

AD-A117 185 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/S 4/2  
19318C MLRS, MISSILE NUMBER BN-109, ROUND NUMBER V-264/P0-4, (U)  
MAY 82 D C KELLER  
UNCLASSIFIED ERADCOM/ASL-DR-1244 NL

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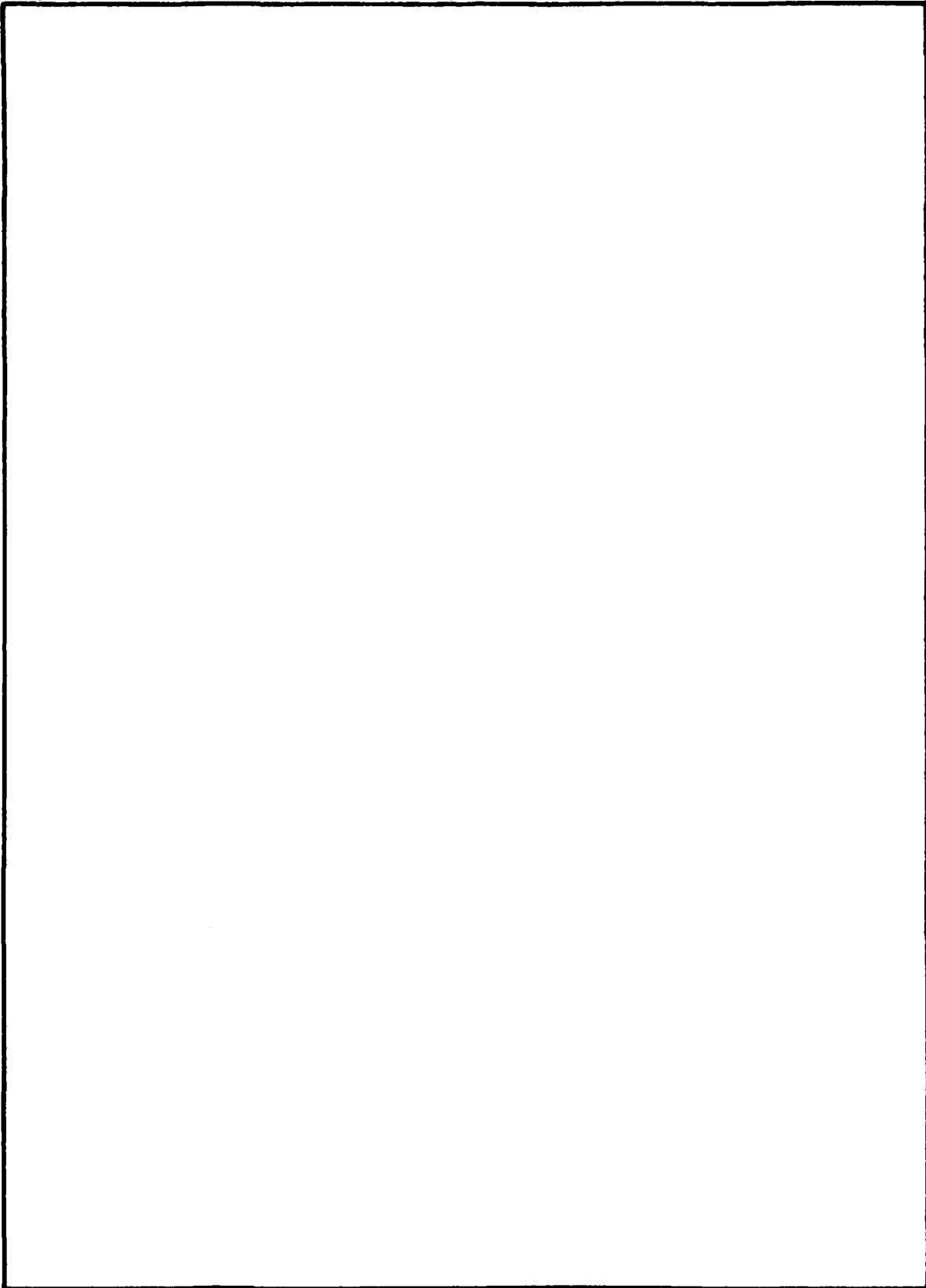
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19318C MLRS, Missile Number BN-109, Round Number V-264/PQ-4 presented in tabular form.		

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## INTRODUCTION

19318C MLRS, Missile Number BN-109, Round Number V-264/PQ-4, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1505:07 MDT 28 May 1982. The scheduled launch time was 1505 MDT.

## 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 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

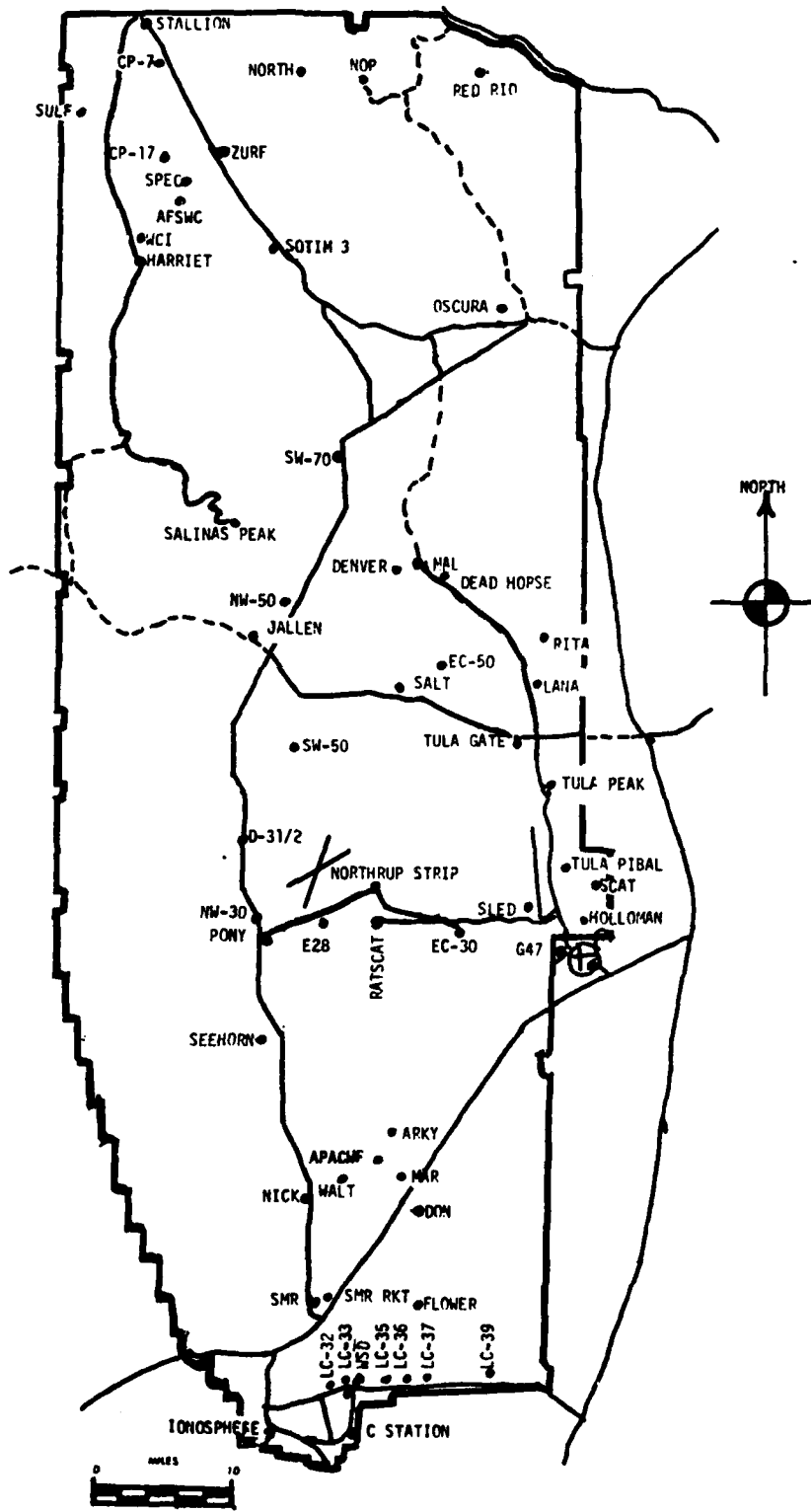
WSD	2 Km
Don	2 Km

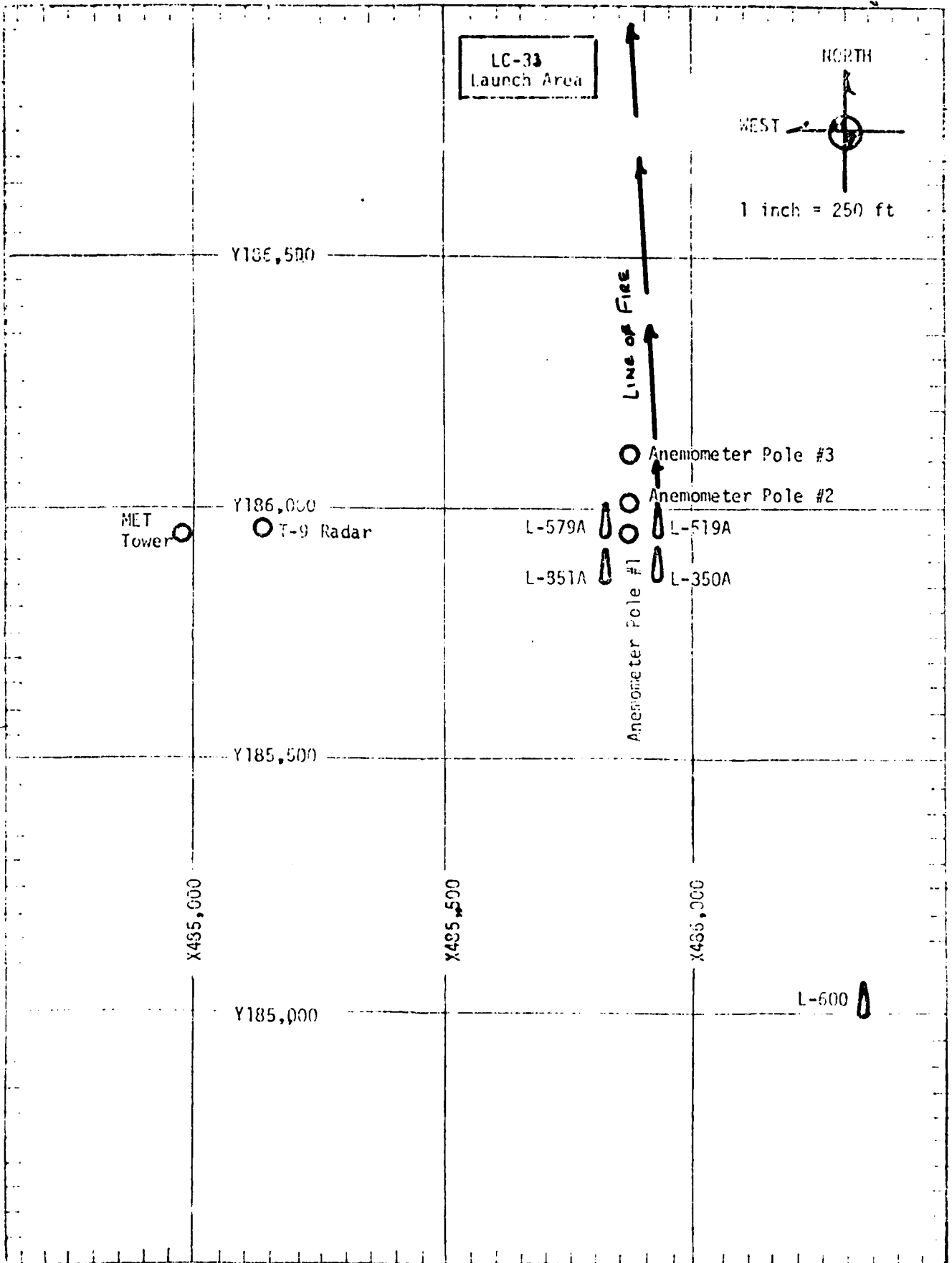
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

### SITE AND TIME

WSD	1235 MDT
LC-37	1325 MDT
LC-37	1505 MDT

# WSMR METEOROLOGICAL SITES





PROJECT SURFACE VEGETATION

STATION LC-33 E&A

TABLE 1

DATE 28 May 82

X = 484,982.64 Y = 185,957.73 H = 3983.00

TIME U.T.	PRESSURE hPa	TEMPERATURE of air C	DEW POINT of air C	RELATIVE HUMIDITY %	DENSITY g/m <sup>3</sup>	WIND		VISIBIL- ITY
						DIRECTION degs In	SPEED Kts	
1507	873.5	30.2	1.4	16	1002	198	03	50

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

PSYCHROMETRIC COMPUTATION

TIME:	1505
DBY BULB TEMP.	30.2
WET BULB TEMP.	14.0
WET BULB DEPR.	16.2
DEW POINT	1.4
RELATIVE HUMID.	16

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 X485,874.29 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 KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	221	13	-30	225	10	-30	237	11
-20	216	15	-20	244	10	-20	237	16
-10	210	13	-10	237	12	-10	241	16
0.0	217	11	0.0	237	10	0.0	257	14
+10	212	09	+10	228	07	+10	252	12

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 KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	221	08	-30	216	08
-20	223	05	-20	215	05
-10	203	04	-10	234	04
0.0	198	03	0.0	218	03
+10	228	02	+10	242	06

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	216	10	-30	222	11
-20	208	07	-20	220	12
-10	212	07	-10	216	10
0.0	203	07	0.0	220	09
+10	200	08	+10	223	10

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 28 May 82

SITE: WSD  
TIME: 1516 MDT  
WSTM COORDINATES:  
X=488,580.00  
Y=185,045.00  
H= 3,989.00

SITE: DON  
TIME 1505 MDT  
WSTM COORDINATES:  
X=511,988.37  
Y=247,396.36  
H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	260	09
150	255	12
210	251	16
270	255	16
330	255	17
390	252	17
500	247	18
650	241	21
800	246	19
950	247	16
1150	237	14
1350	240	14
1550	231	12
1750	221	11
2000	214	11

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	230	07
150	222	16
210	223	17
270	225	16
330	228	14
390	229	14
500	230	13
650	231	13
800	240	11
950	245	08
1150	242	07
1350	248	08
1550	254	15
1750	263	15
2000	260	15

Data obtained from NIKE-HERC  
Radar Tracked pilot-balloon  
observation.

Data obtained from RAPTS T-9  
Radar Tracked pilot-balloon  
observation.

TABLE 5

AIMING AND T-TIME COMPUTER MET MESSAGES  
28 May 1982

WSD 1235 MDT	LC-37 1325 MDT	LC-37 1505 MDT
METCM1324064	METCM1324063	METCM1324063
281860122875	281940124873	282110124873
00462016 30260875	00391007 30070873	00516005 30400873
01448013 29910865	01336011 29910863'	01532009 30030863
02477016 29640841	02377014 29620839	02499011 29760839
03490013 29250803	03420010 29280801	03451009 29400801
04524013 28780757	04439006 28780755	04404006 28940755
05529012 28320713	05486011 28310712	05383009 28450712
06490018 28000671	06515016 28050670	06415010 28040670
07553020 27720613	07536018 27780630	07525014 27770630
08540023 27420594	08522027 27450592	08530027 27450593
09526029 27120558	09518030 27110557	09523030 27130557
10523032 26780523	10527032 26690522	10524032 26760523
11507028 26530491	11522031 26340490	11530033 26450490
12505030 25980445	12520029 25900444	12512029 26010445

STATION ALTITUDE 3969.00 FEET MSL  
 28 MAY 62  
 ASCENSION NO. 242 1235 MDT

SIGNIFICANT LEVEL DATA  
 14000,024,  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

TABLE-6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
875.2	3969.0	28.3	4.6
871.4	4115.0	25.4	2.4
858.0	4828.6	23.3	.4
777.9	7336.2	16.0	-0.2
736.0	10235.1	8.0	-0.5
678.6	11075.1	7.0	-14.4
626.7	13209.2	3.5	-20.7
601.3	14307.7	1.4	-22.4
593.1	14670.6	.9	-22.8
535.5	17343.5	-4.1	-26.1
511.5	18526.0	-6.9	-29.1
500.0	19109.2	-7.1	-30.0
472.5	20563.5	-9.6	-32.0
427.5	23063.1	-16.2	-36.7
400.0	24695.7	-20.6	-40.4

GEOMETRIC COORDINATES  
 22.40043 LAT DEG  
 100.57433 LON DEG

UPPER AIR DATA  
 14 0020Z  
 WILCOX SANDS  
 TABLE-7

STATION ALTITUDE 3989.00 FEET MSL  
 28 MAY 62 1235 MDT  
 ASD-ENGINEER 1.0. 242

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GR/GM CUBIC METER	WIND DIRECTION (100)	WIND SPEED (100) KNOTS	INDEX OF REFRACTION
3989.0	875.2	18.5	4.6	22.9	1007.7	077.0	15.9	1.000260
4000.0	874.9	18.0	4.4	22.0	1006.2	077.5	15.9	1.000260
4500.0	859.8	14.3	1.2	22.0	1004.1	072.0	15.6	1.000252
5000.0	844.9	12.8	0.5	22.8	991.7	071.1	15.4	1.000240
5500.0	830.3	11.4	0.3	24.9	979.0	069.5	14.7	1.000240
6000.0	815.5	10.0	0.4	27.1	966.0	067.9	13.5	1.000240
6500.0	801.2	8.6	0.3	29.3	954.4	066.2	13.0	1.000240
7000.0	787.1	7.7	-0.0	31.5	942.5	064.5	13.0	1.000237
7500.0	773.2	7.1	-0.6	33.1	930.5	062.9	13.5	1.000234
8000.0	759.3	6.3	-1.7	33.5	918.1	061.2	13.3	1.000229
8500.0	745.6	5.5	-2.7	33.8	906.1	059.0	12.7	1.000225
9000.0	732.1	4.7	-3.8	34.1	894.2	058.0	13.1	1.000221
9500.0	719.3	3.8	-4.9	34.5	882.5	056.5	13.3	1.000217
10000.0	706.9	2.9	-6.0	34.8	871.0	054.7	13.4	1.000213
10500.0	695.2	2.0	-7.7	30.3	856.4	053.4	14.0	1.000207
11000.0	684.5	1.1	-13.5	21.3	844.9	052.0	14.9	1.000199
11500.0	667.9	0.3	-15.0	19.0	831.0	051.0	15.6	1.000194
12000.0	655.6	0.5	-17.0	17.8	816.9	050.0	16.7	1.000190
12500.0	643.5	4.7	-18.5	16.7	800.2	049.0	17.6	1.000187
13000.0	631.6	3.8	-20.0	15.5	785.8	048.0	19.2	1.000183
13500.0	619.9	2.9	-21.1	15.0	771.0	047.5	20.8	1.000180
14000.0	608.3	2.0	-21.9	15.0	759.7	046.4	22.0	1.000177
14500.0	596.9	1.1	-22.6	15.0	757.7	045.4	23.2	1.000174
15000.0	585.7	0.3	-23.2	15.1	745.7	044.4	24.0	1.000171
15500.0	574.6	-0.7	-23.8	15.3	734.1	043.5	25.6	1.000168
16000.0	563.7	-1.6	-24.4	15.5	722.7	042.2	29.0	1.000165
16500.0	553.0	-2.5	-25.0	15.7	711.5	041.1	30.2	1.000163
17000.0	542.6	-3.5	-25.7	15.9	700.5	039.4	31.0	1.000160
17500.0	532.3	-4.5	-26.5	15.9	689.0	038.7	31.7	1.000157
18000.0	522.0	-5.7	-27.0	15.4	677.5	037.5	32.4	1.000155
18500.0	512.0	-6.8	-28.0	15.0	667.5	035.9	31.6	1.000152
19000.0	502.1	-7.8	-29.8	14.2	657.2	035.0	31.2	1.000149
19500.0	492.4	-8.8	-30.5	14.0	646.1	034.0	30.5	1.000149
20000.0	482.8	-9.6	-31.2	14.0	635.7	033.7	29.7	1.000144
20500.0	473.5	-9.5	-31.9	14.0	625.4	032.7	29.0	1.000142
21000.0	464.2	-10.8	-32.8	14.2	615.0	031.2	28.6	1.000139
21500.0	455.0	-12.1	-33.8	14.4	605.9	029.6	28.7	1.000137
22000.0	445.6	-13.4	-34.7	14.6	596.0	028.0	28.2	1.000135
22500.0	437.2	-14.7	-35.7	14.8	587.2	026.4	27.5	1.000133
23000.0	428.6	-16.0	-36.6	15.0	580.5	024.8		1.000131

STATION ALTITUDE 3989.00 FEET MSL  
 28 MAY 82 1235 MDT  
 ASCENSION NO. 242

UPPER AIR DATA  
 140020242  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT ULS  
 106.37033 LON, UEL

TABLE-7 cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KIPTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KIPTS	INDEX OF REFRACTION
23500.0	420.0	-17.4	-37.7	15.0	571.9	623.1			1.000129
24000.0	411.5	-18.7	-38.8	15.0	563.5	621.5			1.000127
24500.0	403.2	-20.1	-39.9	15.0	554.9	619.8			1.000125

STATION ALTITUDE 3989.70 FEET MSL  
 28 MAY 62 1235 MDT  
 ASCENSION NO. 242

LABORATORY CALLS  
 148602242  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 100.37033 LONG DEG

TABLE-8

PRESSURE GEOPOTENTIAL MILLIBARS	FET	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE OF POINT PERCENT	WIND DIRECTION KNOTS	WIND SPEED KNOTS
650.0	4025.	23.3	.4	272.7	13.5
600.0	6543.	18.3	.2	290.3	13.0
750.0	6339.	13.2	-2.4	269.0	13.5
700.0	10225.	8.0	-6.5	292.3	17.1
650.0	12220.	5.1	-17.7	300.3	22.9
600.0	14348.	1.3	-22.4	294.9	31.4
550.0	16028.	-2.8	-25.2	269.0	31.1
500.0	19002.	-7.1	-30.0	282.3	26.5
450.0	21751.	-12.8	-34.3		
400.0	24654.	-20.6	-40.4		

GEODLTIC COORDINATES:  
 12.40175 LAT DEG  
 106.51232 LONG DEG

SIGNIFICANT LEVEL DATA  
 14401.0050  
 LC-37

STATION ALTITUDE 4051.17 FEET MSL  
 28 MAY 62 1325 MDT  
 ASCENSION NO. 50

TABLE-9

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT
675.4	4051.4	26.6	74.0
650.0	4832.1	23.0	71.0
624.8	5689.2	21.2	25.0
756.8	8103.4	14.1	55.0
700.0	10242.3	7.8	49.0
683.6	10603.6	6.8	27.0
665.8	11590.3	7.5	16.0
623.2	13372.0	3.7	15.0
550.6	16261.4	-1.9	15.0
500.0	19117.8	-9.4	15.0
484.2	19932.5	-10.3	15.0
470.0	20686.0	-10.6	14.0
400.0	24689.0	-20.6	16.0

STATION ALTITUDE 4651.37 FEET MSL  
 28 MAY 62  
 ASCENSION NO. 50

UPPER AIR DATA  
 143010050  
 LC-37

TABLE-10

GEOD. TIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT	REL. HUM. PERCENT	DENSITY GM/CUBIC MLTGR	SPEED OF SOUND KNOTS	WIND DIRECTION WINDS (10)	WIND SPEED KNOTS	INDEX OF REFRACTION
4051.4	873.4	26.6	4.4	24.0	1011.4	673.7	220.0	7.0	1.000261
4500.0	859.9	24.5	1.6	22.3	1003.2	673.2	223.0	7.1	1.000253
5000.0	845.0	22.6	-0.3	21.8	992.5	670.9	220.9	7.3	1.000247
5500.0	830.3	21.0	.3	24.1	978.0	669.3	220.2	7.5	1.000245
6000.0	815.7	20.3	.3	26.3	965.0	668.3	223.4	7.7	1.000243
6500.0	801.3	18.8	.1	28.4	953.3	668.0	220.0	7.9	1.000240
7000.0	787.2	17.3	-0.2	30.4	941.2	665.0	233.0	8.0	1.000237
7500.0	773.3	15.9	-0.0	32.5	929.3	663.3	243.0	7.6	1.000234
8000.0	759.6	14.4	-1.0	34.6	917.0	661.0	239.9	7.3	1.000230
8500.0	745.9	12.9	-1.2	37.5	905.7	659.9	257.9	7.6	1.000228
9000.0	732.4	11.5	-1.4	40.9	894.0	658.2	294.2	6.6	1.000225
9500.0	719.2	10.0	-1.6	44.1	882.4	656.3	270.3	10.0	1.000222
10000.0	706.2	8.5	-2.0	47.4	871.0	654.7	273.0	11.8	1.000219
10500.0	693.4	7.4	-5.2	46.2	859.0	653.3	279.3	13.4	1.000211
11000.0	680.7	6.9	-11.6	25.2	845.5	652.4	260.2	14.1	1.000200
11500.0	668.2	7.4	-17.7	17.5	828.0	652.9	292.0	14.9	1.000193
12000.0	655.9	6.6	-17.5	15.8	813.9	651.9	296.3	15.9	1.000189
12500.0	643.8	5.6	-18.0	15.5	804.0	650.7	297.3	17.4	1.000186
13000.0	631.9	4.5	-19.7	15.2	792.2	649.4	296.5	16.9	1.000183
14000.0	620.2	3.5	-20.7	15.0	780.5	648.2	298.5	20.6	1.000180
14500.0	608.6	2.5	-21.5	15.0	768.6	647.0	290.2	25.0	1.000177
15000.0	597.1	1.5	-22.3	15.0	756.9	645.4	294.3	25.5	1.000174
15500.0	585.9	.5	-23.0	15.0	745.3	643.0	293.1	27.4	1.000171
16000.0	574.9	-4	-23.8	15.0	734.0	643.0	292.9	20.6	1.000168
16500.0	564.2	-1.4	-24.6	15.0	722.8	642.4	291.9	29.9	1.000165
17000.0	553.5	-2.5	-25.3	15.0	712.1	641.0	292.6	29.9	1.000163
17500.0	542.8	-3.8	-26.6	15.0	701.8	639.3	293.7	29.3	1.000160
18000.0	532.4	-5.2	-27.7	15.0	691.7	637.9	293.0	20.7	1.000157
18500.0	522.2	-6.5	-28.8	15.0	681.6	636.3	293.5	29.6	1.000155
19000.0	512.1	-7.8	-29.8	15.0	672.0	634.0	290.9	30.7	1.000152
19500.0	502.3	-9.1	-30.9	15.0	662.4	633.2	296.2	31.7	1.000150
20000.0	492.5	-9.8	-31.5	15.0	652.4	632.3	294.7	31.8	1.000147
20500.0	482.9	-10.3	-32.0	14.9	639.9	631.7	293.2	32.0	1.000145
21000.0	473.5	-10.5	-32.6	14.2	627.0	630.4	292.7	31.2	1.000142
21500.0	464.1	-11.4	-33.4	14.2	617.4	630.4	293.3	29.7	1.000140
22000.0	454.8	-12.6	-34.2	14.4	608.0	629.9	293.0	28.4	1.000137
22500.0	445.6	-13.9	-35.1	14.7	598.3	629.7	292.1	28.7	1.000135
23000.0	436.3	-15.1	-35.9	14.9	589.7	629.3	292.0	29.0	1.000133
23500.0	428.2	-16.4	-36.8	15.2	580.0	629.3	292.0	29.0	1.000131
24000.0	419.6	-17.6	-37.6	15.4	572.0	628.8	292.0	29.0	1.000129

STATION ALTITUDE 4351.37 F. A. T MSL  
 28 MAY 62  
 ASCENDING NO. 50 1325 MDT

UPPER AIR DATA  
 1400100050  
 LC-37

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

TABLE-10 cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CELSIUS	TEMPERATURE JEMPOINT	REL. HUM. PERCENT	DETSITY GM/CUBIC METER	SPEED SOUND M/015	WIND DATA DIRECTION (100)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	411.3	-18.9	-38.5	15.7	563.3	621.5			1.000127
24500.0	403.1	-20.1	-39.4	15.9	554.8	619.7			1.000125

GEOD. T. C. COORDINATES  
 52-40175 LAT DEG  
 100-31232 LONG DEG

PARADATOPY LEVELS  
 1000180050  
 40-37

STATION ALTITUDE 4051.77 FEET MSL  
 20 MAY 62  
 ASCENSION NO. 50

TABLE-11

PRESSURE GEOPOTENTIAL		TEMPERATURE	REL. HUMID.	WIND DATA	
MILLIBARS	FEET	AIR DEG. CELSIUS	PERCENT	WIND DIRECTION	SPEED KNOTS
850.0	4829.	23.0	21.	220.0	7.2
800.0	6547.	18.7	29.	230.0	0.0
750.0	8340.	13.4	37.	250.0	7.4
700.0	10232.	7.0	49.	277.4	14.6
650.0	12231.	0.1	10.	290.9	10.6
600.0	14363.	-18.0	10.	294.7	24.9
550.0	16045.	-22.1	10.	292.7	29.7
500.0	19691.	-25.9	10.	295.9	31.7
450.0	21747.	-31.1	10.	293.4	20.5
400.0	24648.	-34.7	10.		
		-20.6	10.		

STATION ALTITUDE 9051.7 FEET MSL  
 28 MAY 52  
 ASCENSION NO. 51

SIG. IN LIGHT LEVEL DATA  
 1430100051  
 LC-37

GEODLTIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LONG DEG

TABLE-12

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL	TEMPERATURE AIR DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT
872.0	4051.4	30.0	1.0
864.4	4332.1	25.6	-0.5
850.0	4815.4	24.7	.5
771.7	7557.3	17.2	-1.0
712.2	9779.8	10.6	-2.1
700.0	10251.7	9.1	-1.9
633.4	10903.7	7.5	-1.7
674.0	11278.1	6.3	-3.5
664.3	11504.8	6.2	-0.5
655.2	12040.2	6.2	-15.7
547.4	16800.8	-2.8	-25.8
521.7	18046.5	-5.8	-27.5
506.0	19134.8	-8.8	-30.7
488.4	19733.1	-8.5	-30.4
480.1	20169.7	-9.1	-30.9
454.7	21546.9	-11.4	-36.8
400.0	24726.2	-20.2	-39.4
			16.0
			10.0
			20.0
			29.0
			41.0
			48.0
			52.0
			50.0
			34.0
			19.0
			15.0
			16.0
			15.0
			15.0
			15.0
			15.0
			15.0

STATION ALTITUDE 4051.17 FEET MSL  
 28 MAY 52 1505 MDT  
 ASCENSION NO. 31

UPPER AIR DATA  
 1480130051  
 LC-37

GEOMETRIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LO. DEG

TABLE-13

GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	REL. HUM.	DEFSITY	SPEED OF	WIND DATA	INDEX
MSL FEET	MILLIBARS	AIR DEGREE	PERCENT	GM/CM <sup>3</sup>	SOUND	UNLESS(SH) KNOTS	OF REFRACTION
		CELSIUS		WATER	M/S		
4051.4	872.8	30.0	16.0	1000.0	079.3	290.0	1.000251
4500.0	859.4	25.3	18.7	1000.5	075.9	290.9	1.000249
5000.0	844.5	24.2	20.6	998.0	072.7	272.7	1.000247
5500.0	829.7	22.8	22.2	973.8	071.2	200.3	1.000244
6000.0	813.2	21.5	23.9	961.3	069.0	201.2	1.000241
6500.0	801.0	20.1	25.5	948.9	068.1	253.2	1.000238
7000.0	787.6	18.7	27.2	936.7	066.9	243.1	1.000235
7500.0	773.3	17.4	28.8	924.7	065.9	232.9	1.000232
8000.0	759.5	15.9	31.4	912.8	065.3	227.2	1.000229
8500.0	745.5	14.4	34.1	901.1	064.6	222.0	1.000226
9000.0	732.5	12.9	36.8	889.5	059.8	213.0	1.000224
9500.0	719.4	11.4	39.5	873.2	058.1	217.0	1.000221
10000.0	706.5	9.9	43.3	867.0	056.4	216.7	1.000218
10500.0	693.6	8.5	48.3	855.5	054.8	221.1	1.000216
11000.0	681.0	7.2	51.5	843.7	053.2	220.0	1.000213
11500.0	668.5	6.2	59.9	831.7	051.9	240.0	1.000209
12000.0	656.2	6.2	68.6	817.4	051.5	200.3	1.000192
12500.0	643.9	5.3	76.6	804.7	050.4	277.1	1.000187
13000.0	631.9	4.4	84.8	792.4	049.3	200.9	1.000184
13500.0	620.1	3.4	93.7	780.3	048.2	293.7	1.000161
14000.0	608.5	2.5	103.8	768.4	047.1	297.0	1.000177
14500.0	597.1	1.5	114.9	756.7	045.9	298.2	1.000174
15000.0	585.6	0.6	127.1	745.1	044.8	298.4	1.000171
15500.0	575.0	0.3	140.4	733.7	043.7	297.2	1.000168
16000.0	564.2	0.3	154.8	722.6	042.5	295.6	1.000165
16500.0	553.7	0.2	170.3	711.5	041.4	294.9	1.000163
17000.0	543.2	0.3	186.9	700.9	040.1	294.3	1.000160
17500.0	532.8	0.5	204.6	690.6	038.7	294.1	1.000157
18000.0	522.6	0.7	223.4	680.4	037.3	295.2	1.000155
18500.0	512.5	0.7	243.3	670.7	035.8	296.3	1.000152
19000.0	502.6	0.4	264.3	661.2	034.6	296.9	1.000150
19500.0	492.9	0.6	286.5	650.9	033.7	297.5	1.000147
20000.0	483.3	0.4	310.7	638.8	033.4	298.1	1.000144
20500.0	473.9	0.7	336.3	626.3	032.5	292.7	1.000142
21000.0	464.6	0.5	363.0	613.0	031.5	292.7	1.000139
21500.0	455.5	0.3	390.9	600.9	030.5	293.2	1.000137
22000.0	446.5	0.2	420.7	590.9	029.9	298.0	1.000135
22500.0	437.8	0.0	451.4	580.1	029.2	298.0	1.000133
23000.0	429.0	0.4	482.8	579.5	028.5	298.0	1.000131
23500.0	420.3	0.8	514.8	574.0	028.0	298.0	1.000129

STATION ALTITUDE 4,511.17 FEET MSL  
 28 MAY 62  
 ASCENDING NO. 51 1505 MDT

UPPER AIR DATA  
 1430100051  
 LC-37

GEOMETRIC COORDINATES  
 32.40175 LAT ULS  
 106.31232 LONG ULS

TABLE-13 cont'd

GEOMETRIC ALTITUDE	PRESSURE	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND METERS PER SECOND	WIND DIRECTION DEGREES TRUE	WIND SPEED KNOTS	INDEX OF REFRACTION
24000.0	411.9	-18.2	15.6	562.7	322.1			1.000127
24500.0	403.7	-19.0	15.9	554.5	320.4			1.000125

STATION ALTITUDE 4051.77 FEET MSL  
 28 MAY 62  
 ASCENSION NO. 51 1505 MDT

NAUTICAL COORDINATES  
 1.00100051  
 LC-37

2.40175 LAT UG  
 106.51232 LONG UG

TABLE-14

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	WIND DIRECTION DEGREES(TW)	WIND SPEED KNOTS
150.0	4012.	24.7	20.	275.5	6.0
100.0	6570.	20.0	20.	254.4	6.0
750.0	8346.	14.9	33.	223.5	7.0
700.0	10242.	9.1	40.	217.2	10.1
150.0	12241.	5.8	19.	269.5	11.5
100.0	14373.	1.8	17.	290.1	22.8
50.0	16056.	-2.6	13.	294.7	29.5
100.0	19108.	-8.8	13.	297.0	32.0
450.0	21775.	-12.1	13.	267.5	20.1
100.0	24085.	-20.2	13.		

