AD-A115 014 ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/G 4/2
19315A MLRS MISSILE NUMBERS V28-008, V15-010 ROUND NUMBERS V246--ETC(U)
APR 82 D C KELLER
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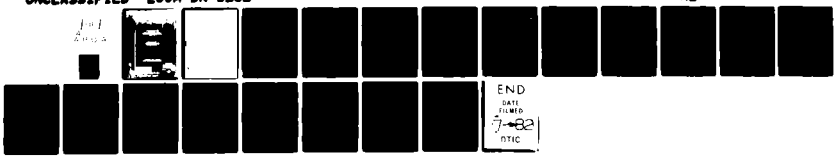

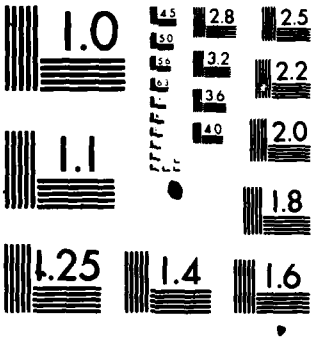

MICROCOPY RESOLUTION TEST CHART
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Meteorological data gathered for the launching of the 19315A MLRS, Missile Numbers V28-008, V15-010, Round Numbers V246/AT2-15, V247/AT2-16 presented in tabular form.

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INTRODUCTION

19315A MLRS, Missile Numbers V28-008 and V15-010, Round Numbers V246/AT2-15 and V247/AT2-16, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1500:01 and 1500:05 MST, 22 Apr 1982. The scheduled launch times were 1500 and 1500:04.5 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 (°C), relative humidity, dew point (°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 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 for pilot-balloon observations at:

SITE AND ALTITUDE	
WSD	2 Km
SMR	2 Km

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

SITE AND TIME	
WSD	1200 MST
WSD	1400 MST
LC-37	1500 MST

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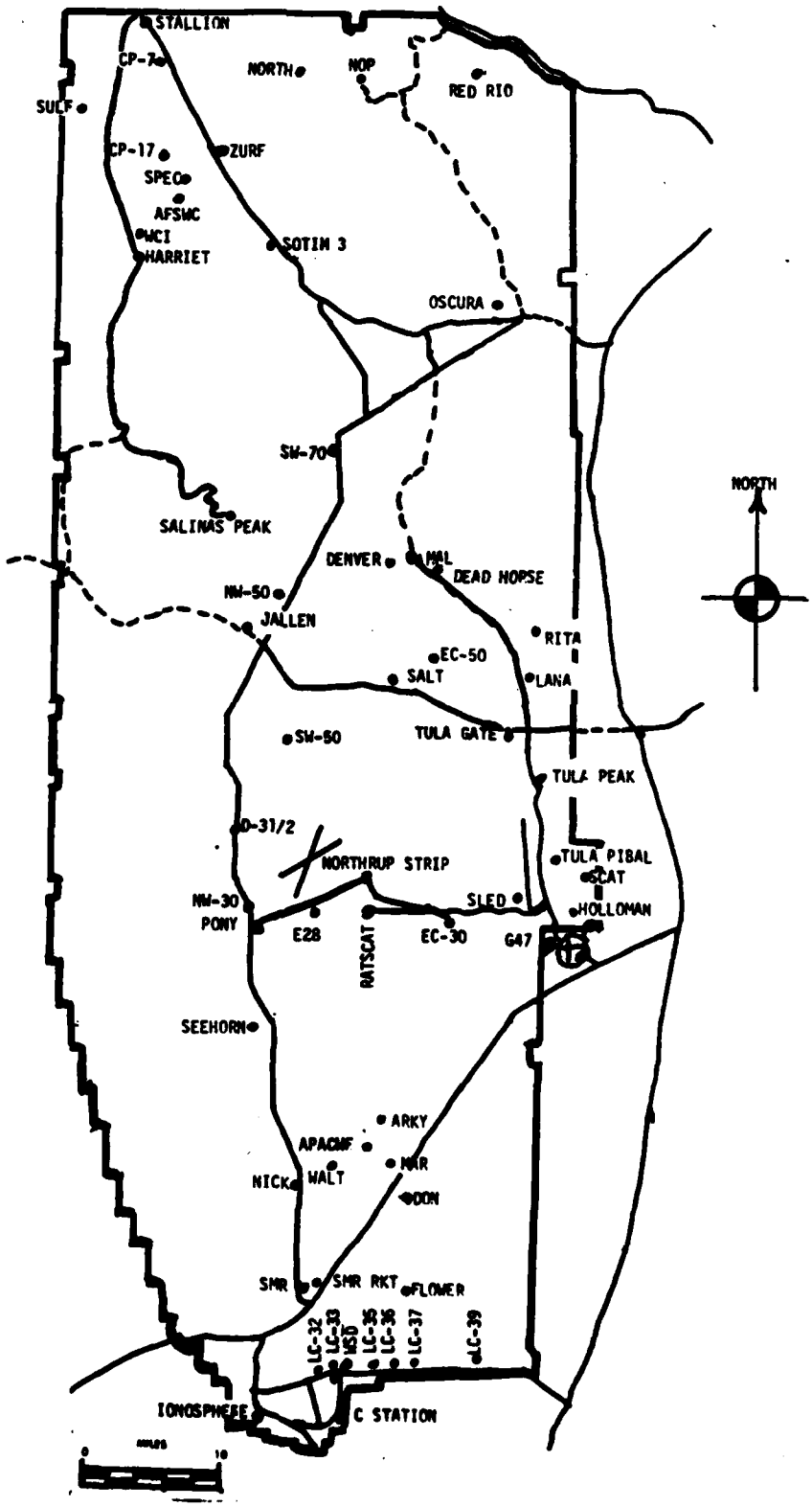
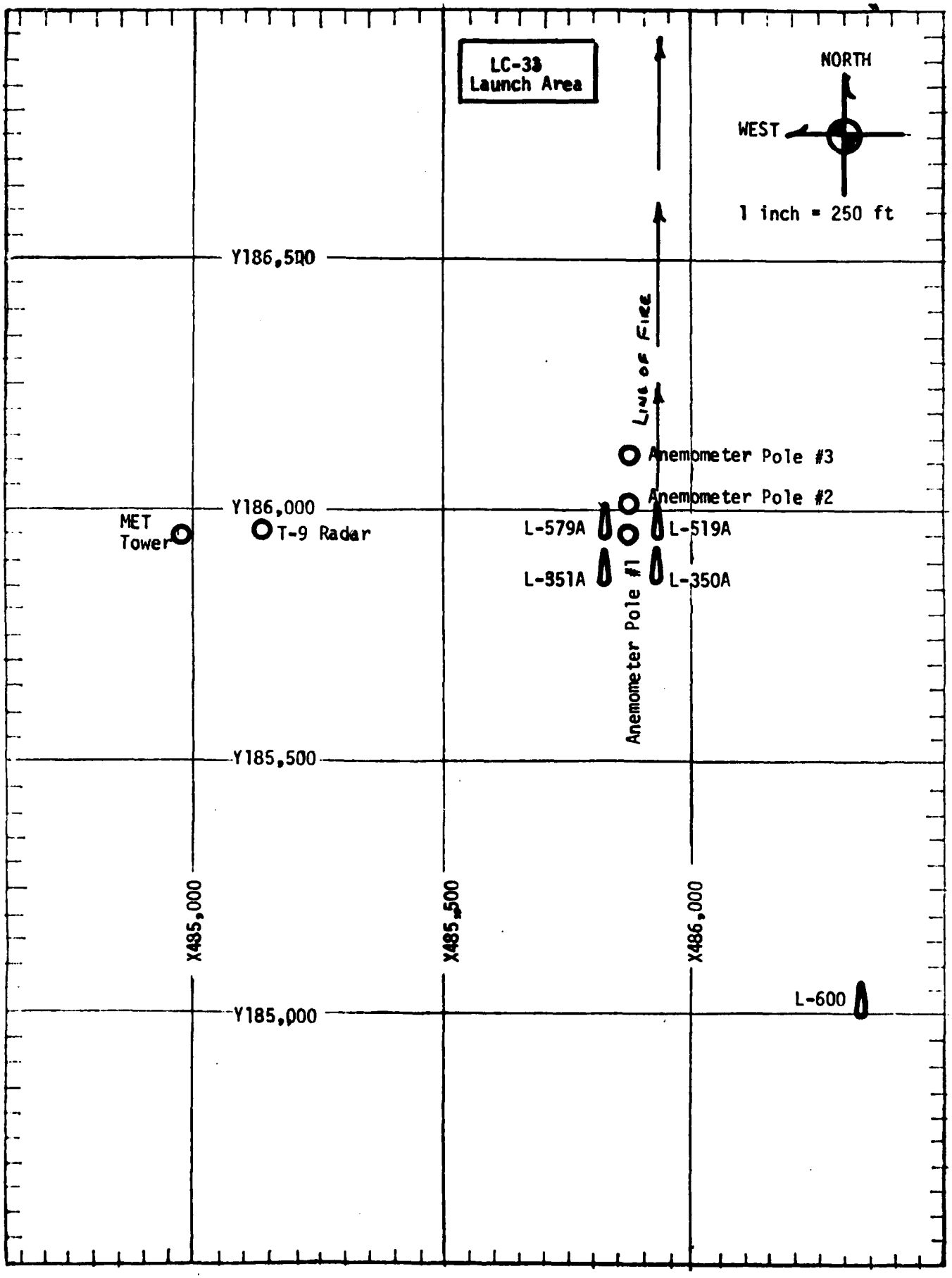
WSMR METEOROLOGICAL SITES




LC-38
Launch Area
NORTH
WEST
1 inch = 250 ft
Y186,500
Line of Fire
Anemometer Pole #3
Anemometer Pole #2
Y186,000
MET
Tower
T-9 Radar
L-579A
L-519A
L-351A
L-350A
Anemometer Pole #1
Y185,500
X485,000
X485,500
X486,000
L-600
Y185,000

PROJECT SURFACE OBSERVATION

TABLE 1

STATION LC-33 E&A

DATE 22 (DAY) Apr (MONTH) 82 (YEAR)

X= 484,982.65 Y= 185,957.73 H= 3995.00

TIME M S I	PRESSURE mbs	TEMPERATURE °F	TEMPERATURE °C	DEW POINT °F	DEW POINT °C	RELATIVE HUMIDITY %	DENSITY gm/m³	WIND DIRECTION degs Tn	WIND SPEED kts	WIND CHARACTER kts	VISIBILITY
1500	889.9		10.2		2.0	57	1089	160	12		50

OBSTRUCTIONS TO VISIBILITY	CLOUDS 1st LAYER AMT	1st LAYER TYPE	1st LAYER HGT	2nd LAYER AMT	2nd LAYER TYPE	2nd LAYER HGT	3rd LAYER AMT	3rd LAYER TYPE	3rd LAYER HGT	REMARKS
	9	SC	5,000	1	AS	10,000				

PSYCHROMETRIC COMPUTATION

TIME:	1500		
DRY BULB TEMP.	10.2		
WET BULB TEMP.	6.1		
WET BULB DEPR.	4.1		
DEW POINT	2.0		
RELATIVE HUMID.	57		

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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	Missing	12	T-30	141	10	T -30	138	14
T-20	Missing	12	T-20	141	10	T -20	137	13
T-10	Missing	11	T-10	136	10	T -10	126	12
T0.0	Missing	10	T0.0	137	10	T 0.0	132	12
T+10	Missing	10	T+10	115	10	T +10	138	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	162	09	T-30	164	13
T-20	158	12	T-20	153	13
T-10	151	13	T-10	152	14
T0.0	159	12	T0.0	148	12
T+10	159	12	T+10	145	13

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	151	13	T-30	121	16
T-20	132	12	T-20	115	14
T-10	137	11	T-10	116	13
T0.0	125	11	T0.0	116	11
T+10	133	12	T+10	115	12

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TABLE 4

1-TIME PILOT-BALLOON [illegible]

DATE 22 April 1982

SITE: WSD

TIME: 1500 MST

WSTM COORDINATES:

X= 488,580

Y= 185,045

H= 3,989

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	120	12
150	147	15
210	138	12
270	116	09
330	141	11
390	142	10
500	128	10
650	116	14
800	115	12
950	119	16
1150	131	19
1350	128	15
1550	128	12
1750	135	12
2000	173	11

Data obtained form Nike-Herc Radar tracked pilot-balloon observation.

SITE: SMR

TIME: 1500 MST

WSTM COORDINATES:

X= 472,441

Y= 214,138

H= 3,999

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	210	10
150	180	05
210	183	08
270	174	08
330	180	09
390	165	11
500	160	14
650	153	15
800	147	14
950	141	15
1150	129	18
1350	138	16
1550	142	17
1750	140	16
2000	164	12

Data obtained form RAPTS T-9 ~~Radar tracked~~ pilot-balloon observation.

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TABLE 7

AIMING AND T-TIME COMPUTER MET MESSAGES

22 April 1982

WSD 1200 MST		WSD 1400 MST	
METCM1324064		METCM1324064	
221900122890		222100122890	
00267008	28190890	00160014	28290890
01274011	27980879	01217018	28140879
02222015	27740853	02205015	27890853
03192022	27490812	03217016	27520812
04238020	27320763	04243018	27360717
05300017	27410717	05283012	27390717
06361018	27220673	06354013	27230673

LC-37 1500 MST	
METCM1324063	
222200124888	
00142007	28390888
01196014	28240877
02229018	28070851
03214014	27710810
04232017	27450762
05233013	27420716
06370012	27270673

STATION ALTITUDE 3989.00 FEET MSL
22 APR. 82 1200 HRS MST
ASCENSION NO. 169

SIGNIFICANT LEVEL DATA
1120020169
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
890.0	3989.0	7.5	3.9	78.0
886.4	4098.5	6.2	1.7	73.0
850.0	5222.3	3.1	1.2	87.0
775.8	7637.7	-1.2	-1.9	95.0
712.4	9883.0	.7	-.2	94.0
700.0	10346.4	-.3	-1.0	95.0
652.8	12176.5	-2.8	-4.4	89.0
630.1	13095.2	-5.4	-8.9	76.0
617.0	13636.9	-6.2	-8.9	81.0
590.4	14765.9	-8.8	-14.2	65.0
572.8	15534.6	-10.5	-16.0	64.0
529.2	17518.6	-15.7	-35.1	17.0
500.0	18921.0	-17.7	-28.8	37.0

UPPER AIR DATA
112002169
WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
22 APR. 82 1200 HRS MST
ASCENSION NO. 169

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	890.0	7.5	3.9	78.0	1100.9	653.8	150.0	8.0	1.000284
4000.0	889.6	7.4	3.7	77.5	1101.1	653.6	149.5	8.0	1.000284
4500.0	873.2	5.1	1.6	78.0	1090.0	650.8	132.3	10.2	1.000276
5000.0	857.1	3.7	1.3	84.2	1075.2	649.2	121.7	12.9	1.000273
5500.0	841.1	2.6	.8	87.9	1059.5	647.9	114.9	16.0	1.000268
6000.0	825.4	1.7	.2	89.6	1043.1	646.8	110.4	19.2	1.000263
6500.0	809.9	.8	-.4	91.2	1027.0	645.7	113.0	20.5	1.000259
7000.0	794.7	-.1	-1.1	92.9	1011.1	644.7	115.5	21.9	1.000254
7500.0	779.8	-1.0	-1.7	94.5	995.5	643.6	122.4	21.1	1.000249
8000.0	765.2	-.9	-1.6	94.8	976.5	643.7	130.9	20.4	1.000245
8500.0	750.8	-.5	-1.2	94.6	956.5	644.2	140.2	19.2	1.000242
9000.0	736.7	-.0	-.8	94.4	936.9	644.6	150.6	18.2	1.000238
9500.0	722.8	.4	-.4	94.2	917.8	645.3	162.6	17.3	1.000234
10000.0	709.2	.4	-.4	94.3	900.2	645.4	176.4	16.7	1.000231
10500.0	695.9	-.5	-1.3	94.5	886.5	644.2	187.5	16.9	1.000226
11000.0	682.8	-1.2	-2.2	92.9	872.1	643.4	194.6	17.5	1.000221
11500.0	669.9	-1.9	-3.1	91.2	857.9	642.5	196.9	17.5	1.000216
12000.0	657.2	-2.6	-4.0	89.6	843.9	641.7	194.5	16.8	1.000211
12500.0	644.7	-3.7	-5.9	84.4	831.7	640.2	193.5	15.8	1.000206
13000.0	632.4	-5.1	-8.5	77.3	820.4	638.4	195.6	14.4	1.000200
13500.0	620.3	-6.0	-8.9	79.7	807.3	637.4	199.6	13.5	1.000196
14000.0	608.3	-7.0	-10.6	75.9	795.0	636.1	208.6	13.7	1.000192
14500.0	596.6	-8.2	-12.9	68.8	783.2	634.6	216.0	14.9	1.000187
15000.0	585.0	-9.3	-14.7	64.7	771.4	633.2	220.6	17.0	1.000182
15500.0	573.6	-10.4	-15.9	64.0	759.7	631.8	225.2	18.8	1.000179
16000.0	562.3	-11.7	-19.3	53.0	748.6	630.2	230.0	20.2	1.000174
16500.0	551.2	-13.0	-23.4	41.1	737.7	628.5	233.7	22.1	1.000169
17000.0	540.3	-14.3	-28.3	29.3	726.9	626.9	236.5	24.2	1.000165
17500.0	529.6	-15.7	-34.8	17.4	716.3	625.2			1.000161
18000.0	519.0	-16.4	-32.2	23.9	703.9	624.3			1.000159
18500.0	508.6	-17.1	-30.1	31.0	691.7	623.5			1.000157

STATION ALTITUDE 3989.00 FEET MSL
22 APR. 82 1200 HRS MST
ASCENSION NO. 169

MANDATORY LEVELS
1120020169
WHITE SANDS
TABLE 8

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	5218.	3.1	1.2	87.	118.4	14.2
800.0	6824.	.2	-.9	92.	114.7	21.4
750.0	8519.	-.4	-1.2	95.	140.6	19.2
700.0	10336.	-.3	-1.0	95.	185.1	16.8
650.0	12275.	-3.1	-4.9	87.	193.0	16.4
600.0	14337.	-7.8	-12.2	71.	214.2	14.2
550.0	16536.	-13.2	-23.9	40.	234.0	22.3
500.0	18894.	-17.7	-28.8	37.		

STATION ALTITUDE 3989.00 FEET MSL
22 APR. 82 1400 HRS MST
ASCENSION NO. 170

SIGNIFICANT LEVEL DATA
1120020170
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 9

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
889.8	3989.0	9.0	3.2	67.0
875.2	4437.7	6.9	.6	64.0
850.0	5223.8	4.7	.5	74.0
808.2	6566.2	.9	-.1	93.0
789.6	7180.3	-.5	-1.2	95.0
706.2	10120.7	.1	-.6	95.0
700.0	10353.1	-.2	-3.7	77.0
688.0	10808.0	-.7	-7.1	62.0
661.6	11833.6	-2.0	-7.7	65.0
605.3	14136.2	-7.4	-10.6	78.0
584.2	15042.6	-9.0	-14.7	63.0
543.0	16891.2	-12.9	-18.3	64.0
518.8	18028.0	-16.1	-20.1	71.0
500.0	18939.9	-17.5	-29.8	33.0

UPPER AIR DATA
1120020170
WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
22 APR. 82 1400 HRS MST
ASCENSION NO. 170

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 10

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	889.8	9.0	3.2	67.0	1095.0	655.5	90.0	14.0	1.000281
4000.0	889.4	8.9	3.1	66.9	1094.8	655.4	90.2	14.0	1.000280
4500.0	873.2	6.7	.6	64.8	1083.9	652.6	99.1	14.0	1.000272
5000.0	857.1	5.3	.5	71.2	1069.2	651.0	107.9	14.3	1.000269
5500.0	841.2	3.9	.4	77.9	1054.7	649.4	116.0	14.9	1.000266
6000.0	825.6	2.5	.2	85.0	1040.4	647.7	121.6	16.0	1.000263
6500.0	810.2	1.1	-.1	92.1	1026.3	646.1	124.9	17.2	1.000259
7000.0	795.0	-.1	-.9	94.4	1011.5	644.6	127.8	18.0	1.000254
7500.0	780.1	-.4	-1.1	95.0	993.7	644.2	130.6	18.5	1.000250
8000.0	765.4	-.3	-1.0	95.0	974.6	644.4	133.7	17.8	1.000246
8500.0	751.0	-.2	-.9	95.0	955.9	644.5	137.6	16.2	1.000242
9000.0	736.9	-.1	-.8	95.0	937.5	644.7	144.3	14.4	1.000238
9500.0	723.0	-.0	-.7	95.0	919.4	644.8	156.6	12.6	1.000234
10000.0	709.4	.1	-.6	95.0	901.7	645.0	171.6	11.6	1.000231
10500.0	696.1	-.4	-4.7	72.2	886.9	644.2	186.3	11.9	1.000219
11000.0	683.0	-.9	-7.2	62.6	872.3	643.4	197.0	12.6	1.000213
11500.0	670.1	-1.6	-7.5	64.0	857.9	642.6	200.9	13.1	1.000209
12000.0	657.4	-2.4	-7.9	65.9	844.1	641.7	204.5	13.6	1.000206
12500.0	644.8	-3.6	-8.5	68.8	831.6	640.3	207.2	14.1	1.000202
13000.0	632.5	-4.7	-9.1	71.6	819.3	638.8	209.6	14.6	1.000199
13500.0	620.4	-5.9	-9.7	74.4	807.2	637.4	212.0	15.2	1.000195
14000.0	608.5	-7.1	-10.4	77.2	795.3	636.0	213.9	15.8	1.000192
14500.0	596.7	-8.0	-12.2	72.0	783.0	634.8	218.1	16.5	1.000187
15000.0	585.2	-8.9	-14.5	63.7	770.5	633.7	223.4	17.3	1.000182
15500.0	573.7	-10.0	-15.6	63.2	758.5	632.4	230.6	18.5	1.000179
16000.0	562.5	-11.0	-16.6	63.5	746.7	631.1	238.8	20.5	1.000176
16500.0	551.5	-12.1	-17.5	63.8	735.1	629.8	243.9	23.1	1.000172
17000.0	540.6	-13.2	-18.4	64.7	723.8	628.4	246.9	26.0	1.000169
17500.0	529.9	-14.6	-19.2	67.7	713.3	626.7	246.6	28.5	1.000166
18000.0	519.4	-16.0	-20.1	70.8	703.0	625.0	245.3	30.7	1.000164
18500.0	509.0	-16.8	-24.5	51.3	691.3	623.9			1.000159

STATION ALTITUDE 3989.00 FEET MSL
22 APR. 82 1400 HRS MST
ASCENSION NO. 170

MANDATORY LEVELS
1120020170
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 11

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	5220.	4.7	.5	74.	111.6	14.6
800.0	6830.	.3	-.6	94.	126.8	17.8
750.0	8527.	-.2	-.9	95.	137.8	16.1
700.0	10343.	-.2	-3.7	77.	181.9	11.7
650.0	12282.	-3.1	-8.2	68.	206.1	13.9
600.0	14344.	-7.8	-11.6	74.	216.5	16.3
550.0	16548.	-12.2	-17.6	64.	244.3	23.5
500.0	18913.	-17.5	-29.8	33.		

STATION ALTITUDE 4051.37 FEET MSL
22 APR. 82 1500 HRS MST
ASCENSION NO. 34

SIGNIFICANT LEVEL DATA
1120180034
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

TABLE 12

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT
887.8	4051.4	10.4	-15.9	14.0
872.8	4515.9	9.0	2.1	62.0
850.0	5233.3	6.6	.5	65.0
800.2	6849.5	2.0	.5	90.0
771.0	7833.7	.4	-.3	95.0
700.0	10383.1	.1	-.6	95.0
670.2	11528.0	-1.0	-6.3	67.0
617.4	13666.9	-4.9	-7.6	81.0
600.2	14395.8	-6.5	-10.3	74.0

UPPER AIR DATA
1120180034
LC-37
TABLE 13

STATION ALTITUDE 4051.37 FEET MSL
22 APR. 82 1500 HRS MST
ASCENSION NO. 34

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4051.4	887.8	10.4	-15.9	14.0	1089.9	656.3	80.0	7.0	1.000251
4500.0	873.3	9.0	1.8	60.4	1074.8	655.4	96.5	8.4	1.000273
5000.0	857.3	7.4	1.0	64.0	1061.6	653.5	108.6	10.6	1.000268
5500.0	841.6	5.8	.6	69.1	1047.8	651.7	116.4	13.0	1.000265
6000.0	826.0	4.4	.7	76.9	1033.6	650.0	121.5	15.5	1.000262
6500.0	810.7	3.0	.7	84.6	1019.7	648.4	121.4	16.3	1.000259
7000.0	795.7	1.8	.4	90.8	1005.3	646.9	121.5	17.0	1.000256
7500.0	780.8	.9	-.0	93.3	989.4	645.9	123.6	17.5	1.000251
8000.0	766.2	.4	-.3	95.0	972.9	645.3	126.1	18.0	1.000247
8500.0	751.8	.3	-.4	95.0	954.8	645.2	128.9	16.5	1.000243
9000.0	737.7	.3	-.4	95.0	937.0	645.2	132.4	14.8	1.000239
9500.0	723.8	.2	-.5	95.0	919.6	645.1	138.6	12.9	1.000235
10000.0	710.2	.1	-.6	95.0	902.5	645.0	149.4	11.2	1.000231
10500.0	696.9	-.0	-1.1	92.1	886.1	644.8	164.4	10.1	1.000226
11000.0	683.8	-.5	-3.5	79.9	871.4	644.1	184.5	10.4	1.000218
11500.0	670.9	-1.0	-6.2	67.7	856.9	643.4	201.4	11.9	1.000211
12000.0	658.2	-1.9	-6.6	70.1	843.4	642.4	208.2	13.3	1.000207
12500.0	645.7	-2.8	-6.9	73.4	830.1	641.3	213.5	14.8	1.000204
13000.0	633.4	-3.7	-7.2	76.6	817.1	640.2			1.000201
13500.0	621.4	-4.6	-7.5	79.9	804.3	639.1			1.000197
14000.0	609.5	-5.6	-8.9	77.8	792.1	637.8			1.000193

STATION ALTITUDE 4051.37 FEET MSL
22 APR. 82 1500 HRS MST
ASCENSION NO. 34

MANDATORY LEVELS
1120130034
LC-37

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

TABLE 14

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	5229.	6.6	.5	65.	112.6	11.7
800.0	6850.	2.0	.5	90.	121.2	16.8
750.0	8555.	.3	-.4	95.	129.2	16.3
700.0	10373.	.1	-.6	95.	159.5	10.2
650.0	12316.	-2.5	-6.8	72.	211.7	14.2