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May 84

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METEOROLOGICAL DATA REPORT
19319A MLRS
Missile Number 440, 483, and 459
Round Number V-581/AV-01 thru V-583/AV-03
11 May 1984

by

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ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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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 19319A MLRS, Missile Number 440, 483, and 459, Round Number V-581/AV-01 thru V-583/AV-03 are presented in tabular form.		

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INTRODUCTION

19319A MLRS, Missile Numbers 440, 483 and 459, Round Numbers V581/AV-01, V582/AV-02 and V583/AV-03, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1422:00 and 1422:05 and 1422:10 MDT, 11 May 84. The scheduled launch times were 1400:00, 1400:03.5 and 1400:07 MDT.

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 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 Pilot-balloon observations at:

SITE AND ALTITUDE

LC-33 2 km

(2) Air structure data (rawinsonde) were collected at the following Met Sites.

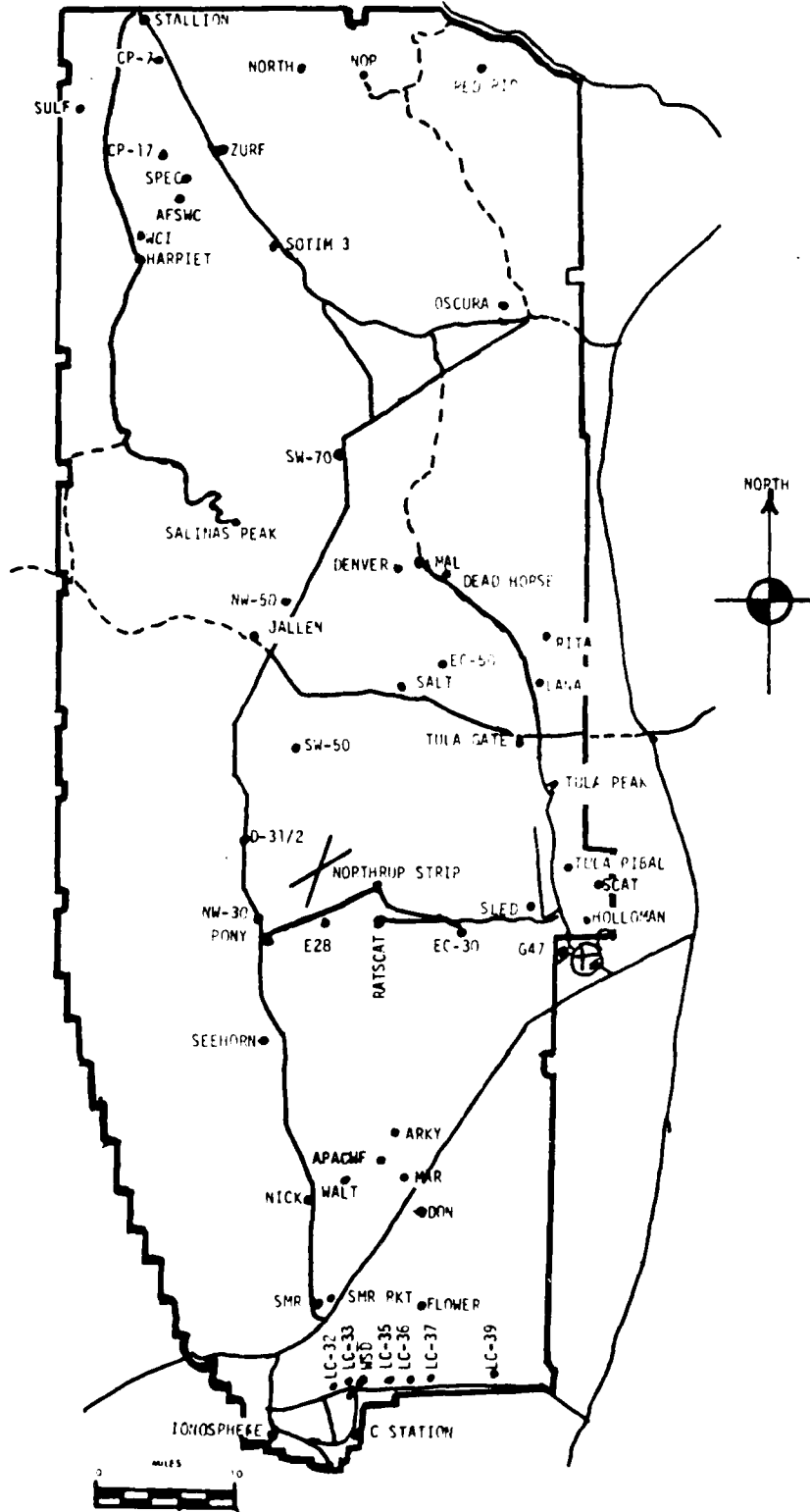
SITE AND TIME

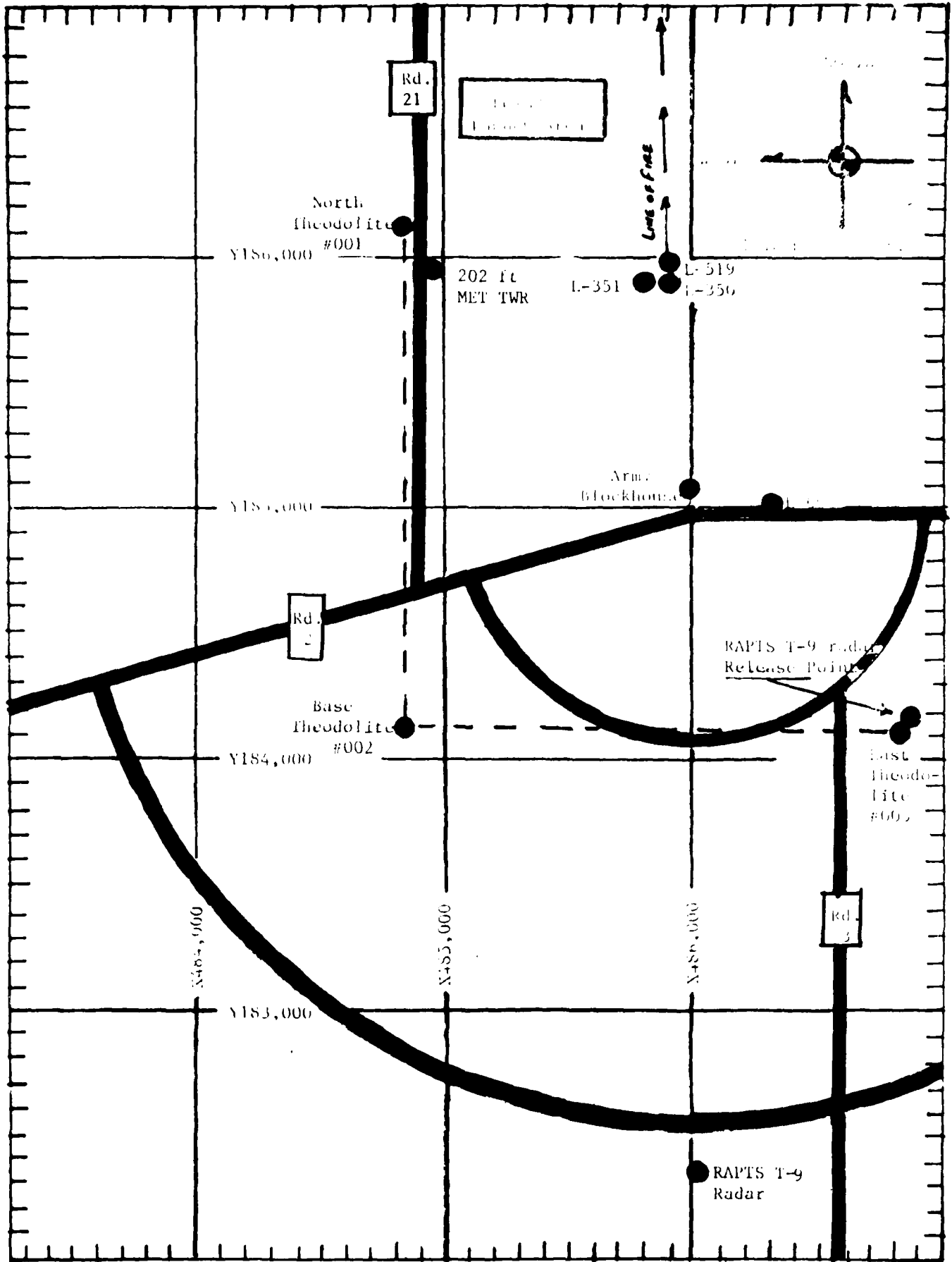
WSD 1230 MDT
SMR 1230 MDT
SMR 1315 MDT
WSD 1422 MDT
SMR 1422 MDT



AI

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE 1		STATION: LC-33									
DATE 11 MAY 1984		May MONTH		1984 YEAR		X= 484,982.64		Y= 185,957.73		H= 3995.00	
TIME M D I	PRESSURE mbs	TEMPERATURE OF OC	DEW POINT OF OC	RELATIVE HUMIDITY %	DENSITY g/m ³	DIRECTION degs	Tn	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY	
1422	876.8	34.5	3.3	14		240		14		50	

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	TYPE	AMT	TYPE	AMT	TYPE	
	0	cu	6000				

PSYCHROMETRIC COMPUTATION

TIME:	MDT	1422
DRY BULB TEMP.		34.5
WET BULB TEMP.		16.0
WET BULB DEPR.		18.5
DEW POINT		3.3
RELATIVE HUMID.		14

LC-33 METEOROLOGICAL TOWER
ANEMOMETER MEASURED WIND DATA

WSTM COORDINATES X=484,982.64 Y=185,957.73 H=3983.00(BASE)

TABLE NO. 2

DATE 11 May 84 1422 M D T
DAY MONTH YEAR TIME

LEVEL #1 12 FT AGL			LEVEL #2 62 FT AGL		
T-TIME (SEC)	DIR (DEG)	SPEED (KTS)	T-TIME (SEC)	DIR (DEG)	SPEED (KTS)
T-30	289	17	T-30	294	20
T-20	292	09	T-20	297	17
T-10	306	13	T-10	299	14
T- 0 (1st T)	309	13	T- 0 (1st T)	305	13
T+10	320	07	T+10	322	09
T+20			T+20		
T+30			T+30		
T+40			T+40		
T+50			T+50		
T+60			T+60		

LEVEL #3 102 FT AGL			LEVEL #4 202 FT AGL		
T-TIME (SEC)	DIR (DEG)	SPEED (KTS)	T-TIME (SEC)	DIR (DEG)	SPEED (KTS)
T-30	278	20	T-30	267	19
T-20	296	14	T-20	295	13
T-10	281	11	T-10	280	10
T- 0 (1st T)	311	12	T- 0 (1st T)	294	11
T+10	315	12	T+10	279	17
T+20			T+20		
T+30			T+30		
T+40			T+40		
T+50			T+50		
T+60			T+60		

TABLE 3

PILOT-BALLOON MEASURED WIND DATA

DATE 11 May 1984

SITE: LC-33
 TIME: 1300 MDT
 ASTM COORDINATES:
 X= 486,037.24
 Y= 182,350.16
 H= 3,977.30

SITE: LC-33
 TIME: 1345 MDT
 WSTM COORDINATES:
 X= 486,037.24
 Y= 182,350.16
 H= 3,977.30

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	210	08
150	266	02
210	268	06
270	265	11
330	264	12
390	273	10
500	270	07
650	279	08
800	313	05
950	323	10
1150	346	10
1350	006	09
1550	316	09
1750	004	10
2000	003	12

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	240	08
150	304	14
210	298	12
270	301	09
330	298	07
390	304	09
500	MISG*	
650	MISG*	
800	MISG*	
950	230	10
1150	255	10
1350	297	05
1550	272	04
1750	273	03
2000	MISG*	

All data obtained from RAPTS F-9 radar tracked pilot-balloon observations.

*Data Missing due to radar jumping track.

TABLE 3 cont'd

PILOT-BALLOON MEASURED WIND DATA

DATE 11 May 1984

SITE: LC-33
TIME: 1422 MDT (T-0 minutes)
WSTM COORDINATES:
X= 486,037.24
Y= 182,350.16
H= 3,977.30

SITE:
TIME:
WSTM COORDINATES:
X=
Y=
H=

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	240	14
150	271	02
210	271	02
270	270	08
330	MISG	
390	MISG	
500	MISG	
650	300	12
800	304	11
950	283	10
1150	282	10
1350	274	08
1550	MISG	
1750	MISG	
2000	MISG	

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE		
150		
210		
270		
330		
390		
500		
650		
800		
950		
1150		
1350		
1550		
1750		
2000		

TABLE 4

AIMING AND T-TIME COMPUTER MESSAGE

11 May 1984

SSD 1230 MDT		SMR 1230 MDT		SMR 1230 MDT		SSD 1427 MDT	
ME10M1324064		ME10M1325064		ME10M1325064		ME10M1324064	
111800122878		111800122878		111900122878		112000122877	
00533008	30690878	00337004	30690878	00373008	30690878	00533010	30690877
80133012	30410808	01504008	30410808	01134008	30410808	01465016	30590807
801552013	30080844	02553008	30100844	02104001	30100844	02461013	30210843
803574011	29590808	03531007	29700808	03451004	29700807	03513012	29820801
00587010	29060760	04819008	29200761	04472007	29200761	04515012	29280760
05636011	28620717	05001008	28700718	05478008	28700718	05521010	28800717
06001011	28160672	06015008	28230672	06001008	28230672	06582005	28320671
07001011	27780608	07530008	27900608	07001008	27900608	07550010	27800608
08001011	27390507	08478010	27600508	08001008	27600508	08511010	27470508
09001011	27000401	09480010	27370402	09001008	27370402	09501010	27180401
10001011	26730827	10440008	26780428	10001008	26780428	10588008	26690427
11001008	26370304	11260008	26380305	11001008	26380305	11414003	26100404
11501011	25740108	12001008	25780208	11501008	25780208		

Time is given in minutes and seconds.
 The first two digits are the day.
 The next two digits are the hour.
 The last two digits are the minutes.

SMR 1427 MDT	
ME10M1324064	
112000122877	
00529008	30820878
01418011	30630868
02419008	30310844
03442010	29880807
04307008	29360762
05537008	28840718
06538005	28360677
07538010	27890637
08531010	27550590
09321010	27180560
10588005	26760528
11353003	26350486
12313008	25770449

STATION ALTITUDE 3989.00 FEET MSL
 11 MAY 54
 ASCENSION NO. 277

SIGNIFICANT LEVEL DATA
 1820020277
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37055 LON DEG

TABLE 5

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
977.5	3989.0	12.7	10.0
967.5	4328.0	29.6	14.0
950.0	4921.4	-7	15.0
906.3	6437.2	-1.5	15.0
757.1	8213.0	-5.7	15.0
718.4	9658.9	-9.0	16.0
700.0	10381.7	-12.4	16.0
657.9	12056.9	12.7	19.0
622.7	13539.5	11.2	19.0
604.7	14319.7	6.4	19.0
572.2	15777.0	3.2	15.0
500.0	19260.8	-20.9	14.0
399.5	24819.3	2.7	15.0
		-1.4	15.0
		-8.8	21.0
		-27.1	17.0
		-41.1	

UPPER AIR DATA
 1420J22277
 WHITE SANDS
 TABLE 1

STATION ALTITUDE 3949.00 FEET MSL
 11 MAY 84 1230 MDT
 ASCENSION NO. 277

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DFWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
							DIRECTION DEGREES(TN)	SPEED KNOTS	
3939.0	677.6	32.7	-2.9	10.0	997.5	682.0	300.0	8.9	1.000242
4000.0	877.3	32.6	-2.8	10.1	997.4	681.9			1.000242
4500.0	862.4	29.0	-5.9	14.3	991.9	678.0			1.000245
5000.0	847.7	27.1	-1.7	15.0	981.1	675.9			1.000241
5500.0	833.0	25.4	-3.1	15.0	970.0	673.9			1.000237
6000.0	818.7	23.6	-4.5	15.0	959.0	671.8			1.000233
6500.0	804.5	21.9	-5.8	15.0	948.1	659.8			1.000228
7000.0	790.4	20.5	-6.6	15.3	936.1	668.1			1.000225
7500.0	776.5	19.0	-7.7	15.6	924.4	666.4			1.000221
8000.0	762.8	17.5	-8.6	15.9	912.8	654.7			1.000218
8500.0	749.3	16.1	-9.7	16.0	901.2	663.0	341.0	15.4	1.000214
9000.0	735.9	14.6	-10.9	16.0	889.5	651.3	328.0	13.7	1.000210
9500.0	722.8	13.2	-12.0	16.0	878.2	659.6	315.9	10.6	1.000207
10000.0	709.8	12.0	-12.3	16.9	866.0	658.3	329.9	8.9	1.000204
10500.0	697.0	10.9	-12.4	18.1	853.8	657.0	350.4	8.6	1.000201
11000.0	684.4	9.4	-13.4	15.4	842.5	655.3	5.0	9.7	1.000198
11500.0	671.8	8.0	-14.4	18.7	831.4	653.6	14.8	11.8	1.000195
12000.0	659.5	6.9	-15.4	19.0	820.4	651.9	16.3	16.2	1.000192
12500.0	647.3	5.5	-17.0	17.8	808.7	650.6	8.7	17.8	1.000188
13000.0	635.4	4.4	-18.9	16.5	796.9	649.3	338.4	16.4	1.000184
13500.0	623.6	3.3	-20.7	15.1	785.3	648.0	311.1	16.9	1.000181
14000.0	612.0	2.9	-21.6	14.4	771.8	647.5	287.2	15.8	1.000177
14500.0	600.6	2.2	-22.4	14.1	759.4	646.6	279.7	24.5	1.000174
15000.0	589.3	1.3	-23.3	14.5	749.0	645.0	276.6	30.5	1.000172
15500.0	578.2	0.6	-24.1	14.8	739.7	643.3	275.8	34.1	1.000169
16000.0	567.3	-1.9	-24.7	15.4	728.1	641.8	275.2	34.6	1.000166
16500.0	556.4	-2.9	-25.0	16.2	716.9	640.6	274.4	24.9	1.000164
17000.0	545.7	-4.0	-25.3	17.1	706.0	639.3	270.6	16.1	1.000161
17500.0	535.3	-5.1	-25.6	16.0	695.2	638.0	253.4	9.1	1.000159
18000.0	525.0	-6.1	-26.0	15.8	684.6	636.8	221.7	5.1	1.000156
18500.0	514.9	-7.2	-26.4	19.7	674.1	635.5	185.9	3.3	1.000154
19000.0	505.1	-8.2	-26.9	20.6	663.9	634.2	136.2	3.8	1.000152
19500.0	495.2	-9.4	-27.7	20.8	653.8	632.8	111.0	5.9	1.000149
20000.0	485.3	-10.7	-29.0	20.5	643.9	631.3	125.9	5.8	1.000146
20500.0	475.6	-11.9	-30.2	20.1	634.1	629.8	150.9	8.4	1.000144
21000.0	466.1	-13.2	-31.5	19.7	624.5	628.2	189.0	16.5	1.000142
21500.0	456.8	-14.5	-32.7	19.4	615.0	626.7	196.3	24.0	1.000139
22000.0	447.7	-15.7	-34.0	19.0	605.8	625.1	195.1	30.6	1.000137
22500.0	438.8	-17.0	-35.2	18.7	596.5	623.6	190.8	29.0	1.000135
23000.0	430.0	-18.3	-36.5	18.3	587.5	622.0	181.5	23.7	1.000132

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

STATION ALTITUDE 3989.00 FEET MSL
 11 MAY 84 1230 MDT
 ASCENSION NO. 277

UPPER AIR DATA
 1120020277
 WHITE SANDS
 TABLE 6 Cont'd

GEODETIC COORDINATES
 32.40045 LAT DEG
 106.37033 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	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TM)	SPEED KNOTS	
23500.0	421.4	-19.6	-37.8	17.9	578.8	620.5	171.5	15.1	1.000130
24000.0	413.0	-20.9	-39.0	17.6	570.1	618.9			1.000128
24500.0	404.8	-22.1	-40.3	17.2	561.6	617.3			1.000126

STATION ALTITUDE 3989.00 FEET *SL
 11 MAY 84
 ASCENSION NO. 277

MANDATORY LEVELS
 120020277
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 7

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
957.0	4918.	27.4	-1.5	15.	9999.0	9999.0XX	
800.0	6555.	21.5	-6.1	15.	9999.0	9999.0XX	
757.0	8468.	16.1	-9.7	16.	347.7	15.5	
700.0	10371.	11.2	-12.2	18.	346.1	8.4	
657.0	12378.	5.7	-16.7	18.	14.5	18.7	
600.0	14510.	2.1	-22.4	14.	279.6	24.7	
550.0	16787.	-3.6	-25.2	17.	273.5	19.2	
500.0	19233.	-8.8	-27.1	21.	120.7	4.7	
450.0	21878.	-15.4	-33.7	19.	195.3	29.5	
400.0	24753.	-22.8	-41.0	17.			

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

STATION ALTITUDE 3997.70 FEET MSL
 11 MAY 54
 ASCENSION NO. 47

SIGNIFICANT LEVEL DATA
 1720060347
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 8

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT
879.1	3997.3	35.2	-1.0	10.0
873.1	4165.7	30.3	-1.2	13.0
850.0	4946.7	27.5	-0.5	16.0
700.0	10623.8	11.4	-11.4	19.0
635.5	12209.3	6.4	-13.2	23.0
637.5	12959.0	6.1	-17.8	16.0
516.9	13672.3	-6.7	-27.0	18.0
500.0	19322.4	-8.9	-26.7	22.0
477.1	20579.6	-11.9	-26.3	29.0
400.0	24850.8	-22.2	-39.0	20.0

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

UPPER AIR DATA
1°20060047
S M R

STATION ALTITUDE 3997.50 FEET MSL
11 MAY 84
ASCENSION NO. 47

TABLE 9

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	RELUM. PERCENT	DENSITY GM/CUBIC METER	SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						SPEED KNOTS	DIRECTION DEGREES(TW)	
3997.3	878.1	35.2	10.0	989.6	684.9	190.0	6.1	1.000243
4000.0	878.0	35.1	10.0	989.8	684.8	190.1	4.1	1.000243
4500.0	863.1	29.1	14.3	992.3	678.2	205.9	3.1	1.000245
5000.0	848.4	27.3	16.0	981.0	676.2	232.2	2.5	1.000243
5500.0	833.5	25.9	16.3	968.6	674.5	263.7	2.6	1.000239
6000.0	818.8	24.4	16.6	956.4	672.8	286.5	3.4	1.000235
6500.0	804.5	22.9	16.9	944.4	671.1	299.7	3.4	1.000231
7000.0	790.3	21.5	17.1	932.5	669.4	311.5	4.7	1.000227
7500.0	776.4	20.0	17.4	920.9	667.7	325.5	4.6	1.000223
8000.0	762.8	18.5	17.7	909.4	666.0	338.5	4.9	1.000219
8500.0	749.4	17.1	17.9	898.0	664.2	348.6	5.5	1.000216
9000.0	736.2	15.6	18.2	886.8	662.5	356.1	6.1	1.000212
9500.0	723.3	14.1	18.5	875.3	660.8	364.1	5.7	1.000209
10000.0	710.6	12.6	18.8	864.9	659.1	368.1	5.3	1.000205
10500.0	698.0	11.2	19.2	854.1	657.4	372.8	5.1	1.000202
11000.0	685.3	9.8	20.3	843.7	655.7	377.7	5.4	1.000199
11500.0	672.8	8.4	21.4	833.4	654.1	382.5	5.9	1.000197
12000.0	660.6	7.0	22.5	823.4	652.5	387.2	6.5	1.000194
12500.0	648.5	6.3	23.6	813.5	651.6	391.9	7.5	1.000191
13000.0	636.5	6.0	24.7	803.6	651.2	396.6	8.7	1.000188
13500.0	624.5	4.8	25.8	793.6	651.2	401.3	9.6	1.000185
14000.0	612.8	3.7	26.9	783.6	651.2	406.0	10.6	1.000182
14500.0	601.2	2.5	28.0	773.6	651.2	410.7	11.9	1.000179
15000.0	589.9	1.4	29.1	763.6	651.2	415.4	12.5	1.000176
15500.0	578.8	0.2	30.2	753.6	651.2	420.1	13.0	1.000173
16000.0	567.9	-1.0	31.3	743.6	651.2	424.8	13.5	1.000170
16500.0	557.2	-2.1	32.4	733.6	651.2	429.5	13.5	1.000167
17000.0	546.7	-3.3	33.5	723.6	651.2	434.2	11.8	1.000164
17500.0	536.4	-4.4	34.6	713.6	651.2	438.9	9.2	1.000161
18000.0	526.3	-5.6	35.7	703.6	651.2	443.6	6.9	1.000159
18500.0	516.3	-6.6	36.8	693.6	651.2	448.3	5.3	1.000156
19000.0	506.3	-8.1	37.9	683.6	651.2	453.0	4.0	1.000154
19500.0	496.5	-9.3	39.0	673.6	651.2	457.7	3.5	1.000152
20000.0	486.8	-10.6	40.1	663.6	651.2	462.4	3.9	1.000150
20500.0	477.3	-11.9	41.2	653.6	651.2	467.1	4.5	1.000148
21000.0	467.7	-13.1	42.3	643.6	651.2	471.8	5.5	1.000146
21500.0	458.3	-14.4	43.4	633.6	651.2	476.5	6.8	1.000143
22000.0	449.1	-15.4	44.5	623.6	651.2	481.2	8.2	1.000140
22500.0	440.1	-16.6	45.6	613.6	651.2	485.9	9.9	1.000138
23000.0	431.3	-17.8	46.7	603.6	651.2	490.6	9.4	1.000135
			47.8	593.6	651.2	495.3	9.9	1.000133

UPPER AIR DATA
 1320060047
 S M R

STATION ALTITUDE 3997.33 FEET MSL
 11 MAY 84 1230 MDT
 ASCENSION NO. 47

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 9 Con't

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TW)	SPEED KNOTS	
23500.0	422.7	-19.0	22.8	579.1	621.2			1.000131
24000.0	416.2	-20.2	21.8	570.2	619.7			1.000129
24500.0	405.9	-21.3	20.7	561.4	618.3			1.000126

STATION ALTITUDE 3997.30 FEET MSL
 11 MAY 84 1230 MDY
 ASCENSION NO. 47

MANDATORY LEVELS
 1120060067
 S P R

GEODETTIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 10

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TM)	SPEED KNOTS
857.0	4943.	27.5	-5	16.	228.7	2.5
807.0	6684.	22.5	-3.8	17.	303.1	4.9
750.0	8505.	17.1	-7.4	18.	348.7	5.5
707.0	10414.	11.4	-11.4	19.	5.0	5.1
650.0	12423.	6.3	-14.4	21.	313.7	7.3
603.0	14562.	2.4	-20.4	17.	275.0	12.1
550.0	16865.	-2.9	-24.2	17.	263.3	9.9
507.0	19295.	-8.9	-26.7	22.	195.6	3.7
450.0	21939.	-15.3	-30.4	26.	169.7	8.9
400.0	24819.	-22.2	-39.0	20.		

STATION ALTITUDE 5997.70 FEET MSL
 11 MAY 84
 ASCENSION NO. 48

SIGNIFICANT LEVEL DATA
 1720060048
 S * R

GEODETTIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 11

PRESSURE MILLIBARS	GLOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT PERCENT	REL. HUM. PERCENT
976.2	3997.3	32.5	6.7	20.0
970.9	4242.5	29.9	1.4	15.0
950.0	4949.9	27.6	-0.5	16.0
798.8	6738.6	23.2	-4.0	16.0
700.0	10436.3	11.6	-11.2	19.0
620.1	13799.9	2.6	-15.9	24.0
593.9	14654.7	1.5	-21.5	16.0

GEODETIC COORDINATES
 32.46034 LAT DEG
 106.42307 LON DEG

UPPER AIR DATA
 1320060048
 S M R

STATION ALTITUDE 3997.30 FEET PSL
 11 MAY 84 1315 MDT
 ASCENSION NO. 68

TABLE 12

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE			KNOTS	FEET	DIRECTION DEGREES(TW)	SPEED KNOTS	
3997.3	678.2	32.5	6.7	20.0	996.7	682.5	210.0	5.0	1.000262	
4000.0	678.1	32.5	6.6	20.0	996.7	682.5	210.0	5.0	1.000262	
4500.0	663.2	29.1	.7	16.0	992.3	678.2	218.1	5.6	1.000248	
5000.0	648.5	27.5	-.6	16.0	980.7	676.4	227.2	5.4	1.000243	
5500.0	633.9	26.2	-1.5	16.0	967.9	674.9	237.0	5.2	1.000239	
6000.0	619.6	25.0	-2.5	16.0	955.3	673.5	246.9	5.3	1.000234	
6500.0	605.4	23.8	-3.5	16.0	942.9	672.1	256.4	5.4	1.000230	
7000.0	591.4	22.4	-4.5	16.2	930.9	670.4	262.0	5.6	1.000226	
7500.0	577.4	20.8	-5.4	16.6	919.4	668.6	264.5	5.7	1.000223	
8000.0	563.6	19.2	-6.4	17.0	908.1	666.8	266.8	5.8	1.000219	
8500.0	550.1	17.7	-7.3	17.4	896.9	665.0	269.2	5.8	1.000216	
9000.0	536.8	16.1	-8.3	17.8	885.9	663.1	273.0	6.2	1.000212	
9500.0	523.8	14.5	-9.3	18.2	875.1	661.3	276.4	6.6	1.000209	
10000.0	511.0	13.0	-10.3	18.6	864.4	659.5	279.5	7.1	1.000205	
10500.0	498.4	11.4	-11.3	19.1	853.7	657.7	282.2	7.5	1.000202	
11000.0	485.5	10.1	-11.9	19.9	842.7	656.0	286.1	7.9	1.000199	
11500.0	473.0	8.7	-12.6	20.6	830.8	654.4	293.7	7.9	1.000196	
12000.0	460.6	7.3	-13.3	21.4	819.6	652.8	301.0	8.1	1.000193	
12500.0	448.5	5.9	-14.0	22.2	808.5	651.2	307.9	8.5	1.000190	
13000.0	436.6	4.6	-14.8	22.9	797.7	649.6	314.1	8.9	1.000187	
13500.0	424.9	3.2	-15.6	23.7	787.0	648.0			1.000184	
14000.0	413.4	2.3	-17.2	22.0	774.9	646.9			1.000181	
14500.0	401.9	1.8	-19.6	18.5	761.9	646.3			1.000176	

STATION ALTITUDE 3997.30 FEET MSL
 11 MAY 84
 ASCENSION NO. 48

MANDATORY LEVELS
 1720000048
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 13

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4945.	27.6	-5	16.	226.2	5.4	
800.0	6690.	23.3	-3.9	16.	259.9	5.6	
750.0	8515.	17.7	-7.3	17.	269.2	5.8	
700.0	10425.	11.6	-11.2	19.	281.8	7.5	
650.0	12437.	5.1	-14.0	22.	307.2	8.4	
600.0	14567.	1.8	-20.0	18.			

STATION ALTITUDE 3269.00 FEET MSL
 11 MAY 84
 ASCENSION NO. 175

SIGNIFICANT LEVEL DATA
 132002027P
 WHITE SANDS

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 14

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM.
MILLIBARS	MSL FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT
876.6	3989.0	33.9	9.2	22.0
864.4	4402.6	31.0	1.4	15.0
850.0	4893.6	28.7	-0.5	15.0
832.5	6555.0	24.2	-3.2	16.0
759.3	8126.9	18.8	-7.5	16.0
700.0	10390.4	12.5	-11.1	18.0
572.3	11495.7	9.3	-11.9	21.0
546.4	12642.7	6.0	-17.2	17.0
626.0	13419.3	4.2	-19.3	16.0
510.6	14083.0	2.6	-21.4	15.0
540.3	17290.3	-4.6	-26.5	16.0
500.0	19275.6	-10.1	-29.3	19.0
425.4	23300.2	-19.3	-35.6	22.0

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

UPPER AIR DATA
1720020278
WHITE SANDS

STATION ALTITUDE 3069.00 FEET MSL
11 MAY 84
ASCENSION NO. 275

TABLE 1

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEGREE POINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
3969.0	876.6	33.9	9.2	22.0	989.6	684.4	300.0	9.9	1.000267
4000.0	876.3	33.8	9.0	21.8	969.5	684.3	300.0	9.9	1.000267
4500.0	861.5	30.5	1.0	15.0	985.4	679.9	298.1	10.2	1.000242
5000.0	846.9	28.4	-0.6	15.1	975.8	677.4	296.4	10.4	1.000242
5500.0	832.3	27.1	-1.4	15.4	963.5	675.8	294.8	10.7	1.000238
6000.0	818.1	25.7	-4.3	15.7	951.3	674.3	293.3	11.0	1.000234
6500.0	804.0	24.3	-3.1	16.0	939.4	672.7	291.8	11.3	1.000230
7000.0	790.0	22.7	-4.4	16.0	928.4	670.8	290.4	11.6	1.000226
7500.0	776.2	21.0	-5.8	16.0	917.7	668.8	289.1	11.9	1.000222
8000.0	762.7	19.2	-7.2	16.0	907.1	666.7	287.8	12.3	1.000218
8500.0	749.2	17.8	-8.1	16.3	895.7	665.0	287.5	12.8	1.000214
9000.0	735.9	16.4	-8.9	16.8	884.7	663.4	288.0	13.6	1.000211
9500.0	722.8	15.0	-9.7	17.2	872.5	661.8	288.7	9.4	1.000208
10000.0	709.9	13.6	-10.5	17.7	861.2	660.2	289.5	8.2	1.000205
10500.0	697.2	12.2	-11.2	18.3	850.0	658.5	298.6	6.5	1.000201
11000.0	684.6	10.7	-11.5	19.7	838.9	656.9	321.7	5.0	1.000199
11500.0	672.2	9.3	-11.9	21.0	828.0	655.2	333.7	5.6	1.000196
12000.0	659.9	7.6	-14.2	19.2	817.1	653.4	333.0	7.1	1.000192
12500.0	647.8	6.4	-16.5	17.5	806.5	651.7	327.9	8.8	1.000188
13000.0	635.9	5.2	-18.2	16.5	795.2	650.2	320.0	10.1	1.000184
13500.0	624.1	4.0	-19.6	15.9	783.8	648.8	302.5	10.4	1.000181
14000.0	612.5	2.8	-21.1	15.1	772.7	647.4	293.2	11.3	1.000178
14500.0	601.0	1.7	-22.0	15.1	761.3	646.0	287.4	12.4	1.000175
15000.0	589.6	0.5	-22.8	15.3	750.0	644.7	291.3	14.0	1.000172
15500.0	578.5	-0.6	-23.6	15.4	738.9	643.4	294.7	15.6	1.000169
16000.0	567.6	-1.7	-24.4	15.6	728.0	642.0	298.1	15.6	1.000166
16500.0	556.8	-2.8	-25.2	15.8	717.2	640.7	301.6	15.5	1.000164
17000.0	546.3	-3.9	-26.1	15.9	706.6	639.4	307.7	13.1	1.000161
17500.0	535.9	-5.2	-26.8	16.3	696.3	637.9	315.6	10.7	1.000159
18000.0	525.5	-6.6	-27.5	17.1	686.4	636.2	325.2	9.1	1.000156
18500.0	515.4	-8.0	-28.1	17.8	676.7	634.6	333.4	5.7	1.000154
19000.0	505.4	-9.3	-28.9	18.6	667.1	632.9	323.8	3.2	1.000152
19500.0	495.5	-10.6	-29.6	19.2	657.2	631.4	269.9	1.8	1.000149
20000.0	485.7	-11.8	-30.4	19.5	647.0	630.0	223.1	3.5	1.000147
20500.0	476.0	-12.9	-31.1	19.9	637.0	628.6	213.5	5.0	1.000144
21000.0	466.6	-14.0	-31.9	20.3	627.1	627.2	209.4	5.9	1.000142
21500.0	457.3	-15.2	-32.7	20.7	617.3	625.8	201.7	6.4	1.000140
22000.0	448.2	-16.3	-33.5	21.0	607.8	624.4	193.6	7.0	1.000137
22500.0	439.3	-17.5	-34.3	21.4	598.4	623.0	193.6	7.0	1.000135
23000.0	430.6	-18.6	-35.1	21.8	589.1	621.6	193.6	7.0	1.000133

STATION ALTITUDE 3940.00 FEET MSL
 11 MAY 84 1400 MDT
 ASCENSION NO. 278

MANDATORY LEVELS
 1320020278
 WHITE SANDS

GEODETTIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 16

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT DEGREES	PERCENT	DIPECTION DEGREES(TM)	SPEED KNOTS	
857.0	4390.	28.7	-5	15.	296.8	10.4	
800.0	6639.	23.9	-3.4	16.	291.4	11.4	
750.0	8465.	17.8	-8.0	16.	287.5	11.8	
700.0	10380.	12.5	-11.1	18.	294.8	7.0	
650.0	12396.	6.7	-16.0	18.	329.1	8.4	
600.0	14520.	1.6	-22.1	15.	287.4	12.5	
550.0	16807.	-3.6	-25.8	16.	305.3	13.9	
500.0	19248.	-10.1	-29.3	19.	308.7	1.9	
450.0	21882.	-16.1	-33.3	21.	195.1	6.9	

STATION ALTITUDE 3997.10 FEET MSL
 11 MAY 84 1422
 ASCENSION NO. 49

SIGNIFICANT LEVEL DATA
 1120060749
 5 M R

GEODETTIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 17

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
978.0	3997.3	34.0	3.7	15.0
857.1	4356.2	31.8	2.0	15.0
750.0	4950.1	29.9	.2	15.0
771.0	7757.0	20.9	-5.8	16.0
700.0	10456.8	12.6	-10.4	19.0
630.0	13317.5	4.5	-14.3	24.0
407.9	14270.0	2.8	-19.8	17.0
584.6	15305.8	1.0	-21.9	16.0
500.0	19357.1	-9.4	-26.6	23.0
471.5	20839.7	-12.7	-26.6	30.0
400.0	24891.5	-22.4	-39.6	19.0

STATION ALTITUDE 3997.30 FEET MSL
 11 MAY 64
 ASCENSION NO. 44

UPPER AIR DATA
 1320040040
 S M P

GEOMETRIC COORDINATES
 32.48034 LAT DEG
 106.42707 LON DEG

TABLE 1

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SOUND SPEED KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
3997.3	878.0	34.0	3.7	992.4	683.9	185.0	8.2	1.000253
4000.0	877.9	34.0	3.7	992.4	683.9	185.0	8.2	1.000253
4500.0	863.2	31.3	1.6	984.7	680.8	194.0	7.3	1.000247
5000.0	846.5	29.4	.1	974.2	678.6	205.0	6.7	1.000243
5500.0	833.9	27.9	-6	967.5	676.8	217.8	6.3	1.000236
6000.0	819.5	26.3	-2.0	951.0	675.0	231.7	6.3	1.000234
6500.0	805.4	24.6	-3.1	939.6	673.2	244.2	6.6	1.000230
7000.0	791.6	23.2	-6.2	928.4	671.4	255.3	7.2	1.000226
7500.0	777.9	21.7	-5.3	917.1	669.6	264.6	6.9	1.000222
8000.0	764.3	20.2	-6.2	904.1	667.8	276.7	5.7	1.000219
8500.0	750.8	18.6	-7.0	894.8	666.0	294.2	4.8	1.000215
9000.0	737.5	17.1	-7.8	883.4	664.3	301.5	6.9	1.000212
9500.0	724.4	15.5	-8.7	872.7	662.5	308.4	5.0	1.000209
10000.0	711.5	14.0	-9.6	861.9	660.7	313.1	5.2	1.000206
10500.0	698.9	12.5	-10.4	851.1	658.9	315.5	5.4	1.000202
11000.0	686.1	11.1	-11.0	839.8	657.2	317.7	5.6	1.000199
11500.0	673.6	9.6	-11.7	828.4	655.6	315.0	5.8	1.000196
12000.0	661.3	8.2	-12.4	817.7	653.9	313.0	5.9	1.000193
12500.0	649.3	6.6	-13.1	806.8	652.3	310.4	6.2	1.000191
13000.0	637.4	5.4	-13.6	796.2	650.6	308.4	7.3	1.000188
13500.0	625.7	4.2	-15.3	785.1	649.1	306.9	8.3	1.000184
14000.0	614.1	3.3	-19.1	773.2	648.0	302.1	9.4	1.000180
14500.0	602.6	2.4	-20.3	761.3	646.9	298.3	10.5	1.000176
15000.0	591.4	1.5	-21.3	749.5	645.9	296.0	11.4	1.000173
15500.0	580.2	.5	-22.1	738.2	644.7	294.2	12.7	1.000170
16000.0	569.1	-0.8	-22.6	727.5	643.2	294.0	13.1	1.000167
16500.0	558.3	-2.1	-23.1	717.0	641.6	297.4	11.4	1.000165
17000.0	547.6	-3.3	-23.7	706.4	640.1	302.5	9.8	1.000162
17500.0	537.1	-4.6	-24.2	695.5	638.6	305.9	7.8	1.000160
18000.0	526.9	-5.9	-24.8	686.4	637.0	307.0	5.1	1.000157
18500.0	516.8	-7.2	-25.5	676.5	635.5	311.2	2.5	1.000155
19000.0	506.9	-8.5	-26.1	666.9	634.0	268.3	1.1	1.000152
19500.0	497.2	-9.7	-26.6	657.1	632.5	210.1	2.2	1.000150
20000.0	487.4	-10.8	-26.5	647.0	631.1	196.7	3.9	1.000148
20500.0	477.9	-11.9	-26.5	637.0	629.8	191.0	5.0	1.000146
21000.0	468.4	-13.1	-27.1	627.2	628.4	187.1	6.0	1.000143
21500.0	459.0	-14.3	-28.7	617.4	627.0	184.1	5.0	1.000141
22000.0	449.8	-15.5	-30.2	607.9	625.5	179.9	7.5	1.000138
22500.0	440.8	-16.7	-31.8	598.5	624.0	176.3	8.2	1.000136
23000.0	431.9	-17.9	-33.4	589.2	622.5	172.5	11.3	1.000133

UPPER AIR DATA
 1520060049
 S M R

STATION ALTITUDE 3997.30 FEET MSL
 11 MAY 84 1422 MDT
 ASCENSION NO. 49

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 18 Con't

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 CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
23500.0	423.2	-19.1	-35.0	22.8	580.1	621.1			1.000131
24000.0	414.7	-20.3	-36.6	21.4	571.2	619.6			1.000129
24500.0	406.4	-21.5	-38.3	20.1	562.4	618.1			1.000127

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

MANDATORY LEVELS
 120360749
 S M R

STATION ALTITUDE 3997.30 FEET MSL
 1422 MDT
 ASCENSION NO. 49

TABLE 19

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TM)	SPEED KNOTS
850.0	4946.	29.6	.2	15.	203.8	6.7
800.0	6596.	24.2	-3.5	16.	248.9	6.8
750.0	8249.	19.5	-7.1	17.	294.7	4.8
700.0	10466.	12.6	-10.4	19.	315.3	5.4
650.0	12464.	6.9	-13.0	23.	310.5	6.2
600.0	14600.	2.2	-20.5	17.	297.6	10.7
550.0	16864.	-3.1	-23.5	19.	301.3	10.1
500.0	19337.	-9.4	-26.6	23.	219.4	1.7
450.0	21971.	-15.5	-30.2	27.	179.9	7.5
400.0	24850.	-22.4	-39.6	19.		

DATE
ILME