

AD-A070 830

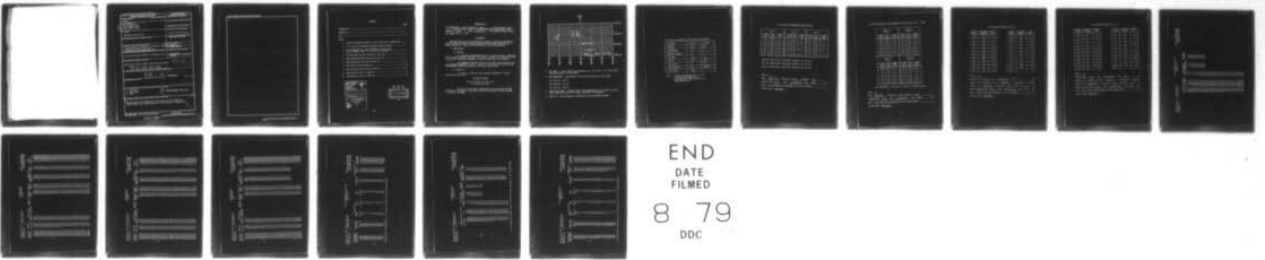
ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/G 4/2
(FA) 19304 GSRs, MISSILE NUMBER 1019, ROUND NUMBER V-20.(U)
MAR 79

UNCLASSIFIED

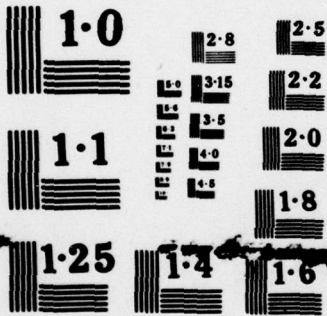
ECOM-DR-996

NL

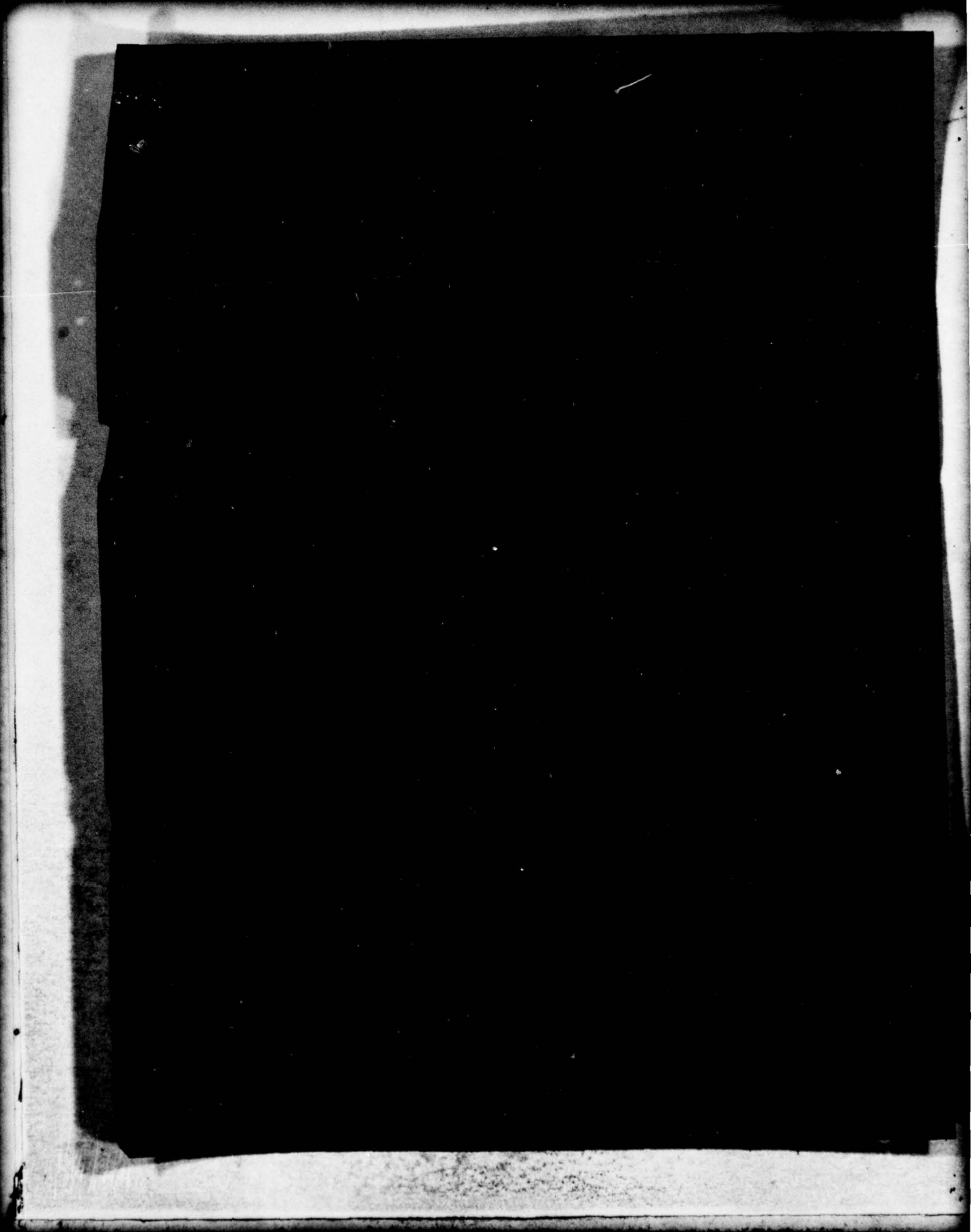
1 OF 1
AD
A070 830



END
DATE
FILMED
8 79
DDC



NATIONAL BUREAU OF STANDARDS
MICROCOPY RESOLUTION TEST CHART



REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR-996	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) (FA) 19304 GSRS Missile Number 1019 Round Number V-20		5. TYPE OF REPORT & PERIOD COVERED
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) WSMR Meteorological Team		8. CONTRACT OR GRANT NUMBER(s) DA Task 1T6G57-2D126-02
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Comd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico		12. REPORT DATE March 1979
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) US Army Electronics Research & Development Comd		13. NUMBER OF PAGES 12
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited. 14 ECOM-DR-996		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) 17 82 16 1T665702D126		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) 1. Ballistics 2. Meteorology 3. Wind 9 Meteorological data rept.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of (FA) 19304 GSRS, Missile Number 1019, Round Number V-20, are presented in tabular form.		

400 8441

slt

CONTENTS

	PAGE
INTRODUCTION -----	1
DISCUSSION -----	1
MAP -----	2
TABLES	
1. SURFACE OBSERVATIONS TAKEN AT LC-33 AT 0834 MST, 30 MARCH 1979 ---	3
2. LC-33 FIXED POLE ANEMOMETER MEASURED WINDS AT 0830 LST -----	4
3. LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER), LEVELS 1, 2, 3, AND 4 AT 0830 MST -----	5
4. PILOT BALLOON MEASURED WIND DATA AT 0820 LST -----	6
5. PILOT BALLOON MEASURED WIND DATA AT 0834 LST -----	7
6. SMR SIGNIFICANT LEVEL DATA AT 0900 MST -----	8
7. SMR UPPER AIR DATA AT 0900 MST -----	9-13
8. MRN SIGNIFICANT LEVEL DATA AT 0900 MST -----	14
9. SMR MANDATORY LEVELS AT 0900 MST -----	15
10. MRN MANDATORY LEVELS AT 0900 MST -----	16

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DDC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/ _____	
Availability Codes	
Dist.	Avail and/or special
A	

DDC
RECEIVED
 JUL 6 1979
RECEIVED
D

INTRODUCTION

(FA) 19304 GSRS, Missile Number(s) 1019, Round Number(s) V-20, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0834 MST, 30 Mar 79. The scheduled launch time(s) were 0830 and 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, 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.

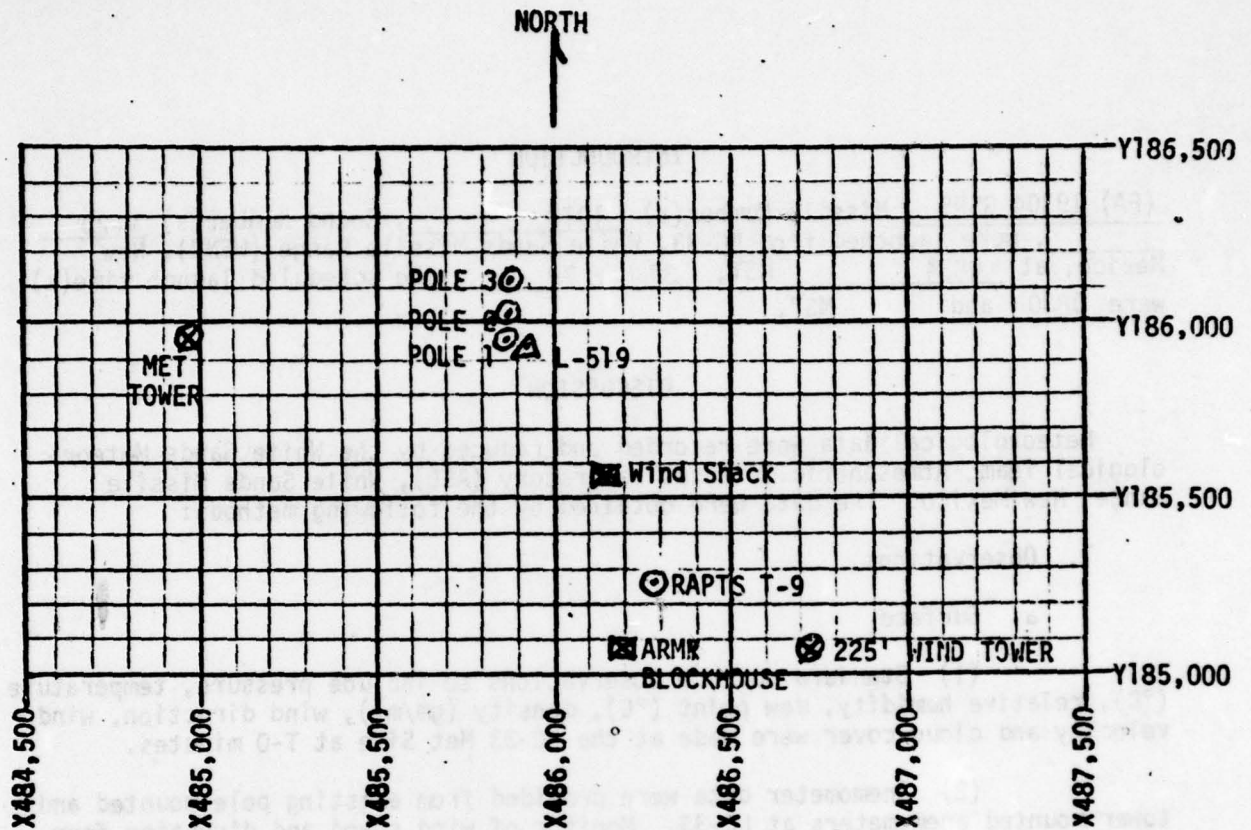
b. Upper Air

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

SITE AND ALTITUDE

LC-33 1 kilometer (50 meter inc)
T-10 mins and T-0 mins

(2) Air structure data (rawinsonde) were collected at the SMR Met Site at T-0 minutes. Data were collected from surface to 125% of apogee in 500-foot 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	881.3	MBS
TEMPERATURE	10.7	°C
RELATIVE HUMIDITY	33	%
DEW POINT	-4.8	°C
DENSITY	1078.1	GM/M ³
WIND SPEED	6	MPH
WIND DIRECTION	020	DEGREES
CLOUD COVER	CLEAR	

TABLE 1. SURFACE OBSERVATIONS TAKEN AT LC-33
AT 0834 MST, 30 MARCH 1979
(FA) 19304 GSRS, MISSILE NUMBER 1019
ROUND NUMBER V-20

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	006	08	-30	360	01	-30	342	10
-20	342	09	-20	009	01	-20	350	10
-10	343	09	-10	001	03	-10	355	11
0.0	010	07	0.0	001	01	0.0	354	11
+10	010	08	+10	006	01	+10	352	13

POLE #1 = X485,574.29 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 = X485,177.29 Y186,116.06 H4063.92 83.6 ft. AGL

TABLE 2

TYPE 19304B GSPS MISSILE NO. 1019 ROUND NO. V-20

LAUNCHED FROM LC-33 DATE 30 March 1979 TIME 0834 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH _____

OR TRUE NORTH TRUE NORTH.

LC-33 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	340	08	-30	019	07
-20	340	07	-20	013	07
-10	348	07	-10	013	07
0.0	335	09	0.0	021	08
+10	353	07	+10	028	08
LEVEL #3 102 ft			LEVEL #4 202 ft		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	020	16	-30	005	35
-20	028	16	-20	018	34
-10	027	17	-10	017	34
0.0	027	16	0.0	012	34
+10	029	16	+10	003	35

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

TABLE 3

TYPE 19304B GSRS MISSILE NO. 1019 ROUND NO. V-20

LAUNCHED FROM LC-33 DATE 30 March 1979 TIME 0834 MST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH _____

OR TRUE NORTH TRUE NORTH

PILOT BALLOON MEASURED WIND DATA

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
SUR	360	6.0
50	350	5.5
100	348	4.5
150	345	4.0
200	350	11.0
250	345	10.0
300	360	12.0
350	005	11.5
400	010	11.0
450	015	9.5
500	005	9.5

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
550	005	8.5
600	005	9.0
650	005	8.0
700	050	9.5
750	355	5.0
800	335	3.5
850	345	3.5
900	330	3.0
950	320	4.0
1000	320	7.0
1050		

TABLE 4

RELEASED FROM LC-33 DATE 30 March 1979 TIME 0820 LST

RELEASE POINT COORDINATES (NORTH) X = 486,037.24 Y = 182,050.16 H = 3977.30

MISSILE TYPE 19304E GSRS MISSILE NO. 1019 ROUND NO. V-20

MISSILE LAUNCHED FROM LC-33 DATE 30 March 1979 TIME 0834 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH

OR TRUE NORTH: TRUE NORTH

PILOT BALLOON MEASURED WIND DATA

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
SUR	020	6.0
50	015	7.5
100	010	8.5
150	010	9.0
200	010	9.5
250	005	11.0
300	005	10.5
350	005	11.5
400	005	10.5
450	005	10.0
500	005	9.0

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
550	005	9.5
600	015	9.0
650	355	2.5
700	005	3.0
750	340	2.5
800	355	1.5
850	340	2.5
900	325	2.5
950	315	3.5
1000	310	6.0
1050		

TABLE 5

RELEASED FROM: LC-33 DATE 30 March 1979 TIME 0834 LST

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

MISSILE TYPE 19304B GSPS MISSILE NO. 1019 ROUND NO. V-20

MISSILE LAUNCHED FROM LC-33 DATE 30 March 1979 TIME 0834 LST

NOTE: WIND DIRECTIONS ARE REFERENCED TO THE FIRING AZIMUTH _____

OR TRUE NORTH TRUE NORTH.

STATION ALTITUDE 3997.30 FEET MSL
 30 MAR. 79 0900 HRS MST
 ASCENSION NO. 54

SIGNIFICANT LEVEL DATA
 0890060054
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
880.0	3997.3	10.3	32.0
850.0	4939.0	7.0	35.0
800.6	6544.1	3.2	39.0
760.8	7894.5	.3	41.0
700.0	10076.3	-2.7	24.0
639.0	12428.5	-7.8	22.0
603.8	13874.1	-8.7	18.0
561.4	15718.7	-11.5	18.0
500.0	18598.9	-18.5	17.0
410.0	23308.7	-28.9	19.0
400.0	23950.0	-28.9	19.0
363.0	26211.6	-33.9	19.0
300.0	30516.7	-43.9	
262.2	33452.0	-50.4	
250.0	34472.8	-51.7	
231.6	36103.0	-52.5	
216.8	37439.1	-55.6	
202.8	38902.1	-55.1	
200.0	39195.4	-54.0	
183.2	41034.6	-53.2	
174.6	42071.3	-55.0	
150.0	45271.3	-54.8	
129.4	48370.1	-57.1	
108.8	51932.5	-61.5	
100.0	53638.5	-59.8	
92.8	55235.1	-59.2	
88.4	56245.5	-56.7	
77.6	53957.8	-59.0	
70.0	61071.8	-63.1	
54.8	66062.6	-61.7	
53.4	66601.7	-54.0	
50.0	67333.7	-55.0	
42.7	71326.1	-55.0	
40.3	72500.7	-50.4	
30.0	78917.9	-51.1	
27.2	81024.4	-51.4	
24.2	83559.5	-47.2	
20.0	87720.8	-48.7	
12.6	97908.9	-40.3	
10.0	103200.8	-39.6	

STATION ALTITUDE 3997.30 FEET MSL
 30 MAR. 79 0900 HRS MST
 ASCENSION NO. 54

UPPER AIR DATA
 0890060054
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DENPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRLCTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
4000.0	879.9	10.3	-5.7	32.0	1079.6	656.4	360.0	9.9	1.000259
4500.0	803.9	8.5	-6.6	33.6	1066.6	654.4	359.0	8.0	1.000255
5000.0	848.1	6.9	-7.5	35.2	1053.5	652.4	357.4	6.1	1.000252
5500.0	832.4	5.7	-8.1	36.4	1038.4	651.0	354.6	4.3	1.000248
6000.0	817.0	4.5	-8.7	37.6	1023.6	649.6	347.4	2.4	1.000244
6500.0	801.9	3.3	-9.3	38.9	1009.1	648.2	312.4	2.3	1.000240
7000.0	786.9	2.2	-10.1	39.7	994.2	646.9	265.1	3.1	1.000236
7500.0	772.2	1.1	-10.8	40.4	979.5	645.6	283.1	5.4	1.000232
8000.0	757.7	.2	-11.8	40.2	964.7	644.4	282.1	7.9	1.000227
8500.0	743.4	-.5	-13.6	36.3	949.0	643.6	279.1	11.1	1.000222
9000.0	729.4	-1.2	-15.6	32.4	933.5	642.7	277.5	14.3	1.000217
9500.0	715.6	-1.9	-17.7	28.5	918.3	641.9	279.7	16.2	1.000212
10000.0	702.0	-2.6	-20.0	24.6	903.2	641.0	281.4	18.2	1.000208
10500.0	688.6	-3.6	-21.4	23.6	889.5	639.8	283.4	18.9	1.000204
11000.0	675.4	-4.7	-22.5	23.2	876.0	638.5	285.4	19.5	1.000200
11500.0	662.4	-5.8	-23.6	22.8	862.7	637.2	282.4	19.8	1.000197
12000.0	649.7	-6.9	-24.8	22.4	849.6	635.9	280.1	20.1	1.000194
12500.0	637.2	-7.8	-25.9	21.8	836.3	634.7	280.2	19.7	1.000190
13000.0	624.8	-8.2	-26.9	20.4	821.1	634.3	281.7	18.7	1.000187
13500.0	612.7	-8.5	-27.9	19.0	806.1	633.4	287.2	16.6	1.000183
14000.0	600.8	-8.9	-28.3	18.0	791.7	633.4	292.4	14.6	1.000179
14500.0	589.1	-9.7	-29.4	18.0	778.5	632.5	296.2	12.9	1.000176
15000.0	577.6	-10.4	-30.1	18.0	765.5	631.6	299.9	11.8	1.000173
15500.0	566.3	-11.2	-30.7	18.0	752.7	630.7	301.9	12.3	1.000170
16000.0	555.1	-12.2	-31.6	17.9	740.8	629.4	302.3	13.0	1.000167
16500.0	544.0	-13.4	-32.7	17.7	729.4	628.0	298.2	14.8	1.000165
17000.0	533.2	-14.6	-33.8	17.6	718.3	626.5	294.5	16.5	1.000162
17500.0	522.6	-15.8	-35.0	17.4	707.3	625.0	283.6	18.7	1.000159
18000.0	512.2	-17.0	-36.1	17.2	696.6	623.5	275.1	21.4	1.000157
18500.0	502.0	-18.3	-37.2	17.0	686.0	622.0	267.5	25.3	1.000154
19000.0	491.7	-19.4	-38.0	17.2	674.9	620.7	262.1	29.6	1.000152
19500.0	481.6	-20.5	-38.8	17.4	663.9	619.3	259.4	33.4	1.000149
20000.0	471.7	-21.6	-39.4	17.6	653.0	618.0	258.0	36.9	1.000147
20500.0	462.0	-22.6	-40.4	17.8	642.4	616.6	256.4	38.9	1.000144
21000.0	452.5	-23.7	-41.3	18.0	631.9	615.3	255.2	40.5	1.000142
21500.0	443.1	-24.8	-42.1	18.2	621.6	613.9	254.4	41.6	1.000139
22000.0	434.0	-25.9	-42.9	18.4	611.5	612.6	253.4	42.6	1.000137
22500.0	425.1	-27.0	-43.7	18.6	601.6	611.2	252.4	43.5	1.000135
23000.0	416.3	-28.1	-44.5	18.8	591.8	609.9	251.6	45.3	1.000133

STATION ALTITUDE 3997.30 FEET MSL
 30 MAR. 79 0900 HRS MST
 ASCENSION NO. 54

UPPER AIR DATA
 0890060054
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
23500.0	407.7	-28.9	-45.1	19.0	581.5	608.9	249.0	48.0	1.000130
24000.0	399.1	-29.0	-45.2	19.0	569.5	608.7	248.6	50.5	1.000128
24500.0	390.7	-30.1	-46.2	19.0	559.9	607.4	247.7	52.7	1.000125
25000.0	382.4	-31.2	-47.1	19.0	550.6	606.0	247.0	54.1	1.000123
25500.0	374.3	-32.3	-48.0	19.0	541.3	604.6	246.0	53.5	1.000121
26000.0	366.3	-33.4	-49.0	19.0	532.3	603.2	245.5	52.8	1.000119
26500.0	358.4	-34.6	-50.6	17.7**	523.3	601.8	245.1	51.8	1.000117
27000.0	350.5	-35.7	-52.7	15.5**	514.3	600.3	243.7	51.1	1.000115
27500.0	342.9	-36.9	-54.9	13.3**	505.6	598.8	242.6	51.4	1.000113
28000.0	335.4	-38.1	-57.3	11.1**	496.9	597.3	241.7	51.8	1.000111
28500.0	328.0	-39.2	-60.0	8.9**	488.5	595.9	242.1	53.5	1.000109
29000.0	320.8	-40.4	-63.0	6.7**	480.2	594.4	242.5	55.2	1.000107
29500.0	313.8	-41.5	-66.8	4.5**	472.0	592.9	242.5	55.8	1.000105
30000.0	306.9	-42.7	-72.3	2.3**	464.0	591.4	242.5	56.2	1.000103
30500.0	300.2	-43.9	-73.0	.1**	456.1	589.9	242.3	56.6	1.000102
31000.0	293.4	-45.0			448.0	588.5	242.0	56.9	1.000100
31500.0	286.8	-46.1			439.9	587.1	241.0	56.7	1.000098
32000.0	280.3	-47.2			432.1	585.0	241.7	56.3	1.000096
32500.0	273.9	-48.3			424.4	584.2	242.1	56.2	1.000095
33000.0	267.7	-49.4			416.6	582.7	243.3	56.4	1.000093
33500.0	261.6	-50.5			409.3	581.4	244.4	57.0	1.000091
34000.0	255.6	-51.1			401.0	580.5	244.5	59.6	1.000089
34500.0	249.7	-51.7			392.8	579.7	244.6	62.2	1.000087
35000.0	243.9	-52.0			384.1	579.4	243.7	63.8	1.000086
35500.0	238.2	-52.2			375.0	579.1	242.6	65.4	1.000084
36000.0	232.7	-52.4			367.3	578.8	241.8	67.7	1.000082
36500.0	227.3	-53.4			360.3	577.5	241.2	70.2	1.000080
37000.0	222.0	-54.5			353.7	576.1	241.3	71.9	1.000079
37500.0	216.8	-55.0			347.1	574.0	242.2	72.9	1.000077
38000.0	211.7	-55.4			338.7	574.8	242.7	73.0	1.000075
38500.0	206.7	-55.2			330.5	575.1	242.3	71.1	1.000074
39000.0	201.9	-54.7			322.0	575.8	241.8	69.2	1.000072
39500.0	197.1	-53.9			313.2	576.9	240.3	65.5	1.000070
40000.0	192.5	-53.7			305.0	577.2	238.6	62.0	1.000068
40500.0	188.1	-53.4			298.2	577.5	239.0	61.0	1.000066
41000.0	183.7	-53.2			290.9	577.7	240.2	61.0	1.000065
41500.0	179.4	-54.0			285.1	576.7	241.2	62.6	1.000064
42000.0	175.2	-54.9			279.6	575.6	241.4	66.2	1.000062
42500.0	171.1	-55.0			275.2	575.4	242.6	69.6	1.000061
43000.0	167.1	-54.9			266.7	575.5	243.5	71.8	1.000059

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

UPPER AIR DATA
 0390060054
 S M R

STATION ALTITUDE 397.30 FEET MSL
 30 MAR. 79 0900 HRS MST
 ASCENSION NO. 54

GEOMETRIC ALTITUDE MSL FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY G/M ³ CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
43500.0	163.2	-54.9		260.4	575.5	244.3	74.0	1.000058
44000.0	159.3	-54.9		254.3	575.6	244.8	76.4	1.000057
44500.0	155.6	-54.8		248.3	575.6	245.1	78.8	1.000055
45000.0	151.9	-54.8		242.4	575.6	245.3	81.0	1.000054
45500.0	148.4	-55.0		236.9	575.4	244.7	82.4	1.000053
46000.0	144.9	-55.3		231.7	575.0	244.1	83.9	1.000052
46500.0	141.5	-55.7		226.6	574.5	243.7	83.9	1.000050
47000.0	138.1	-56.1		221.7	574.0	243.4	83.2	1.000049
47500.0	134.9	-56.5		216.8	573.5	243.0	82.4	1.000048
48000.0	131.7	-56.8		212.1	573.0	242.8	81.1	1.000047
48500.0	128.6	-57.3		207.5	572.4	242.5	79.7	1.000046
49000.0	125.5	-57.9		203.1	571.6	242.7	78.8	1.000045
49500.0	122.5	-58.5		198.6	570.8	243.1	78.0	1.000044
50000.0	119.6	-59.1		194.6	570.0	243.4	77.0	1.000043
50500.0	116.7	-59.7		190.5	569.2	244.3	75.3	1.000042
51000.0	113.9	-60.3		186.5	568.3	245.1	73.6	1.000042
51500.0	111.2	-60.9		182.6	567.5	246.1	71.4	1.000041
52000.0	108.5	-61.4		178.6	566.9	247.1	69.0	1.000040
52500.0	105.9	-60.6		173.7	567.9	248.2	66.7	1.000039
53000.0	103.4	-59.9		168.9	568.9	249.3	64.5	1.000038
53500.0	100.9	-59.1		164.2	570.0	250.6	62.4	1.000037
54000.0	98.5	-58.9		160.2	570.3	251.3	60.0	1.000036
54500.0	96.2	-59.0		156.4	570.1	251.7	57.4	1.000035
55000.0	93.9	-59.1		152.8	569.9	251.9	54.5	1.000034
55500.0	91.6	-58.5		148.7	570.7	251.0	49.7	1.000033
56000.0	89.4	-57.3		144.4	572.4	249.6	45.0	1.000032
56500.0	87.3	-56.9		140.7	572.9	248.2	40.0	1.000031
57000.0	85.3	-57.3		137.6	572.3	245.4	34.7	1.000031
57500.0	83.2	-57.8		134.6	571.7	241.9	29.5	1.000030
58000.0	81.3	-58.2		131.7	571.2	237.7	27.0	1.000029
58500.0	79.3	-58.6		128.6	570.8	232.8	25.1	1.000029
59000.0	77.4	-59.1		126.0	570.0	227.5	23.6	1.000028
59500.0	75.6	-60.1		123.5	569.7	223.6	24.6	1.000028
60000.0	73.8	-61.0		121.1	567.4	223.0	25.6	1.000027
60500.0	72.0	-62.0		118.7	566.1	223.7	26.5	1.000026
61000.0	70.2	-63.0		116.4	564.8	223.6	27.1	1.000026
61500.0	68.5	-63.0		113.6	564.8	223.3	27.7	1.000025
62000.0	66.9	-62.8		110.8	563.0	223.4	27.7	1.000025
62500.0	65.3	-62.7		108.0	563.2	236.1	27.2	1.000024
63000.0	63.7	-62.6		105.3	565.3	239.8	26.8	1.000023

STATION ALTITUDE 3997.30 FEET MSL
 30 MAR. 79 0900 HRS MST
 ASCENSION NO. 54

UPPER AIR DATA
 0890067054
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES(TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
03500.0	62.1	-62.4		102.7	565.5	241.6	25.9	1.000023
04000.0	60.6	-62.3		100.2	565.7	243.3	24.9	1.000022
04500.0	59.2	-62.1		97.7	565.9	244.7	23.9	1.000022
05000.0	57.7	-62.0		95.2	566.1	245.2	22.7	1.000021
05500.0	56.3	-61.9		92.9	566.3	245.6	21.6	1.000021
06000.0	55.0	-61.7		90.6	566.5	246.4	20.5	1.000020
06500.0	53.7	-55.5		85.9	574.8	246.9	19.4	1.000019
07000.0	52.4	-54.3		83.4	576.3	247.4	18.2	1.000019
07500.0	51.2	-54.6		81.6	575.9	248.4	17.5	1.000018
08000.0	50.0	-55.0		79.8	575.4	249.6	16.7	1.000018
08500.0	48.8	-55.0		78.0	575.4	250.9	16.1	1.000017
09000.0	47.7	-55.0		76.1	575.4	252.6	16.0	1.000017
09500.0	46.6	-55.0		74.3	575.4	254.4	16.0	1.000017
10000.0	45.5	-55.0		72.6	575.4	255.6	15.9	1.000016
10500.0	44.4	-55.0		70.9	575.4	255.2	15.3	1.000016
11000.0	43.4	-55.0		69.2	575.4	254.7	14.7	1.000015
11500.0	42.4	-54.4		67.4	576.3	253.6	13.8	1.000015
12000.0	41.4	-52.5		65.3	578.7	251.4	12.6	1.000015
12500.0	40.4	-50.6		63.3	581.1	248.6	11.3	1.000014
13000.0	39.5	-50.4		61.8	581.4	246.8	10.7	1.000014
13500.0	38.6	-50.5		60.4	581.3	246.5	10.7	1.000013
14000.0	37.7	-50.6		59.0	581.2	246.2	10.7	1.000013
14500.0	36.8	-50.6		57.7	581.2	244.6	10.8	1.000013
15000.0	36.0	-50.7		56.3	581.1	241.6	11.0	1.000013
15500.0	35.2	-50.7		55.1	581.0	238.6	11.2	1.000012
16000.0	34.4	-50.8		53.8	580.9	238.0	11.1	1.000012
16500.0	33.6	-50.8		52.6	580.9	241.2	10.5	1.000012
17000.0	32.8	-50.9		51.4	580.8	244.8	9.9	1.000011
17500.0	32.0	-50.9		50.2	580.7	251.3	9.4	1.000011
18000.0	31.3	-51.0		49.1	580.7	264.4	9.3	1.000011
18500.0	30.6	-51.1		46.0	580.6	277.2	9.7	1.000011
19000.0	29.9	-51.1		46.9	580.5	287.2	10.3	1.000010
19500.0	29.2	-51.2		45.8	580.4	291.6	10.5	1.000010
20000.0	28.5	-51.3		44.8	580.3	296.1	10.7	1.000010
20500.0	27.9	-51.3		43.8	580.2	299.7	10.8	1.000010
21000.0	27.2	-51.4		42.8	580.1	298.4	10.2	1.000010
21500.0	26.6	-50.6		41.7	561.2	296.8	9.5	1.000009
22000.0	26.0	-49.8		40.6	582.2	295.0	8.8	1.000009
22500.0	25.4	-49.0		39.5	583.3	294.5	11.7	1.000009
23000.0	24.8	-48.1		38.4	584.4	294.2	14.5	1.000009

UPPER AIR DATA
0590060054
S M R

STATION ALTITUDE 3997.30 FEET MSL
30 MAR. 79 0900 HRS MST
ASCENSION NO. 34

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 DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE						
83500.0	24.3	-47.3			37.4	585.5	294.0	17.4	1.000008
84000.0	23.7	-47.4			36.6	585.4	294.2	19.3	1.000008
84500.0	23.2	-47.5			35.8	585.2	294.5	21.1	1.000008
85000.0	22.7	-47.7			35.0	584.9	294.6	22.9	1.000008
85500.0	22.1	-47.9			34.2	584.7	294.9	23.8	1.000008
86000.0	21.6	-48.1			33.5	584.5	295.1	23.1	1.000007
86500.0	21.2	-48.3			32.8	584.2	295.5	22.3	1.000007
87000.0	20.7	-48.4			32.0	584.0	295.8	21.6	1.000007
87500.0	20.2	-48.6			31.3	583.8	295.8	22.2	1.000007
88000.0	19.7	-48.5			30.6	584.0	291.4	23.1	1.000007
88500.0	19.3	-48.1			29.9	584.5	289.2	24.1	1.000007
89000.0	18.9	-47.7			29.2	585.0	287.5	25.0	1.000006
89500.0	18.5	-47.2			28.5	585.5	287.0	25.4	1.000006
90000.0	18.0	-46.8			27.8	586.1	286.5	25.8	1.000006
90500.0	17.6	-46.4			27.1	586.6	286.0	26.2	1.000006
91000.0	17.3	-46.0			26.5	587.1	286.7	25.9	1.000006
91500.0	16.9	-45.6			25.8	587.7	288.2	25.2	1.000006
92000.0	16.5	-45.2			25.2	588.2	289.7	24.4	1.000006
92500.0	16.1	-44.8			24.6	588.7	291.3	23.7	1.000005
93000.0	15.8	-44.4			24.0	589.3	289.3	23.9	1.000005
93500.0	15.4	-44.0			23.4	589.8	287.3	24.0	1.000005
94000.0	15.1	-43.6			22.9	590.3	285.4	24.2	1.000005
94500.0	14.7	-43.1			22.3	590.8	284.7	25.0	1.000005
95000.0	14.4	-42.7			21.8	591.4	285.6	26.6	1.000005
95500.0	14.1	-42.3			21.3	591.9	286.4	28.6	1.000005
96000.0	13.8	-41.9			20.7	592.4	287.1	30.3	1.000005
96500.0	13.5	-41.5			20.2	592.9	288.2	31.0	1.000005
97000.0	13.2	-41.1			19.8	593.5	289.3	31.4	1.000004
97500.0	12.9	-40.7			19.3	594.0	290.4	31.8	1.000004
98000.0	12.6	-40.3			18.6	594.5	291.2	32.1	1.000004
98500.0	12.3	-40.2			18.0	594.7	291.5	32.1	1.000004
99000.0	12.0	-40.2			18.0	594.7	291.7	32.2	1.000004
99500.0	11.8	-40.1			17.6	594.7	291.9	32.2	1.000004
100000.0	11.5	-40.0			17.2	594.8			1.000004
100500.0	11.3	-40.0			16.8	594.9			1.000004
101000.0	11.0	-39.9			16.5	595.0			1.000004
101500.0	10.8	-39.8			16.1	595.1			1.000004
102000.0	10.5	-39.8			15.7	595.2			1.000004
102500.0	10.3	-39.7			15.4	595.2			1.000003
103000.0	10.1	-39.6			15.1	595.3			1.000003

STATION ALTITUDE 3997.30 FEET MSL
 30 MAR. 79 0900 HRS MST
 ASCENSION NO. 54

MKN SIGNIFICANT LEVEL DATA
 0890060054
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

GEOPOTENTIAL ALTITUDE METERS	DIRECTION DEG (TN)	SPEED MPS	WIND DATA		DEW PT DFP DEG C	TEMPERATURE		PRESSURE MILLIBARS
			N-S MPS	E-W MPS		AIR DEG C		
3129.	9999.**	9999.**	-9999.**	-9999.**	99	-39.6	1.000+1	
2971.	291.	17.	0.	15.	99	-40.3	1.260+1	
2661.	293.	12.	-4.	11.	99	-48.7	2.000+1	
2535.	294.	9.	-4.	8.	99	-47.2	2.420+1	
2459.	298.	5.	-2.	5.	99	-51.4	2.720+1	
2395.	286.	5.	-2.	5.	99	-51.1	3.000+1	
2203.	248.	0.	2.	5.	99	-50.4	4.030+1	
2166.	254.	7.	2.	7.	99	-55.0	4.270+1	
2065.	250.	9.	3.	0.	99	-55.0	5.000+1	
2023.	247.	10.	4.	9.	99	-54.0	5.340+1	
2006.	246.	10.	4.	10.	99	-61.7	5.480+1	
1853.	227.	14.	10.	10.	99	-63.1	7.000+1	
1791.	228.	12.	8.	9.	99	-59.0	7.760+1	
1709.	249.	22.	8.	21.	99	-56.7	8.840+1	
1674.	251.	27.	9.	25.	99	-59.2	9.280+1	
1631.	251.	32.	10.	30.	99	-58.8	1.000+2	

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

STATION ALTITUDE 3997.30 FEET MSL
 30 MAP. 79 0900 HRS MST
 ASCENSION NO. 54

MANDATORY LEVELS
 0890000054
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	W.I. D DATA	
MILLIBARS	FEET			DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4935.	7.0	35.	357.8	6.4
800.0	6559.	3.2	39.	308.1	2.3
750.0	8264.	-2	38.	280.3	9.6
700.0	10060.	-2.7	24.	281.7	18.4
650.0	11979.	-6.8	22.	280.1	20.1
600.0	14015.	-8.9	18.	292.8	14.5
550.0	16214.	-12.7	18.	300.3	13.8
500.0	18573.	-18.5	17.	260.4	20.1
450.0	21124.	-24.0	18.	254.9	40.8
400.0	23911.	-28.9	19.	248.8	50.3
350.0	27001.	-35.8	15.**	243.6	51.1
300.0	30457.	-43.9		242.3	50.6
250.0	34399.	-51.7		244.0	61.9
200.0	39103.	-54.0		241.3	67.9
175.0	41910.	-54.9		241.9	60.2
150.0	45151.	-54.8		245.0	81.7
125.0	48951.	-58.0		242.7	78.7
100.0	53524.	-58.8		251.0	61.8
80.0	56135.	-58.5		234.9	25.8
70.0	60864.	-63.1		226.6	27.1
60.0	63982.	-62.2		243.9	24.5
50.0	67739.	-55.0		249.5	10.8
40.0	72433.	-50.4		247.4	10.8
30.0	78592.	-51.1		285.8	10.2
25.0	82481.	-48.4		294.3	13.4
20.0	87310.	-48.7		292.9	22.5
15.0	93583.	-43.5		285.5	24.2
10.0	102642.	-39.6			

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

STATION ALTITUDE 3997.30 FEET MSL
 30 APR. 79 0900 HRS MST
 ASCENSION NO. 54

MRN MANDATORY LEVELS
 089006 0054
 S M R

GEOPOTENTIAL
 ALTITUDE
 DECAMETERS

DIRECTION
 DEG (TN)

SPEED
 MPS

WIND DATA
 N-S
 MPS

E-W
 MPS

DEW PT DEP
 DEG C

TEMPERATURE
 AIR
 DEG C

PRESSURE
 MILLIBARS

3129.	9999.**	9999.**	-9999.**	-9999.**	99	-39.6	1.000+1
2853.	285.	12.	-3.	12.	99	-43.5	1.500+1
2661.	293.	12.	-5.	11.	99	-48.7	2.000+1
2514.	294.	7.	-3.	0.	99	-48.4	2.500+1
2395.	286.	5.	-1.	5.	99	-51.1	3.000+1
2208.	247.	0.	2.	5.	99	-50.4	4.000+1
2065.	249.	9.	3.	0.	99	-55.0	5.000+1
1950.	244.	13.	6.	11.	99	-62.2	6.000+1
1855.	227.	14.	10.	10.	99	-63.1	7.000+1
1772.	235.	13.	8.	11.	99	-58.5	8.000+1
1631.	251.	32.	10.	30.	99	-58.8	1.000+2
1492.	243.	40.	19.	36.	99	-58.0	1.250+2
1376.	245.	42.	16.	38.	99	-54.8	1.500+2
1276.	242.	34.	16.	30.	99	-54.9	1.750+2
1192.	241.	35.	17.	31.	99	-54.0	2.000+2
1048.	245.	32.	14.	29.	99	-51.7	2.500+2
928.	242.	29.	14.	26.	99	-43.9	3.000+2
823.	244.	20.	12.	24.	17	-35.6	3.500+2
729.	249.	20.	9.	24.	16	-28.9	4.000+2
644.	255.	21.	5.	20.	17	-24.0	4.500+2
566.	266.	13.	1.	13.	19	-18.5	5.000+2
494.	300.	7.	-4.	6.	19	-12.7	5.500+2
427.	293.	7.	-3.	7.	20	-8.9	6.000+2
365.	280.	10.	-2.	10.	18	-6.8	6.500+2
307.	282.	9.	-2.	9.	18	-2.7	7.000+2
252.	280.	5.	-1.	5.	13	-2	7.500+2
200.	308.	1.	-1.	1.	13	3.2	8.000+2
150.	358.	5.	-3.	0.	14	7.0	8.500+2

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