

AO-A137 299

MISSILE NUMBER 330 346 351 353 357 ROUND NUMBER
547/DL-61 THRU 551/DL-65(U) ARMY ELECTRONICS RESEARCH
AND DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER
DEC 83 ERADCOM/ASL-DR-1332

1/1

UNCLASSIFIED

F/G 4/2

NL

END

FILED

DATE



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. A137299	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.		

CONTENTS

PAGE

INTRODUCTION-----	1
DISCUSSION-----	1
GENERAL AREA MAP-----	2
LAUNCH AREA DIAGRAM-----	3
TABLES:	
1. Surface Observations taken at 1004 MST at LC-33-----	4
2. Anemometer-Measured Wind Speed and Direction, Tower Levels 1, 2, 3, and 4, taken at 1004 MST-----	5
3. Launch and Impact Pilot-Balloon Measured Wind Data-----	6
4. Aiming and T-Time Computer Met Messages-----	7
5. WSD Significant Level Data at 0815 MST-----	8
6. WSD Upper Air Data at 0815 MST-----	9
7. WSD Mandatory Levels at 0815 MST-----	11
8. LC-37 Significant Level Data at 0915 MST-----	12
9. LC-37 Upper Air Data at 0915 MST-----	13
10. LC-37 Mandatory Levels at 0915 MST-----	15
11. WSD Significant Level Data at 1004 MST-----	16
12. WSD Upper Air Data at 1004 MST-----	17
13. WSD Mandatory Levels at 1004 MST-----	19

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 (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
DON 2 km

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

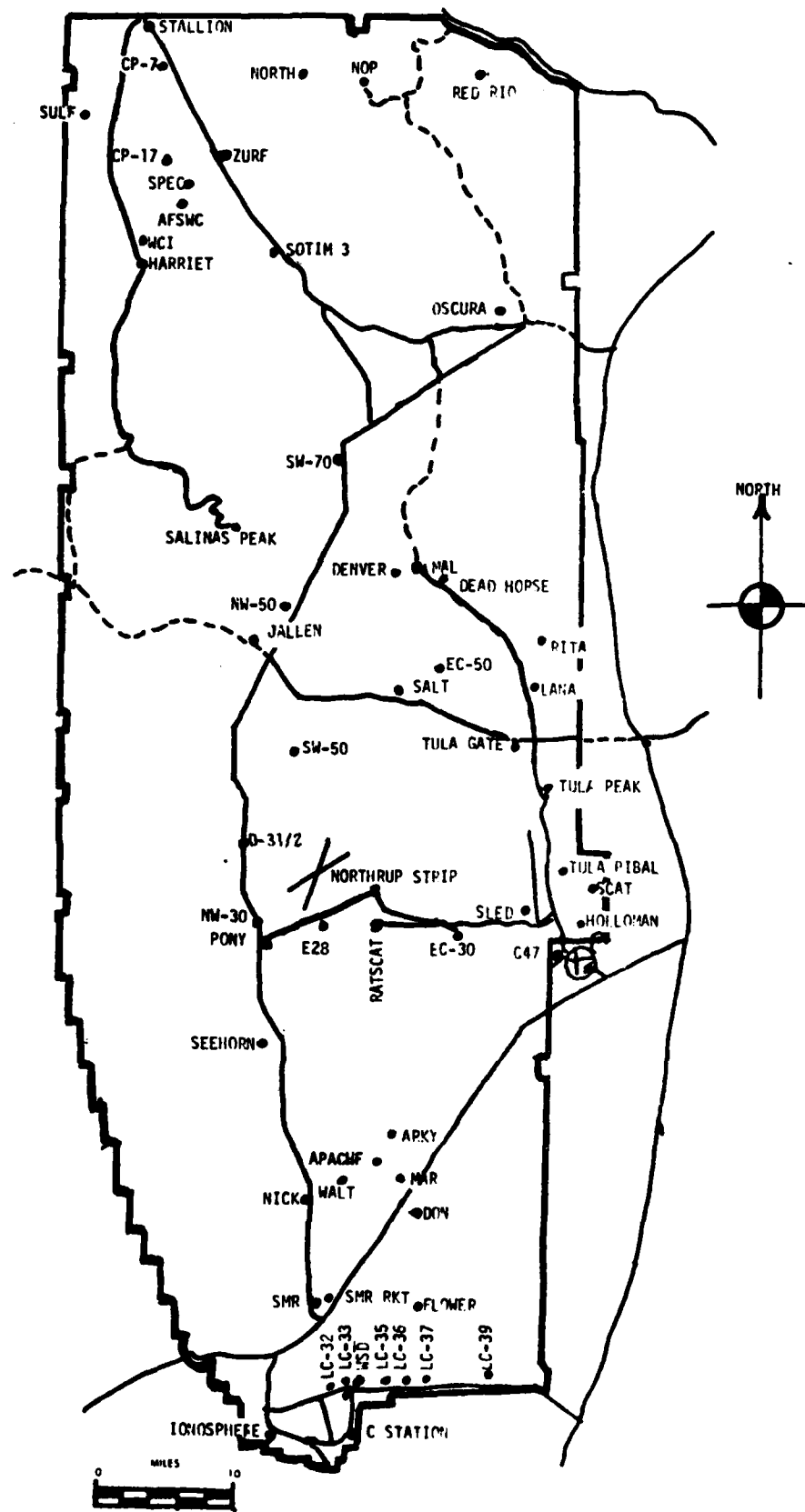
SITE AND TIME

WSD 0815 MST
LC-33 0915 MST
WSD 1004 MST

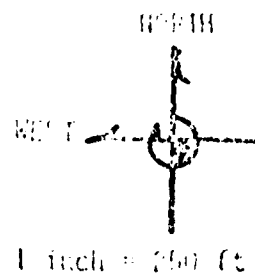
Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	



WSMR METEOROLOGICAL SITES



LC-35
Launch Area



Y186,500

LINE OF FIRE

Anemometer Pole #3

Anemometer Pole #2

MET
Tower

Y186,000

T-9 Radar

L-579A

L-519A

L-351A

L-350A

Anemometer Pole #1

Y185,500

X485,000

X495,500

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 ³	WIND		VISIBIL- ITY
						DIRECTION degs	SPEED In 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	
	TYPE		TYPE		TYPE		
	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

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

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 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 3989.00 FEET MSL
10 DEC. 83
ASLENSION NO. 018
UB15 MRS MST

SIGNIFICANT LEVEL DATA
3040020618
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LO, DEG

TABLE 5

PRESSURE	GEOMETRIC ALTITUDE MILLIPASMS MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
880.3	3089.0	12.0	38.0
862.9	4315.8	12.3	28.0
850.0	4950.9	11.0	31.0
776.9	7383.2	4.0	47.0
764.1	7820.6	3.5	41.0
743.0	8570.0	1.1	45.0
717.5	9492.8	1.2	19.0
700.0	10143.5	-2	16.0
684.0	10750.4	-9	15.0
595.6	14324.6	-9.0	15.0
564.0	15719.4	-6.0	14.0
534.9	17076.7	-7.6	14.0
500.0	18790.5	-12.0	15.0
445.0	21670.3	-20.3	17.0
400.0	24240.7	-26.8	19.0
362.5	26540.9	-33.4	22.0
348.9	27427.4	-35.2	22.0
338.0	28154.8	-35.7	22.0
335.3	28338.9	-34.5	21.0

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

UPPER AIR DATA
3440020018
WHITE SANDS

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/CM ³	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	880.0	12.0	38.0	1073.0	658.6	280.0	6.0	1.000264
4000.0	873.9	12.0	37.7	1072.5	658.0	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	840.5	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	276.0	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	786.0	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	-6.6	15.4	882.3	643.3	282.9	48.4	1.000201
11000.0	677.4	-1.5	15.0	868.2	642.5	284.2	50.1	1.000198
11500.0	664.4	-2.6	15.0	855.2	640.9	284.6	50.1	1.000194
12000.0	651.7	-3.7	15.0	842.3	639.6	285.2	49.0	1.000191
12500.0	639.2	-4.9	15.0	829.7	638.2	286.2	47.6	1.000188
13000.0	626.9	-6.0	15.0	817.2	636.9	287.4	48.1	1.000185
13500.0	614.9	-7.1	15.0	805.0	635.5	288.3	49.8	1.000182
14000.0	603.1	-8.3	15.0	793.0	634.1	290.3	52.1	1.000179
14500.0	591.5	-8.6	14.9	778.8	633.7	293.3	55.1	1.000176
15000.0	580.1	-7.5	14.5	760.6	635.0	300.6	61.0	1.000172
15500.0	568.9	-6.5	14.2	742.8	636.5	305.0	68.6	1.000168
16000.0	557.9	-6.3	14.0	728.1	636.5	306.4	77.6	1.000165
16500.0	547.1	-6.9	14.0	715.6	635.8	305.9	80.4	1.000162
17000.0	536.5	-7.5	14.0	703.4	635.1	304.7	80.1	1.000159
17500.0	526.1	-8.7	14.2	692.8	633.7	303.7	77.4	1.000157
18000.0	515.8	-10.0	14.5	682.6	632.1	302.8	74.1	1.000154
18500.0	505.8	-11.5	14.8	672.5	630.6	300.5	75.3	1.000152
19000.0	495.8	-12.6	15.1	662.7	628.9	297.9	70.8	1.000150
19500.0	485.4	-14.0	15.5	653.1	627.2	295.4	82.4	1.000147
20000.0	476.2	-15.5	15.8	643.8	625.4	292.9	85.7	1.000145
20500.0	466.0	-16.9	16.2	634.3	623.7	290.7	89.1	1.000143
21000.0	457.5	-18.4	16.5	625.1	621.9	289.0	90.6	1.000141
21500.0	448.2	-19.8	16.9	616.1	620.2	288.0	88.3	1.000139
22000.0	439.1	-21.1	17.3	606.8	618.5	287.0	86.1	1.000136
22500.0	430.0	-22.4	17.6	597.3	617.0	286.0	82.9	1.000134
23000.0	421.2	-23.7	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 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	412.5	-24.9	18.4	570.8	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	395.6	-27.5	19.3	561.0	610.6	283.0	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	-34.5	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 FT MSL
10 DEC. 63 0815 HRS MST
ASCENSION NO. 014

MANDATORY LEVELS
3440020016
WHITE SANDS

GEOPETIC COORDINATES
32.40043 LAT DEG
106.37033 LOI DEG

TABLE 7

PRESSURE GEOPOTENTIAL, MILLIBARS	FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4947.	11.0	-5.5	31.	277.1	6.2
800.0	6502.	6.3	-5.7	42.	273.5	13.3
750.0	8314.	1.9	-9.1	44.	271.0	34.1
700.0	10174.	-2.	-22.9	16.	281.3	46.4
650.0	12067.	-3.9	-26.6	15.	285.3	48.7
600.0	14121.	-8.6	-30.5	15.	291.1	52.9
550.0	16344.	-6.8	-29.7	14.	306.3	80.6
500.0	18764.	-12.0	-33.3	15.	299.0	77.3
450.0	21371.	-19.5	-38.4	17.	288.2	68.8
400.0	24201.	-26.8	-43.3	19.	284.0	85.7
350.0	27306.	-35.1	-49.1	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
106.31232 LONG DEG

TABLE 8

PRESSURE	GEOGRAPHIC	TEMPERATURE	REL. HUM.
MILLIBARS	ALTITUDE	AIR DEWPOINT	PERCENT
	MSL FEET	DEGREES CENTIGRADE	
874.5	4051.4	-1.0	40.0
871.2	4280.8	-6.3	27.0
850.0	4955.3	-6.0	32.0
810.8	6234.5	-6.1	41.0
771.7	7555.8	-6.0	54.0
752.4	8225.5	-9.2	50.0
730.7	8673.6	-9.9	47.0
736.7	8780.5	-13.0	37.0
720.9	9353.9	-21.1	15.0
700.0	10133.6	-22.5	15.0
677.9	11761.5	-26.2	14.0
673.2	11940.5	-25.4	15.0
634.4	12707.2	-27.7	14.0
601.6	13996.5	-27.5	14.0
550.9	16347.8	-31.4	13.0
500.0	18797.0	-34.8	15.0
468.7	20390.9	-37.0	17.0
400.0	24220.5	-42.9	22.0
364.5	26390.5	-40.6	23.0
357.6	26839.1	-40.7	24.0
355.5	26075.7	-40.3	23.0
344.2	27724.8	-40.9	23.0
337.6	28174.1	-47.8	23.0

STATION ALTITUDE 4051.37 FEET MSL
10 DEC. 83
ASCENSION NO. 174

UPPER AIR DATA
3440180179
LC-37

GEOMETRIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

TABLE 9

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR 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	864.3	11.4	28.6	1056.4	657.7	9.5	3.0	1.000253
5000.0	846.6	9.8	32.3	1043.1	655.8	323.6	4.1	1.000251
5500.0	833.1	8.3	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	802.4	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	773.3	2.5	53.5	975.0	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	287.7	47.8	1.000207
10000.0	703.5	1.5	15.0	891.9	645.8	291.6	49.9	1.000204
10500.0	690.3	.4	14.8	878.7	644.5	292.2	52.3	1.000200
11000.0	677.3	.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	627.3	-4.2	14.0	812.3	639.0	297.4	58.0	1.000184
13500.0	615.3	-4.1	14.0	796.4	639.1	299.9	60.0	1.000181
14000.0	603.3	-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	569.3	-6.5	13.4	743.6	636.3	308.1	72.9	1.000168
16000.0	558.4	-7.3	13.1	731.5	635.3	307.4	76.3	1.000165
16500.0	547.6	-8.3	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	526.3	-10.7	13.9	698.5	631.2	304.1	85.5	1.000158
18000.0	516.0	-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	667.0	626.7	299.6	90.3	1.000150
19500.0	486.0	-15.7	15.9	657.5	625.2	298.3	90.1	1.000148
20000.0	476.3	-17.0	16.5	647.0	623.6	296.6	89.3	1.000146
20500.0	466.7	-18.3	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	429.6	-23.4	19.7	599.2	615.7	285.0	91.3	1.000135
23000.0	420.8	-24.7	20.4	590.0	614.1	284.0	92.3	1.000132
23500.0	412.1	-26.0	21.1	580.9	612.5	283.0	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/CM ³ , METER	SPEED OF SOUND M/SEC	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES (TN)	SPEED KNOTS	
24000.0	403.7	-27.3	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

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

TABLE 10

PRESSURE (GEOPOTENTIAL)		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4952.	9.9	-6.0	32.	326.5	5.9
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.		

GEODETIC COORDINATES
 52.40043 LAT DEG
 106.37033 LO. DEG

SIGNIFICANT LEVEL DATA
 3440020619
 WHITE SANDS

STATION ALTITUDE 3440.00 FEET MSL
 10 DEC. 83
 ASCENSION NO. 019

TABLE 11

PRESSURE GFOFTIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
831.4	14.8	-0.9	34.0
874.1	14.1	-4.6	27.0
890.0	11.9	-4.7	31.0
730.2	.0	-0.7	52.0
711.6	-0.4	-15.0	32.0
700.0	-0.1	-10.2	24.0
667.5	-0.7	-23.3	16.0
630.7	-2.1	-25.2	15.0
594.4	-2.4	-25.4	15.0
534.4	-7.9	-30.6	14.0
500.0	-12.8	-32.1	18.0
461.3	-18.7	-34.6	23.0
410.6	-24.9	-35.8	43.0
400.0	-26.6	-30.9	30.0
357.9	-33.6	-44.8	31.0
351.1	-34.5	-45.0	33.0

STATION ALTITUDE 3089.00 FEET MSL
10 DEC. 83
ASCENSION NO. 019

UPPER AIR DATA
3440020019
WHITE SANDS

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

TABLE 12

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 REFRACT, N.
3989.0	981.4	14.8	34.0	1063.7	661.4	260.0	6.0	1.000263
4000.0	981.1	14.8	33.7	1063.4	661.0	260.4	6.1	1.000263
4500.0	965.3	13.3	28.5	1050.3	660.0	272.7	9.2	1.000254
5000.0	949.7	11.9	31.0	1036.5	656.3	278.0	12.6	1.000251
5500.0	934.1	10.4	33.6	1022.7	656.7	282.0	16.0	1.000248
6000.0	918.7	9.0	36.2	1009.0	655.0	284.1	19.5	1.000245
6500.0	903.6	7.5	38.8	995.0	653.3	282.5	21.1	1.000241
7000.0	888.8	6.0	41.3	982.4	651.0	281.3	22.5	1.000238
7500.0	874.3	4.6	43.9	969.4	649.6	281.7	22.3	1.000234
8000.0	860.0	3.1	46.5	956.6	648.1	282.4	22.4	1.000231
8500.0	846.0	1.7	49.0	944.0	646.4	286.0	26.4	1.000227
9000.0	832.3	0.2	51.6	931.0	644.7	289.0	30.5	1.000224
9500.0	818.6	-0.2	59.5	916.1	644.0	292.0	35.3	1.000216
10000.0	805.0	-0.2	67.5	899.1	643.9	293.7	39.5	1.000209
10500.0	791.7	-0.2	75.0	882.4	643.8	292.6	44.0	1.000203
11000.0	778.7	-0.5	82.8	866.6	643.5	288.7	48.9	1.000199
11500.0	765.9	-0.8	90.0	851.2	643.1	280.2	50.2	1.000194
12000.0	753.3	-1.2	97.5	836.5	642.0	290.4	52.8	1.000191
12500.0	740.9	-1.7	105.0	822.1	642.0	293.1	54.7	1.000187
13000.0	728.6	-2.1	112.5	807.6	641.5	297.7	56.2	1.000184
13500.0	716.9	-2.2	120.0	792.8	641.4	303.4	57.8	1.000181
14000.0	705.1	-2.3	127.5	778.0	641.3	306.6	61.4	1.000177
14500.0	693.7	-2.5	135.0	763.7	641.1	308.3	66.0	1.000174
15000.0	682.3	-3.5	142.5	751.8	639.9	309.7	70.7	1.000171
15500.0	671.1	-4.5	150.0	740.2	638.7	309.1	73.6	1.000168
16000.0	660.1	-5.5	157.5	728.7	637.5	307.0	75.7	1.000165
16500.0	649.4	-6.5	165.0	717.4	636.3	306.2	77.8	1.000163
17000.0	638.4	-7.5	172.5	706.3	635.1	304.6	78.5	1.000160
17500.0	628.0	-8.7	180.0	695.9	633.6	302.6	78.2	1.000158
18000.0	618.1	-10.2	187.5	686.1	631.9	301.6	78.0	1.000155
18500.0	607.9	-11.6	195.0	676.4	630.1	299.0	76.6	1.000153
19000.0	598.0	-13.1	202.5	666.9	628.3	298.2	74.7	1.000151
19500.0	588.3	-14.6	210.0	657.3	626.5	296.8	73.0	1.000149
20000.0	578.8	-16.0	217.5	647.9	624.8	295.1	73.7	1.000146
20500.0	569.4	-17.5	225.0	638.6	623.0	293.7	77.5	1.000144
21000.0	560.0	-19.0	232.5	629.4	621.2	292.9	83.0	1.000142
21500.0	550.6	-20.5	240.0	619.6	619.5	291.7	83.1	1.000140
22000.0	541.8	-21.7	247.5	610.4	617.9	290.2	79.0	1.000138
22500.0	533.0	-23.0	255.0	601.2	616.2	288.3	74.3	1.000136
23000.0	524.4	-24.4	262.5	592.1	614.0	285.6	71.0	1.000134

STATION ALTITUDE 3909.00 F, T MSL
 10 DEC. 83
 ASCENSION NO. 019

UPPER AIR DATA
 3440020619
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 12 Con't

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
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	270.5	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 F. T. SL
10 DEC. 83 1004 HRS MST
ASCENSION NO. 019

MANDATORY LEVELS
3440020019
WHITE SALTS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LO. DEG

TABLE 13

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
830.0	4607.	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.	-1.1	-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

FILMED

02-84

DTIC