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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2
19304D MLRS, MISSILE NUMBERS V01-017, V01-020, BN-048, BN-037, --ETC(U)
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METEOROLOGICAL DATA REPORT

19304D MLRS

Missile Numbers V01-017, V01-020, BN-048,

BN-037, BN-035

Round Numbers V-225/MD-79, V-226/MD-80, V-227/MD-81

V-228/MD-82, V-229/MD-83.

19 Feb 1982

by

DONALD C. KELLER

Program Support Coordinator

Phone Number (505) 679-9568

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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INTRODUCTION

19304D MLRS, Missile Numbers V01-017, V01-020, BN-048, BN-037, and BN-035, Round Numbers V-225/MD-79 thru V-229/MD-83, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1503:37, 1503:41 1510:00, 1510:05, and 1510:09 MST, 19 Feb 1982. The scheduled launch times were 1500:00, 1500:04.5, 1505:00 1505:04.5, and 1505:09 MST.

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, cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and 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

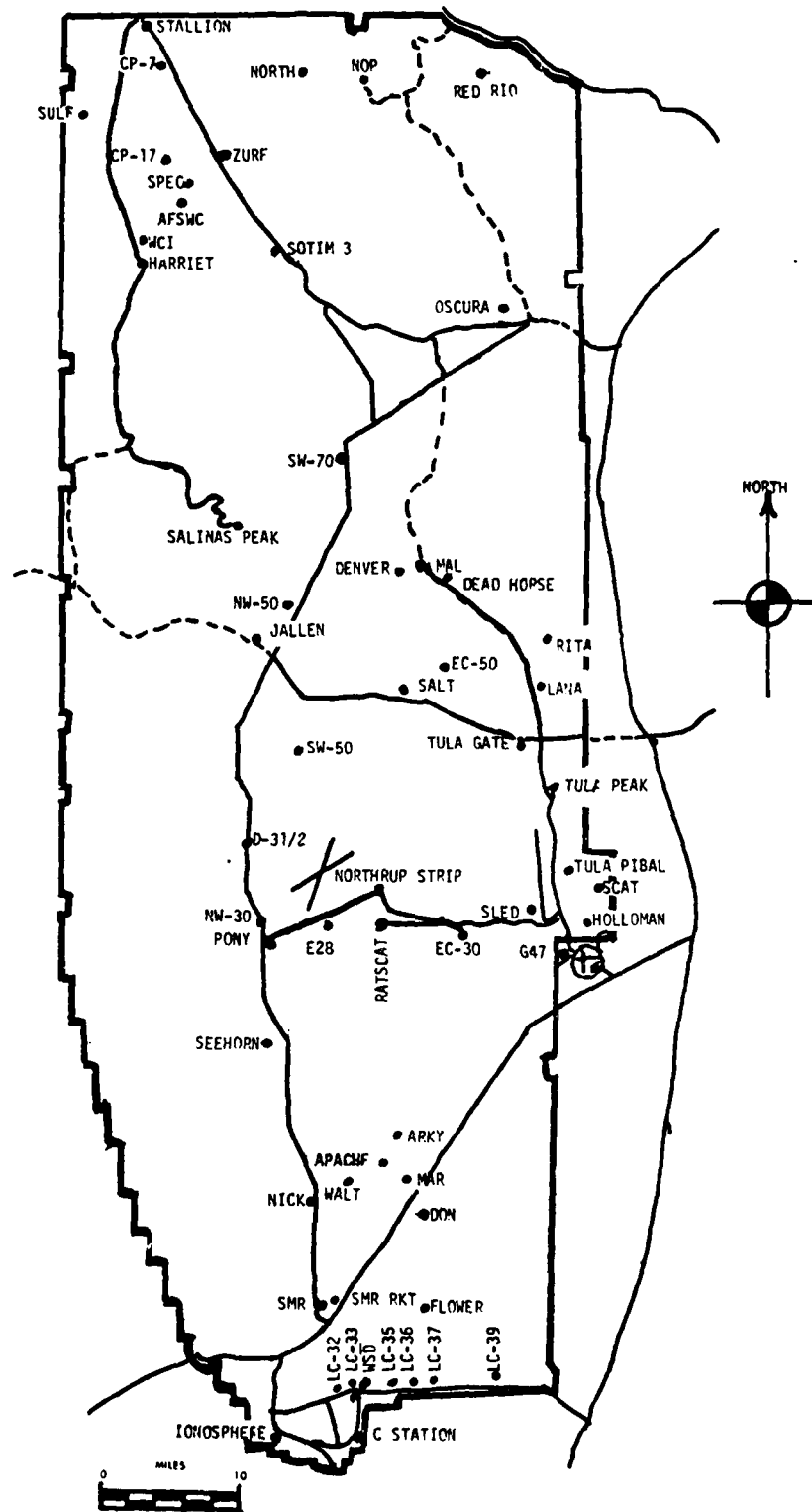
LC-33	2 Km
NICK	2 Km

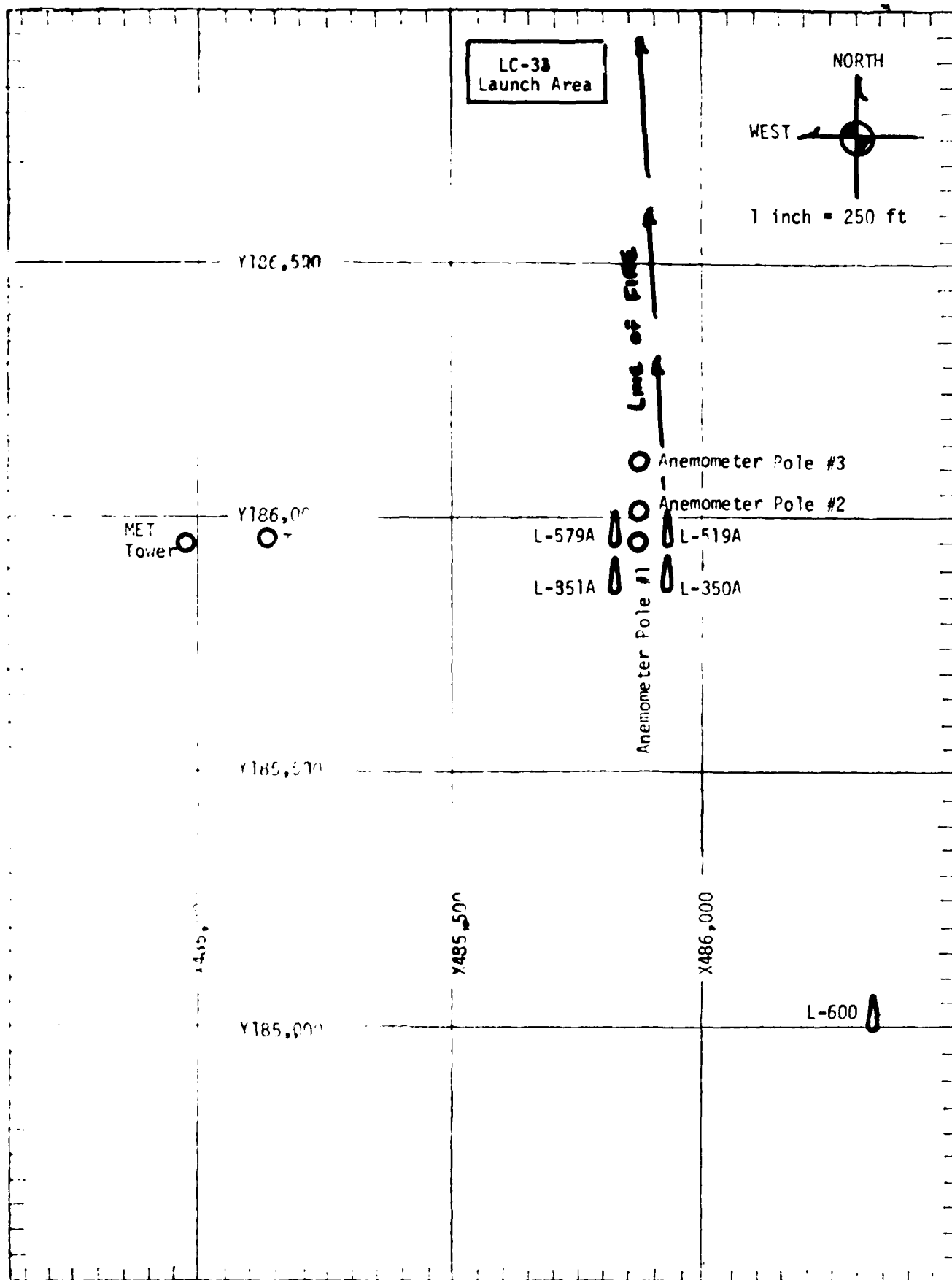
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

SITE AND TIME

WSD	1200 MST
WSD	1340 MST

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE 1		STATION LC-33 E + A									
DATE 19 02 82		X= 485,135.76 Y= 185,919.24 H= 3988.57									
DAY MONTH YEAR											
TIME M S T	PRESSURE mbs	TEMPERATURE OF °C	DEW POINT OF °F	RELATIVE HUMIDITY %	DENSITY gm/m ³	DIRECTION degs In	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY		
1500	880.8	18.2	3.6	38	1048	060	12		50		

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	HGT	AMT	HGT	AMT	HGT	
None	1	CU 5000					

PSYCHROMETRIC COMPUTATION

TIME:	1500
DRY BULB TEMP.	18.2
WET BULB TEMP.	10.2
WET BULB DEPR.	8.0
DEW POINT	3.6
RELATIVE HUMID.	38

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	022	09	T-30	035	13	T-30	003	10
T-20	028	09	T-20	031	16	T-20	011	10
T-10	025	10	T-10	027	16	T-10	007	11
T 0.0	043	09	T 0.0	039	15	T 0.0	015	08
T+10	041	10	T+10	047	13	T+10	009	11

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	001	08	T-30	014	13
T-20	005	11	T-20	017	12
T-10	009	10	T-10	017	13
T 0.0	003	09	T 0.0	010	11
T+10	004	08	T+10	011	14

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	009	13	T-30	005	13
T-20	011	13	T-20	012	13
T-10	011	15	T-10	012	12
T 0.0	010	15	T 0.0	013	12
T+10	017	14	T+10	034	12

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 19 Feb 82

SITE: LC-33

TIME: 1500 MST

WSTM COORDINATES:

Y= 484,837.34

Y= 184,124.44

H= 3,975.57

SITE: NICK

TIME: 1510 MST

WSTM COORDINATES:

X= 470,734.56

Y= 255,744.64

H= 4,126.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	060	12
150	030	11
210	027	11
270	030	11
330	302	10
390	036	10
500	044	10
650	062	09
800	079	08
950	100	07
1150	127	09
1350	134	10
1550	142	11
1750	153	17
2000	158	19

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE		CALM
150	360	05
210	001	06
270	002	06
330	003	05
390	009	05
500	022	05
650	036	03
800	068	01
950	143	03
1150	146	09
1350	155	12
1550	161	16
1750	159	17
2000	172	15

All data obtained from single-theodolite tracked pilot-balloon observations.

TABLE 5

AIMING COMPUTER MET MESSAGES

WSD 1200 MST	WSD 1340 MST
METCM1324064	MTCM1324064
191900122884	192070122882
00267010 29100884	00107004 29240882
01166018 28940874	01055011 29100872
02143010 28620848	02104007 28770846
03154013 28210808	03194009 28420807
04209010 27720760	04204010 27930759
05240021 27340715	05242010 27390714
06243027 27050631	06279021 27320671
07285021 27050631	07326020 27060630
08329024 26610592	08324027 26650591
09320027 26150555	09317021 26270555

STATION ALTITUDE 3989.00 FEET .SL
 19 FEB. 62 1200 HRS MST
 ASCENSION NO. 63

SIGNIFICANT LEVEL DATA
 0-500020000
 WHITE SANDS
 TABLE 6

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

PRESSURE	GEOMETRIC ALTITUDE	AIR TEMPERATURE	REL. HUM.
MILLIBARS	MSL FEET	DEGREES CENTIGRADE	PERCENT
884.0	3989.0	16.6	40.0
875.0	4274.2	14.9	39.0
850.0	5076.2	12.4	44.0
813.0	6127.1	9.1	51.0
789.6	7084.5	6.3	59.0
716.0	9686.4	-1.4	94.0
700.0	10230.4	-2.2	87.0
680.0	11043.6	-4.4	74.0
662.6	11725.3	-6.6	51.0
636.2	12790.0	-2.3	28.0
610.4	13864.9	-5.0	31.0
551.8	16436.3	-12.5	41.0
543.6	16812.0	-12.9	20.0
527.6	17559.9	-13.7	16.0
500.0	18895.3	-16.6	15.0

STATION ALTITUDE 3989.00 FEET SL
19 FEB. 52 1200 HRS MST
ASCENSION NO. 63

UPPER AIR DATA
050002000
WHITE SANDS
TABLE 7

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/SEC	WIND DATA DIRECTION SPEED KNOTS	INDEX OF REFRACTION
3989.0	884.0	16.6	40.0	1059.4	664.2	130.0	1.000270
4000.0	883.7	16.5	40.0	1059.2	664.1	149.7	1.000270
4500.0	867.9	14.2	40.4	1049.2	661.3	135.0	1.000264
5000.0	852.3	12.6	43.5	1036.0	659.5	119.9	1.000260
5500.0	830.9	11.1	46.8	1023.0	657.7	104.6	1.000257
6000.0	821.8	9.5	50.2	1010.1	655.9	91.0	1.000253
6500.0	800.8	8.0	54.1	997.0	654.1	90.7	1.000250
7000.0	792.1	6.5	58.3	983.9	652.4	97.2	1.000247
7500.0	777.4	5.1	64.6	970.7	650.7	103.7	1.000244
8000.0	762.9	3.6	71.3	957.6	649.0	112.7	1.000241
8500.0	748.7	2.1	78.0	944.8	647.3	121.0	1.000238
9000.0	734.7	.6	84.8	932.3	645.5	128.0	1.000235
9500.0	721.0	-8	91.5	919.9	643.8	132.3	1.000232
10000.0	707.5	-8	90.3	902.3	643.9	134.0	1.000228
10500.0	694.2	-3	83.3	883.8	644.4	135.3	1.000222
11000.0	681.1	-4	74.7	867.8	644.2	130.4	1.000216
11500.0	668.3	-5	58.6	852.3	643.9	139.1	1.000207
12000.0	655.7	-1.0	45.1	836.2	643.1	143.0	1.000200
12500.0	643.3	-1.8	34.3	823.1	642.0	152.7	1.000193
13000.0	631.1	-2.8	28.6	812.6	640.8	163.4	1.000188
13500.0	619.0	-4.1	30.0	800.8	639.3	174.9	1.000185
14000.0	607.2	-5.4	31.5	789.3	637.7	179.9	1.000183
14500.0	595.4	-6.9	33.5	776.3	636.0	182.9	1.000180
15000.0	583.8	-8.3	35.4	767.4	634.2	183.0	1.000177
15500.0	572.5	-9.8	37.4	756.6	632.5	183.0	1.000174
16000.0	561.3	-11.2	39.3	746.1	630.7	181.1	1.000172
16500.0	550.4	-12.6	30.5	735.4	629.1	177.0	1.000169
17000.0	539.5	-13.1	23.5	722.5	628.3	172.0	1.000164
17500.0	528.9	-13.6	16.8	709.8	627.7	162.0	1.000160
18000.0	518.3	-14.7	16.7	698.4	626.4		1.000157
18500.0	508.0	-15.7	17.4	687.4	625.1		1.000155

STATION ALTITUDE 3989.00 FEET
 19 FEB. 52
 ASCENSION 140. 63

INDICATORY LEVELS
 0500000000
 WHITE SANDS

CLOUDS, COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 8

PRESSURE EQUIPOTENTIAL		TEMPERATURE		REL. HUMID.	WIND DATA	
MILLIBARS	FEET	AIR	DEWPOINT	PERCENT	DIRECTION	SPEED
		DEGREES	CENTIGRADE		(TN)	KNOTS
850.0	5072.	12.4	.5	44.	117.5	0.9
800.0	6726.	7.3	-0.3	50.	93.7	11.0
750.0	8454.	2.3	-1.3	77.	120.3	12.7
700.0	10270.	-0.2	-2.1	87.	135.2	23.8
650.0	12216.	-1.4	-13.2	40.	147.6	23.7
600.0	14291.	-6.3	-20.0	35.	161.8	22.3
550.0	16497.	-12.6	-24.0	30.	177.8	25.2
500.0	18869.	-16.6	-35.3	18.		

STATION ALTITUDE 3989.00 FEET MSL
 10 FEB. 62 1340 HRS MST
 ASCENSION, 110. 64

SIGNIFICANT LEVEL DATA
 0500020004
 WHITE SANDS

TABLE 9

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
881.6 3989.0	18.5 2.4	34.0
856.0 5014.3	13.9 .5	40.0
786.4 7147.6	8.5 -1.0	51.0
700.0 10253.3	-1.7 -2.4	95.0
686.4 10766.5	-2.4 -5.7	78.0
673.6 11261.2	1.1 -10.1	43.0
642.2 12516.2	-1.9 -14.0	39.0
633.6 12868.3	-2.5 -14.5	39.0
565.6 15788.7	-10.0 -16.7	49.0
549.0 16542.7	-11.0 -25.1	30.0
500.0 18879.9	-16.4 -30.2	29.0

CELESTIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

STATION ALTITUDE 3989.00 FEET MSL
10 FEB. 62 1340 HRS MST
ASCENSION NO. 64

UPPER AIR DATA
0500020004
WHITE SANDS

TABLE 10

GEODETIC COORDINATES
32.40043 LAT UEG
106.37033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND KILOMETERS PER SECOND	"INC DATA AIR CLOUD CORRECTION KILOMETERS PER SECOND"	"INC DATA REFRACTION KILOMETERS PER SECOND"	INDEX OF REFRACTION
3989.0	881.8	18.5	2.4	34.0	1050.0	660.3	60.0	4.1	1.000266
4000.0	881.5	18.5	2.3	34.1	1049.8	660.3	60.4	4.1	1.000266
4500.0	863.8	16.2	1.5	37.0	1039.3	663.7	77.1	4.6	1.000262
5000.0	850.4	14.0	.6	39.9	1028.9	661.1	69.6	5.4	1.000259
5500.0	835.1	12.7	.3	42.5	1014.9	659.6	68.5	6.4	1.000255
6000.0	820.0	11.4	-.1	45.1	1001.1	658.1	105.0	7.5	1.000252
6500.0	805.2	10.1	-.5	47.7	987.4	656.6	109.7	8.7	1.000248
7000.0	790.6	8.9	-.9	50.2	974.0	655.1	111.7	9.5	1.000244
7500.0	776.1	7.3	-.8	56.0	961.2	653.4	113.1	10.3	1.000242
8000.0	761.7	5.7	-.8	63.1	948.8	651.5	110.4	11.4	1.000240
8500.0	747.5	4.1	-.9	70.2	936.7	649.6	121.0	13.2	1.000237
9000.0	733.7	2.4	-1.2	77.2	924.8	647.0	126.1	14.9	1.000234
9500.0	720.0	.8	-1.6	84.3	913.1	645.7	132.9	15.8	1.000231
10000.0	706.7	-.9	-2.1	91.4	901.6	643.7	139.0	16.9	1.000228
10500.0	693.4	-2.0	-3.9	86.8	888.8	642.3	147.3	16.8	1.000222
11000.0	680.3	-.7	-7.2	61.5	868.3	643.0	157.5	16.5	1.000212
11500.0	667.5	.5	-10.8	42.2	848.4	643.0	164.7	17.2	1.000203
12000.0	654.9	-.7	-12.4	40.6	836.2	643.5	170.6	18.5	1.000198
12500.0	642.6	-1.9	-13.9	39.1	824.2	642.1	174.2	20.3	1.000194
13000.0	630.4	-2.8	-14.7	39.5	811.4	640.9	177.9	21.7	1.000191
13500.0	618.2	-4.1	-15.3	41.2	799.6	639.4	181.1	23.1	1.000188
14000.0	606.3	-5.4	-16.0	42.9	788.0	637.8	184.5	23.9	1.000185
14500.0	594.7	-6.7	-16.7	44.6	776.8	636.3	187.8	24.7	1.000182
15000.0	583.2	-8.0	-17.4	46.3	765.4	634.7	187.2	25.3	1.000179
15500.0	572.0	-9.3	-18.2	48.0	754.4	633.2	188.4	25.8	1.000176
16000.0	560.9	-10.3	-20.2	43.7	742.7	631.9	181.5	23.2	1.000172
16500.0	549.9	-10.9	-24.7	31.1	730.2	631.0	175.2	20.5	1.000167
17000.0	539.0	-12.1	-26.1	29.8	718.9	629.7	164.5	17.3	1.000164
17500.0	528.4	-13.2	-27.2	29.6	707.8	628.2			1.000161
18000.0	517.9	-14.4	-28.3	29.4	696.9	626.8			1.000159
18500.0	507.7	-15.5	-29.4	29.2	686.2	625.4			1.000156

STATION ALTITUDE 3989.00 FEET
 19 FEB. 82
 ASCENSION NO. 64

MAINTENANCE LEVELS
 0500020064
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 11

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUMIDITY PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	5011.	13.0	.5	40.	09.8.	5.4
800.0	6675.	9.7	-0.6	49.	110.7	9.0
750.0	8419.	4.3	-0.8	69.	121.0	12.9
700.0	10243.	-1.7	-2.4	95.	142.3	17.2
650.0	12187.	-1.1	-13.0	40.	171.7	19.1
600.0	14263.	-6.1	-16.4	44.	186.3	24.3
550.0	16476.	-10.9	-24.6	31.	175.4	20.6
500.0	18853.	-16.4	-30.2	29.		

**DAT
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