

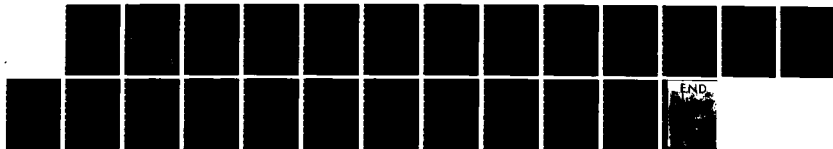
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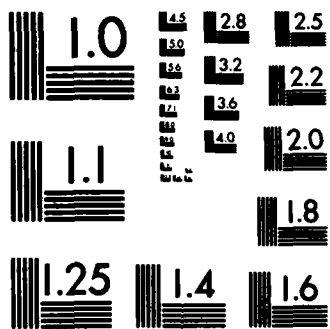
19319A MLRS MISSILE NUMBER 338 342 347 350 334 359
ROUND NUMBER 552/DL-66. (U) ARMY ELECTRONICS RESEARCH
AND DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER
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METEOROLOGICAL DATA REPORT
19319A MLRS
Missile Number 338, 342, 347, 350, 334, 359
Round Number 552/DL-66 thru 557/DL-71
10 December 1983

by

DONALD C. KELLER
Program Support Coordinator
Phone Number (505) 679-9568
AVN Number 349-9568

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
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 338, 342, 347, 350, 334, 359, Round Number 552/DL-66 thru 557/DL-71 are presented in tabular form.		

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CONTENTS

PAGE

INTRODUCTION----- 1

DISCUSSION----- 1

GENERAL AREA MAP----- 2

LAUNCH AREA DIAGRAM----- 3

TABLES:

1. Surface Observations taken at 1129 MST at LC-33----- 4

2. Anemometer-Measured Wind Speed and Direction, Tower Levels 1, 2, 3, and 4, taken at 1129 MST----- 5

3. Launch and impact Pilot-Balloon Measured Wind Data----- 6

4. Aiming and T-Time Computer Met Messages----- 7

5. LC-37 Significant Level Data at 0915 MST----- 8

6. LC-37 Upper Air Data at 0915 MST----- 9

7. LC-37 Mandatory Levels at 0915 MST----- 11

8. WSD Significant Level Data at 1004 MST----- 12

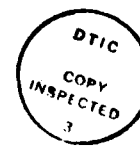
9. WSD Upper Air Data at 1004 MST----- 13

10. WSD Mandatory Levels at 1004 MST----- 15

11. LC-37 Significant Level Data at 1129 MST----- 16

12. LC-37 Upper Air Data at 1129 MST----- 17

13. LC-37 Mandatory Levels at 1129 MST----- 19



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INTRODUCTION

19319A MLRS, Missile Numbers 338, 342, 347, 350, 334, and 359, Round Numbers 552/DL-66 thru 557/DL-71, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1129:10, 1129:15, 1129:19, 1129:24, 1129:28 and 1129:33 MST, 10 Dec 83. The scheduled launch times were 1100 MST with a 4.5 second separation.

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

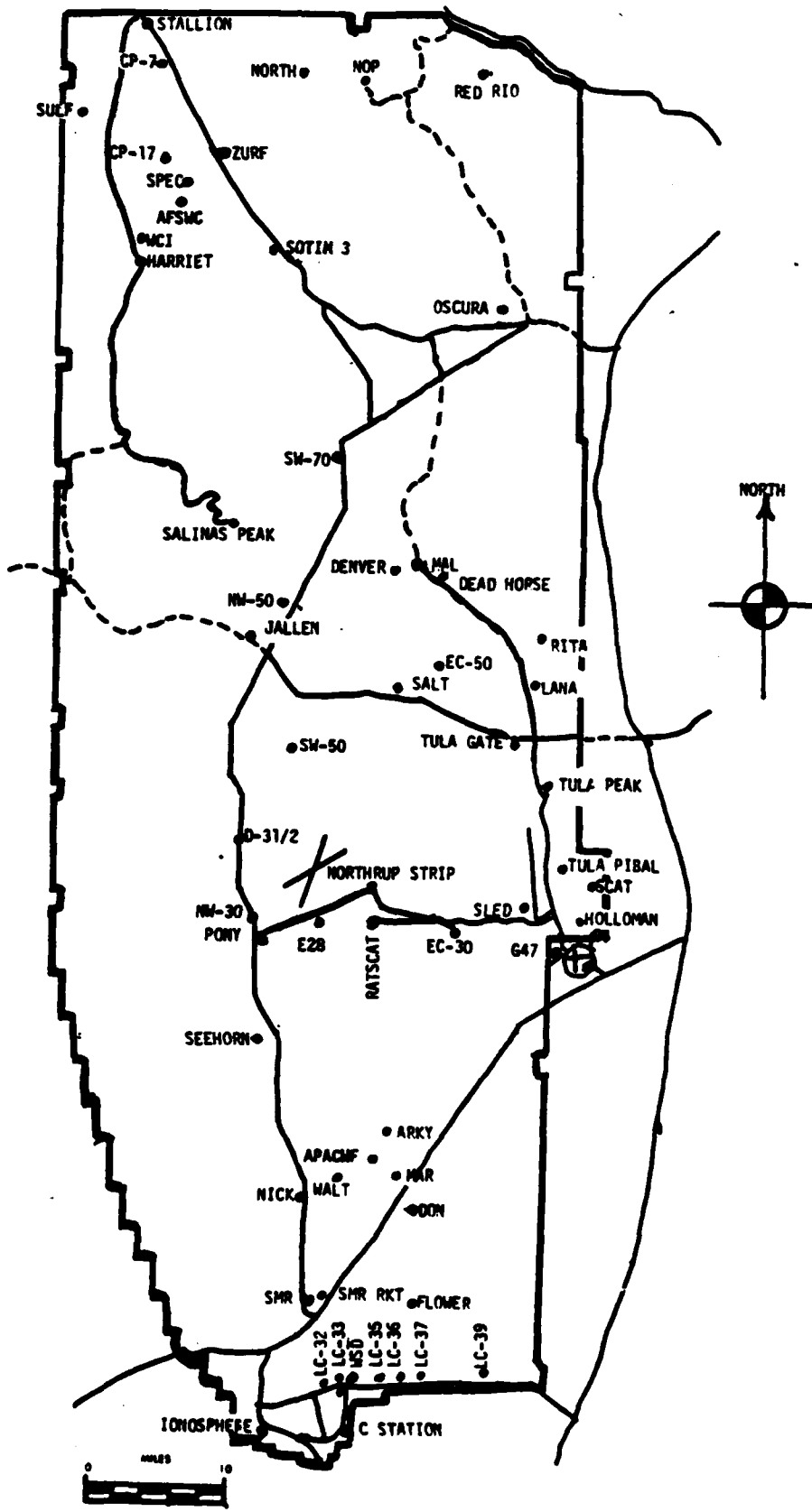
(1) Low level wind data were obtained from pilot-balloon observations at:

<u>SITE AND ALTITUDE</u>	
LC-37	2 km
DON	2 km

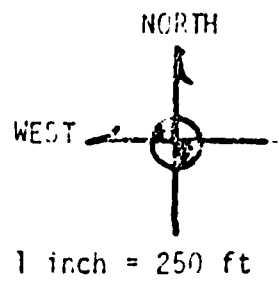
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

<u>SITE AND TIME</u>	
LC-37	0915 MST
WSD	1004 MST
LC-37	1129 MST

WSMR METEOROLOGICAL SITES



LC-33
Launch Area



Y186,500

LINE OF FIRE

Anemometer Pole #3

Y186,000
MET Tower
T-9 Radar

Anemometer Pole #2

L-579A
L-519A

L-951A
L-350A

Anemometer Pole #1

Y185,500

X485,000

X485,500

X486,000

Y185,000

L-600

PROJECT SURFACE OBSERVATION

TABLE <u>1</u>									
STATION <u>LC-33</u>									
DATE <u>10</u> <u>Dec</u> <u>83</u>		X = <u>484,982.73</u>		Y = <u>185,957.73</u>		H = <u>3995.00</u>			
TIME M S I	PRESSURE mbs	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY gm/m ³	DIRECTION degs In	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY
1129	881.2	15.3	-2.1	30	1060.3	326	10		50

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

PSYCHROMETRIC COMPUTATION

TIME:	MST	1129
DRY BULB TEMP.		15.3
WET BULB TEMP.		6.9
WET BULB DEPR.		8.4
DEW POINT		-2.1
RELATIVE HUMID.		30

LC-33 METEOROLOGICAL TOWER
ANEMOMETER MEASURED WIND DATA

TABLE 2

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

DATE 11 Dec 83 1129 M S 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	318	15	T-30	298	17
T-20	311	15	T-20	287	13
T-10	300	12	T-10	307	15
T- 0 (1st T)	326	10	T- 0 (1st T)	306	16
T+10	304	11	T+10	302	15
T+20	323	09	T+20	304	15
T+30	297	10	T+30	303	15
T+40	298	10	T+40	298	12
T+50	297	10	T+50	298	12
T+60	292	10	T+60	289	14
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	288	18	T-30	291	18
T-20	283	12	T-20	295	16
T-10	300	15	T-10	297	14
T- 0 (1st T)	302	15	T- 0 (1st T)	291	15
T+10	297	15	T+10	294	17
T+20	294	15	T+20	290	17
T+30	292	15	T+30	290	15
T+40	291	14	T+40	290	14
T+50	289	15	T+50	288	15
T+60	280	17	T+60	270	16

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 10 December 1983

SITE: LC-33
 TIME: 1129 MST
 WSTM COORDINATES:
 X= 484,837.34
 Y= 184,124.44
 H= 3,975.57

SITE: DON
 TIME 1137 MST
 WSTM COORDINATES:
 X= 511,988.37
 Y= 247,396.36
 H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	326	10
150	287	15
210	279	17
270	276	18
330	273	18
390	270	19
500	268	18
650	268	17
800	272	18
950	274	17
1150	287	13
1350	296	18
1550	299	18
1750	303	17
2000	312	16

Data obtained from a Double
 Theodolite Tracked pilot-balloon
 observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	270	04
150	270	10
210	292	10
270	277	10
330	282	15
390	274	18
500	280	18
650	281	18
800	282	18
950	277	21
1150	278	20
1350	282	21
1550	289	16
1750	291	18
2000	297	23

Data obtained from a RAPTIS T-9
 Radar Tracked pilot-balloon
 observation.

TABLE 4

AIMING AND T-TIME COMPUTER MET MESSAGE DATA
10 December 1983

LC-37 0915 MST	WSD 1004 MST	LC-37 1129 MST
METCM1324063	METCM1324064	METCM1324063
101630124879	101710122881	101850124879
00089004 28600879	00462006 28920881	00480010 28880879
01044005 28530868	01469013 28760871	01474013 28740868
02592005 28280842	02507017 28530845	02492018 28490843
03516013 27900802	03505022 28140806	03507019 28110803
04489031 27450752	04500022 27650758	04512026 27630756
05512050 27500709	05522037 27330712	05532040 27460710
06521053 27170666	06513050 27260669	06529053 27300667
07526058 26930626	07525059 27130629	07534054 27020627
08543074 26810587	08554064 27030590	08541066 26890588
09553076 26520551	09548076 26720554	09535082 26570552
10540088 26130516	10537078 26330520	10529085 26160518
11531097 25720483	11525076 25850487	11528083 25690485
12511090 25080437	12515076 25150440	12521081 25040438

STATION ALTITUDE 4051.3/ FEET MSL
 10 DEC. 83
 ASCENSION NO. 179

SIGNIFICANT LEVEL DATA
 3440100179
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

TABLE 5

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	
874.5	12.2	-1.0	40.0
871.2	12.1	-6.3	27.0
850.0	9.9	-6.0	32.0
810.8	6.1	-6.1	41.0
771.7	2.3	-6.0	54.0
752.4	.0	-9.2	50.0
730.7	.0	-9.9	47.0
736.7	-1	-13.0	37.0
720.9	3.0	-21.1	15.0
700.0	1.2	-22.5	15.0
657.9	-2.4	-26.2	14.0
653.2	-2.4	-25.4	15.0
634.4	-4.3	-27.7	14.0
601.6	-4.0	-27.5	14.0
550.9	-7.9	-31.4	13.0
500.0	-13.9	-34.8	15.0
460.7	-18.0	-37.0	17.0
400.0	-27.9	-42.9	22.0
364.5	-32.6	-46.6	23.0
357.6	-33.2	-46.7	24.0
355.5	-32.2	-46.3	23.0
344.2	-33.0	-46.9	23.0
337.6	-34.0	-47.8	23.0

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STATION ALTITUDE 4051.7 FEET MSL
 10 DEC. 83
 ASCENSION NO. 1/4

UPPER AIR DATA
 344010179
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LONG DEG

TABLE 6

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
4051.4	876.5	12.2	40.0	1069.9	656.4	50.0	4.1	1.000265
4500.0	864.5	11.4	28.6	1056.4	657.7	9.5	3.0	1.000253
5000.0	840.6	9.8	32.3	1043.1	655.8	323.6	4.1	1.000251
5500.0	833.1	8.5	35.8	1029.4	654.1	304.4	6.5	1.000248
6000.0	817.8	6.8	39.3	1015.9	652.4	295.9	9.2	1.000245
6500.0	802.8	5.3	43.6	1002.4	650.7	288.9	13.1	1.000242
7000.0	787.9	3.9	48.5	988.9	649.1	285.1	17.1	1.000240
7500.0	773.5	2.5	53.5	975.6	647.4	280.2	21.1	1.000237
8000.0	758.8	.8	51.3	963.5	645.3	276.6	25.3	1.000231
8500.0	744.6	.0	48.2	948.2	644.3	273.1	34.9	1.000226
9000.0	730.6	1.1	28.6	927.2	643.5	279.7	46.5	1.000216
9500.0	716.9	2.7	15.0	905.0	647.2	267.7	47.8	1.000207
10000.0	703.5	1.5	15.0	891.9	645.8	291.6	49.9	1.000204
10500.0	690.5	.4	14.8	878.7	644.5	292.2	52.3	1.000200
11000.0	677.5	-.7	14.5	865.6	643.2	292.6	54.2	1.000197
11500.0	664.5	-1.8	14.2	852.8	641.9	292.4	54.5	1.000194
12000.0	651.9	-2.5	14.9	838.8	641.0	292.5	54.9	1.000191
12500.0	639.5	-3.8	14.3	826.7	639.5	295.1	56.4	1.000188
13000.0	627.5	-4.2	14.0	812.3	639.0	297.4	58.0	1.000184
13500.0	615.5	-4.1	14.0	796.4	639.1	299.9	60.0	1.000181
14000.0	603.5	-4.0	14.0	780.9	639.3	303.0	63.0	1.000177
14500.0	591.9	-4.8	13.8	768.2	638.3	305.7	66.2	1.000174
15000.0	580.5	-5.7	13.6	755.8	637.3	308.3	69.5	1.000171
15500.0	569.5	-6.5	13.4	743.6	636.3	308.1	72.9	1.000168
16000.0	558.4	-7.5	13.1	731.5	635.3	307.4	76.3	1.000165
16500.0	547.8	-8.5	13.1	720.0	634.1	306.8	79.7	1.000163
17000.0	536.9	-9.5	13.5	709.2	632.7	305.9	82.9	1.000160
17500.0	526.5	-10.7	13.9	698.5	631.2	304.1	85.5	1.000158
18000.0	516.8	-11.9	14.3	688.0	629.7	302.4	88.2	1.000155
18500.0	505.9	-13.2	14.8	677.7	628.2	300.6	90.6	1.000153
19000.0	495.9	-14.4	15.3	667.6	626.7	299.6	90.3	1.000150
19500.0	485.8	-15.7	15.9	657.5	625.2	298.3	90.1	1.000148
20000.0	475.5	-17.0	16.5	647.6	623.6	296.6	89.3	1.000146
20500.0	465.7	-18.5	17.1	637.8	622.0	294.2	88.0	1.000143
21000.0	457.2	-19.6	17.8	627.9	620.4	291.8	88.1	1.000141
21500.0	447.8	-20.9	18.4	618.2	618.9	289.4	89.5	1.000139
22000.0	438.6	-22.1	19.1	608.6	617.3	287.4	90.6	1.000137
22500.0	429.8	-23.4	19.7	599.2	615.7	285.8	91.3	1.000135
23000.0	420.8	-24.7	20.4	590.0	614.1	284.6	92.3	1.000132
23500.0	412.1	-26.0	21.1	580.9	612.5	283.8	93.6	1.000130

STATION ALTITUDE 4051.37 FEET MSL
 10 DEC. 83 0915 HRS MST
 ASCENSION NO. 179

UPPER AIR DATA
 3440180179
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LONG DEG

TABLE 6 (cont'd)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
24000.0	403.7	-27.3	21.7	572.0	610.8	283.4	95.0	1.000128
24500.0	395.3	-28.5	22.1	562.8	609.4	283.6	96.4	1.000126
25000.0	386.9	-29.6	22.4	553.3	608.0	283.7	97.9	1.000124
25500.0	378.7	-30.7	22.6	544.0	606.7	284.3	99.7	1.000122
26000.0	370.7	-31.7	22.8	534.9	605.3	284.9	101.9	1.000120
26500.0	362.9	-32.7	23.2	525.8	604.1	285.6	104.0	1.000118
27000.0	355.1	-32.2	23.0	513.4	604.7			1.000115
27500.0	347.6	-32.8	23.0	503.6	604.1			1.000113
28000.0	340.1	-33.6	23.0	494.6	603.0			1.000111

STATION ALTITUDE 4051.37 FEET MSL
 10 DEC. 83
 ASCENSION NO. 179

MANDATORY LEVELS
 3440180179
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

TABLE 7

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4952.	9.9	-6.0	32.	326.5	3.9
800.0	6589.	5.1	-6.0	45.	288.0	13.8
750.0	8302.	.0	-9.3	49.	274.3	31.0
700.0	10124.	1.2	-22.5	15.	291.7	50.5
650.0	12063.	-2.7	-25.8	15.	292.9	55.1
600.0	14135.	-4.3	-27.7	14.	303.8	63.9
550.0	16369.	-8.0	-31.5	13.	306.9	78.9
500.0	18771.	-13.9	-34.8	15.	300.1	90.4
450.0	21362.	-20.5	-38.4	18.	290.0	89.2
400.0	24180.	-27.9	-42.9	22.	283.5	95.6
350.0	27288.	-32.6	-46.6	23.		

STATION ALTITUDE 3989.00 FEET MSL
 10 DEC. 83 1004 HRS MST
 ASCENSION NO. 019

SIGNIFICANT LEVEL UA 1A
 3440020619
 WHITE SANDS

GEODEIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 8

PRESSURE MILLIBARS	GEO. FTIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
881.4	3989.0	14.8	-0.9	34.0
874.1	4219.6	14.1	-4.6	27.0
850.0	4990.6	11.9	-4.7	31.0
750.2	9077.2	.0	-0.7	52.0
711.6	9755.9	-0.4	-15.0	32.0
700.0	10187.9	-0.1	-18.2	24.0
667.5	11436.7	-0.7	-23.3	16.0
630.7	12920.9	-2.1	-25.2	15.0
594.4	14467.6	-2.4	-25.4	15.0
554.4	17214.7	-7.9	-30.6	14.0
500.0	18894.4	-12.8	-32.1	18.0
461.3	20897.4	-18.7	-34.6	23.0
419.6	23192.6	-24.9	-33.8	43.0
400.0	24333.4	-26.6	-30.9	30.0
557.9	26939.0	-33.6	-44.8	31.0
551.1	27381.2	-34.5	-45.0	33.0

STATION ALTITUDE 3989.60 FT-FET MSL
 10 DEC. 83
 ASCENSION NO. 019

UPPER AIR DATA
 344020619
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 9

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	W.I.U. DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	881.4	14.8	34.0	1063.7	661.4	260.0	6.0	1.000263
4000.0	881.1	14.8	33.7	1063.4	661.0	260.4	6.1	1.000263
4500.0	865.3	13.3	28.5	1050.3	660.0	272.7	9.2	1.000254
5000.0	849.7	11.9	31.0	1036.5	658.3	278.6	12.6	1.000251
5500.0	834.1	10.4	33.6	1022.7	656.7	282.0	16.0	1.000248
6000.0	818.7	9.0	36.2	1009.0	655.0	284.1	19.5	1.000245
6500.0	803.6	7.5	38.8	995.6	653.3	282.5	21.1	1.000241
7000.0	788.8	6.0	41.3	982.4	651.6	281.3	22.5	1.000238
7500.0	774.3	4.6	43.9	969.4	649.8	281.7	22.3	1.000234
8000.0	760.0	3.1	46.5	956.6	648.1	282.4	22.4	1.000231
8500.0	746.0	1.7	49.0	944.0	646.4	286.0	26.4	1.000227
9000.0	732.3	.2	51.6	931.6	644.7	289.0	30.5	1.000224
9500.0	718.6	-2.2	39.5	916.1	644.0	292.0	35.3	1.000216
10000.0	705.0	-2.2	27.5	899.1	643.9	293.7	39.5	1.000209
10500.0	691.7	-2.2	22.0	882.4	643.8	292.6	44.0	1.000203
11000.0	678.7	-2.5	18.8	866.6	643.5	288.7	48.9	1.000199
11500.0	665.9	-2.8	16.0	851.2	643.1	280.2	50.2	1.000194
12000.0	653.3	-1.2	15.6	836.5	642.6	290.4	52.8	1.000191
12500.0	640.9	-1.7	15.3	822.1	642.0	293.1	54.7	1.000187
13000.0	628.8	-2.1	15.0	807.6	641.5	297.7	56.2	1.000184
13500.0	616.9	-2.2	15.0	792.8	641.4	303.4	57.8	1.000181
14000.0	605.1	-2.3	15.0	778.0	641.3	306.6	61.4	1.000177
14500.0	593.7	-2.5	15.0	763.7	641.1	308.3	66.0	1.000174
15000.0	582.3	-2.6	14.8	751.8	639.9	309.7	70.7	1.000171
15500.0	571.1	-4.5	14.6	740.2	638.7	309.1	73.6	1.000168
16000.0	560.1	-5.5	14.4	728.7	637.5	307.6	75.7	1.000165
16500.0	549.4	-6.5	14.3	717.4	636.3	306.2	77.8	1.000163
17000.0	538.9	-7.5	14.1	706.3	635.1	304.6	78.5	1.000160
17500.0	528.4	-8.7	14.7	695.9	633.6	302.6	78.2	1.000158
18000.0	518.1	-10.2	15.9	686.1	631.9	301.0	78.0	1.000155
18500.0	507.9	-11.6	17.1	676.4	630.1	299.0	76.6	1.000153
19000.0	498.0	-13.1	18.3	666.9	628.3	298.2	74.7	1.000151
19500.0	488.0	-14.6	19.5	657.3	626.5	296.8	73.0	1.000149
20000.0	478.3	-16.0	20.8	647.9	624.8	295.1	73.7	1.000146
20500.0	468.8	-17.5	22.0	638.6	623.0	293.7	77.5	1.000144
21000.0	459.4	-19.0	23.9	629.4	621.2	292.9	83.9	1.000142
21500.0	450.0	-20.3	28.3	619.8	619.5	291.7	83.1	1.000140
22000.0	440.8	-21.7	32.6	610.4	617.9	290.2	79.0	1.000138
22500.0	431.8	-23.0	37.0	601.2	616.2	288.3	74.3	1.000136
23000.0	422.9	-24.4	41.3	592.1	614.6	285.6	71.0	1.000134

STATION ALTITUDE 3989.00 FT MSL
 10 DEC. 63
 ASCENSION NO. 019
 1004 HRS MST

UPPER AIR DATA
 3440020619
 WHITE SANDS

GEODEIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 9 (cont'd)

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	WETPOINT CENTIGRADE				DIRECTION DEGREES(TM)	SPEED KNOTS	
23500.0	414.2	-25.4	-35.1	39.5	582.2	613.3	282.6	70.8	1.000132
24000.0	405.6	-26.1	-37.3	33.8	571.9	612.4	281.6	78.9	1.000129
24500.0	397.2	-27.0	-39.3	30.1	562.1	611.2	280.6	85.7	1.000126
25000.0	388.8	-28.4	-40.4	30.3	553.3	609.5	280.2	88.7	1.000124
25500.0	380.6	-29.7	-41.5	30.4	544.6	607.9	279.7	91.8	1.000122
26000.0	372.5	-31.1	-42.7	30.6	536.0	606.2	278.3	87.2	1.000120
26500.0	364.7	-32.4	-43.8	30.8	527.7	604.5	276.8	82.5	1.000118
27000.0	357.0	-33.7	-44.8	31.3	519.3	602.8			1.000116

STATION ALTITUDE 3989.00 FEET ASL
 10 DEC. 83 1004 HRS MST
 ASCENSION NO. 019

MANDATORY LEVELS
 3440020619
 WHITE SANDS

GEODETTIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 10

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4987.	11.9	-4.7	31.	278.5	12.5
800.0	6637.	7.2	-5.7	39.	282.1	21.5
750.0	8363.	2.1	-7.7	40.	285.2	25.3
700.0	10170.	-1.1	-10.2	24.	294.0	40.8
650.0	12120.	-1.4	-24.2	10.	291.1	53.3
600.0	14206.	-2.4	-25.4	15.	307.4	65.3
550.0	16456.	-6.4	-29.2	14.	306.3	77.7
500.0	18873.	-12.0	-32.1	10.	298.5	75.1
450.0	21471.	-20.3	-33.9	20.	291.7	83.1
400.0	24293.	-26.6	-38.9	30.	281.0	84.3

STATION ALTITUDE 4051.37 FT MSL
 10 DEC. 83 1129 HRS MST
 ASCENSION NO. 180

SIGNIFICANT LEVEL DATA
 3440180180
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

TABLE 11

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
878.8	4051.4	15.0	-3.3	28.0
873.9	4200.4	14.3	-6.0	24.0
850.0	4971.5	11.9	-5.5	29.0
814.8	6126.3	8.6	-6.7	33.0
810.1	6283.3	8.1	-6.4	35.0
766.9	7757.1	3.7	-7.4	44.0
735.6	8963.0	.7	-8.5	50.0
720.0	9428.0	.0	-13.3	36.0
716.7	9771.0	1.5	-20.2	18.0
700.0	10172.6	2.1	-21.8	15.0
683.3	10011.7	1.3	-21.7	16.0
658.5	12589.3	-3.2	-26.1	15.0
601.4	14145.4	-3.3	-26.2	15.0
578.6	15148.6	-5.1	-27.6	15.0
557.4	17040.3	-9.0	-26.3	23.0
513.4	18195.9	-12.3	-27.6	26.0
500.0	18858.0	-14.4	-30.0	25.0
489.6	19380.8	-15.6	-30.3	27.0
459.2	20958.2	-20.0	-33.4	29.0
436.6	22182.2	-23.0	-32.3	42.0
422.0	22998.3	-25.4	-32.7	50.0
414.7	23414.7	-25.8	-34.6	43.0
400.0	24271.4	-28.0	-36.6	43.0
379.8	25490.0	-30.4	-40.3	37.0
370.7	26058.8	-29.3	-42.6	28.0
366.0	26358.6	-29.6	-43.6	24.0
356.1	27003.1	-29.1	-44.8	20.0
332.8	28580.3	-33.7	-48.8	20.0

STATION ALTITUDE 4051.37 FEET MSL
 10 DEC. 83
 ASCENSION NO. 180

UPPER AIR DATA
 3440180180
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LOI, DEG

TABLE 12

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	WIND VELOCITY KNOTS						
4051.4	878.8	15.0	-3.3	28.0	1060.3	662.0	270.0	9.9	1.000258
4500.0	864.6	13.4	-5.7	25.9	1049.4	660.0	274.6	11.9	1.000252
5000.0	849.1	11.8	-5.6	29.1	1036.1	658.2	278.3	14.1	1.000250
5500.0	833.7	10.4	-6.1	30.8	1022.5	656.6	280.9	16.4	1.000246
6000.0	818.6	9.0	-6.6	32.6	1009.1	654.9	282.8	18.2	1.000243
6500.0	803.6	7.5	-6.5	36.3	995.9	653.2	284.4	19.5	1.000240
7000.0	788.8	6.0	-6.8	39.4	982.6	651.4	284.8	22.3	1.000237
7500.0	774.3	4.5	-7.2	42.4	969.9	649.7	284.6	25.8	1.000234
8000.0	759.9	3.0	-7.6	45.3	956.9	648.0	287.9	28.2	1.000230
8500.0	745.7	1.7	-8.1	48.0	943.7	646.4	291.7	30.3	1.000227
9000.0	731.8	.5	-9.0	46.6	930.1	645.0	296.3	31.9	1.000222
9500.0	718.0	.3	-14.3	32.2	913.7	644.6	298.9	35.5	1.000214
10000.0	704.6	1.8	-21.1	16.3	892.0	646.2	300.8	39.6	1.000204
10500.0	691.4	1.7	-21.7	15.5	875.8	646.0	299.8	44.4	1.000200
11000.0	678.4	.8	-22.2	15.9	862.1	645.0	299.2	48.8	1.000197
11500.0	665.6	-.4	-23.4	15.6	849.8	643.5	298.9	51.0	1.000194
12000.0	653.0	-1.7	-24.0	15.3	837.7	642.0	298.6	53.3	1.000191
12500.0	640.7	-3.0	-25.9	15.1	825.7	640.5	299.4	55.0	1.000188
13000.0	628.5	-3.2	-26.1	15.0	810.8	640.2	300.9	56.3	1.000184
13500.0	616.5	-3.3	-26.1	15.0	795.4	640.2	302.3	57.7	1.000181
14000.0	604.8	-3.3	-26.2	15.0	780.4	640.1	302.7	61.0	1.000178
14500.0	593.2	-3.9	-26.7	15.0	767.3	639.3	302.7	65.1	1.000174
15000.0	581.9	-4.8	-27.4	15.0	755.2	638.3	302.8	69.2	1.000172
15500.0	570.7	-5.8	-27.2	16.5	743.4	637.1	302.2	73.1	1.000169
16000.0	559.7	-6.9	-26.8	18.6	731.8	635.9	301.1	76.8	1.000167
16500.0	548.8	-7.9	-26.5	20.7	720.4	634.7	300.0	80.5	1.000164
17000.0	538.2	-8.9	-26.3	22.8	709.3	633.4	299.1	84.3	1.000162
17500.0	527.7	-10.3	-26.9	24.2	699.1	631.7	298.4	84.2	1.000159
18000.0	517.4	-11.7	-27.5	25.5	689.2	630.0	297.7	83.4	1.000157
18500.0	507.2	-13.3	-28.6	25.5	679.6	628.2	297.0	82.6	1.000155
19000.0	497.2	-14.7	-30.1	25.5	669.9	626.4	297.0	79.9	1.000152
19500.0	487.2	-15.9	-30.5	27.2	659.6	624.9	297.0	78.4	1.000150
20000.0	477.4	-17.3	-31.5	27.8	649.9	623.2	296.9	80.4	1.000147
20500.0	467.8	-18.7	-32.5	28.4	640.4	621.5	296.1	80.4	1.000145
21000.0	458.4	-20.1	-33.3	29.4	630.9	619.8	295.0	80.0	1.000143
21500.0	449.1	-21.3	-32.7	34.0	621.0	618.3	293.5	80.6	1.000141
22000.0	439.9	-22.6	-32.4	40.1	611.3	616.8	292.0	81.8	1.000139
22500.0	430.9	-23.9	-32.4	45.1	602.1	615.1	291.0	85.7	1.000137
23000.0	422.0	-25.4	-32.7	50.0	593.1	613.3	290.0	89.7	1.000134
23500.0	413.2	-26.0	-34.8	43.0	582.3	612.5	289.3	92.1	1.000132

UPPER AIR DATA
 3440180180
 LC-37

STATION ALTITUDE 4051.77 FEET MSL
 10 DEC. 83 1129 HRS MST
 ASCENSION NO. 180

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

TABLE 12 (cont'd)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	404.6	-27.3	43.0	573.2	610.4	288.6	94.2	1.000129
24500.0	396.1	-28.5	41.9	563.8	609.5	288.1	96.1	1.000127
25000.0	387.8	-29.4	39.4	554.2	608.2	288.1	96.2	1.000125
25500.0	379.6	-30.4	36.8	544.7	607.1	288.1	96.3	1.000122
26000.0	371.6	-29.4	27.1	531.1	608.3	288.6	96.2	1.000119
26500.0	363.8	-29.5	23.1	520.1	608.2	289.4	96.0	1.000117
27000.0	356.1	-29.1	20.0	508.3	608.6			1.000114
27500.0	348.6	-30.5	20.0	500.5	608.8			1.000112
28000.0	341.2	-32.0	20.0	492.9	605.0			1.000110
28500.0	333.9	-33.5	20.0	485.3	603.2			1.000109

STATION ALTITUDE 4051.37 FEET MSL
 10 DEC. 83
 ASCENSION NO. 180

MANDATORY LEVELS
 3440180180
 LC-37

GEODETTIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

TABLE 12

PRESSURE GEOPOTENTIAL,		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4968.	11.9	-5.5	29.	278.1	14.0	
800.0	6617.	7.1	-6.6	37.	284.8	19.8	
750.0	8343.	2.1	-8.0	47.	290.2	29.8	
700.0	10163.	2.1	-21.8	15.	300.3	41.2	
650.0	12111.	-2.0	-24.9	15.	298.5	53.8	
600.0	14189.	-3.4	-26.3	15.	302.7	62.7	
550.0	16428.	-7.8	-26.5	20.	300.1	80.1	
500.0	18832.	-14.4	-30.0	25.	296.9	80.9	
450.0	21418.	-21.2	-32.8	34.	293.7	80.6	
400.0	24231.	-28.0	-36.6	43.	288.3	95.3	
350.0	27359.	-30.3	-45.8	20.			

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