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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/8 4/2
19702A 0SR5, MISSILE NUMBER 222, ROUND NUMBER B-58, 19 NOVEMBER--ETC(U)
NOV 79
ERADCOM/ASL-DR-109*

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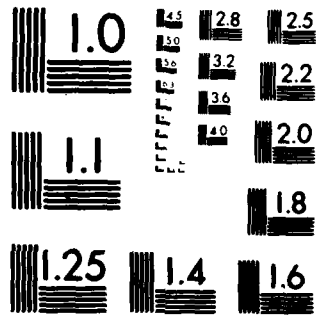
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19802A GSRS, Missile Number 222, Round Number B-58 are presented in tabular form.		

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INTRODUCTION

19702A GSRS, Missile Number 222, Round Number B-58,
was launched from LC-33, White Sands Missile Range (WSMR), New Mexico,
at 1148 MST on 19 Nov 79. The scheduled launch time was
1145 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 ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), 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-3 pibal observation at:

SITE AND ALTITUDE

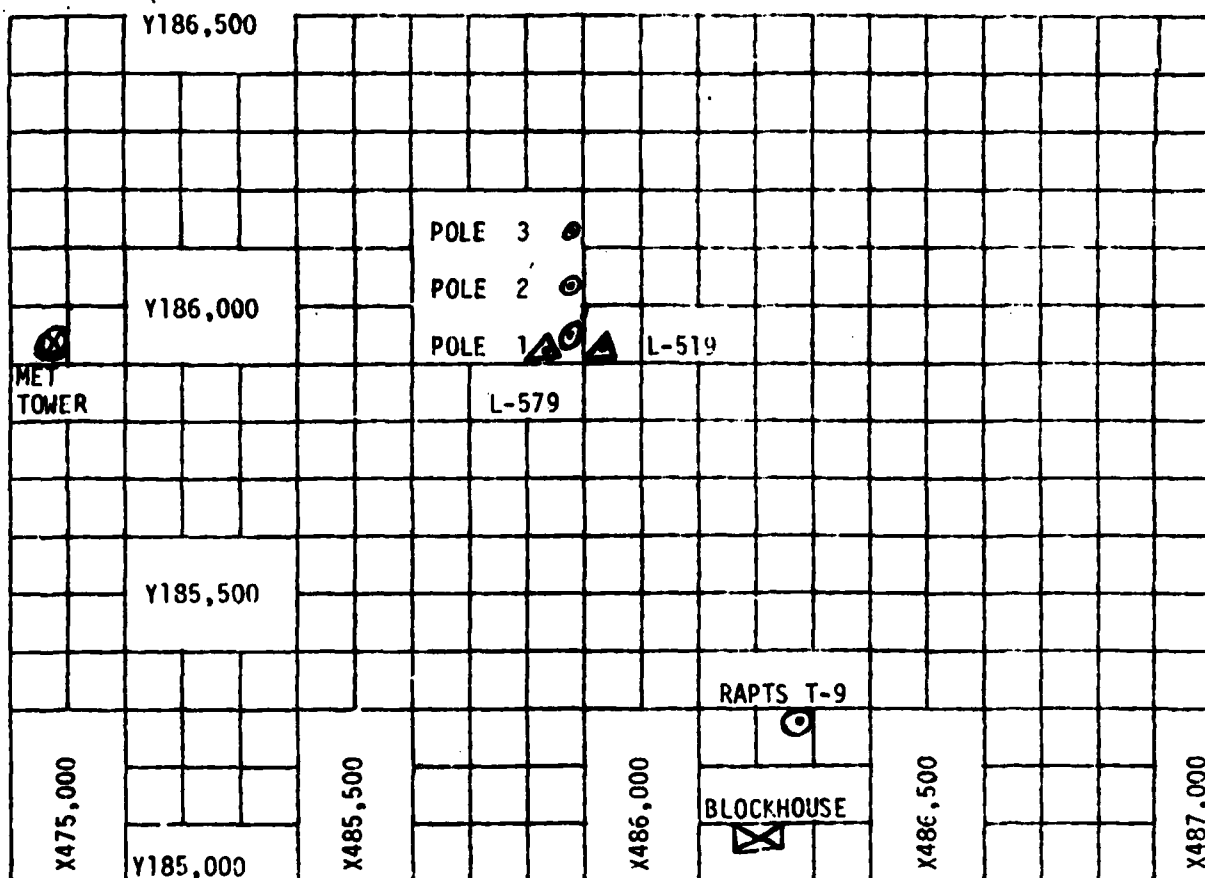
LC-33	2 km
Nick	2 km

(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

1145 MST

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.

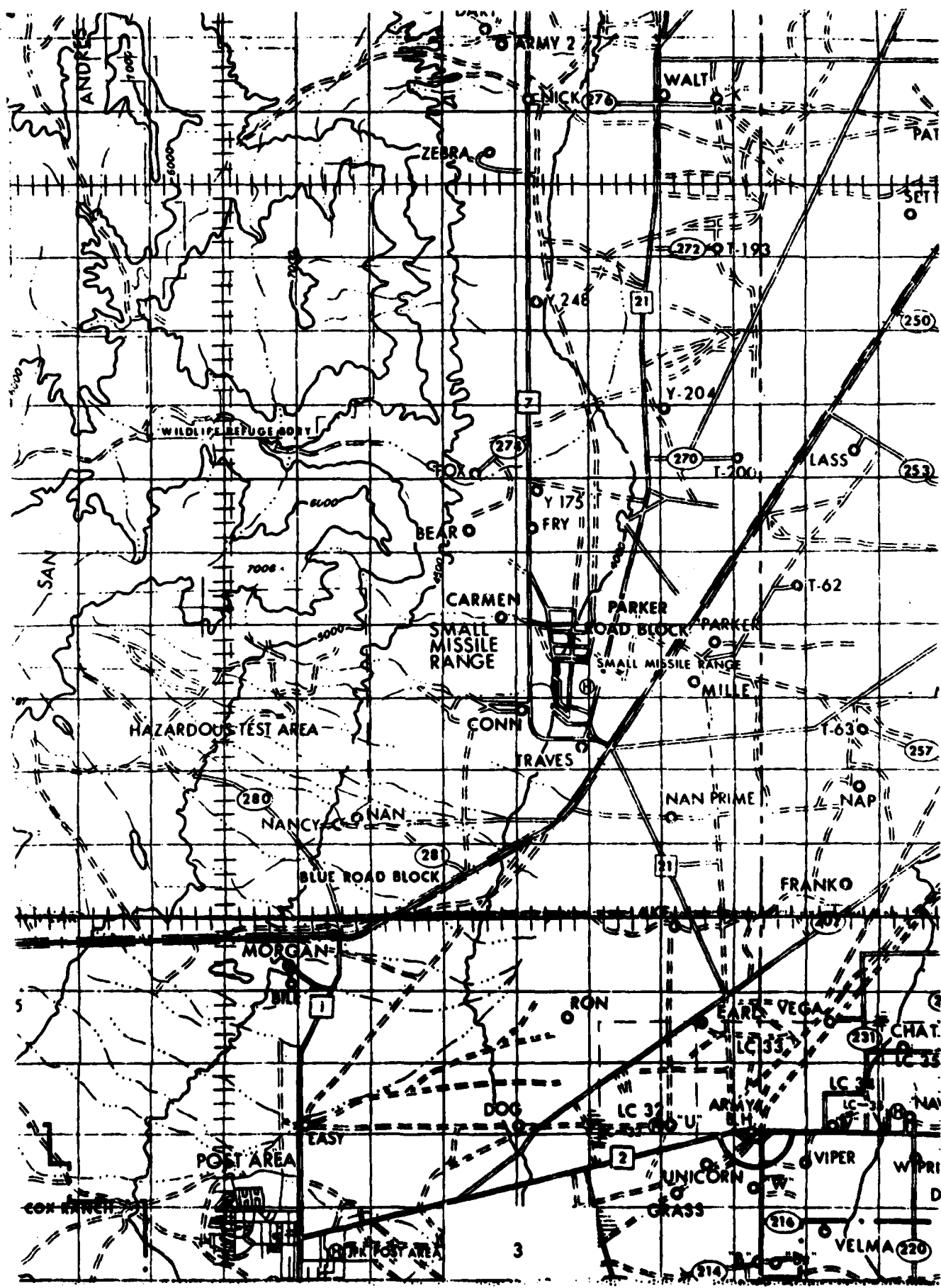


TABLE 1. Surface Observations taken at 1148 MST,
 19 November 1979, at LC-33, 19702A GSRS,
 Missile Number 222, Round Number B-58.

ELEVATION	3977.30	FT/MSL
PRESSURE	877.5	MBS
TEMPERATURE	20.4	°C
RELATIVE HUMIDITY	35	%
DEW POINT	4.4	°C
DENSITY	1041	GM/M ³
WIND SPEED	13	KTS
WIND DIRECTION	150	DEGREES
CLOUD COVER	4	Cu
CLOUD COVER	1	Cl

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 X495,877.29 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	168	18	-30	186	14	-30	183	16
-20	198	16	-20	207	11	-20	194	17
-10	209	18	-10	212	14	-10	197	17
0.0	210	13	0.0	214	14	0.0	196	17
+10	195	17	+10	215	13	+10	189	18

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	178	08	-30	195	09
-20	176	09	-20	180	17
-10	168	10	-10	180	13
0.0	173	07	0.0	179	11
+10	171	11	+10	180	19

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	182	11	-30	182	19
-20	171	14	-20	175	19
-10	177	14	-10	180	17
0.0	171	16	0.0	183	18
+10	180	16	+10	180	19

STATION ALTITUDE 3997.30 FEET MSL
 10 NOV. 79
 DISCUSSION NO. 377

SIGNIFICANT LEVEL DATA
 3200000377
 S M H
 TABLE 8

GEODETIC COORDINATES
 32.48034 LAT DEG
 105.42307 LON DEG

PRESSURE GEOMETRIC MILLIBARS MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
877.3	20.7	36.0
850.0	16.0	44.0
776.2	8.5	63.0
700.0	0.3	96.0
666.2	-2.4	68.0
630.6	-4.9	91.0
611.2	-8.7	71.0
622.4	-3.2	16.0
603.4	-3.4	17.0
591.4	-10.7	22.0
500.0	-14.9	31.0
464.6	-16.1	21.0
411.5	-25.3	31.0
400.0	-26.3	43.0
377.5	-28.9	30.0
345.0	-33.1	22.0
332.4	-34.4	20.0
320.2	-36.7	
300.0	-39.5	
262.2	-45.8	
250.0	-49.3	
235.0	-52.7	
200.0	-53.4	
193.1	-52.7	
150.0	-61.5	
134.5	-63.6	
127.4	-61.5	
104.5	-64.9	
100.0	-62.9	
98.0	-51.5	
88.6	-63.7	
82.4	-62.1	
76.5	-64.0	
70.0	-62.1	
57.0	-64.6	
50.0	-60.2	
46.2	-61.2	
34.0	-58.0	
30.0	-55.4	
24.0	-55.0	

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

UPPER AIR DATA
 5250060377
 S M R
 TABLE 9

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
							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	851.8	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	48.7	1004.3	661.5	216.6	14.1	1.000260
6000.0	819.3	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	978.8	658.1	220.0	15.5	1.000253
7000.0	787.2	9.7	2.3	60.0	966.3	656.3	221.8	16.1	1.000250
7500.0	773.9	8.2	1.9	64.3	953.9	654.5	223.1	16.6	1.000246
8000.0	759.7	6.7	1.7	70.3	941.2	652.8	224.2	16.9	1.000243
8500.0	744.7	5.2	1.4	79.2	926.6	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	.5	88.2	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	20.8	1.000224
11000.0	677.9	-1.4	-2.7	90.8	866.8	643.1	228.6	23.1	1.000219
11500.0	665.1	-2.5	-4.2	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	-4.1	-12.0	49.8	811.8	639.4	221.1	36.4	1.000193
13500.0	615.8	-3.3	-25.2	16.4	794.5	640.1	219.3	41.3	1.000181
14000.0	604.1	-3.5	-24.9	17.1	780.1	639.9	218.2	45.0	1.000178
14500.0	592.4	-4.6	-25.4	17.8	768.1	638.5	217.3	45.9	1.000175
15000.0	581.0	-5.7	-25.8	18.6	759.4	637.3	216.6	45.3	1.000172
15500.0	569.7	-6.6	-26.3	19.3	744.8	635.0	216.7	44.1	1.000170
16000.0	558.7	-7.9	-26.8	20.1	733.5	634.6	216.4	43.9	1.000167
16500.0	547.9	-9.0	-27.3	20.8	722.3	633.3	215.7	44.7	1.000164
17000.0	537.4	-10.1	-27.9	21.6	711.3	632.0	213.7	46.1	1.000162
17500.0	526.9	-11.3	-28.1	23.3	700.6	630.6	211.7	47.5	1.000159
18000.0	516.5	-12.7	-28.0	26.2	690.4	628.9	211.4	47.9	1.000157
18500.0	506.3	-14.0	-29.1	29.2	680.4	627.2	211.1	48.2	1.000155
19000.0	496.5	-15.2	-29.3	28.6	669.9	625.8	213.2	47.6	1.000152
19500.0	486.4	-16.0	-32.6	22.2	658.6	624.9	215.5	47.0	1.000149
20000.0	476.5	-17.0	-33.6	22.0	648.0	623.5	217.6	46.6	1.000146
20500.0	466.8	-18.2	-34.0	23.3	637.7	622.1	219.6	46.2	1.000144
21000.0	457.3	-19.4	-34.5	24.5	627.6	620.7	221.6	46.3	1.000142
21500.0	449.0	-20.5	-35.0	25.6	617.6	619.3	223.5	46.7	1.000139
22000.0	433.9	-21.7	-35.9	27.1	607.9	617.9	225.5	47.5	1.000137
22500.0	430.0	-22.8	-36.1	28.3	598.3	616.4	227.6	49.3	1.000135
23000.0	421.2	-24.0	-36.7	29.5	588.8	615.0	229.6	51.1	1.000133

UPPER AIR DATA
3230060377
S M R

STATION ALTITUDE 3997.20 FEET MSL
19 NOV. 79
1145 MRS MSL
ASCENSION .O. 377

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

TABLE 9 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE HILIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
							DIRECTION DEGRES(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	405.1	-25.9	-35.9	38.7	559.3	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	-30.2	35.8	549.9	610.4	231.7	54.7	1.000124
25500.0	379.3	-28.7	-40.4	31.0	540.5	609.2	232.1	54.9	1.000122
26000.0	371.3	-29.7	-42.1	26.5	531.2	607.9	232.6	55.0	1.000119
26500.0	363.5	-30.7	-43.3	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	-45.7	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	485.3	602.1	233.5	58.4	1.000109
29000.0	326.3	-35.5	-56.0	10.1**	470.4	600.5	232.7	59.5	1.000107
29500.0	319.2	-36.8			470.6	598.9	232.2	50.3	1.000105
30000.0	312.3	-37.3			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			445.0	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	279.3	-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	-47.6			394.4	584.8	239.6	73.1	1.000088
35000.0	249.3	-49.3			385.2	582.7	239.3	71.3	1.000086
35500.0	243.5	-50.8			381.6	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	232.4	-52.8			367.4	578.3	236.7	64.7	1.000082
37000.0	227.0	-52.9			359.0	578.2	235.8	62.5	1.000080
37500.0	221.7	-53.0			350.8	578.1	234.5	60.3	1.000078
38000.0	216.6	-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			319.8	577.6	233.0	53.6	1.000071
40000.0	197.1	-53.4			312.0	577.9	232.0	53.0	1.000069
40500.0	192.5	-53.0			304.4	578.3	232.2	52.8	1.000068
41000.0	187.9	-53.0			296.3	577.2	231.8	52.8	1.000066
41500.0	183.5	-53.5			292.3	576.1	231.3	53.1	1.000065
42000.0	179.1	-53.3			286.5	575.0	230.9	53.2	1.000064
42500.0	174.9	-53.1			280.8	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
 29 NOV. 79 1145 HRS MST
 ASCENSION NO. 377

UPPER AIR DATA
 0250000977
 S M R

GEOMETRIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 9 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND METERS PER SECOND	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
43500.0	166.7	-57.6		269.7	571.7	229.7	50.7	1.000060
44000.0	162.8	-58.7		266.4	570.6	229.2	49.3	1.000059
44500.0	158.9	-59.5		259.1	569.5	228.7	49.5	1.000050
45000.0	155.1	-60.3		254.0	568.3	228.2	50.2	1.000057
45500.0	151.5	-61.2		248.9	567.2	227.8	51.7	1.000055
46000.0	147.8	-61.8		243.6	566.4	227.5	54.1	1.000054
46500.0	144.2	-62.3		238.3	565.8	227.2	56.5	1.000053
47000.0	140.7	-62.7		233.0	565.1	226.7	56.1	1.000052
47500.0	137.3	-63.2		227.9	564.5	226.2	55.7	1.000051
48000.0	134.0	-63.5		222.6	564.1	225.6	53.9	1.000050
48500.0	130.7	-62.5		216.2	563.4	224.6	50.5	1.000049
49000.0	127.0	-61.5		210.2	562.7	223.5	47.3	1.000047
49500.0	124.5	-61.3		205.2	562.2	222.1	44.3	1.000046
50000.0	121.4	-62.3		200.5	561.7	220.7	41.7	1.000045
50500.0	118.5	-62.8		196.2	561.5	219.2	39.4	1.000044
51000.0	115.6	-63.2		191.8	561.5	218.2	38.6	1.000043
51500.0	112.3	-63.6		187.5	561.9	217.4	38.2	1.000042
52000.0	109.0	-64.0		183.5	563.4	216.0	38.9	1.000041
52500.0	107.5	-64.5		179.2	562.8	218.9	39.7	1.000040
53000.0	104.7	-63.9		175.2	562.2	220.9	36.1	1.000039
53500.0	102.2	-63.9		170.1	563.6	223.4	36.3	1.000038
54000.0	99.7	-62.7		165.0	565.2	226.2	34.5	1.000037
54500.0	97.3	-61.7		160.2	566.5	229.4	32.9	1.000036
55000.0	94.9	-62.3		155.8	568.7	231.9	33.0	1.000035
55500.0	92.6	-62.8		151.4	569.9	234.3	33.5	1.000034
56000.0	90.3	-63.5		150.1	564.1	236.5	33.6	1.000033
56500.0	88.2	-63.7		146.7	563.6	238.6	32.9	1.000033
57000.0	85.9	-63.2		142.7	564.5	240.8	32.2	1.000032
57500.0	83.9	-62.5		138.8	565.3	240.7	29.4	1.000031
58000.0	81.9	-62.3		135.3	565.7	240.4	26.4	1.000030
58500.0	79.9	-62.9		132.4	564.9	238.6	23.1	1.000029
59000.0	77.9	-63.5		129.5	564.0	234.5	19.6	1.000029
59500.0	75.4	-63.3		126.6	563.6	229.1	16.4	1.000028
60000.0	73.2	-62.3		123.2	563.3	225.3	14.3	1.000027
60500.0	72.4	-62.8		119.9	565.0	220.2	12.2	1.000027
61000.0	70.6	-62.3		115.7	565.7	219.8	12.1	1.000026
61500.0	67.9	-62.3		111.2	565.7	221.3	12.6	1.000025
62000.0	67.2	-62.6		108.7	564.3	223.1	13.5	1.000025
62500.0	65.5	-62.9		105.7	564.9	225.0	15.0	1.000024
63000.0	64.0	-63.2		103.2	564.5	226.0	16.6	1.000024

UPPER AIR DATA
 320060377
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STATION ALTITUDE 3997.30 FEET MSL
 12 NOV. 79 1145 HRS MST
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GEODETIC COORDINATES
 32.46034 LAT DEG
 106.42307 LON DEG

TABLE 9 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY G/G	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
63500.0	62.5	-63.5	103.8	564.1	228.0	17.1	1.000023	
64000.0	59.9	-63.8	101.4	563.7	229.4	17.5	1.000023	
64500.0	59.4	-64.1	99.1	563.3	231.2	17.4	1.000022	
65000.0	58.0	-64.4	96.8	562.9	233.9	16.5	1.000022	
65500.0	56.6	-64.4	94.4	562.9	235.9	15.6	1.000021	
66000.0	55.2	-63.5	91.8	564.0	238.5	13.3	1.000020	
66500.0	53.9	-62.7	89.2	565.1	240.6	10.9	1.000020	
67000.0	52.6	-61.9	86.7	565.2	240.9	8.7	1.000019	
67500.0	51.3	-61.1	84.3	567.3	234.7	7.0	1.000019	
68000.0	50.1	-60.2	81.9	568.4	224.5	5.4	1.000018	
68500.0	48.9	-60.3	80.0	569.1	215.5	5.2	1.000018	
69000.0	47.7	-60.3	78.2	567.7	209.8	5.7	1.000017	
69500.0	46.5	-61.1	76.5	567.3	205.3	6.2	1.000017	
70000.0	45.4	-61.1	74.6	567.4	209.6	6.6	1.000017	
70500.0	44.3	-60.9	72.8	567.6	213.4	7.0	1.000016	
71000.0	43.3	-60.6	70.9	567.9	217.0	7.5	1.000015	
71500.0	42.2	-60.4	69.2	568.2	220.5	8.1	1.000015	
72000.0	41.2	-60.2	67.5	568.5	223.6	8.8	1.000015	
72500.0	40.2	-60.0	65.8	568.7	225.3	9.3	1.000015	
73000.0	39.3	-59.8	64.1	569.0	226.5	9.7	1.000014	
73500.0	38.5	-59.6	62.6	569.3	227.5	10.1	1.000014	
74000.0	37.4	-59.4	61.0	569.6	227.9	9.9	1.000014	
74500.0	36.5	-59.2	59.5	569.8	228.3	9.6	1.000013	
75000.0	35.8	-59.0	58.0	570.1	228.6	9.3	1.000013	
75500.0	34.8	-58.8	56.6	570.4	233.8	8.6	1.000013	
76000.0	34.0	-58.6	55.2	570.7	235.8	8.6	1.000013	
76500.0	33.2	-58.0	53.7	571.4	240.0	7.9	1.000012	
77000.0	32.4	-57.5	52.3	572.1	247.0	7.4	1.000012	
77500.0	31.6	-57.0	50.9	572.8	253.4	7.5	1.000012	
78000.0	30.9	-56.4	49.5	573.5	259.7	7.6	1.000011	
78500.0	30.1	-55.9	48.0	574.2	264.6	7.6	1.000011	
79000.0	29.4	-55.7	46.5	574.4	266.6	7.3	1.000011	
79500.0	28.7	-55.6	45.0	574.7	268.6	7.0	1.000011	
80000.0	28.1	-55.6	43.6	574.6	266.6	6.6	1.000010	
80500.0	27.4	-55.5	42.0	574.9	264.4	6.0	1.000010	
81000.0	26.8	-55.4	40.8	575.0	259.2	5.5	1.000010	
81500.0	26.1	-55.3	40.8	575.1	259.2	5.5	1.000009	
82000.0	25.5	-55.2	40.8	575.1	259.2	5.5	1.000009	
82500.0	24.9	-55.1	38.9	575.3	259.2	5.5	1.000009	
83000.0	24.4	-55.1	38.9	575.3	259.2	5.5	1.000009	

STATION ALTITUDE 3997.30 FEET MSL
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MANDATORY LEVELS
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GEODETIC COORDINATES
 32.46034 LAT JEG
 106.42307 LON DEG

TABLE 10

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4833.	16.0	3.8	44.	214.1	13.2	
800.0	6559.	11.0	2.7	57.	220.2	15.6	
750.0	8311.	5.8	1.5	74.	224.3	16.9	
700.0	10158.	.3	-1.3	96.	227.4	19.3	
650.0	12037.	-3.9	-3.3	90.	225.4	28.4	
600.0	14130.	-8.9	-25.1	17.	217.8	46.2	
550.0	16392.	-13.8	-27.2	21.	215.9	47.8	
500.0	18795.	-18.9	-28.2	31.	212.3	46.6	
450.0	21378.	-20.3	-34.9	25.	223.1	54.3	
400.0	24204.	-26.3	-35.1	23.	231.8	55.8	
350.0	27293.	-32.4	-46.3	23.	234.5	55.1	
300.0	30644.	-39.5			234.1	71.7	
250.0	34264.	-49.3			239.3	53.2	
200.0	39195.	-53.4			252.9	52.6	
175.0	42409.	-56.1			230.5	52.6	
150.0	45582.	-61.5			227.7	44.9	
125.0	49233.	-61.8			222.4	34.9	
100.0	53793.	-62.9			225.7	23.5	
80.0	58251.	-62.9			239.0	17.7	
70.0	60975.	-62.1			220.3	5.4	
60.0	64053.	-64.0			230.2	9.3	
50.0	67771.	-69.2			224.7	7.3	
40.0	72320.	-69.0			225.5		
30.0	78256.	-55.8			266.9		
25.0	82030.	-55.1					