	654.5	223.1	16.6	1.000246
8000.0	758.7	6.7	1.7	70.3	941.2	652.8	224.2	16.9	1.000243
8500.0	744.7	5.2	1.4	76.2	928.8	651.1	224.4	16.9	1.000240
9000.0	730.9	3.7	1.0	82.2	916.5	649.4	224.7	17.0	1.000237
9500.0	717.4	2.2	.9	83.2	904.5	647.6	225.9	17.9	1.000233
10000.0	704.1	.8	-.1	94.1	892.6	645.8	227.1	18.8	1.000230
10500.0	691.0	-.4	-1.3	93.9	879.8	644.4	228.0	20.6	1.000224
11000.0	677.9	-1.4	-2.7	90.8	866.8	643.1	229.6	23.1	1.000219
11500.0	665.1	-2.5	-3.2	88.1	853.9	641.7	227.7	25.5	1.000213
12000.0	652.5	-3.7	-5.1	89.5	841.5	640.3	225.7	28.0	1.000209
12500.0	640.0	-4.9	-6.1	91.0	829.2	638.8	223.7	31.0	1.000205
13000.0	627.8	-5.1	-7.0	49.8	811.8	639.4	221.1	36.4	1.000193
13500.0	615.8	-5.3	-7.5	16.4	794.6	640.1	219.3	41.3	1.000181
14000.0	604.1	-5.5	-7.9	17.1	780.1	639.9	218.2	45.0	1.000178
14500.0	592.4	-4.5	-7.5	17.8	768.1	638.6	217.3	45.9	1.000175
15000.0	581.0	-5.7	-7.5	18.6	759.4	637.3	216.6	45.3	1.000172
15500.0	569.7	-6.8	-7.9	19.3	744.8	636.0	216.7	44.1	1.000170
16000.0	558.7	-7.9	-7.9	20.1	733.5	634.6	216.4	43.9	1.000167
16500.0	547.9	-9.0	-7.3	20.8	722.3	633.3	215.7	44.7	1.000164
17000.0	537.4	-10.1	-7.9	21.6	711.3	632.0	215.7	46.1	1.000162
17500.0	526.9	-11.2	-7.5	23.3	700.6	630.6	211.7	47.5	1.000159
18000.0	516.5	-12.7	-7.5	26.2	690.4	628.9	211.4	47.9	1.000157
18500.0	506.3	-14.0	-7.5	28.2	680.4	627.2	211.1	48.2	1.000155
19000.0	496.3	-15.2	-7.3	28.6	669.9	625.8	215.2	47.6	1.000152
19500.0	486.4	-16.0	-7.3	28.2	659.6	624.9	215.5	47.0	1.000149
20000.0	475.5	-17.0	-7.3	22.0	648.0	623.5	217.6	46.6	1.000146
20500.0	465.8	-18.2	-7.3	23.3	637.7	622.1	219.6	46.2	1.000144
21000.0	457.3	-19.4	-7.5	24.5	627.6	620.7	221.6	46.3	1.000142
21500.0	448.0	-20.5	-7.5	25.8	617.6	619.3	223.5	46.7	1.000139
22000.0	438.9	-21.7	-7.5	27.1	607.9	617.9	225.5	47.5	1.000137
22500.0	430.0	-22.8	-7.5	28.3	598.3	616.4	227.6	49.3	1.000135
23000.0	421.2	-24.0	-7.5	29.6	588.8	615.0	229.6	51.1	1.000133

UPPER AIR DATA  
3230050377  
S M R

STATION ALTITUDE 3997.30 FEET MSL  
19 NOV. 79 1145 HRS MST  
ASCENSION NO. 377

GEODETIC COORDINATES  
32.48034 LAT DEG  
106.42307 LON DEG

TABLE 12 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT DEGREES CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
23500.0	412.7	-25.2	-37.3	30.8	579.5	613.6	230.5	52.4	1.000131
24000.0	404.1	-25.9	-35.8	30.7	569.3	612.6	231.2	53.7	1.000129
24500.0	395.7	-26.8	-36.1	40.6	559.4	611.6	231.6	54.4	1.000126
25000.0	387.4	-27.7	-38.2	35.8	549.9	610.4	231.7	54.7	1.000124
25500.0	379.5	-28.7	-40.4	31.0	540.5	609.2	232.1	54.9	1.000122
26000.0	371.5	-29.7	-42.1	28.5	531.2	607.9	232.0	55.0	1.000119
26500.0	363.5	-30.7	-43.5	26.6	522.1	606.7	233.5	55.1	1.000117
27000.0	355.7	-31.7	-45.1	24.7	513.2	605.4	234.5	55.1	1.000115
27500.0	348.2	-32.7	-46.7	22.8	504.4	604.2	234.6	56.1	1.000113
28000.0	340.8	-33.5	-48.1	21.3	495.4	603.1	234.5	57.1	1.000111
28500.0	333.5	-34.3	-49.2	20.2	486.3	602.1	233.5	58.4	1.000109
29000.0	326.5	-35.5	-50.0	10.1**	478.4	600.5	232.7	59.5	1.000107
29500.0	319.2	-36.8			470.6	598.9	232.2	60.3	1.000105
30000.0	312.5	-37.6			462.2	597.7	232.5	61.7	1.000103
30500.0	305.5	-38.7			453.9	596.5	233.1	63.5	1.000101
31000.0	298.8	-39.7			445.8	595.2	234.4	65.5	1.000099
31500.0	292.1	-40.7			437.9	593.9	235.7	67.6	1.000098
32000.0	285.6	-41.8			430.1	592.6	237.1	69.2	1.000096
32500.0	279.5	-42.8			422.4	591.2	238.4	70.7	1.000094
33000.0	273.1	-43.9			414.9	589.9	239.0	72.2	1.000092
33500.0	267.0	-45.0			407.6	588.5	239.5	73.6	1.000091
34000.0	261.0	-46.1			400.5	587.0	239.5	73.3	1.000089
34500.0	255.1	-47.3			394.4	584.8	239.5	73.1	1.000088
35000.0	249.5	-48.5			388.2	582.7	239.3	71.3	1.000086
35500.0	243.5	-50.6			381.8	580.9	238.6	69.2	1.000085
36000.0	237.9	-52.2			375.2	579.1	238.0	67.0	1.000084
36500.0	232.8	-52.8			367.4	578.3	236.7	64.7	1.000082
37000.0	227.0	-52.9			359.0	578.2	235.0	62.5	1.000080
37500.0	221.7	-53.0			350.8	578.1	234.5	60.3	1.000078
38000.0	216.5	-53.1			342.8	578.0	233.7	58.3	1.000076
38500.0	211.5	-53.2			335.0	577.8	233.4	56.3	1.000075
39000.0	206.6	-53.3			327.3	577.7	233.2	54.8	1.000073
39500.0	201.8	-53.4			319.5	577.6	233.0	53.6	1.000071
40000.0	197.1	-53.1			312.0	577.9	232.0	53.0	1.000069
40500.0	192.5	-52.6			304.4	578.3	232.2	52.8	1.000068
41000.0	187.9	-53.6			296.5	577.2	231.6	52.8	1.000066
41500.0	183.5	-54.5			288.5	576.1	231.3	53.1	1.000065
42000.0	179.1	-55.3			280.5	575.0	230.9	53.2	1.000064
42500.0	174.9	-56.1			280.5	573.9	230.5	52.6	1.000063
43000.0	170.8	-57.0			275.2	572.6	230.1	52.0	1.000061

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

STATION ALTITUDE 3997.30 FEET MSL  
 19 NOV. 79 1145 HRS MST  
 ASCENSION NO. 377

UPPER AIR DATA  
 3230000377  
 S M R

TABLE 12 (cont)

GEODETIC COORDINATES  
 32.48034 LAT DEG  
 106.42307 LON DEG

GEOMETRIC ALTITUDE FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup> METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
3300.0	169.7	-57.0		269.7	571.7	229.7	50.7	1.000060
4000.0	162.6	-58.7		264.4	570.6	229.2	49.3	1.000059
4500.0	158.9	-59.5		259.1	569.5	226.7	49.5	1.000058
4800.0	155.1	-60.3		254.0	568.3	228.2	50.2	1.000057
4850.0	151.5	-61.2		249.9	567.2	227.6	51.7	1.000055
4900.0	147.8	-61.8		245.6	566.4	227.5	54.1	1.000054
4900.0	144.2	-62.3		238.3	565.8	227.2	56.5	1.000053
4900.0	140.7	-62.7		235.0	565.1	226.7	56.1	1.000052
4900.0	137.3	-63.2		227.9	564.5	226.2	55.7	1.000051
4900.0	133.6	-63.6		222.6	563.1	225.6	53.9	1.000050
4850.0	130.7	-62.5		215.2	565.4	224.6	50.5	1.000048
4900.0	127.6	-61.5		219.0	566.7	223.5	47.3	1.000047
4950.0	124.5	-61.3		205.2	565.2	222.1	44.3	1.000046
5000.0	121.4	-62.3		200.6	565.7	220.7	41.7	1.000045
5050.0	118.5	-62.8		196.2	565.1	219.2	39.4	1.000044
5100.0	115.6	-63.2		191.8	564.5	216.2	38.6	1.000043
5150.0	112.8	-63.6		187.5	563.9	217.4	38.2	1.000042
5200.0	110.0	-64.0		183.3	563.4	218.0	36.9	1.000041
5250.0	107.3	-64.5		179.2	562.8	216.9	39.7	1.000040
5300.0	104.7	-64.9		175.2	562.2	220.9	38.1	1.000039
5350.0	102.2	-63.9		170.1	563.6	223.4	36.3	1.000038
5400.0	99.7	-62.7		165.0	565.2	226.2	34.5	1.000037
5450.0	97.3	-61.7		160.2	566.5	229.4	32.9	1.000036
5500.0	94.9	-62.3		155.8	565.7	231.9	33.0	1.000035
5550.0	92.6	-62.6		153.4	564.9	234.3	33.5	1.000034
5600.0	90.3	-63.5		150.1	564.1	236.5	33.6	1.000033
5650.0	88.2	-63.8		149.7	563.6	238.6	32.9	1.000033
5700.0	85.8	-63.2		142.7	564.5	240.8	32.2	1.000032
5750.0	83.9	-62.6		138.8	565.3	240.7	29.4	1.000031
5800.0	81.9	-62.5		135.3	565.7	240.4	26.4	1.000030
5850.0	79.9	-62.3		132.4	564.9	238.6	23.1	1.000029
5900.0	77.9	-63.5		129.5	564.0	234.5	19.6	1.000029
5950.0	76.1	-63.8		126.6	563.6	229.1	16.4	1.000028
6000.0	74.2	-63.3		123.2	564.5	225.3	14.3	1.000027
6050.0	72.5	-62.6		119.9	565.0	220.2	12.2	1.000027
6100.0	70.6	-62.3		116.7	565.7	219.6	12.1	1.000026
6150.0	68.9	-62.3		113.8	565.7	221.3	12.6	1.000025
6200.0	67.2	-62.6		111.2	565.3	223.1	13.5	1.000025
6250.0	65.6	-62.3		109.7	564.9	225.0	13.0	1.000024
6300.0	64.0	-63.2		106.2	564.5	226.6	15.6	1.000024

STATION ALTITUDE 3997.30 FEET MSL  
 19 NOV. 73  
 ASCENSION NO. 377

UPPER AIR DATA  
 2230060377

S M R

GEODETIC COORDINATES  
 32.48034 LAT DEG  
 136.42307 LONG DEG

TABLE 12 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
62500.0	62.5	-67.8		163.8	564.1	228.0	17.1	1.000023
64000.0	60.9	-68.8		161.4	563.7	229.4	17.5	1.000023
64500.0	59.4	-69.1		159.1	563.3	231.2	17.4	1.000022
65000.0	58.0	-69.4		156.8	562.9	233.9	16.5	1.000022
65500.0	56.5	-69.8		154.4	562.9	236.9	15.6	1.000021
66000.0	55.2	-69.5		151.8	564.0	238.5	13.3	1.000020
66500.0	53.9	-62.7		149.2	565.1	240.6	10.9	1.000020
67000.0	52.6	-61.9		146.7	566.2	240.9	6.7	1.000019
67500.0	51.3	-61.1		144.3	567.3	234.7	7.0	1.000019
68000.0	49.1	-60.0		141.9	568.4	224.5	5.4	1.000018
68500.0	48.0	-60.0		139.6	569.1	215.5	5.2	1.000018
69000.0	47.7	-59.0		137.2	567.7	209.8	5.7	1.000017
69500.0	46.5	-61.1		134.8	567.3	205.3	6.2	1.000017
70000.0	45.4	-61.1		132.5	567.4	209.6	6.6	1.000017
70500.0	44.3	-60.9		130.2	567.6	213.4	7.0	1.000016
71000.0	43.3	-60.0		127.9	567.9	217.0	7.5	1.000016
71500.0	42.2	-60.4		125.6	566.2	229.5	8.1	1.000015
72000.0	41.2	-60.2		123.3	566.5	225.6	8.8	1.000015
72500.0	40.2	-60.0		121.0	566.7	225.3	9.3	1.000015
73000.0	39.3	-59.8		118.7	569.0	220.5	9.7	1.000014
73500.0	38.3	-59.6		116.4	569.3	227.5	10.1	1.000014
74000.0	37.4	-59.4		114.1	569.6	227.9	9.9	1.000014
74500.0	36.5	-59.2		111.8	569.8	228.3	9.6	1.000013
75000.0	35.7	-59.0		109.5	570.1	223.6	9.3	1.000013
75500.0	34.8	-58.8		107.2	570.4	235.8	8.6	1.000013
76000.0	34.0	-58.6		104.9	570.7	240.0	7.9	1.000012
76500.0	33.2	-58.6		102.6	571.4	247.0	7.4	1.000012
77000.0	32.4	-58.5		100.3	572.1	253.4	7.5	1.000012
77500.0	31.6	-57.0		98.0	572.8	259.7	7.6	1.000011
78000.0	30.9	-56.4		95.7	573.5	264.6	7.6	1.000011
78500.0	30.1	-56.0		93.4	574.2	260.6	7.3	1.000011
79000.0	29.4	-55.7		91.1	574.4	268.6	7.0	1.000011
79500.0	28.7	-55.6		88.8	574.6	269.6	6.6	1.000010
80000.0	28.1	-55.6		86.5	574.7	269.2	6.0	1.000010
80500.0	27.4	-55.5		84.2	574.8		5.5	1.000010
81000.0	26.8	-55.6		81.9	574.9			1.000009
81500.0	26.1	-55.5		79.6	575.0			1.000009
82000.0	25.5	-55.2		77.3	575.1			1.000009
82500.0	24.9	-55.1		75.0	575.2			1.000009
83000.0	24.4	-55.1		72.7	575.3			1.000009

STATION ALTITUDE 3997.39 FEET MSL  
 19 NOV. 79  
 ASCENSION NO. 377

MANDATORY LEVELS  
 3239690377  
 S M R

GEODETTIC COORDINATES  
 32.48034 LAT DEG  
 106.42307 LON DEG

TABLE 13

MILLIBARS	PRESSURE GEOPOTENTIAL FEET	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA	
				DIRECTION DEGREES(TM)	SPEED KNOTS
855.0	6833.	16.0	44.	214.1	13.2
800.0	5559.	11.0	57.	220.2	15.5
750.0	6311.	5.0	74.	224.3	18.3
700.0	10152.	.0	90.	227.4	19.3
650.0	12007.	-3.0	99.	225.4	26.4
600.0	14160.	-3.0	17.	217.3	46.2
550.0	16392.	-3.0	21.	215.9	44.5
500.0	18759.	-14.9	31.	212.3	47.0
450.0	21373.	-20.3	26.	223.1	46.5
400.0	24228.	-20.3	43.	231.6	54.3
350.0	27333.	-22.4	23.	234.6	55.3
300.0	30688.	-29.9		234.1	65.1
250.0	34684.	-49.3		239.3	71.7
200.0	39395.	-53.0		232.9	53.2
175.0	42400.	-56.1		230.5	52.6
150.0	45522.	-61.5		227.7	52.6
125.0	49273.	-61.8		222.4	44.0
100.0	53762.	-62.0		225.7	34.9
75.0	59251.	-62.9		239.0	23.5
50.0	64855.	-62.1		220.3	12.3
25.0	67771.	-64.0		230.2	17.7
00.0	72326.	-60.0		224.7	5.8
30.0	78265.	-55.3		225.5	9.3
25.0	82089.	-55.1		236.9	7.3