

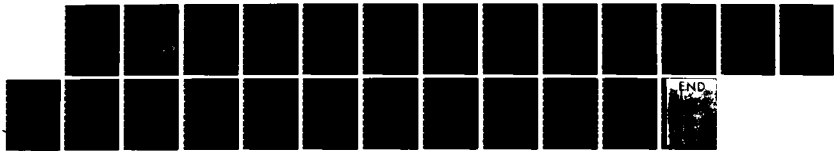
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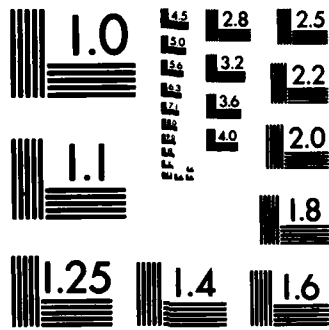
19319A MLRS MISSILE NUMBERS 339 341 344 348 355 356  
ROUND NUMBERS 540/DL- (U) ARMY ELECTRONICS RESEARCH  
AND DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER  
NOV 83 ERADCOM/ASL-DR-1330 F/G 4/2

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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 339, 341, 344, 348, 355, 356

Round Number 540/DL-55 thru 545/DL-60

29 November 1983

by

DONALD C. KELLER

Program Support Coordinator

Phone Number (505) 679-9568

AVN Number 349-9568

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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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1. REPORT NUMBER DR-1330	2. GOVT ACCESSION NO. AD-A136686	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 19319A MLRS Missile Number 339, 341, 344, 348, 355, 356 Round Number 540/DL-55 thru 545/DL-60		5. TYPE OF REPORT & PERIOD COVERED
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) White Sands Meteorological Team		8. CONTRACT OR GRANT NUMBER(s) DA Task 1F665702D127-02
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Cmd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002		12. REPORT DATE 29 November 1983
		13. NUMBER OF PAGES 22
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) US Army Electronics Research and Development Cmd Adelphi, MD 20783		15. SECURITY CLASS. (of this report)  UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
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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 339, 341, 344, 348, 355, 356, Round Number 540/DL-55 thru 545/DL-60 are presented in tabular form.		

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## INTRODUCTION

19319A MLRS, Missile Numbers 339, 341, 344, 348, 355, and 356, Round Numbers 540/DL-55 thru 545/DL-60, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1604:33, 1604:37, 1604:42, 1604:46, 1604:51, and 1604:55 MST, 29 November 1983. The scheduled launch times were 1600 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

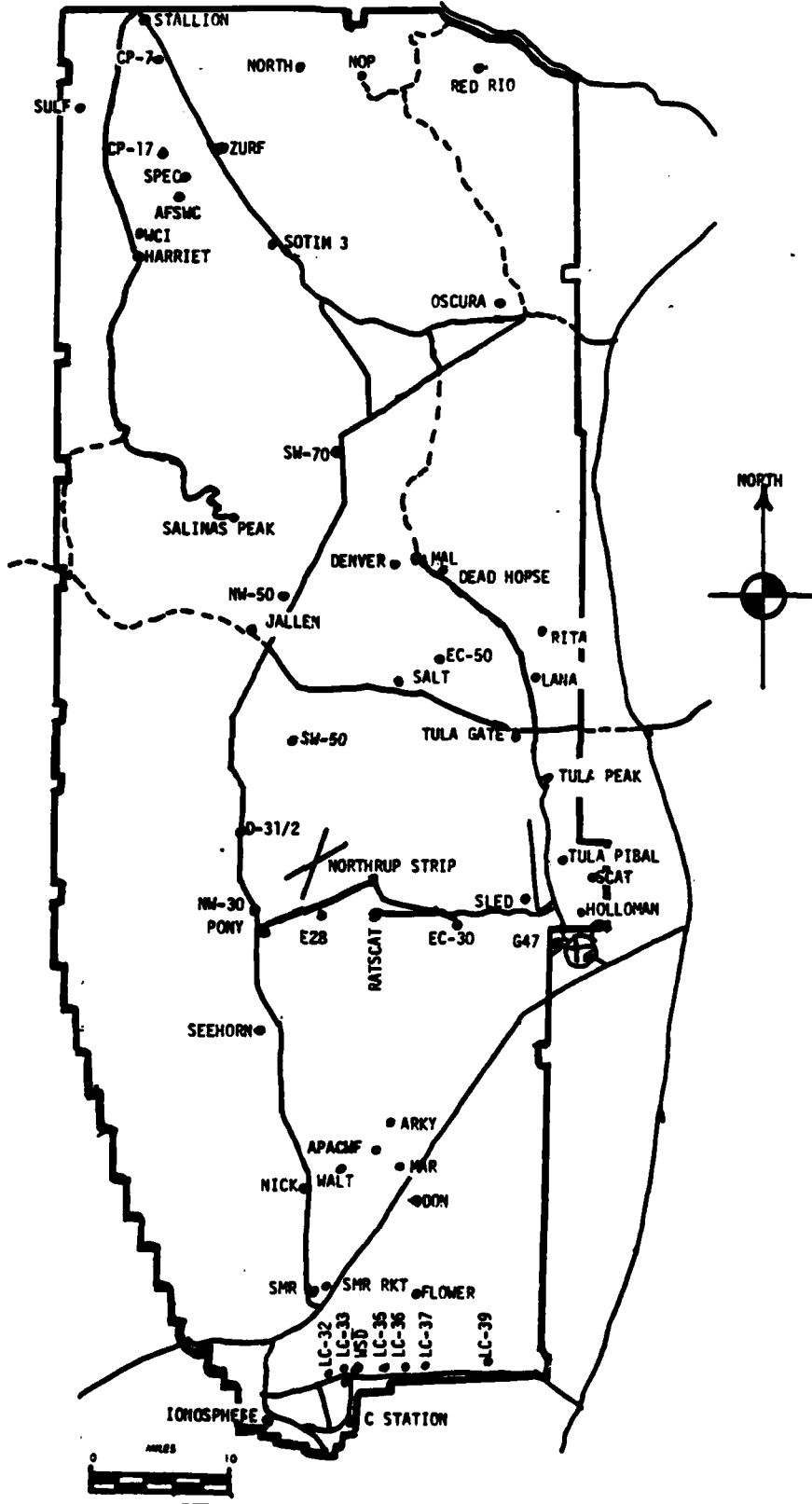
LC-33	2 Km
Don	2 Km

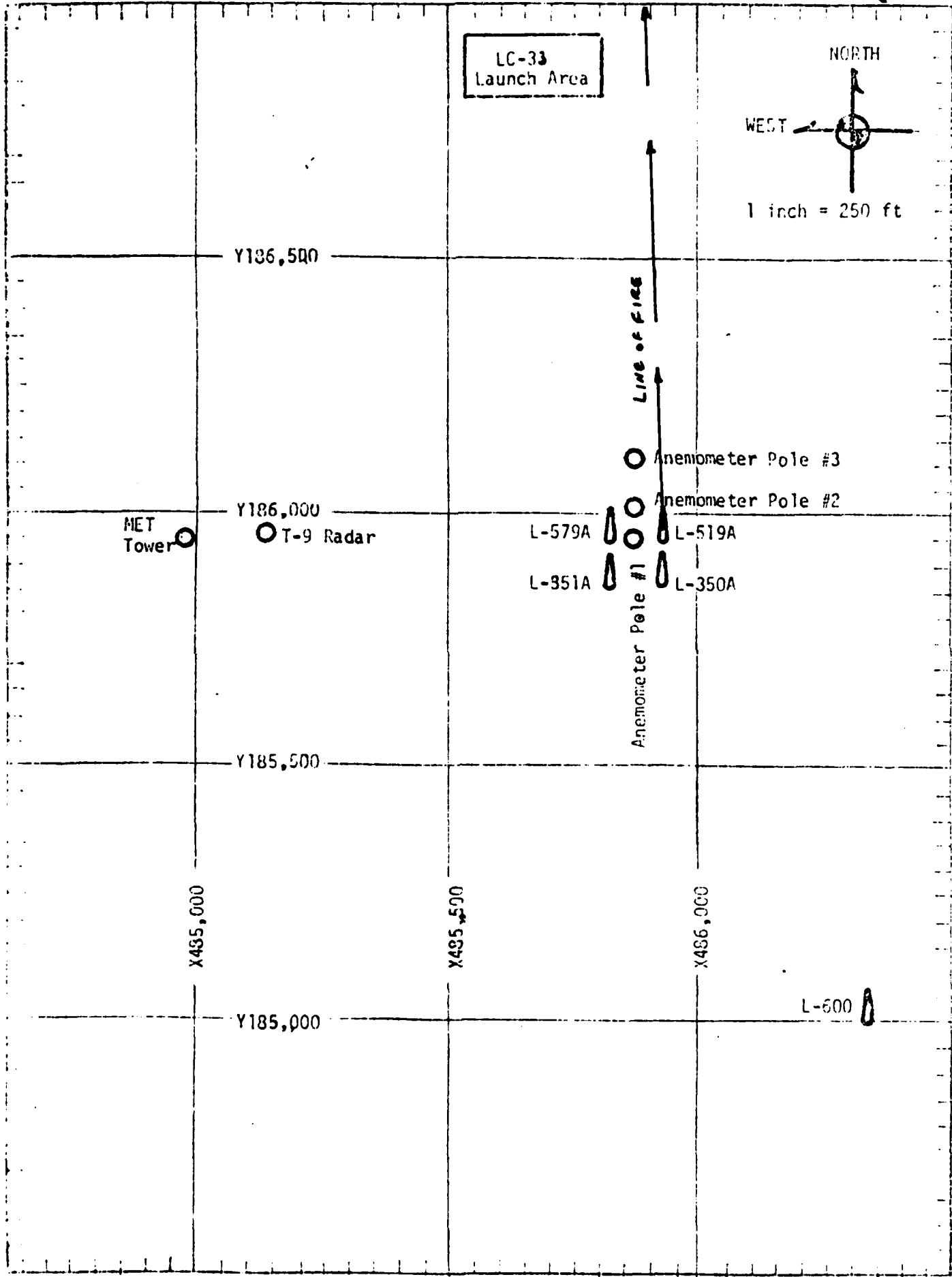
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

#### SITE AND TIME

WSD	1415 MST
LC-37	1415 MST
WSD	1606 MST

# WSMR METEOROLOGICAL SITES





LC-33  
Launch Area

NORTH  
WEST  
1 inch = 250 ft

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

X485,500

X486,000

Y185,000

L-600

PROJECT SURFACE OBSERVATION

TABLE <u>1</u>									
STATION <u>LC-33</u>									
DATE <u>29</u>		<u>11</u> MONTH		<u>83</u> YEAR		X = <u>484,982.73</u>		Y = <u>185,957.73</u> H = <u>3925.00</u>	
TIME M S T	PRESSURE mbs	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY gm/m <sup>3</sup>	DIRECTION degs In	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY
1606	874.2	14.2	-4.9	26		300	12		20

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	TYPE	HGT	AMT	TYPE	HGT	

PSYCHROMETRIC COMPUTATION

TIME: MST	1606
DRY BULB TEMP.	14.2
WET BULB TEMP.	5.6
WET BULB DEPR.	8.6
DEW POINT	-4.9
RELATIVE HUMID.	26

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 29 Nov 83 1603 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	291	12	T-30	285	19
T-20	285	16	T-20	291	16
T-10	284	14	T-10	282	19
T- 0 (1st T)	282	12	T- 0 (1st T)	291	17
T+10	273	10	T+10	279	18
T+20	273	11	T+20	278	20
T+30	276	15	T+30	275	20
T+40	273	16	T+40	290	20
T+50	271	16	T+50	279	20
T+60	274	14	T+60	275	20
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	20	T-30	284	20
T-20	283	20	T-20	276	20
T-10	281	21	T-10	276	20
T- 0 (1st T)	276	16	T- 0 (1st T)	275	22
T+10	259	19	T+10	275	20
T+20	273	23	T+20	270	22
T+30	270	20	T+30	276	23
T+40	274	22	T+40	273	22
T+50	270	23	T+50	274	23
T+60	276	21	T+60	276	20

## T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 29 November 1983

SITE: LC-33  
 TIME: 1606 MST  
 WSTM COORDINATES:  
 X= 486,872.00  
 Y= 184,146.75  
 H= 3,981.15

SITE: DON  
 TIME 1604 MST  
 WSTM COORDINATES:  
 X= 511,988.37  
 Y= 247,396.36  
 H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	282	12
150	272	18
210	270	24
270	259	23
330	254	21
390	246	17
500	240	19
650	238	15
800	235	13
950	231	11
1150	215	11
1350	236	18
1550	248	18
1750	263	27
2000	261	29

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	220	11
150	253	17
210	250	22
270	246	28
330	254	22
390	255	22
500	256	19
650	265	20
800	264	16
950	271	14
1150	279	06
1350	233	05
1550	300	02
1750	298	04
2000	292	11

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

AIMING AND T-TIME COMPUTER MET MESSAGE DATA  
29 November 1983

WSD 1415 MST  
METCML324064  
292130122874

00480018 28990874  
01507017 28780863  
02499012 28500838  
03444007 28130798  
04464010 27760751  
05510026 27690706  
06540026 27480664  
07512037 27160624  
08510041 26850586  
09499044 26540550  
10497055 26230515  
11492050 25870483  
12487050 25240437

LC-37 1445 MST  
METCML324063  
292180124871

00444017 28950871  
01497019 28720861  
02481018 28460836  
03476014 28100796  
04454009 27650749  
05526027 27500704  
06526030 27370662  
07512040 27080621  
08511047 26790583  
09504048 26510547  
10498058 26200513  
11497055 25840480  
12490051 25240435

WSD 1606 MST  
METCML324064  
292310122874

00462014 28740874  
01501023 28670864  
02456017 28480838  
03427008 28190799  
04471015 27840752  
05502027 27600707  
06500028 27300664  
07514035 27060624  
08507044 26840586  
09507048 26520549  
10496049 26120515  
11499049 25740482  
12491050 25130436

STATION ALTITUDE 3989.00 FEET MSL  
 24 NOV. 83 1415 HRS MST  
 ASCENSION NO. 396

SIGNIFICANT LEVEL DATA  
 3330020596  
 WHITE SANDS

GEODETTIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

Table 5

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
876.5	3989.0	15.7	20.0
869.3	4218.2	14.9	21.0
850.0	4838.6	12.5	21.0
767.5	7610.3	4.9	25.0
727.4	9043.0	3.2	20.0
700.0	10066.2	3.9	18.0
500.0	18782.0	-12.4	16.0
446.1	21608.9	-19.5	24.0
400.0	24240.3	-26.2	24.0

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STATION ALTITUDE 3989.00 FEET MSL  
 29 NOV. 83  
 ASCENSION NO. 596

UPPER AIR DATA  
 3330020596  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

Table 6

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	MELTUM PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	870.5	15.7	-7.2	20.0	1055.5	662.6	270.0	18.1	1.000251
4000.0	870.2	15.7	-7.2	20.0	1055.2	662.6			1.000251
4500.0	860.5	13.8	-8.1	21.0	1043.1	660.4			1.000248
5000.0	845.8	12.1	-9.4	21.2	1030.7	658.4			1.000244
5500.0	829.5	10.7	-10.2	22.0	1016.8	656.8			1.000240
6000.0	814.4	9.3	-10.9	22.7	1003.2	655.2			1.000236
6500.0	799.5	7.9	-11.7	23.4	989.7	653.5			1.000232
7000.0	784.9	6.6	-12.5	24.1	976.5	651.9			1.000229
8000.0	750.4	5.2	-13.3	24.8	963.4	650.3	253.6	7.4	1.000225
8500.0	735.3	4.4	-14.5	25.6	948.3	649.4	258.7	8.6	1.000221
9000.0	720.5	3.8	-15.9	21.9	932.8	648.7	269.6	13.3	1.000216
9500.0	705.9	3.5	-17.4	20.1	917.5	647.9	276.7	20.1	1.000212
10000.0	691.7	3.9	-18.2	18.1	899.6	648.2	284.3	25.4	1.000208
10500.0	677.4	3.1	-18.9	17.9	881.8	648.6	290.3	27.3	1.000204
11000.0	662.9	2.2	-19.8	17.8	867.5	647.7	296.6	27.2	1.000200
12000.0	649.6	.3	-20.6	17.7	853.8	646.6	299.5	27.8	1.000197
12500.0	637.2	.7	-21.5	17.6	827.1	644.4	301.3	28.7	1.000193
13000.0	625.0	-1.6	-22.3	17.4	814.1	643.3	292.7	31.3	1.000190
13500.0	613.1	-2.5	-23.2	17.3	801.4	642.2	290.2	34.1	1.000187
14000.0	601.4	-3.5	-24.9	17.1	776.4	639.9	287.4	36.5	1.000183
14500.0	589.9	-4.4	-25.7	17.0	764.2	638.8	287.1	38.9	1.000180
15000.0	578.6	-5.3	-26.6	16.9	752.3	637.7	286.5	40.9	1.000177
15500.0	567.5	-6.3	-27.4	16.8	740.5	636.6	285.4	42.6	1.000174
16000.0	556.7	-7.2	-28.2	16.6	728.9	635.5	284.1	43.8	1.000171
16500.0	546.0	-8.1	-29.1	16.5	717.5	634.3	282.1	44.1	1.000168
17000.0	535.6	-9.1	-29.9	16.4	706.3	633.2	280.2	44.3	1.000166
17500.0	525.4	-10.0	-30.8	16.3	695.3	632.1	278.9	44.6	1.000163
18000.0	515.3	-10.9	-31.6	16.2	684.4	630.9	277.9	44.9	1.000160
18500.0	505.5	-11.9	-32.5	16.1	673.8	629.8	277.7	45.8	1.000157
19000.0	495.6	-12.9	-33.0	16.0	663.4	628.5	277.3	46.5	1.000155
19500.0	485.7	-14.2	-33.2	16.0	653.3	627.0	276.5	47.5	1.000152
20000.0	475.8	-15.5	-33.5	19.4	643.3	625.5	275.5	48.6	1.000148
20500.0	465.5	-16.7	-33.9	20.9	633.6	623.9	274.9	49.9	1.000145
21000.0	457.2	-18.0	-34.3	22.3	624.0	622.4	274.3	50.2	1.000143
21500.0	448.1	-19.2	-34.7	23.7	614.6	620.9	273.9	50.9	1.000141
22000.0	438.9	-20.5	-35.7	24.0	605.1	619.3	273.6	51.7	1.000139
22500.0	429.9	-21.8	-36.8	24.0	595.7	617.7	273.6	51.7	1.000136
23000.0	421.1	-23.0	-37.9	24.0	586.4	616.2	273.6	51.7	1.000134
									1.000132

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

STATION ALTITUDE 3989.00 FEET MSL  
 29 NOV. 83 1415 HRS MST  
 ASCENSION NO. 596

UPPER AIR DATA  
 3330020596  
 WHITE SANDS

GEOMETRIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

Table 6 (cont'd)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	412.5	-24.3	24.0	577.3	614.6			1.000130
24000.0	404.0	-40.1	24.0	568.4	613.0			1.000128

STATION ALTITUDE 3989.00 FEET MSL  
 29 NOV. 83  
 ASCENSION NO. 59b

MANDATORY LEVELS  
 3330020590  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

Table 7

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA	
				DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4835.	12.5	21.	9999.0	9999.0XX
800.0	6488.	8.0	23.	9999.0	9999.0XX
750.0	8220.	4.2	23.	262.0	9.6
700.0	10056.	3.9	18.	291.0	27.3
650.0	12018.	.3	18.	296.4	31.5
600.0	14108.	-3.6	17.	287.3	41.3
550.0	16345.	-7.8	17.	282.6	44.5
500.0	18756.	-12.4	16.	277.8	49.6
450.0	21363.	-19.0	23.	274.5	50.1
400.0	24200.	-26.2	24.		

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

STATION ALTITUDE 4021.37 FEET MSL  
 29 NOV. 53  
 ASCENSION NO. 175  
 1445 HRS MST

SIGNIFICANT LEVEL DATA  
 3330180175  
 LC-37

GEOLYTIC COORDINATES  
 52.40175 LAT DEG  
 106.31232 LON DEG

Table 8

PRESSURE MILLIBARS	GEOGRAPHIC ALTITUDE MSL FEET	TEMPERATURE		KLT. HUM. PERCENT
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	
871.1	4051.4	15.8	-7.7	19.0
862.0	4342.4	13.3	-10.5	18.0
856.0	4726.5	12.4	-9.9	20.0
790.3	7780.3	4.0	-13.3	27.0
733.7	8693.0	1.6	-14.5	29.0
725.8	8784.5	1.8	-16.2	21.0
719.9	9200.4	1.2	-18.7	21.0
700.0	9942.3	2.1	-19.1	19.0
691.5	10260.0	1.9	-21.2	16.0
663.1	11374.3	.6	-21.6	17.0
572.8	15185.4	-6.3	-20.6	15.0
529.9	17174.1	-9.6	-31.3	15.0
500.0	18640.4	-12.6	-33.8	15.0
400.0	24103.3	-25.6	-40.1	24.0

STATION ALTITUDE 4051.37 FEET ASL  
 29 NOV. 83 1445 HRS MST  
 ASCENSION NO. 175

UPPER AIR DATA  
 5330180175  
 LC-37

GEOPELTIC COORDINATES  
 32°40'17.5" LAT UEG  
 106°31'23.2" LONG UEG

Table 9

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 (TH)	WIND SPEED KNOTS	INDEX OF REFRACTION
4051.4	871.1	15.8	19.0	1048.7	662.7	250.0	17.1	1.000249
4500.0	857.1	12.9	18.8	1042.4	659.3	254.0	16.5	1.000245
5000.0	841.5	11.7	20.6	1028.0	657.9	253.8	16.0	1.000242
5500.0	825.1	10.3	21.8	1014.2	656.3	253.9	15.5	1.000239
6000.0	811.0	8.9	22.9	1000.5	654.7	253.9	15.2	1.000235
6500.0	796.2	7.5	24.1	987.0	653.1	253.9	13.9	1.000232
7000.0	781.7	6.2	25.2	973.8	651.5	253.6	12.5	1.000229
7500.0	767.4	4.8	26.3	960.7	649.8	250.8	10.8	1.000225
8000.0	753.2	3.4	27.5	947.7	648.3	257.1	9.0	1.000222
8500.0	739.2	2.1	28.6	934.5	646.7	277.0	12.5	1.000218
9000.0	725.4	1.8	21.0	918.5	646.2	268.5	17.4	1.000212
9500.0	711.8	1.6	20.2	902.0	645.9	293.2	23.9	1.000208
10000.0	698.5	2.1	18.5	885.5	646.5	295.5	28.0	1.000203
10500.0	685.4	1.6	16.2	868.4	646.0	296.9	28.0	1.000199
11000.0	672.6	1.0	16.7	854.0	645.3	297.2	29.3	1.000196
11500.0	659.9	.4	16.9	840.0	644.5	295.4	31.8	1.000192
12000.0	647.4	-.5	16.7	826.8	643.4	292.5	35.2	1.000189
12500.0	635.0	-1.4	16.4	813.8	642.3	290.2	37.9	1.000186
13000.0	623.0	-2.3	16.1	801.0	641.3	288.2	40.3	1.000183
13500.0	611.1	-3.2	15.9	788.4	640.2	287.8	42.6	1.000180
14000.0	599.5	-4.2	15.6	776.0	639.1	287.7	45.0	1.000177
14500.0	588.1	-5.1	15.4	763.9	638.0	287.6	46.2	1.000174
15000.0	576.9	-6.0	15.1	751.9	636.9	287.2	47.1	1.000171
15500.0	565.8	-6.8	15.0	739.8	635.9	285.8	46.7	1.000168
16000.0	554.8	-7.7	15.0	727.7	634.9	284.4	46.9	1.000165
16500.0	544.1	-8.5	15.0	715.9	633.9	283.0	47.7	1.000162
17000.0	533.5	-9.3	15.0	704.2	632.9	281.7	49.6	1.000159
17500.0	523.1	-10.3	15.0	693.0	631.7	280.6	50.8	1.000157
18000.0	512.8	-11.3	15.0	682.1	630.5	279.7	51.3	1.000154
18500.0	502.8	-12.3	15.0	671.5	629.3	279.3	51.3	1.000152
19000.0	492.7	-13.5	15.6	660.8	627.9	278.9	51.3	1.000149
19500.0	482.7	-14.6	16.4	650.4	626.4	278.8	52.0	1.000147
20000.0	473.0	-15.8	17.2	640.2	625.0	278.5	52.4	1.000144
20500.0	463.4	-17.0	18.1	630.2	623.6	278.0	52.5	1.000142
21000.0	454.1	-18.2	18.9	620.3	622.1	277.2	52.7	1.000140
21500.0	444.9	-19.4	19.7	610.6	620.6	276.4	53.0	1.000138
22000.0	435.9	-20.6	20.5	601.1	619.2	275.6	53.9	1.000135
22500.0	427.1	-21.8	21.4	591.8	617.7	274.8	55.4	1.000131
23000.0	418.4	-23.0	22.2	582.8	616.3			1.000131
23500.0	410.0	-24.2	23.0	573.5	614.8			1.000129

STATION ALTITUDE 4021.37 FT MSL  
 29 NOV. 83 1445 HRS MST  
 ASCENSION NO. 173

UPPER AIR DATA  
 3330100175  
 LC-37

GEODEIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

Table 9 (cont'd)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUMID. PERCENT	DENSITY GM/CM <sup>3</sup> METER	SPEED OF SOUND M/SEC	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	401.7	-75.4	23.8	564.6	613.5			1.000127

MANDATORY LEVELS  
 3330180175  
 LC-37

STATION ALTITUDE 4051.37 FEET MSL  
 29 NOV. 63 1045 HRS MST  
 ASCENSION NO. 173

GEODLTIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

Table 10

PRESSURE MILLIBARS	GEOPHYSICAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUMIDITY PERCENT	WIND DATA	
				DIRECTION DEGREES (TR)	SPEED KNOTS
850.0	4775.	12.4	20.	250.2	10.3
800.0	6370.	7.9	24.	267.6	14.2
750.0	8100.	3.1	20.	261.7	9.5
700.0	9933.	2.1	19.	295.3	28.0
650.0	11887.	-3	17.	293.1	34.5
600.0	13972.	-4.1	10.	287.7	44.9
550.0	16205.	-8.0	15.	283.0	47.2
500.0	18615.	-12.6	15.	279.1	51.2
450.0	21222.	-18.7	19.	276.8	52.8
400.0	24064.	-25.6	24.		

STATION ALTITUDE 3989.00 FEET MSL  
 29 NOV. 83 1606 HRS MST  
 ASCENSION NO. 397

SIGNIFICANT LEVEL DATA  
 3330020597  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

Table 11

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
874.0	3789.0	13.3	-5.3	27.0
862.0	4376.4	13.1	-6.1	22.0
850.0	4750.2	12.1	-10.1	20.0
740.4	8171.6	4.7	-17.0	18.0
700.0	9986.7	2.4	-20.8	16.0
666.5	11283.6	-0.3	-22.3	17.0
570.7	15320.5	-5.8	-28.9	14.0
500.0	18675.7	-13.8	-32.9	18.0
407.0	24111.7	-26.9	-42.1	22.0

STATION ALTITUDE 3989.00 FEET MSI  
 29 NOV. 63  
 ASCENSION NO. 397

UPPER AIR DATA  
 3330020597  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

Table 12

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES, CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CU MIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (IN) DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	874.0	13.3	27.0	1061.0	659.9	260.0	14.0	1.000255
4000.0	873.7	13.3	26.9	1060.6	659.9	259.9	14.0	1.000255
4500.0	850.0	12.8	21.3	1043.9	659.2	257.3	13.3	1.000247
5000.0	842.4	11.6	19.9	1029.4	657.8	254.4	12.7	1.000242
5500.0	827.0	10.5	19.6	1014.6	656.5	251.2	12.1	1.000238
6000.0	811.9	9.4	19.3	999.9	655.2	247.7	11.5	1.000234
6500.0	797.1	8.3	19.0	985.5	653.9	249.6	10.4	1.000229
7000.0	782.5	7.2	18.7	971.3	652.6	253.2	9.1	1.000226
7500.0	768.2	6.2	18.4	957.3	651.4	260.5	11.9	1.000222
8000.0	754.2	5.1	18.1	943.5	650.1	265.0	15.2	1.000218
8500.0	740.2	4.3	17.6	928.8	649.1	270.4	18.4	1.000214
9000.0	726.3	3.7	17.1	913.6	648.4	275.2	21.5	1.000210
9500.0	713.0	3.0	16.5	898.7	647.6	278.5	24.1	1.000206
10000.0	699.7	2.4	16.0	884.1	646.9	281.0	25.5	1.000203
10500.0	686.6	1.3	16.4	870.9	645.6	282.5	26.8	1.000200
11000.0	673.7	.3	16.8	857.8	644.4	281.9	28.3	1.000196
11500.0	661.0	-6	16.8	844.4	643.3	281.8	29.8	1.000193
12000.0	648.4	-1.3	16.5	830.4	642.5	284.3	31.5	1.000190
12500.0	636.1	-2.0	16.1	816.6	641.7	286.5	33.2	1.000186
13000.0	623.9	-2.6	15.7	803.1	640.9	288.0	34.8	1.000183
13500.0	612.1	-3.3	15.4	789.9	640.1	289.4	36.5	1.000180
14000.0	600.4	-4.0	15.0	776.8	639.3	287.5	40.9	1.000177
14500.0	589.0	-4.7	14.6	764.0	638.5	286.0	45.4	1.000173
15000.0	577.8	-5.4	14.2	751.3	637.6	285.2	45.7	1.000170
15500.0	566.7	-6.2	14.8	739.3	636.6	284.6	45.8	1.000168
16000.0	555.6	-7.4	14.8	728.1	635.2	284.6	44.6	1.000165
16500.0	544.8	-8.6	15.4	717.2	633.7	284.5	44.3	1.000162
17000.0	534.1	-9.8	16.0	706.4	632.3	282.9	46.3	1.000160
17500.0	523.7	-11.0	16.6	695.7	630.9	281.3	47.0	1.000157
18000.0	513.5	-12.2	17.2	685.3	629.4	279.6	46.4	1.000155
18500.0	503.4	-13.4	17.8	675.0	628.0	279.2	46.7	1.000153
19000.0	493.4	-14.6	18.2	664.6	626.5	279.3	47.5	1.000150
19500.0	483.4	-15.8	18.6	654.1	625.1	279.1	48.1	1.000148
20000.0	473.5	-17.0	19.0	643.8	623.6	278.9	50.1	1.000145
20500.0	463.4	-18.2	19.3	633.8	622.1	278.6	53.9	1.000143
21000.0	453.5	-19.4	19.7	623.6	620.6	278.1	52.9	1.000140
21500.0	443.5	-20.6	20.1	614.1	619.2	277.5	50.6	1.000138
22000.0	433.2	-21.8	20.4	604.5	617.7	276.6	45.8	1.000136
22500.0	427.4	-23.0	20.8	595.1	616.2	275.7	45.2	1.000134
23000.0	416.7	-24.2	21.2	585.8	614.7	275.0	47.7	1.000132

STATION ALTITUDE 3989.00 FT MSL  
 24 NOV. 83 1606 MKC MSL  
 ASCENSION NO. 397

UPPER AIR DATA  
 3330020597  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

Table 12 (cont'd)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREE, CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
2500.0	410.2	-25.4	21.5	576.7	613.2			1.000129
2400.0	401.8	-26.6	21.9	567.8	611.7			1.000127

STATION ALTITUDE 3989.00 FEET MSL  
 29 NOV. 83 1606.18G MST  
 ASCENSION NO. 597

MANDATORY LEVELS  
 3330020597  
 WHITE SANDS

GEOMETRIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

Table 13

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4753.	12.1	-10.1	20.	255.9
800.0	6406.	8.5	-13.7	19.	249.1
750.0	8143.	4.7	-17.5	18.	265.9
700.0	9979.	2.4	-20.0	16.	280.9
650.0	11929.	-1.2	-23.4	17.	284.0
600.0	14011.	-4.0	-26.0	15.	287.5
550.0	16247.	-8.0	-30.0	15.	285.0
500.0	18650.	-13.8	-32.9	18.	279.2
450.0	21245.	-20.0	-37.1	20.	277.9
400.0	24072.	-26.0	-42.1	22.	52.0

