

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

AD A 137299

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER DR 1332	2. GOVT ACCESSION NO. <b>A137299</b>	3. RECIPIENT'S CATALOG NUMBER	
4. TITLE (and Subtitle) 19319A MLRS Missile Number 330, 346, 351, 353, 357 Round Number 547/DL-61 Thru 551/DL-65		5. TYPE OF REPORT & PERIOD COVERED	
7. AUTHOR(s) White Sands Meteorological Team		6. PERFORMING ORG. REPORT NUMBER	
9. PERFORMING ORGANIZATION NAME AND ADDRESS		8. CONTRACT OR GRANT NUMBER(s) DA Task 1F665702D127-02	
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Cmd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) US Army Electronics Research and Development Cmd Adelphi, MD 20783		12. REPORT DATE Dec 1983	
		13. NUMBER OF PAGES	
		15. SECURITY CLASS. (of this report) UNCLASSIFIED	
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Approved for public release; distribution unlimited.			
18. SUPPLEMENTARY NOTES			
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 330,346, 351, 353, 357, Round Number 547/DL-61 Thru 551/DL-65 are presented in tabular form.			

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## INTRODUCTION

19319A MLRS, Missile Numbers 330, 346, 351, 353, and 357, Round Numbers 547/DL-61 thru 551/DL-65, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1004:28, 1004:33, 1004:37, 1004:42, and 1004:46 MST, 10 Dec 83. The scheduled launch times were 1000 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 ( $\text{gm}/\text{m}^3$ ), 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

DON 2 km

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

#### SITE AND TIME

WSD 0815 MST

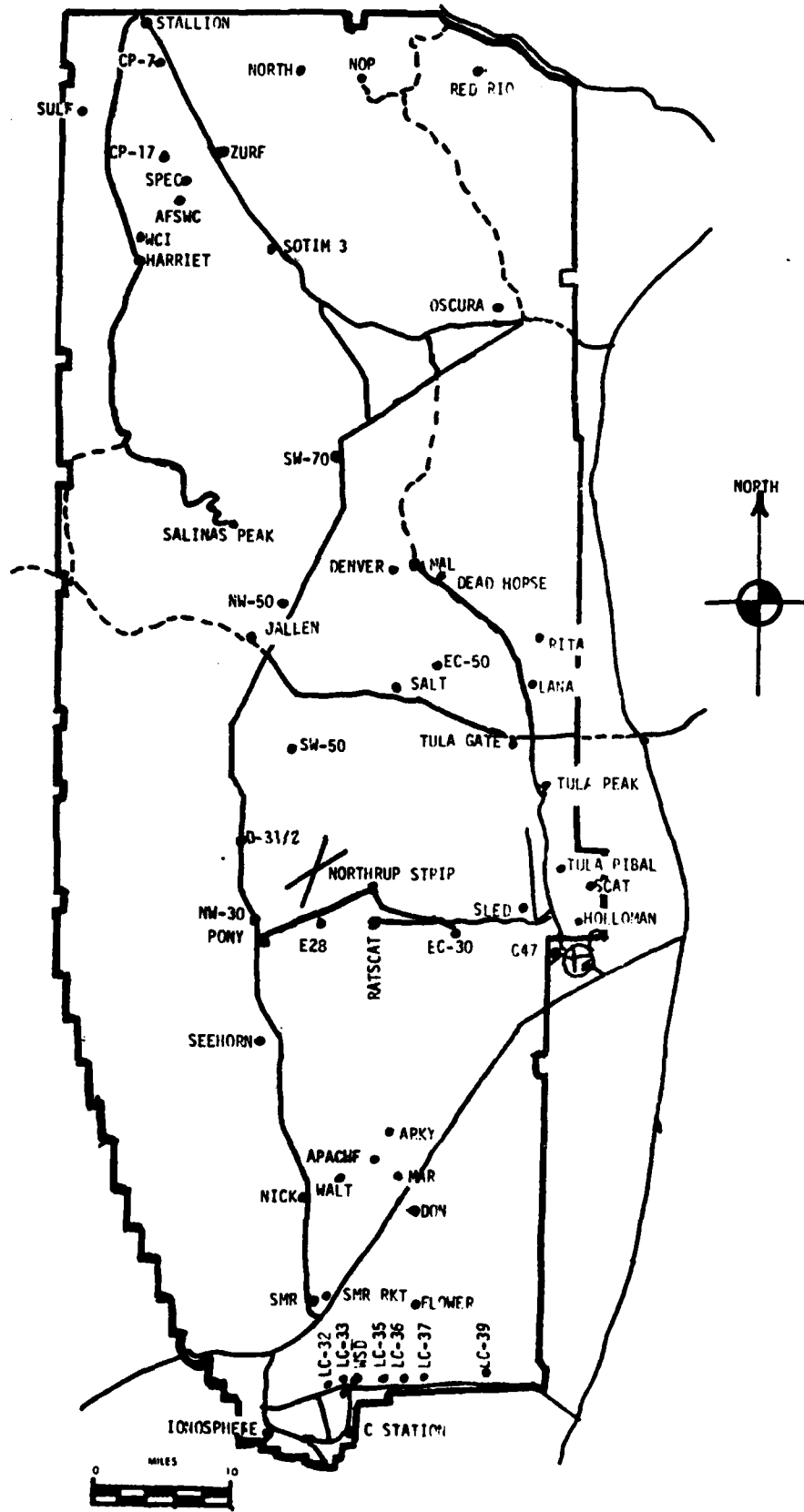
LC-33 0915 MST

WSD 1004 MST

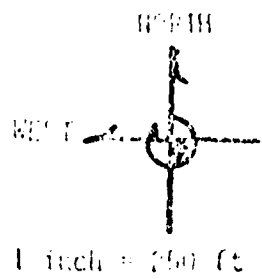
<b>Accession For</b>	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	



# WSMR METEOROLOGICAL SITES



LC-13  
Launch Area



Y186,500

LINE OF FIRE

Anemometer Pole #3

Y186,000

MET  
Tower

T-9 Radar

L-579A

Anemometer Pole #2

L-519A

L-351A

Anemometer Pole #1

L-350A

Y185,500

X485,000

X485,500

X486,000

Y185,000

L-000



PROJECT SURFACE OBSERVATION

TABLE 1

STATION LC-33

DATE 10 DEC 83  
DAY MONTH YEAR

X= 484.982.73 Y= 185.957.73 H= 3995.00

TIME M S T	PRESSURE mbs	TEMPERATURE OF OC	DEW POINT OF OC	RELATIVE HUMIDITY %	DENSITY gm/m <sup>3</sup>	WIND		VISIBIL- ITY
						DIRECTION degs In	SPEED kts	
1004	881.9	14.6	-3.1	29	1063.7	285	10	50

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	HGT	AMT	HGT	AMT	HGT	
	0	Sc	6,000				

PSYCHROMETRIC COMPUTATION

TIME: MST	1004
DRY BULB TEMP.	14.6
WET BULB TEMP.	6.3
WET BULB DEPR.	8.3
DEW POINT	-3.1
RELATIVE HUMID.	29

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 10 DEC 83 10:04 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	303	12	T-30	284	14
T-20	306	10	T-20	295	12
T-10	278	10	T-10	288	11
T- 0 (1st T)	286	10	T- 0 (1st T)	287	12
T+10	283	10	T+10	284	12
T+20	288	09	T+20	283	10
T+30	283	08	T+30	286	10
T+40	284	08	T+40	308	12
T+50	296	11	T+50	306	10
T+60	316	09	T+60	312	10
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	285	16	T-30	283	15
T-20	282	15	T-20	280	14
T-10	285	13	T-10	290	12
T- 0 (1st T)	284	13	T- 0 (1st T)	289	12
T+10	284	12	T+10	289	10
T+20	286	10	T+20	288	12
T+30	290	10	T+30	288	15
T+40	300	13	T+40	300	15
T+50	285	11	T+50	303	11
T+60	305	11	T+60	285	12

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 10 December 1983

SITE: LC-33  
 TIME: 1004 MST  
 WSTM COORDINATES:  
 X= 484,837.34  
 Y= 184,124.44  
 H= 3,975.57

SITE: DON  
 TIME 1004 MST  
 WSTM COORDINATES:  
 X= 511,988.37  
 Y= 247,396.36  
 H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	285	10
150	286	14
210	287	15
270	288	16
330	290	17
390	289	17
500	286	18
650	281	20
800	277	21
950	279	21
1150	283	23
1350	286	21
1550	291	32
1750	295	37
2000	290	38

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	270	15
150	270	21
210	274	24
270	280	24
330	288	23
390	279	22
500	273	26
650	279	28
800	283	24
950	287	29
1150	295	25
1350	298	30
1550	296	32
1750	296	36
2000	298	45

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

Data obtained from a RAPTS T-9  
 radar tracked pilot-balloon  
 observation.

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

WSD 0815 MST  
METCM1324064  
101530122880

00498006	28640880
01475029	28590870
02473054	28410844
03628001	28040804
04479031	27620757
05495045	27380711
06507048	27100668
07511050	26720627
08526055	26530588
09547076	26660552
10538084	26350517
11530085	25900485
12509084	25210438

LC-37 0915 MST  
METCM1324063  
101630124879

00089004	28600879
01044005	28530868
02592005	28280842
03516013	27900802
04489031	27450752
05512050	27500709
06521053	27170666
07526058	26930626
08543074	26810587
09553076	26520551
10540088	26130516
11531097	25720483
12511090	25080437

WSD 1004 MST  
METCM1324064  
101710122881

00462006	28920881
01469013	28760871
02507017	28530845
03505022	28140806
04500022	27650758
05522037	27330712
06513050	27260669
07525059	27130629
08554064	27030590
09548076	26720554
10537078	26330520
11525076	25850487
12515076	25150440

STATION ALTITUDE 5989.00 FEET MSL  
 10 DEC. 83  
 U815 MRS MST  
 ASCENSION NO. 018

SIGNIFICANT LEVEL DATA  
 3440020618  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LO, DEG

TABLE 5

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
889.3	3089.0	12.0	-1.9	36.0
862.9	4315.8	12.3	-5.7	28.0
850.0	4950.9	11.0	-5.5	31.0
776.9	7383.2	4.0	-0.3	47.0
764.1	7820.6	3.5	-0.5	41.0
743.0	8570.0	1.1	-9.5	45.0
717.5	9492.8	1.2	-19.8	19.0
700.0	10143.5	-0.2	-22.9	16.0
684.0	10750.4	-0.9	-24.2	15.0
595.6	14324.6	-9.0	-30.8	15.0
564.0	15719.4	-6.0	-29.1	14.0
534.9	17076.7	-7.6	-30.4	14.0
500.0	18790.5	-12.0	-33.3	15.0
445.0	21670.3	-20.3	-36.9	17.0
400.0	24240.7	-26.8	-43.3	19.0
362.5	26540.9	-33.4	-47.7	22.0
348.9	27427.4	-35.2	-49.2	22.0
338.0	28154.8	-35.7	-49.7	22.0
335.3	28338.9	-34.5	-49.0	21.0

UPPER AIR DATA  
 3440020018  
 WHITE SANDS

STATION ALTITUDE 3939.00 FEET MSL  
 10 DEC 85  
 0815 HRS MST  
 ASCENSION NO. 018

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LO. DEG

TABLE 6

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL HUM. PERCENT	DENSITY GM/CMH <sup>3</sup> METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	886.3	12.0	38.0	1073.0	658.6	280.0	6.0	1.000264
4000.0	873.9	12.0	37.7	1072.5	658.6	280.0	6.0	1.000264
4500.0	864.1	11.9	28.9	1054.1	658.3	278.2	7.2	1.000254
5000.0	848.5	10.9	31.3	1038.8	657.1	276.9	8.3	1.000251
5500.0	832.9	9.4	34.6	1025.0	655.5	275.0	9.5	1.000248
6000.0	817.7	8.0	37.9	1011.3	653.8	275.2	10.7	1.000245
6500.0	802.7	6.5	41.2	997.9	652.1	274.5	11.9	1.000242
7000.0	788.0	5.1	44.5	984.7	650.5	270.7	19.3	1.000239
7500.0	773.5	3.9	45.4	971.0	649.0	269.0	26.7	1.000234
8000.0	759.1	2.9	41.9	956.3	647.3	270.5	31.4	1.000229
8500.0	745.0	1.5	44.6	944.1	645.9	272.1	35.6	1.000225
9000.0	731.0	1.1	32.9	927.4	645.6	274.8	39.2	1.000218
9500.0	717.5	1.2	19.0	910.3	645.5	277.9	42.4	1.000209
10000.0	703.8	.1	16.7	896.8	644.2	280.6	45.6	1.000205
10500.0	690.6	-.6	15.4	882.3	643.3	282.9	48.4	1.000201
11000.0	677.4	-.6	15.0	868.2	642.5	284.2	50.1	1.000198
11500.0	664.4	-.2	15.0	855.2	640.9	284.6	50.1	1.000194
12000.0	651.7	-.3	15.0	842.3	639.6	285.2	49.0	1.000191
12500.0	639.2	-.4	15.0	829.7	638.2	286.2	47.6	1.000188
13000.0	626.9	-.0	15.0	817.2	636.9	287.4	48.1	1.000185
13500.0	614.9	-.7	15.0	805.0	635.5	288.3	49.8	1.000182
14000.0	603.1	-.3	15.0	793.0	634.1	290.3	52.1	1.000179
14500.0	591.5	-.6	14.9	778.8	633.7	293.3	55.1	1.000176
15000.0	580.1	-.7	14.5	760.6	635.0	300.6	61.0	1.000172
15500.0	568.9	-.6	14.2	742.8	636.3	305.0	68.6	1.000168
16000.0	557.9	-.6	14.0	726.1	636.5	306.4	77.6	1.000165
16500.0	547.1	-.6	14.0	715.6	635.8	305.9	80.4	1.000162
17000.0	536.5	-.7	14.0	703.4	635.1	304.7	80.1	1.000159
17500.0	526.1	-.8	14.2	692.8	633.7	303.7	77.4	1.000157
18000.0	515.8	-.8	14.5	682.6	632.1	302.8	74.1	1.000154
18500.0	505.8	-.9	14.8	672.5	630.6	300.5	75.3	1.000152
19000.0	495.8	-.9	15.1	662.7	628.9	297.9	70.8	1.000150
19500.0	485.4	-.9	15.5	653.1	627.2	295.4	82.4	1.000147
20000.0	475.2	-.9	15.8	643.6	625.4	292.9	85.7	1.000145
20500.0	465.0	-.9	16.2	634.3	623.7	290.7	89.1	1.000143
21000.0	454.9	-.9	16.5	625.1	621.9	289.0	90.6	1.000141
21500.0	445.2	-.9	16.9	616.1	620.2	288.0	88.3	1.000139
22000.0	435.1	-.9	17.3	606.8	618.5	287.0	86.1	1.000136
22500.0	430.0	-.9	17.6	597.3	617.0	286.0	82.9	1.000134
23000.0	421.2	-.9	18.0	588.0	615.4	286.1	80.8	1.000132

STATION ALTITUDE 3989.00 F. T MSL  
 10 DEC. 83 0815 HRS MST  
 ASCENSION NO. 618

PPFR AIR DATA  
 3440020610  
 WHITE SANDS  
 TABLE 6 Con't

GEOMETRIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 Lon DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup> METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES(TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
23500.0	412.5	-24.9	18.4	579.8	613.0	285.2	83.5	1.000130
24000.0	404.0	-26.2	18.8	569.8	612.3	284.4	85.3	1.000128
24500.0	395.5	-27.5	19.3	561.0	610.6	283.6	86.2	1.000126
25000.0	387.2	-29.0	20.0	552.4	608.8	283.0	86.1	1.000124
25500.0	379.1	-30.4	20.6	543.9	607.0	282.6	85.6	1.000122
26000.0	371.1	-31.8	21.3	535.6	605.2	282.7	86.5	1.000120
26500.0	363.2	-33.3	21.9	527.4	603.4	282.9	88.0	1.000118
27000.0	355.4	-34.8	22.0	518.4	602.1	283.3	91.9	1.000116
27500.0	347.8	-35.2	22.0	509.3	600.9			1.000114
28000.0	340.3	-35.6	22.0	499.0	600.5			1.000112

STATION ALTITUDE 3989.00 F. I T MSL  
 10 DEC. 63 0815 HRS MST  
 ASCENSION NO. 018

MANDATORY LEVELS  
 3440020016  
 WHITE SANDS

GEOPETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LOI DEG

TABLE 7

PRESSURE GEOPHYSITA, MILLIBARS	FEET	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4947.	11.0	31.	277.1	6.2
800.0	6502.	6.3	42.	273.5	13.3
750.0	8314.	1.9	44.	271.0	34.1
700.0	10174.	-2	16.	281.3	46.4
650.0	12067.	-3.9	15.	285.3	48.7
600.0	14121.	-8.6	15.	291.1	52.9
550.0	16344.	-6.8	14.	306.3	80.6
500.0	18764.	-12.0	15.	299.0	77.3
450.0	21371.	-19.5	17.	288.2	66.8
400.0	24201.	-26.8	19.	284.0	65.7
350.0	27306.	-35.1	22.		



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

SIGNIFICANT LEVEL DATA  
 3440100179  
 LC-37

GEODETTIC COORDINATES  
 32.40175 LAT DEG  
 106.51232 LONG DEG

TABLE 8

PRESSURE MILLIBARS	GEOGRAPHIC ALTITUDE MEL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	
874.5	4051.4	12.2	-1.0	40.0
871.2	4280.8	12.1	-6.3	27.0
850.0	4955.3	9.9	-6.0	32.0
810.8	6234.5	6.1	-6.1	41.0
771.7	7555.8	2.3	-6.0	54.0
752.4	8225.5	.0	-9.2	50.0
730.7	8673.6	.0	-9.9	47.0
736.7	8780.5	-.1	-13.0	37.0
720.9	9353.9	3.0	-21.1	15.0
700.0	10133.6	1.2	-22.5	15.0
677.9	11761.5	-2.4	-26.2	14.0
673.2	11940.5	-2.4	-25.4	15.0
654.4	12707.2	-4.3	-27.7	14.0
601.6	13996.5	-4.0	-27.5	14.0
550.9	16347.8	-7.9	-31.4	13.0
500.0	18797.0	-13.9	-34.8	15.0
468.7	20390.9	-18.0	-37.0	17.0
400.0	24220.5	-27.9	-42.9	22.0
364.5	26390.5	-32.6	-40.6	23.0
357.6	26839.1	-33.2	-40.7	24.0
355.5	26075.7	-32.2	-40.3	23.0
344.2	27724.8	-33.0	-40.9	23.0
337.6	28174.1	-34.0	-47.8	23.0

STATION ALTITUDE 4951.3 FEET MSL  
 10 DEC. 83  
 ASCENSION NO. 174

UPPER AIR DATA  
 3440180179  
 LC-37

GEOMETRIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LOJ DEG

TABLE 9

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES	TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
4051.4	878.5	12.2	-1.0	40.0	1069.9	656.4	50.0	4.1	1.000265
4500.0	864.3	11.4	-6.2	28.6	1056.4	657.7	9.5	3.0	1.000253
5000.0	846.6	9.8	-6.6	32.3	1043.1	655.8	323.6	4.1	1.000251
5500.0	833.1	8.3	-5.9	35.8	1029.4	654.1	304.4	6.5	1.000248
6000.0	817.8	6.8	-6.1	39.3	1015.9	652.4	295.4	9.2	1.000245
6500.0	802.4	5.3	-6.0	43.6	1002.4	650.7	288.9	13.1	1.000242
7000.0	787.9	3.9	-5.9	48.5	988.9	649.1	285.1	17.1	1.000240
7500.0	773.3	2.5	-6.0	53.5	975.0	647.4	280.2	21.1	1.000237
8000.0	758.8	1.1	-6.1	51.3	963.5	645.3	276.6	25.3	1.000231
8500.0	744.6	0.0	-9.0	48.2	948.2	644.3	273.1	34.9	1.000226
9000.0	730.6	1.1	-15.1	28.6	927.2	645.5	279.7	46.5	1.000216
9500.0	716.9	2.7	-21.3	15.0	905.0	647.2	287.7	47.8	1.000207
10000.0	703.5	1.5	-22.3	15.0	891.9	645.8	291.6	49.9	1.000204
10500.0	690.3	0.4	-23.3	14.8	878.7	644.5	292.2	52.3	1.000200
11000.0	677.3	-0.7	-24.5	14.5	865.6	643.2	292.6	54.2	1.000197
11500.0	664.5	-1.8	-25.0	14.2	852.8	641.9	292.4	54.5	1.000194
12000.0	651.9	-2.5	-25.0	14.9	838.8	641.0	292.5	54.9	1.000191
12500.0	639.5	-3.8	-27.1	14.3	826.7	639.5	295.1	56.4	1.000188
13000.0	627.3	-4.2	-27.7	14.0	812.3	639.0	297.4	58.0	1.000184
13500.0	615.3	-4.1	-27.0	14.0	796.4	639.1	299.9	60.0	1.000181
14000.0	603.5	-4.0	-27.3	14.0	780.9	639.3	303.0	63.0	1.000177
14500.0	591.9	-4.8	-28.3	13.8	768.2	638.3	305.7	66.2	1.000174
15000.0	580.5	-5.7	-29.2	13.6	755.8	637.3	308.3	69.5	1.000171
15500.0	569.3	-6.5	-30.0	13.4	743.6	636.3	308.1	72.9	1.000168
16000.0	558.4	-7.3	-30.8	13.1	731.5	635.3	307.4	76.3	1.000165
16500.0	547.6	-8.3	-31.6	13.1	720.0	634.1	306.8	79.7	1.000163
17000.0	536.9	-9.5	-32.3	13.5	709.2	632.7	305.9	82.9	1.000160
17500.0	526.3	-10.7	-33.0	13.9	698.5	631.2	304.1	85.5	1.000158
18000.0	516.0	-11.9	-33.7	14.3	688.0	629.7	302.4	88.2	1.000155
18500.0	505.9	-13.2	-34.4	14.8	677.7	628.2	300.6	90.6	1.000153
19000.0	495.9	-14.4	-35.1	15.3	667.6	626.7	299.6	90.3	1.000150
19500.0	486.0	-15.7	-35.3	15.9	657.5	625.2	298.3	90.1	1.000148
20000.0	476.3	-17.0	-36.4	16.5	647.6	623.6	296.6	89.3	1.000146
20500.0	466.7	-18.3	-37.1	17.1	637.8	622.0	294.2	88.0	1.000143
21000.0	457.2	-19.6	-37.9	17.8	627.9	620.4	291.8	88.1	1.000141
21500.0	447.8	-20.9	-39.0	18.4	618.2	618.9	289.4	89.5	1.000139
22000.0	438.6	-22.1	-39.4	19.1	608.6	617.3	287.4	90.6	1.000137
22500.0	429.6	-23.4	-40.1	19.7	599.2	615.7	285.6	91.3	1.000135
23000.0	420.8	-24.7	-40.9	20.4	590.0	614.1	284.0	92.3	1.000132
23500.0	412.1	-26.0	-41.7	21.1	580.9	612.5	283.6	93.6	1.000130

UPPER AIR DATA  
 3440180179  
 LC-37

STATION ALTITUDE 4051.37 F T SL  
 10 DEC. 83 0915 MRS MST  
 ASCENSION NO. 179

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LONG DEG

TABLE 9 Con't

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND MNOTS	WIND DATA DIRECTION (DEGREES (TN))	SPEED KNOTS	INDEX OF REFRACTION
24000.0	403.7	-27.5	21.7	572.0	610.0	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 FT, 1 MSL.  
 10 DEC. 83  
 ASCENSION NO. 179

MANDATORY LEVELS  
 3440180179  
 LC-37

GEODETL COORDINATES  
 32.40175 LAT DEG  
 106.31232 LONG DEG

TABLE 10

PRESSURE (GEOPOTENTIAL) MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA		
			DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4952.	9.9	-6.0	320.5	5.9
800.0	6589.	5.1	-6.0	288.0	13.8
750.0	8302.	.0	-9.3	274.3	31.0
700.0	10124.	1.2	-22.5	291.7	50.5
650.0	12063.	-2.7	-25.8	292.9	55.1
600.0	14135.	-4.3	-27.7	303.8	63.9
550.0	16369.	-8.0	-31.5	306.9	78.9
500.0	18771.	-13.9	-34.8	300.1	90.4
450.0	21362.	-20.5	-38.4	290.0	89.2
400.0	24180.	-27.9	-42.9	283.5	95.6
350.0	27288.	-32.6	-46.6		

GEODETIC COORDINATES  
 52.40043 LAT DEG  
 106.37033 LO. DEG

SIGNIFICANT LEVEL DATA  
 3440020619  
 WHITE SANDS

STATION ALTITUDE 34400.00 FEET MSL  
 10 DEC. 83  
 ASCENSION NO. 019

TABLE 11

PNEUMATIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
881.4	14.8	34.0
874.1	14.1	27.0
850.0	11.9	31.0
750.2	.0	52.0
711.6	-4	32.0
700.0	-1	24.0
667.5	-7	16.0
650.7	-2.1	15.0
594.4	-2.4	15.0
534.4	-7.9	14.0
500.0	-12.8	18.0
461.3	-18.7	23.0
410.6	-24.9	43.0
400.0	-26.6	30.0
357.9	-33.6	44.8
351.1	-34.5	33.0

STATION ALTITUDE 3089.0 FT FRET MSL  
 10 DEC 63  
 ASCENSION NO. 019

UPPER AIR DATA  
 340020019  
 WHITE SANDS

GEOMETRIC COORDINATES  
 32°40'04" LAT DEG  
 106°37'03" LONG DEG

TABLE 12

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARMS	AIR TEMPERATURE DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACT, 0.1
3989.0	981.4	14.8	-9	34.0	1063.7	661.4	260.0	6.0	1.000263
4000.0	981.1	14.8	-1.1	33.7	1063.4	661.0	260.4	6.1	1.000263
4500.0	955.5	13.5	-4.0	28.5	1050.3	660.0	272.7	9.2	1.000254
5000.0	949.7	11.9	-4.7	31.0	1036.5	656.5	278.0	12.6	1.000251
5500.0	934.1	10.4	-4.9	33.6	1022.7	656.7	282.0	16.0	1.000248
6000.0	918.7	9.0	-5.2	36.2	1009.0	655.0	284.1	19.5	1.000245
6500.0	903.6	7.5	-5.0	38.8	995.0	653.3	282.5	21.1	1.000241
7000.0	888.8	6.0	-6.1	41.3	982.4	651.0	281.3	22.5	1.000238
7500.0	874.3	4.6	-6.6	43.9	969.4	649.6	281.7	22.3	1.000234
8000.0	860.0	3.1	-7.2	46.5	956.6	648.1	282.4	22.4	1.000231
8500.0	846.0	1.7	-7.9	49.0	944.0	646.4	286.0	26.4	1.000227
9000.0	832.5	.2	-8.5	51.6	931.0	644.7	289.0	30.5	1.000224
9500.0	818.6	-.2	-12.3	39.5	916.1	644.0	292.0	35.3	1.000216
10000.0	805.0	-.2	-16.7	27.5	899.1	643.9	293.7	39.5	1.000209
10500.0	791.7	-.2	-19.5	22.0	882.4	643.8	292.6	44.0	1.000203
11000.0	778.7	-.5	-21.3	18.8	866.6	643.5	288.7	48.9	1.000199
11500.0	765.9	-.8	-23.4	16.0	851.2	643.1	288.2	50.2	1.000194
12000.0	753.5	-1.2	-24.0	15.6	836.5	642.0	290.4	52.8	1.000191
12500.0	740.9	-1.7	-24.7	15.3	822.1	642.0	293.1	54.7	1.000187
13000.0	728.8	-2.1	-25.2	15.0	807.6	641.5	297.7	56.2	1.000184
13500.0	716.9	-2.2	-25.3	15.0	792.8	641.4	303.4	57.8	1.000181
14000.0	705.1	-2.3	-25.4	15.0	778.0	641.3	306.6	61.4	1.000177
14500.0	693.7	-2.5	-25.5	15.0	763.7	641.1	308.3	66.0	1.000174
15000.0	682.5	-3.5	-26.4	14.8	751.8	639.9	309.7	70.7	1.000171
15500.0	671.1	-4.5	-27.4	14.6	740.2	638.7	309.1	73.6	1.000168
16000.0	660.1	-5.5	-28.3	14.4	728.7	637.5	307.6	75.7	1.000165
16500.0	649.4	-6.5	-29.3	14.3	717.4	636.3	306.2	77.8	1.000163
17000.0	638.4	-7.5	-30.2	14.1	706.3	635.1	304.6	78.5	1.000160
17500.0	628.4	-8.7	-30.8	14.7	695.9	633.6	302.6	78.2	1.000158
18000.0	618.1	-10.2	-31.2	15.9	686.1	631.9	301.6	78.0	1.000155
18500.0	607.4	-11.6	-31.7	17.1	676.4	630.1	299.0	76.6	1.000153
19000.0	596.0	-13.1	-32.2	18.3	666.9	628.5	298.2	74.7	1.000151
19500.0	585.0	-14.6	-32.7	19.5	657.3	626.5	296.8	73.0	1.000149
20000.0	574.5	-16.0	-33.4	20.8	647.9	624.8	295.1	73.7	1.000146
20500.0	564.4	-17.5	-34.0	23.0	638.6	623.0	293.7	77.5	1.000144
21000.0	554.4	-19.0	-34.4	23.0	629.4	621.2	292.9	83.0	1.000142
21500.0	545.0	-20.5	-33.9	28.3	619.6	619.5	291.7	83.1	1.000140
22000.0	536.0	-21.7	-33.7	32.6	610.4	617.9	290.2	79.0	1.000138
22500.0	527.0	-23.0	-33.0	37.0	601.2	616.2	288.3	74.3	1.000136
23000.0	518.4	-24.4	-33.7	41.3	592.1	614.0	285.6	71.0	1.000134

STATION ALTITUDE 3909.00 F , T MSL  
 10 DEC. 83  
 ASCENSION (G. C. 19  
 1004 MKS MST

UPPER AIR DATA  
 3440020619  
 WHITE SANDS

TABLE 12 Con't

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DIR. DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION	GEODETIC COORDINATES	
							32.40043 LAT DEG	106.37033 LON DEG
23500.0	414.2	-25.4	39.5	262.6	70.8	1.000132		
24000.0	405.6	-26.1	33.8	281.6	70.9	1.000129		
24500.0	397.2	-27.0	30.1	280.6	85.7	1.000126		
25000.0	388.8	-28.4	30.3	280.2	88.7	1.000124		
25500.0	380.6	-29.7	30.4	279.7	91.8	1.000122		
26000.0	372.5	-31.1	30.6	278.5	87.2	1.000120		
26500.0	364.7	-32.4	30.8	276.8	82.5	1.000118		
27000.0	357.0	-33.7	31.3			1.000116		

STATION ALTITUDE 3989.00 FT. T. SL  
 10 DEC. 83 1004 HRS MST  
 ASCENSION NO. 019

MANDATORY LEVELS  
 3440020019  
 WHITE SALUS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LO. DEG

TABLE 13

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEEET	AIR DEGREES CENTIGRADE	DEWPOINT	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
830.0	4987.	11.9	-4.7	31.	270.5	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	-18.2	24.	294.0	40.8	
650.0	12120.	-1.4	-24.2	16.	291.1	55.3	
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.	-12.8	-32.1	18.	298.5	75.1	
450.0	21471.	-20.3	-33.9	28.	291.7	85.1	
400.0	24203.	-26.6	-34.9	30.	281.0	84.3	



END

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