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19319A MLRS MISSILE NUMBER 323 313 319 309 316 307
ROUND NUMBER 522/DL-37..(U) ARMY ELECTRONICS RESEARCH
AND DEVELOPMENT COMMAND WSMR NM ATM.. D C KELLER

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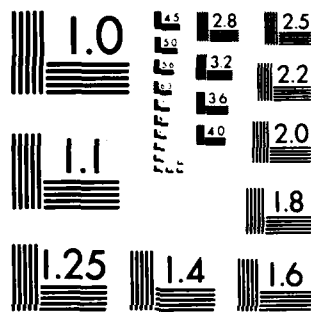
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

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METEOROLOGICAL DATA REPORT

19319A MLRS

Missile Number 323, 313, 319, 309, 316, 307

Round Number 522/DL-37 thru 527/DL-42

by

DONALD C. KELLER

Program Support Coordinator

Phone Number (505) 679-9568

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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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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 323, 313, 319, 309, 316, 307, Round Number 522/DL-37 thru 527/DL-42 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 1508 MST at LC-33-----	4
2. Launch and Impact Pilot-Balloon Measured Wind Data-----	5
3. Aiming and T-Time Computer Met Messages-----	6
4. WSD Significant Level Data at 1315 MST-----	7
5. WSD Upper Air Data at 1315 MST-----	8
6. WSD Mandatory Levels at 1315 MST-----	10
7. LC-37 Significant Level Data at 1400 MST-----	11
8. LC-37 Upper Air Data at 1400 MST-----	12
9. LC-37 Mandatory Levels at 1400 MST-----	14
10. WSD Significant Level Data at 1500 MST-----	15
11. WSD Upper Air Data at 1500 MST-----	16
12. WSD Mandatory Levels at 1500 MST-----	18

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INTRODUCTION

19319A MLRS, Missile Number 323, 313, 319, 309, 316, and 307, Round Number 522/DL-37 thru 527/DL-42, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1508:01, 1508:05, 1508:09, 1508:14, 1508:18 and 1508:23 MST, 14 Nov 83. The scheduled launch times were 1500 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) Monitor of wind speed and direction from one anemometer was provided in the launch control room.

b. Upper Air

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

SITE AND ALTITUDE

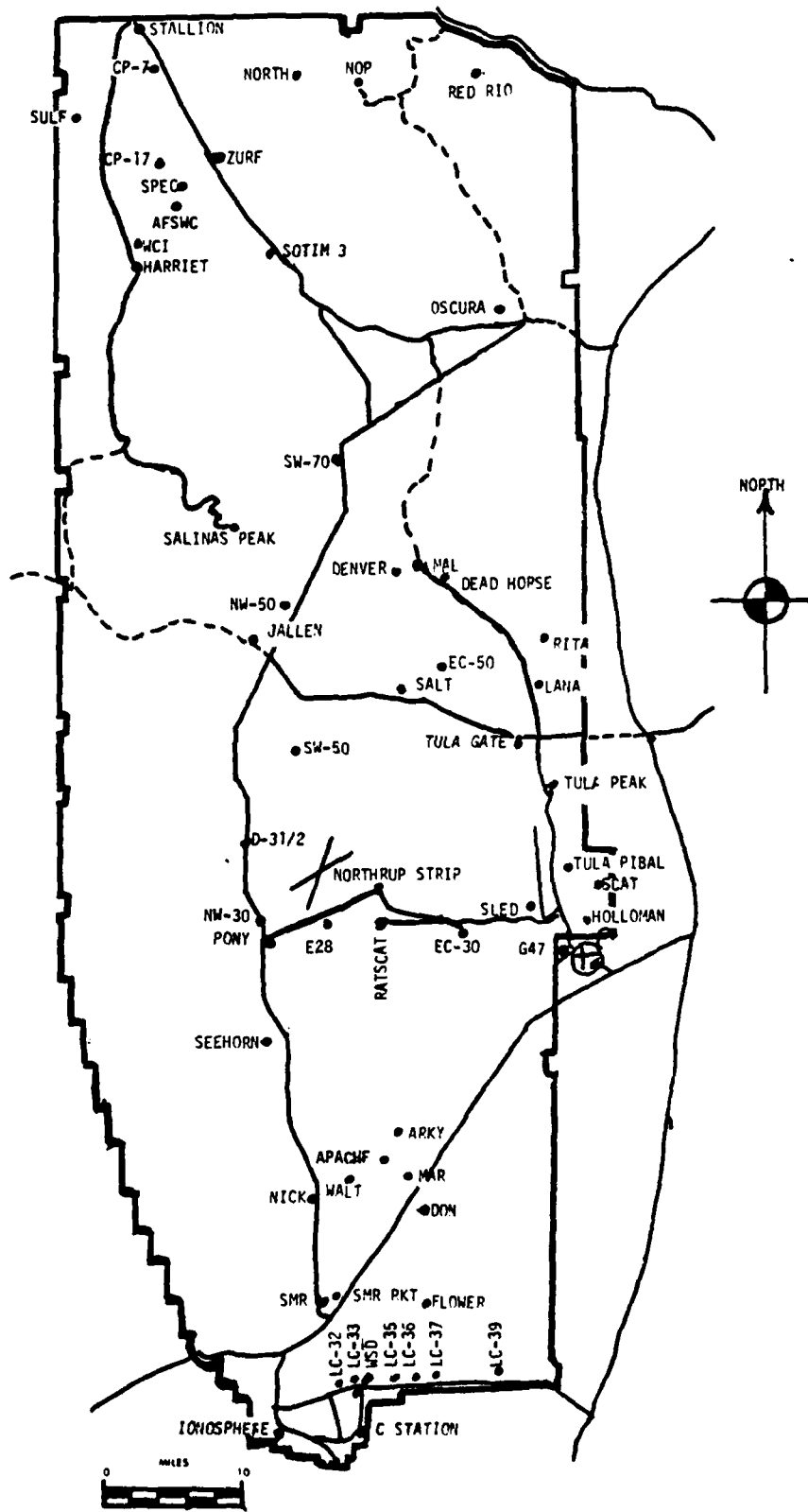
LC-33	2 km
DON	2 km

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

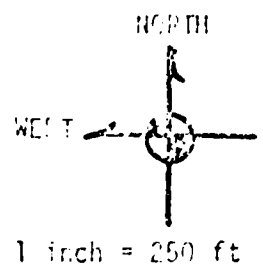
SITE AND TIME

WSD	1315 MST
LC-37	1400 MST
WSD	1500 MST

WSMR METEOROLOGICAL SITES



LC-33
Launch Area



Y186,500
Y186,000
MET Tower
T-9 Radar

LINE OF FIRE
Anemometer Pole #3
Anemometer Pole #2
L-579A
L-351A
Anemometer Pole #1
L-519A
L-350A

X435,000

X435,500

X436,000

Y185,000

L-500

PROJECT SURFACE OBSERVATION

TABLE 1		STATION LC-33	
DATE	14 Nov 83	X=	484,982.64
TIME	1508	Y=	185,957.73
		H=	3995.00

TIME M S T	PRESSURE mbs	TEMPERATURE of °C	DEW POINT of °C	RELATIVE HUMIDITY %	DENSITY gm/m ³	WIND			VISIBIL- ITY
						DIRECTION degs	Tn	SPEED kts	CHARACTER kts
1508	876.2	21.8	1.5	26		260		08	50

OBSTRUCTIONS TO VISIBILITY	CLOUDS							REMARKS		
	1st LAYER		2nd LAYER		3rd LAYER					
	AMT	TYPE	HGT	AMT	TYPE	HGT	AMT		TYPE	HGT
	0	Cu	5,500	0	Sc	13,000				H ALQDS

PSYCHROMETRIC COMPUTATION

TIME:	MST	1508	
DRY BULB TEMP.		21.8	
WET BULB TEMP.		10.9	
WET BULB DEPR.		10.9	
DEW POINT		1.5	
RELATIVE HUMID.		26	

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 14 November 1983

SITE: LC-33

TIME: 1509 MST

WSTM COORDINATES:

X= 484,837.34

Y= 184,124.44

H= 3,975.57

SITE: DON

TIME 1520 MST

WSTM COORDINATES:

X= 511,988.37

Y= 247,396.36

H= 3,996.83

LAYER MIDPOINT	DIRECTION	SPEED
METERS AGL	DEGREES	KNOTS
SURFACE	260	08
150	264	14
210	268	15
270	274	15
330	278	14
390	281	13
500	287	11
650	286	13
800	286	14
950	290	11
1150	296	10
1350	318	07
1550	016	05
1750	319	13
2000	318	20

Data obtained from a Double
Theodolite Tracked pilot-balloon
observation

LAYER MIDPOINT	DIRECTION	SPEED
METERS AGL	DEGREES	KNOTS
SURFACE	350	03
150	350	03
210	339	03
270	317	03
330	299	03
390	294	03
500	290	03
650	314	04
800	311	06
950	324	09
1150	324	11
1350	317	13
1550	314	18
1750	313	22
2000	312	32

Data obtained from a Single
Theodolite Tracked pilot-balloon
observation

TABLE 3

AIMING AND T-TIME COMPUTER MET MESSAGES
14 November 1983

WSD 1315 MST	LC-37 1400 MST	WSD 1500 MST
METCM1324064	METCM1324063	METCM1324064
142030122875	142100124873	142200122876
00524018 29700875	00480012 29500873	00462008 29640876
01517017 29340865	01510016 29340863	01534018 29480865
02523023 29100840	02520015 29060838	02523012 29240841
03526018 28710802	03529016 28650799	03534012 28870802
04566019 28230755	04551012 28210753	04582007 28370756
05569017 27730710	05550020 27790708	05582010 27850711
06534033 27570668	06543037 27780666	06580018 27400669
07520042 27540628	07532042 27550627	07534044 27460628
08506039 27310590	08523047 27230589	08535045 27350590
09524048 26980554	09528052 26850553	09543046 27010555
10527051 26670520	10524051 26650519	10534047 26600520
11519053 26320488	11518057 26300486	11522050 26230488
12513057 25770442	12521064 25700441	12525054 25720442

STATION ALTITUDE 3980.00 FEET MSL
14 NOV. 63 1315 HRS MST
ASCENDING NO. 556

SIGNIFICANT LEVEL DATA
318020556
WHITE SANDS

GEOMETRIC COORDINATES
32.40043 LAT DEG
106.37333 LONG DEG

Table 4

PRESSURE GEOPHIC MILLIBARS	ALTITUDE METER FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
875.3	3989.0	22.8	2.3	6.0
875.1	4060.6	20.9	-4	24.0
867.7	4230.0	19.4	-5.5	21.0
850.0	4810.0	18.2	-5.8	22.0
779.7	7211.4	11.2	-5.3	31.0
700.0	10122.1	2.4	-6.2	53.0
682.9	10777.0	.5	-7.2	56.0
675.4	11145.8	-6	-12.2	41.0
671.6	11210.5	2.0	-13.7	30.0
660.4	11664.1	4.2	-16.7	20.0
627.3	13032.1	1.8	-19.9	18.0
609.1	13811.5	1.4	-19.1	20.0
560.1	15781.1	-2.5	-20.7	23.0
532.5	16084.5	-5.1	-21.6	26.0
522.5	17009.9	-6.2	-23.0	29.0
500.0	18037.1	-8.7	-23.5	29.0
487.2	19596.0	-10.5	-24.0	32.0
473.4	20322.3	-11.3	-26.2	23.0
455.2	21307.3	-13.6	-31.2	21.0
416.8	23487.5	-19.4	-32.9	29.0
400.0	24489.6	-21.5	-37.0	23.0

STATION ALTITUDE 3459.00 FEET MSL
14 NOV. 63 1315 UTC, MST
ASCENDING NO. 356

UPPER AIR DATA
310020550
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

Table 5

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES, CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPLD OF SOUND KNOTS	DIRECTION DEGREES (TH)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3459.0	875.3	22.8	26.0	1027.1	671.2	295.0	18.1	1.000260
4000.0	875.0	22.5	25.7	1027.8	670.9	295.0	18.1	1.000259
4500.0	859.6	18.9	21.5	1023.4	666.4	295.5	18.9	1.000249
5000.0	844.4	17.7	22.7	1009.4	665.0	296.0	19.8	1.000245
5500.0	829.3	16.2	24.6	996.4	663.4	296.4	20.6	1.000242
6000.0	814.5	14.7	26.4	983.6	661.7	296.9	20.9	1.000239
6500.0	799.4	13.3	28.3	970.9	660.0	297.9	19.6	1.000236
7000.0	785.7	11.8	30.2	958.5	658.3	299.3	18.4	1.000233
7500.0	771.4	10.3	33.2	946.0	656.6	305.3	17.5	1.000230
8000.0	757.3	8.8	37.0	933.6	654.9	311.8	16.9	1.000228
8500.0	743.4	7.3	40.7	921.4	653.1	316.8	16.8	1.000225
9000.0	729.7	5.8	44.5	909.4	651.3	320.6	17.1	1.000223
9500.0	716.3	4.3	48.3	897.6	649.6	322.4	17.6	1.000220
10000.0	703.2	2.8	52.1	885.9	647.8	317.6	19.2	1.000217
10500.0	690.1	1.3	54.7	874.2	646.1	313.5	20.9	1.000213
11000.0	677.1	-0.2	46.9	862.6	644.2	306.1	26.3	1.000207
11500.0	664.5	3.4	23.7	850.2	642.2	301.2	32.0	1.000195
12000.0	652.1	5.6	17.5	838.1	640.4	296.7	37.9	1.000190
12500.0	640.0	2.7	18.8	827.4	647.3	293.8	40.7	1.000187
13000.0	628.1	1.9	18.0	815.0	646.3	291.8	39.4	1.000183
13500.0	616.3	1.6	17.2	802.9	645.0	290.7	42.9	1.000181
14000.0	604.7	1.0	20.3	791.7	643.3	288.9	44.2	1.000178
14500.0	593.3	0.0	21.0	780.6	644.2	286.1	43.6	1.000175
15000.0	582.2	-1.0	21.8	769.5	643.0	286.6	41.7	1.000172
15500.0	571.2	-1.9	22.6	758.1	641.6	288.6	41.7	1.000169
16000.0	560.4	-3.0	23.5	747.0	640.6	292.2	44.6	1.000167
16500.0	549.7	-4.1	24.8	735.1	639.3	295.2	47.5	1.000164
17000.0	539.2	-5.1	26.0	722.0	638.0	296.0	47.4	1.000162
17500.0	528.8	-5.8	25.4	710.3	636.0	296.9	47.4	1.000159
18000.0	518.6	-6.6	25.7	698.5	637.2	296.2	49.3	1.000156
18500.0	508.6	-7.7	27.4	687.1	634.9	294.9	52.1	1.000154
19000.0	498.8	-8.9	29.3	675.0	633.5	293.5	54.2	1.000151
19500.0	489.0	-10.2	31.6	667.6	631.9	292.2	56.0	1.000149
20000.0	479.5	-11.4	27.0	656.1	630.0	291.2	54.6	1.000146
20500.0	470.1	-11.7	22.6	646.1	628.6	290.7	53.6	1.000143
21000.0	460.8	-12.9	21.6	636.5	626.6	290.7	53.6	1.000140
21500.0	451.7	-14.1	21.7	627.2	627.1	289.4	55.1	1.000138
22000.0	442.6	-15.4	23.5	618.1	625.3	288.2	57.7	1.000136
22500.0	433.8	-16.6	25.4	609.2	623.9	287.1	59.8	1.000134
23000.0	425.1	-18.1	27.2	600.4	622.3	286.0	58.1	1.000132

STATION ALTITUDE 3989.00 FEET MSL
 14 NOV. 43
 ASCENSION NO. 336

1315 HRS MST

UPPER AIR DATA
 3180020556
 WHITE SANDS

GEODLTIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

Table 5 (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 CENTIGRADE	DEWPOINT CENTIGRADE				DIRECTION DEGREES (IN)	SPEED KNOTS	
23500.0	410.0	-19.4	-32.9	28.9	571.0	620.7			1.000130
24000.0	400.1	-20.5	-30.9	25.9	562.5	619.4			1.000127

STATION ALTITUDE 5989.00 FEET MSL
 14 NOV. 65 1315 HRS MST
 ASCENSION IS. 536

MANDATORY LEVELS
 3130020550
 WHITE SANDS

Table 6

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
HILLTAMS	FLEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4012.	10.2	-3.8	22.		295.8	19.5
800.0	6479.	13.3	-4.7	26.		297.9	19.6
750.0	8263.	8.0	-5.1	39.		315.0	10.7
700.0	10112.	2.4	-6.2	53.		310.6	19.6
650.0	12075.	3.5	-17.7	19.		296.1	30.8
600.0	14102.	.6	-19.4	21.		287.8	44.0
550.0	16464.	-4.0	-21.2	25.		295.1	47.5
500.0	18911.	-8.7	-23.5	29.		293.7	53.9
450.0	21561.	-14.4	-31.3	22.		289.2	55.5
400.0	24409.	-21.5	-37.0	23.			

STATION ALTITUDE 4051.37 FEET MSL
14 NOV. 83 1400 HRS, MST
ASCENSION NO. 105

SIGNIFICANT LEVEL DATA
31001.0105
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

Table 7

PRESSURE MILLIBARS	GEOIDETIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
873.2	4351.4	21.1	.9	26.0
856.6	4593.6	18.6	-3.5	22.0
850.0	4610.9	18.0	-4.0	22.0
786.4	6268.8	11.4	-5.1	31.0
756.6	8023.7	8.8	-5.8	35.0
706.2	9805.1	3.9	-8.1	41.0
700.0	10115.9	3.5	-8.5	41.0
691.6	10037.7	3.1	-10.8	35.0
680.4	10073.8	5.1	-10.0	19.0
661.5	11628.0	4.4	-16.5	17.0
590.1	14301.3	.1	-19.0	22.0
571.8	15478.5	-3.1	-20.3	25.0
546.2	16660.7	-5.8	-10.1	37.0
521.8	17890.3	-6.5	-21.2	30.0
500.0	18033.5	-8.7	-23.5	29.0
456.1	21251.4	-14.2	-32.2	20.0
400.0	24470.0	-22.3	-37.3	24.0

STATION ALTITUDE 4051.37 FEET MSL
14 NOV. 63
ASCENDING NO. 105

UPPER AIR DATA
3180180183
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

Table 8 (cont'd)

GEODETIC ALTITUDE FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	407.08	-21.1	23.4	563.5	610.0			1.000127

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LONG DEG

UPPER AIR DATA
3180180105
LC-37

Table 8

STATION ALTITUDE 4451.37 FEET MSL
14 NOV. 63
1400 HRS, MST
ASCENDING NO. 165

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4051.4	875.2	21.1	26.0	1030.9	669.2	270.0	12.0	1.000258
4500.0	859.4	19.0	22.7	1022.5	660.7	277.8	12.8	1.000250
5000.0	844.2	17.4	22.8	1010.1	664.3	285.5	13.8	1.000245
5500.0	829.2	15.9	24.9	977.3	663.0	291.9	15.1	1.000243
6000.0	814.5	14.4	27.0	984.7	661.3	294.8	14.7	1.000240
6500.0	799.8	12.8	29.0	972.3	659.5	298.0	15.5	1.000237
7000.0	785.5	11.3	31.1	960.0	657.7	300.7	16.7	1.000233
7500.0	771.3	10.1	33.0	946.7	650.3	303.3	15.5	1.000230
8000.0	757.5	8.9	34.9	933.0	654.9	309.2	12.0	1.000227
8500.0	743.3	7.5	36.6	921.0	653.3	312.3	12.2	1.000223
9000.0	729.7	6.1	38.3	908.5	651.6	312.2	14.4	1.000220
9500.0	716.3	4.7	40.0	896.3	650.0	311.0	17.6	1.000216
10000.0	703.0	3.6	41.0	883.3	648.7	308.6	22.3	1.000213
10500.0	690.0	3.4	32.7	868.0	648.3	307.3	27.4	1.000206
11000.0	677.2	5.0	18.7	847.4	650.0	306.2	32.7	1.000197
11500.0	664.7	4.5	17.3	833.2	649.4	305.2	35.9	1.000193
12000.0	652.3	3.8	17.7	819.8	648.0	304.2	38.5	1.000190
12500.0	640.1	3.0	18.6	806.8	647.7	302.0	39.7	1.000187
13000.0	628.2	2.2	19.6	794.1	646.7	299.9	40.9	1.000184
13500.0	616.4	1.4	20.5	781.5	645.8	297.0	42.6	1.000181
14000.0	604.9	.6	21.4	769.2	644.8	295.9	44.3	1.000178
14500.0	593.6	-.4	22.5	757.6	643.6	294.5	45.2	1.000176
15000.0	582.3	-1.8	23.8	747.0	642.0	293.3	45.8	1.000173
15500.0	571.3	-3.1	25.2	736.6	640.4	293.6	47.0	1.000170
16000.0	560.4	-4.5	30.3	725.5	639.1	294.8	46.8	1.000169
16500.0	549.7	-5.4	35.3	714.5	637.8	298.2	54.0	1.000167
17000.0	539.1	-6.0	35.1	702.3	637.1	298.3	55.9	1.000164
17500.0	528.8	-6.5	32.2	689.6	636.7	297.0	55.3	1.000160
18000.0	518.6	-6.7	29.9	677.5	636.1	294.8	52.8	1.000157
18500.0	508.5	-7.8	29.4	667.1	634.9	293.4	50.4	1.000154
19000.0	498.7	-8.9	28.7	656.9	633.6	292.3	50.7	1.000151
19500.0	488.9	-10.0	26.8	646.9	632.1	291.5	53.8	1.000148
20000.0	479.3	-11.2	24.9	637.2	630.6	291.9	59.0	1.000145
20500.0	469.9	-12.4	22.0	627.6	629.2	292.1	64.0	1.000143
21000.0	460.7	-13.6	21.0	618.1	627.7	292.5	64.9	1.000140
21500.0	451.5	-14.8	20.3	608.7	626.3	292.9	65.9	1.000138
22000.0	442.4	-16.1	20.9	599.3	624.7	293.2	63.5	1.000136
22500.0	433.5	-17.3	21.5	590.2	623.2	293.5	60.9	1.000133
23000.0	424.8	-18.6	22.2	581.1	621.7	293.9	59.8	1.000131
23500.0	416.2	-19.8	22.8	572.3	620.1			1.000129

STATION ALTITUDE 7051.37 FEET MSL
 14 NOV. 83 1400 HRS MST
 ASCE/SIG/0100. 105

MANDATORY LEVELS
 3170100165
 LC-57

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LONG DEG

Table 9

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUMID. PERCENT	WIND DATA	
		ATR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4807.	18.0	-4.0	22.	282.7	13.4
800.0	6492.	12.0	-4.7	29.	298.0	15.4
750.0	8254.	8.2	-6.1	36.	310.8	12.1
700.0	10106.	3.5	-8.5	41.	308.5	23.4
650.0	12093.	3.7	-14.5	18.	303.0	38.7
600.0	14201.	.2	-19.0	22.	295.3	44.9
550.0	16465.	-5.4	-18.3	35.	298.0	53.8
500.0	18907.	-8.7	-23.5	29.	292.4	50.3
450.0	21554.	-15.0	-32.7	20.	292.9	65.8
400.0	24435.	-22.3	-37.3	24.		

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

SIGNIFICANT LEVEL DATA
3180020557
WHITE SAUUS

STATION ALTITUDE 3989.00 FEET MSL
14 NOV. 83 1500 MST
ASCENSION NO. 357

Table 10

PRESSURE GEOPHYSIC ALTITUDE MILLIBARS MEL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRAUF	HUMIDITY PERCENT
874.5	21.5	1.2
869.5	20.6	-0.7
854.1	19.4	-1.7
850.0	19.4	-1.1
804.5	15.2	-3.6
700.0	3.5	-5.7
671.3	.1	-7.2
656.2	-0.4	-9.6
641.3	.9	-13.5
620.5	1.1	-21.2
614.0	2.2	-19.6
557.1	-3.0	-21.2
500.0	-9.9	-22.4
483.3	-11.5	-22.0
467.7	-12.8	-27.4
421.8	-18.7	-33.4
400.0	-22.4	-34.8
		26.0
		31.0
		28.0
		39.0
		35.0
		23.0
		18.0
		17.0
		28.0
		51.0
		58.0
		51.0
		51.0
		51.0
		27.0
		25.0
		24.0
		26.0

STATION ALTITUDE 3089.00 FEET / SL
14 NOV. 53
ASCENSION NO. 557

UPPER AIR DATA
3140020557
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37053 LONG DEG

Table 11

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3089.0	873.5	21.5	26.0	1032.1	669.7	200.0	8.0	1.000259
4000.0	873.2	21.5	25.9	1031.8	669.7	200.2	8.0	1.000259
4500.0	859.9	20.1	24.0	1019.0	667.9	208.7	7.9	1.000252
5000.0	844.7	18.9	25.2	1005.0	666.6	277.1	8.0	1.000248
5500.0	829.8	17.6	25.9	992.0	665.0	285.0	8.3	1.000244
6000.0	815.1	16.2	26.5	979.1	663.4	292.4	8.8	1.000240
6500.0	800.6	14.9	27.8	966.4	661.8	298.9	9.3	1.000237
7000.0	786.0	13.2	31.0	953.9	660.0	304.5	9.7	1.000234
7500.0	771.7	11.7	34.2	941.0	658.3	309.8	9.0	1.000232
8000.0	757.7	10.2	37.3	929.5	656.5	315.9	8.4	1.000229
8500.0	743.4	8.6	40.5	917.6	654.7	322.8	7.9	1.000226
9000.0	730.4	7.1	43.7	905.9	652.9	327.0	8.4	1.000223
9500.0	717.1	5.5	46.8	894.4	651.1	328.4	9.5	1.000220
10000.0	704.0	4.0	50.0	883.1	649.3	329.6	10.6	1.000217
10500.0	691.0	2.4	53.2	871.6	647.4	327.2	12.8	1.000214
11000.0	678.1	.9	56.3	860.2	645.6	324.2	15.6	1.000210
11500.0	665.4	-2.1	56.1	847.4	644.3	318.6	20.5	1.000206
12000.0	652.9	-2.7	51.9	833.3	643.6	312.6	28.1	1.000201
12500.0	640.6	-4.4	27.5	813.4	643.3	307.4	35.2	1.000190
13000.0	628.6	-1.1	19.7	798.0	643.4	302.5	41.7	1.000184
13500.0	616.8	1.9	17.7	780.6	646.4	299.3	44.6	1.000180
14000.0	605.2	1.4	18.7	767.2	645.8	297.4	45.2	1.000177
14500.0	593.8	.4	19.7	755.6	644.6	299.8	45.3	1.000175
15000.0	582.6	-2.6	20.7	744.1	643.4	302.2	46.1	1.000172
15500.0	571.6	-1.6	21.7	732.8	642.2	304.5	47.3	1.000169
16000.0	560.8	-2.6	22.7	721.7	641.0	305.2	47.0	1.000167
16500.0	550.1	-3.8	24.4	711.0	639.6	305.6	46.4	1.000164
17000.0	539.5	-5.0	26.6	700.5	638.1	304.2	45.3	1.000162
17500.0	529.1	-6.5	28.7	690.2	636.7	301.7	44.0	1.000160
18000.0	518.4	-7.5	30.9	680.1	635.2	299.1	44.2	1.000157
18500.0	507.9	-8.8	33.0	670.1	633.7	296.6	46.5	1.000155
19000.0	497.1	-10.0	35.2	660.2	632.2	294.5	48.8	1.000153
19500.0	486.4	-10.9	37.5	649.6	631.1	293.6	51.5	1.000150
20000.0	475.8	-11.8	36.5	639.0	630.0	292.7	54.2	1.000147
20500.0	465.3	-12.6	29.9	628.4	629.0	293.2	54.8	1.000144
21000.0	454.8	-13.6	27.7	618.5	627.8	293.6	55.4	1.000141
21500.0	444.3	-14.8	27.3	608.9	626.3	295.0	55.3	1.000139
22000.0	433.8	-15.9	26.0	599.4	624.9	296.4	54.9	1.000136
22500.0	423.4	-17.1	26.5	590.1	623.5	296.5	53.9	1.000134
23000.0	413.3	-18.2	26.2	581.0	622.1	296.5	53.3	1.000132

STATION ALTITUDE 3989.00 FEET MSL
14 NOV. 63
ASCENSION IS. 337

1500 MST

UPPER AIR DATA
3180020557
WHITE SANDS

GEONUTIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

Table 11 (cont'd)

GEONUTIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES (TN)	SPEED KNOTS	
23500.0	410.7	-19.5	27.1	572.2	620.5	296.5	53.4	1.000130
24000.0	400.2	-21.0	29.1	563.8	618.7			1.000128

STATION ALTITUDE 3989.00 FEET MSL
14 NOV. 63
ASCENDING NO. 557

MANDATORY LEVELS
3160020557
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

Table 12

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4822.	19.4	-1.1	25.		274.1	0.0
800.0	6517.	14.7	-3.6	26.		299.1	9.3
750.0	8200.	9.3	-5.9	39.		319.8	8.1
700.0	10147.	3.5	-5.7	51.		329.9	10.9
650.0	12102.	-8.	-9.7	50.		311.7	29.8
600.0	14214.	1.0	-19.9	19.		298.5	45.2
550.0	16488.	-3.8	-21.2	24.		305.6	46.4
500.0	18929.	-9.9	-22.4	35.		294.7	40.5
450.0	21572.	-15.0	-29.6	27.		295.3	55.2
400.0	24455.	-22.4	-34.8	31.			

