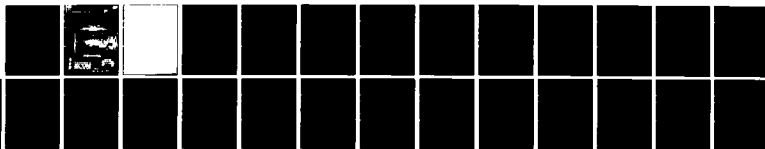


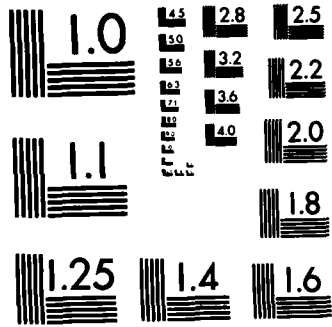
AD-A123 371

19319A MLRS MISSILE NUMBERS BN-219 BN-193 BN-188 ROUND 1/1
NUMBERS V-360/PQ-9. (U) ARMY ELECTRONICS RESEARCH AND
DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER NOV 82
ERADCOM/ASL-DR-1273 F/G 4/2 NL

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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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 19319A MLRS, Missile Numbers BN-219, BN-193, BN-180, Round Numbers V-360/PQ-91, V-361/PQ-92, V-361/PQ-93 are presented in tabular form.		

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INTRODUCTION

19319A MLRS, Missile Numbers BN-219, BN-193 and BN-180, Round Numbers V-360/PQ-91, V-361/PQ-92 and V-362/PQ-93, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1500:13, 1500:19 and 1500:25 MST, 08 Nov 82. The scheduled launch times were 1515, 1515:04.5 and 1515:09 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, 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 2km

DON 2km

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

SITE AND TIME

LC-37 1300 MST

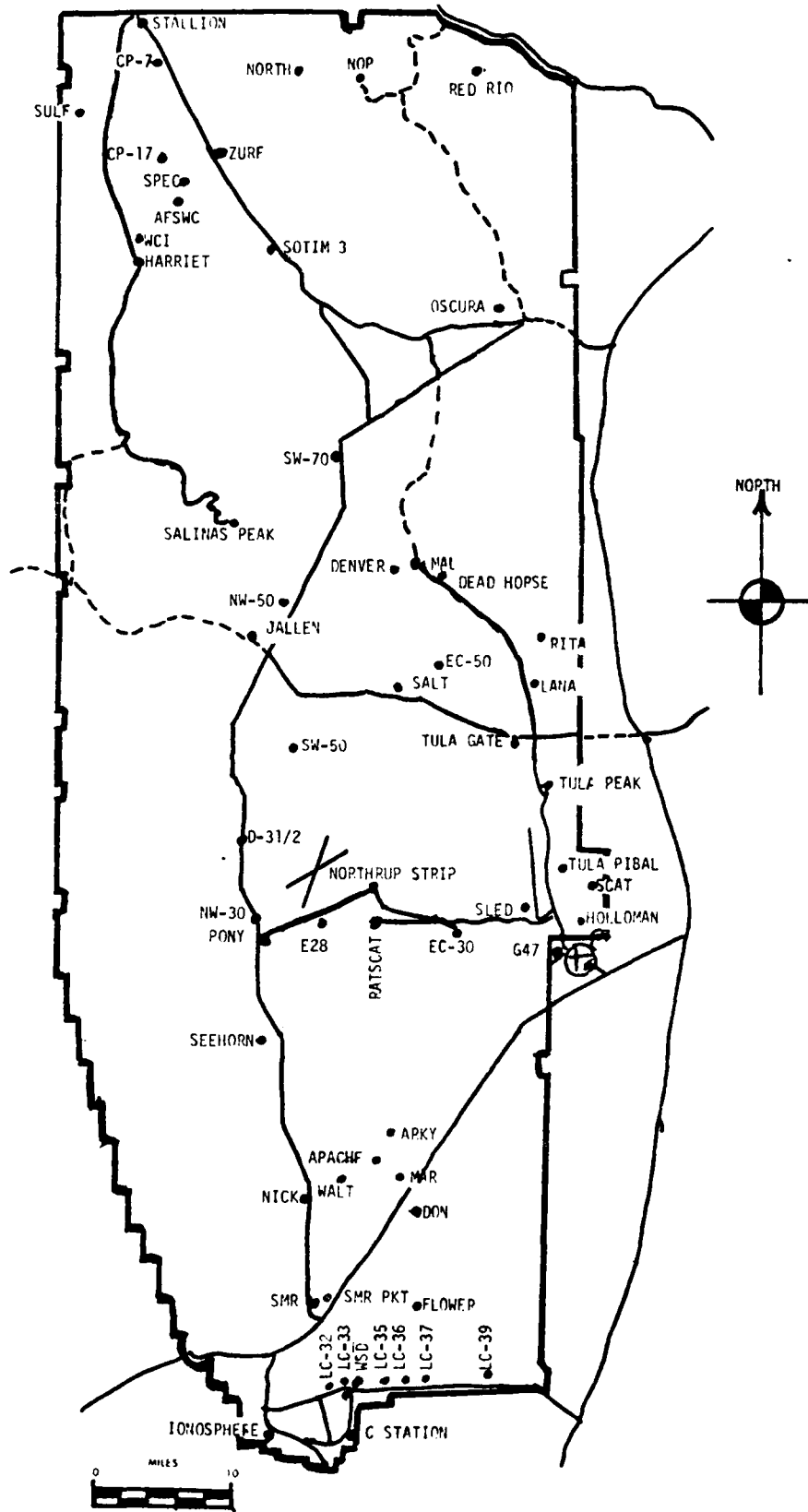
WSD 1300 MST

LC-37 1415 MST

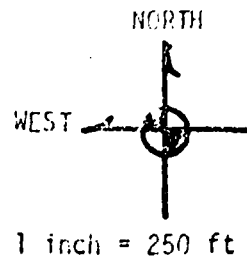
WSD 1500 MST

Accession For	
NEIS	<input checked="" type="checkbox"/>
DCIS	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Special
A	

WSMR METEOROLOGICAL SITES



LC-33
Launch Area



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

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 68.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T-30	118	10	T-30	117	08	T-30	126	11
T-20	118	09	T-20	107	08	T-20	117	10
T-10	117	10	T-10	106	09	T-10	115	11
T 0.0	112	09	T 0.0	115	09	T 0.0	117	12
T +10	112	12	T +10	116	09	T +10	126	13

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
T-30	114	08	T-30	118	10
T-20	126	11	T-20	117	13
T-10	134	11	T-10	119	13
T 0.0	133	10	T 0.0	123	11
T +10	133	07	T +10	116	10

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
T-30	126	10	T-30	113	10
T-20	127	12	T-20	116	10
T-10	136	12	T-10	125	12
T 0.0	136	11	T 0.0	125	13
T +10	131	12	T +10	120	10

1-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 08 Nov 82

SITE: WSD
 TIME: 1500 MST
 WSTM COORDINATES:
 X= 488,852.29
 Y 184,982.45
 H 3,993.75

SITE: DON
 TIME 1500 MST
 WSTM COORDINATES:
 X= 511,988.37
 Y- 247,396.36
 H 3,996.83

LAYER	MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS	LAYER	MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
	SURFACE	115	12		SURFACE	140	03
	150	140	07		150	126	11
	210	162	10		210	127	12
	270	174	08		270	130	11
	330	178	10		330	134	10
	390	175	08		390	139	09
	500	188	09		500	150	07
	650	203	08		650	185	06
	800	209	09		800	220	08
	950	209	15		950	229	11
	1150	213	19		1150	211	14
	1350	206	23		1350	202	16
	1550	209	28		1550	207	20
	1750	213	33		1750	214	25
	2000	222	38		2000	221	32

Data obtained from NIKE HERCULES
 Radar Tracked pilot-balloon observation

AIMING AND T-TIME COMPUTER MET MESSAGES

08 Nov 82

LC-37 1300 MST		WSD 1300 MST	
METCM1324063		METCM1324064	
082000124874		082000122876	
00320006	29230874	00338010	29350876
01323013	29150864	01354013	29270866
02400016	29080839	02411014	29070841
03388017	28810801	03394013	28740802
04374016	28380754	04373014	28290756
05366013	28000710	05350015	27840711
06347022	27560668	06336027	27520669
07335035	27140627	07368037	27230628
08370043	26870589	08386047	26880590
09386050	26500553	09390050	26420553
10418054	26290518	10418055	26220519
11421055	26100486	11419054	26000486
12422059	25590440	12422063	25540440

LC-37 1415 MST		WSD 1500 MST	
METCM1324063		METCM1324064	
082130124873		082200122875	
00213006	29500873	00204012	29520875
01301008	29280863	01257013	29460865
02360011	29060838	02293012	29290840
03386015	28760800	03363008	28950802
04394012	28330753	04375018	28520755
05353016	27990709	05381032	28090711
06371029	27630667	06402038	27670669
07398038	27180627	07417037	27200629
08392046	26840588	08426039	26740590
09400045	26570552	09431044	26530554
10423042	26380518	10420042	26300519
11417044	26070485	11412046	25980486
12415052	25630439	12411061	25540440

STATION ALTITUDE 4051.87 FEET MSL
 R NOV. 62 1300 HRS PST
 ASCENDING NO. 112

SIGHTING LIGHT LEVEL DATA
 3120100112

GEODETIC COORDINATES
 52.40175 LAT DEG
 106.31252 LON DEG

LC-37
 TABLE 6

PRECIPITATION MILLI METERS	GEOMETRIC ALTITUDE FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
874.4	4051.4	18.4	35.0
963.0	4419.9	17.8	21.0
852.6	4759.2	16.7	21.0
849.4	4864.4	17.6	22.0
831.6	5057.3	17.0	21.0
601.0	6501.0	14.4	24.0
751.6	6251.3	9.8	30.0
700.2	10169.1	5.5	41.0
671.5	11286.7	2.0	51.0
648.8	12196.4	.2	56.0
627.6	13067.8	-2.7	70.0
604.3	14052.4	-4.1	77.0
587.8	14763.7	-5.0	70.0
564.2	15926.5	-6.6	70.0
538.0	17039.1	-11.0	88.0
532.6	17294.3	-10.7	93.0
530.3	17404.1	-9.6	96.0
514.3	18180.9	-11.2	98.0
502.2	18782.6	-11.3	97.0
499.9	18898.5	-11.7	97.0
480.2	19910.9	-12.7	86.0
458.8	21050.7	-15.3	88.0
451.6	21443.8	-15.7	91.0
440.5	21559.3	-16.8	79.0
444.8	21818.9	-17.3	26.0
424.4	22972.1	-19.3	20.0
377.8	24428.9	-20.8	26.0

STATION ALTITUDE 40951.7 FEET ASL
 8 NOV 52 1300 HRS CST
 ASCENDING 112

UPPER AIR DATA
 SYNOPTIC
 LC-37
 TABLE 7

GEODETIC COORDINATES
 32°40'17" LAT (LG)
 106°51'25" LONG (EG)

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR 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	874.4	13.4	35.0	1041.4	666.5	160.0	1.9	1.000265
4500.0	850.5	17.5	21.0	1029.4	664.8	205.2	4.5	1.000248
5000.0	825.3	17.5	21.8	1011.5	664.8	212.5	7.5	1.000245
5500.0	800.3	16.4	21.1	995.4	664.1	215.2	10.6	1.000240
6000.0	775.5	15.6	22.6	981.9	662.7	216.9	13.8	1.000237
6500.0	750.6	14.4	24.0	963.8	661.2	215.4	16.9	1.000234
7000.0	725.8	13.1	25.7	955.5	659.7	212.9	16.6	1.000231
7500.0	700.5	11.8	27.4	942.7	658.2	210.7	16.2	1.000228
8000.0	674.7	9.2	27.1	917.0	655.5	209.4	15.9	1.000225
8500.0	649.1	6.8	31.4	903.8	653.5	208.0	15.2	1.000222
9000.0	623.1	8.1	34.3	890.7	654.0	205.8	14.6	1.000219
9500.0	597.7	7.0	37.2	877.9	652.7	205.8	15.0	1.000216
10000.0	572.6	5.9	40.0	865.1	651.4	203.4	15.9	1.000214
10500.0	547.6	4.5	44.0	852.4	649.8	201.2	16.9	1.000211
11000.0	522.7	2.9	48.4	839.8	647.9	197.1	19.6	1.000209
11500.0	497.8	1.6	52.6	827.2	646.4	193.6	22.7	1.000206
12000.0	472.9	0.6	56.5	814.6	645.2	191.1	25.9	1.000203
12500.0	448.0	0.8	62.2	802.0	643.8	191.2	29.4	1.000201
13000.0	423.1	-2.5	68.1	789.5	642.6	191.2	32.9	1.000198
13500.0	398.2	-3.5	73.1	777.0	641.5	194.3	36.0	1.000195
14000.0	373.3	-4.0	76.6	764.5	639.8	199.8	38.7	1.000192
14500.0	348.4	-4.7	72.6	752.0	639.0	204.6	41.8	1.000188
15000.0	323.5	-5.3	70.0	739.5	638.1	209.1	44.1	1.000184
15500.0	298.6	-6.1	70.0	727.0	637.2	213.1	46.6	1.000180
16000.0	273.7	-7.2	72.6	714.5	635.8	218.9	48.5	1.000177
16500.0	248.8	-9.0	80.0	702.0	635.7	220.6	50.1	1.000175
17000.0	223.9	-10.9	87.4	689.5	631.5	224.1	51.8	1.000172
17500.0	199.0	-9.8	96.2	677.0	622.8	228.4	52.5	1.000171
18000.0	174.1	-10.8	97.5	664.5	631.8	232.8	53.4	1.000167
18500.0	149.2	-11.3	96.1	652.0	630.4	235.7	54.3	1.000164
19000.0	124.3	-11.8	95.2	639.5	629.7	238.1	54.4	1.000161
19500.0	99.4	-12.3	91.7	627.0	629.0	238.8	54.5	1.000157
20000.0	74.5	-12.9	88.0	614.5	628.0	238.5	54.6	1.000154
20500.0	49.6	-14.0	88.0	602.0	627.0	238.5	54.9	1.000151
21000.0	24.7	-15.2	88.0	620.0	626.0	235.8	55.1	1.000148
21500.0	0.0	-16.2	85.2	610.2	624.8	235.4	56.0	1.000144
22000.0	0.0	-17.6	26.0	601.7	622.9	238.6	57.9	1.000138
22500.0	0.0	-18.5	26.0	591.8	621.8	237.8	59.6	1.000134
23000.0	0.0	-19.3	26.0	581.9	620.8			1.000132
23500.0	0.0	-19.8	26.0	571.0	620.1			1.000129

STATION ALTITUDE 4651.37 FT T. SL
 RHOV. 0.7
 ASCENSION NO. 112

UPPER AIR DATA
 7120160112
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LONG DEG

TABLE 7 Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ MLTR	SPEED OF SOUND KNOTS	WIND DATA DIRECTION SPEED KNOTS	INDEX OF REFRACTION
24000.0	400.0	-20.4	26.0	560.6	619.3		1.000127

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LONG DEG

MANDATORY LEVELS
 3120180112
 LC-37

STATION ALTITUDE 4051.37 FEET AMSL
 R. 20V. -2
 1300 HRS MST
 ASCENSION NO. 112

TABLE 8

PRECIPITATION MILLIMETERS	GEOMETRICAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUMID. PERCENT	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4941.	17.4	-4.0	22.	210.8	6.5
800.0	6530.	14.3	-5.9	24.	217.7	10.9
750.0	8302.	9.7	-6.9	30.	209.9	15.5
700.0	10167.	5.5	-6.7	41.	202.0	16.3
650.0	12135.	.3	-7.1	58.	191.1	20.9
600.0	14221.	-4.3	-8.0	75.	202.1	40.1
550.0	16458.	-9.0	-11.6	80.	220.4	50.0
500.0	18867.	-11.7	-12.1	97.	230.0	54.4
450.0	21499.	-16.5	-18.9	82.	230.0	50.1
400.0	24376.	-20.8	-35.2	20.		

STATION ALTITUDE 3989.0 FEET MSL
 8 NOV. 62 1300 HRS MST
 ASCENSION NO. 548

SIGNIFICANT LEVEL DATA
 3120020548
 WHITE SANDS
 TABLE 9

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.57033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
876.1	19.5	29.0
850.0	17.6	25.0
821.8	15.3	30.0
765.1	10.0	40.0
721.4	5.5	49.0
706.3	4.0	55.0
700.0	3.5	51.0
683.3	2.8	41.0
674.3	2.1	48.0
641.4	-1.2	66.0
623.8	-1.2	51.0
612.4	-2.0	49.0
586.5	-5.1	57.0
546.6	-10.7	93.0
538.7	-10.6	98.0
525.6	-11.3	98.0
518.0	-11.1	98.0
500.0	-12.8	99.0
485.7	-13.2	83.0
478.5	-14.0	77.0
457.0	-16.7	86.0
448.3	-18.2	51.0
438.7	-18.4	27.0
429.2	-18.4	27.0
414.6	-19.7	28.0
400.0	-22.1	28.0

STATION ALTITUDE 3989.00 FEET MSL
 8 NOV. 82
 ASCENSION NO. 548

UPPER AIR DATA
 3120020540
 WHITE SANDS
 TABLE 10

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES	DEWPOINT DEGREES	REL. HUM. PERCENT	DENSITY GM/CURIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION (TN) DEGREES	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	876.1	19.5	1.0	29.0	1039.9	667.4	190.0	9.9	1.000261
4000.0	875.8	19.5	1.0	28.9	1039.6	667.4	190.5	9.9	1.000261
4500.0	860.3	18.4	-1.2	26.6	1025.6	660.0	211.9	11.4	1.000254
5000.0	845.1	17.2	-2.5	25.9	1011.7	664.0	226.8	14.1	1.000248
5500.0	830.1	16.0	-2.2	28.5	997.8	663.2	230.0	14.2	1.000246
6000.0	815.3	14.7	-2.2	31.1	984.3	661.8	227.9	12.6	1.000243
6500.0	800.7	13.4	-2.3	33.6	971.1	660.2	221.6	11.4	1.000240
7000.0	786.3	12.0	-2.5	36.2	958.2	658.7	216.8	12.2	1.000237
7500.0	772.1	10.7	-2.8	38.7	945.4	657.1	213.7	13.9	1.000234
8000.0	758.1	9.3	-3.1	41.4	932.8	655.5	210.0	13.8	1.000231
8500.0	744.3	7.9	-3.5	44.2	920.4	653.9	205.8	13.4	1.000228
9000.0	730.7	6.5	-4.0	47.0	908.1	652.2	203.5	13.3	1.000224
9500.0	717.3	5.1	-4.3	50.6	895.9	650.6	199.9	14.6	1.000221
10000.0	704.0	3.8	-4.7	53.5	883.4	649.1	194.5	17.0	1.000218
10500.0	690.9	3.1	-7.5	45.6	869.6	648.2	189.7	20.3	1.000211
11000.0	678.1	2.4	-8.3	45.1	855.7	647.3	189.7	24.6	1.000207
11500.0	665.4	1.2	-7.3	52.8	843.1	645.9	191.4	28.7	1.000206
12000.0	652.9	-0.0	-6.9	59.6	831.0	644.5	194.7	32.7	1.000204
12500.0	640.6	-1.2	-6.9	65.3	818.9	643.1	199.1	36.5	1.000201
13000.0	628.5	-1.2	-9.0	55.1	803.6	643.0	207.6	37.8	1.000195
13500.0	616.6	-1.7	-10.8	49.7	790.1	642.4	212.9	39.5	1.000190
14000.0	604.9	-2.9	-11.5	51.3	778.5	641.0	215.0	41.0	1.000187
14500.0	593.4	-4.3	-12.0	54.8	767.6	639.3	214.5	43.7	1.000184
15000.0	582.0	-5.7	-12.0	60.9	756.9	637.0	214.9	46.1	1.000182
15500.0	570.8	-7.3	-11.6	70.9	746.6	635.8	218.4	47.4	1.000180
16000.0	559.7	-8.8	-11.5	80.9	736.4	633.9	221.3	49.1	1.000178
16500.0	548.9	-10.4	-11.6	90.9	726.4	632.1	223.8	50.9	1.000176
17000.0	538.2	-10.6	-10.9	98.0	712.8	631.8	228.2	52.9	1.000173
17500.0	527.6	-11.2	-11.4	98.0	700.4	631.1	232.3	54.6	1.000170
18000.0	517.3	-11.2	-11.4	98.0	686.6	631.2	236.3	55.5	1.000167
18500.0	507.1	-12.1	-12.3	98.6	675.6	630.0	236.8	54.9	1.000164
19000.0	497.2	-12.9	-13.4	95.9	664.3	629.0	236.3	53.8	1.000160
19500.0	487.4	-13.2	-15.1	84.9	652.1	628.0	235.7	53.0	1.000156
20000.0	477.7	-14.1	-17.2	77.3	641.6	627.4	235.8	53.5	1.000152
20500.0	468.2	-15.3	-17.7	81.3	631.7	626.0	236.5	55.2	1.000149
21000.0	458.9	-16.5	-19.3	85.2	622.0	624.5	237.4	57.2	1.000147
21500.0	449.7	-18.0	-24.4	56.7	613.5	622.0	238.2	59.4	1.000142
22000.0	440.6	-18.4	-31.0	31.9	602.2	622.0	238.8	61.6	1.000137
22500.0	431.8	-18.4	-32.7	27.0	590.2	621.9	237.8	65.6	1.000134
23000.0	423.0	-18.9	-33.0	27.4	579.5	621.2			1.000131

UPPER AIR DATA
 3120020540
 WHITE SANDS
 TABLE 10 Cont'd

STATION ALTITUDE 3989.00 FEET MSL
 8 NOV. 82
 ASCENSION NO. 548

1300 HRS PST
 GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
23500.0	414.5	-19.7	28.0	569.6	620.3			1.000129
24000.0	400.1	-21.1	28.0	561.0	618.6			1.000127

STATION ALTITUDE 3989.00 FEET MSL
 8 NOV. 82
 1300 HRS MST
 ASCENSION NO. 548

MANDATORY LEVELS
 3120020546
 WHITE SANDS
 TABLE II

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4836.	17.6	-2.6	25.	222.6	13.2
800.0	6522.	13.3	-2.3	34.	221.3	11.3
750.0	8208.	8.5	-3.4	43.	207.5	13.6
700.0	10142.	3.5	-5.7	51.	192.6	17.9
650.0	12105.	-3	-6.9	61.	195.8	33.5
600.0	14197.	-3.5	-11.7	53.	214.9	42.1
550.0	16428.	-10.2	-11.5	90.	223.5	50.7
500.0	18831.	-12.8	-12.9	99.	236.4	54.1
450.0	21451.	-17.9	-24.1	58.	238.1	59.3
400.0	24325.	-22.1	-35.6	28.		

STATION ALTITUDE 4051.37 FEET MSL
 W. LONG. 121 1435.000000
 ASCENDING TO. 113

SIGNIFICANT LEVEL DATA
 3120160113
 LC-37
 TABLE 12

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.51232 LONG DEG

PRECIPITATION ALTITUDE MILLIBARS INCH FEET	TEMPERATURE AIR DEW POINT DEGREES CENTIGRADE	REL. HUM. PERCENT
673.2	21.3	24.0
667.2	19.2	24.0
649.6	17.5	27.0
602.2	14.1	30.0
749.8	9.0	41.0
704.5	6.3	35.0
690.5	5.5	35.0
674.8	3.6	38.0
634.4	-0.9	57.0
615.6	-3.4	84.0
607.0	-4.1	91.0
585.2	-5.5	88.0
577.4	-5.7	88.0
575.0	-6.9	89.0
557.7	-8.6	89.0
546.0	-8.3	88.0
543.1	-7.2	86.0
518.7	-10.2	64.0
508.5	-10.0	82.0
494.8	-11.6	80.0
472.7	-13.9	79.0
476.6	-13.9	79.0
457.1	-15.5	78.0
450.7	-16.6	77.0
445.4	-16.7	70.0
432.1	-17.2	30.0
423.6	-18.3	30.0
390.6	-21.8	32.0

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.51232 LONG DEG

UPPER AIR DATA
 3120180113
 LC-37
 TABLE 13

STATION ALTITUDE 4951.77 FEET MSL
 E LONG. 82 1415 HRS EST
 OBSERVATION NO. 113

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/S	WIND DIRECTION DEGREES (TR)	WIND SPEED KNOTS	INDEX OF REFRACTION
4951.4	873.2	21.3	24.0	1030.4	669.4	140.0	6.0	1.000256
4500.0	859.4	18.5	25.3	1024.3	660.0	156.9	4.8	1.000252
5000.0	844.2	17.1	27.3	1010.7	664.5	168.9	4.3	1.000249
5500.0	829.2	16.1	28.3	996.5	663.3	190.7	5.1	1.000245
6000.0	814.4	15.0	29.2	982.4	662.1	214.1	6.7	1.000242
6500.0	799.9	13.9	30.5	968.0	660.6	224.3	8.7	1.000238
7000.0	785.5	12.5	33.4	953.7	659.2	220.7	10.0	1.000235
7500.0	771.3	11.1	36.4	942.9	657.6	216.0	11.3	1.000233
8000.0	757.4	9.8	39.4	930.4	656.0	210.6	13.0	1.000230
8500.0	743.6	8.6	40.1	917.3	654.7	203.5	15.2	1.000226
9000.0	730.1	7.7	38.2	903.6	653.6	202.7	17.4	1.000221
9500.0	716.7	6.8	36.2	890.0	652.5	202.0	19.5	1.000216
10000.0	703.5	5.9	35.0	876.9	651.3	201.4	21.7	1.000211
10500.0	690.5	4.8	36.1	864.0	650.1	203.3	24.0	1.000208
11000.0	677.8	3.8	37.6	851.0	648.9	208.6	26.5	1.000205
11500.0	665.1	2.5	42.4	838.9	647.4	212.0	29.1	1.000202
12000.0	652.7	1.2	48.3	827.3	645.8	215.4	31.7	1.000200
12500.0	640.5	0.2	54.1	815.9	644.2	218.3	34.4	1.000198
13000.0	628.4	-1.7	65.6	804.7	642.5	220.3	37.3	1.000197
13500.0	616.5	-3.3	83.0	793.9	640.7	221.2	40.3	1.000198
14000.0	604.8	-4.2	90.7	781.5	639.7	221.9	43.2	1.000195
14500.0	593.2	-5.0	89.1	768.7	638.7	221.7	45.2	1.000191
15000.0	581.8	-5.6	88.0	755.8	638.0	221.3	46.9	1.000191
15500.0	570.6	-7.2	89.0	745.9	636.0	222.1	46.0	1.000183
16000.0	559.6	-8.0	89.0	733.7	635.0	223.2	41.6	1.000180
16500.0	548.8	-8.5	88.6	720.9	634.4	228.6	38.4	1.000176
17000.0	538.1	-7.9	87.1	708.2	633.2	231.0	39.3	1.000173
17500.0	527.7	-9.1	85.5	694.9	633.6	233.4	40.3	1.000169
18000.0	517.5	-10.2	83.8	684.3	632.3	234.6	41.9	1.000165
18500.0	507.4	-10.7	81.7	671.0	632.3	233.7	44.8	1.000162
19000.0	497.4	-11.8	79.9	662.0	630.3	232.9	47.7	1.000158
19500.0	487.6	-12.6	79.6	651.1	629.3	232.4	49.6	1.000155
20000.0	478.0	-13.4	79.2	640.3	628.3	232.3	48.8	1.000152
20500.0	468.6	-14.2	78.8	629.5	627.3	232.2	48.0	1.000149
21000.0	459.3	-15.5	78.0	620.2	626.7	232.2	47.8	1.000146
21500.0	450.1	-16.6	76.1	610.5	624.3	232.9	50.2	1.000143
22000.0	441.1	-18.9	56.1	599.1	623.9	233.5	52.6	1.000139
22500.0	432.2	-17.2	30.4	588.0	623.4	233.5		1.000134
23000.0	423.5	-18.3	30.4	578.0	622.0			1.000131
23500.0	414.0	-19.5	30.7	569.8	620.5			1.000129

METEOROLOGICAL DATA
 3120100110
 LC-37
 METEOROLOGICAL COORDINATES
 32.40175 LAT DEG
 106.51252 LON DEG

UPPER AIR DATA
 3120100110
 LC-37

TABLE 13 Cont'd

STATION ALTITUDE 4051.87 FT 1235
 BAROMETER 14.00 IN HG 357
 ASCENDING NO. 113

GEOMETRIC ALTITUDE FEET	GEOMETRIC ALTITUDE KILOMETERS	TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEGREES FAHRENHEIT	REL. HUM. PERCENT	DENSITY GM/CM ³	SPEED OF WIND KNOTS	WIND DATA DIRECTION SPEED KNOTS	INDEX OF REFRACTION
4000.0	1168.0	-33.3	-31.9	31.4	560.9	619.0		1.000127

STATION ALTITUDE 4051.37 FEET (1235)
 R 100V. 702
 ASCENSION. 10. 113

LABORATORY LEVELS
 3120180110
 LC-27
 TABLE 14

GEOGETIC COORDINATES
 32.40175 LAT LEG
 106.31232 LON DEG

PRESSURE (GEOPOTENTIAL) MILLIBARS	FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
750.0	4806.	17.5	-1.7	27.	150.7	4.4
700.0	6403.	13.9	-3.2	30.	224.2	0.7
650.0	8262.	9.0	-3.5	41.	207.7	14.2
600.0	10126.	5.5	-8.7	35.	202.3	22.3
550.0	12009.	.9	-8.5	50.	210.1	32.3
500.0	14108.	-4.5	-5.9	90.	222.0	44.2
450.0	16422.	-8.6	-10.1	89.	226.3	38.2
400.0	18843.	-11.6	-14.3	80.	233.1	46.9
350.0	21472.	-16.6	-19.6	76.	232.9	50.2
300.0	24355.	-21.7	-33.9	32.		

STATION ALTITUDE 3489.00 FEET (55
 R NOV. 42
 ASCENSION NO. 349

SIGNIFICANT LEVEL DATA
 3120020349
 WHITE SANDS
 TABLE 15

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRECIPITATION MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
675.0	3989.0	20.8	1.1
850.0	4004.4	19.7	.2
700.0	10165.2	6.0	-5.9
653.5	11794.4	1.9	-8.2
593.3	14524.3	-6.0	-11.3
580.7	14912.4	-6.3	-11.8
574.9	15111.7	-7.5	-11.5
571.5	15085.1	-8.2	-11.2
555.1	16529.7	-8.0	-9.7
500.0	18883.3	-12.2	-12.3
485.0	19647.8	-13.8	-17.3
467.2	20578.9	-16.1	-19.3
462.7	20018.5	-16.7	-19.3
443.6	21459.8	-17.2	-31.7
400.0	24386.2	-22.4	-37.8

STATION ALTITUDE 3939.00 FEET AMSL
 8 NOV. 82 1500 HRS MST
 ASCENSION NO. 349

UPPER AIR DATA
 3120020349
 WHITE SANDS
 TABLE I6

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/SEC	WIND DIRECTION DEGREES (TR)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	875.0	20.8	27.0	1034.0	668.9	115.0	12.0	1.000260
4000.0	874.7	20.0	27.0	1033.7	668.9	115.2	12.0	1.000259
4500.0	859.3	20.1	27.0	1017.9	668.1	128.1	10.0	1.000255
5000.0	844.1	19.2	27.5	1003.1	667.0	140.0	8.6	1.000251
5500.0	829.1	17.9	28.9	989.4	665.0	157.5	8.4	1.000247
6000.0	814.1	16.7	30.3	976.0	664.1	180.2	8.9	1.000243
6500.0	799.5	15.4	31.7	962.7	662.0	200.2	9.0	1.000240
7000.0	785.1	14.1	33.1	949.7	661.1	208.1	10.4	1.000236
7500.0	771.0	12.8	34.5	936.9	659.0	209.5	12.9	1.000232
8000.0	757.2	11.5	35.9	924.3	658.1	210.0	16.3	1.000229
8500.0	743.6	10.3	37.3	911.8	656.0	211.0	20.1	1.000225
9000.0	730.2	9.0	38.7	899.6	655.1	212.9	24.2	1.000222
9500.0	717.1	7.7	40.1	887.5	653.0	214.0	28.5	1.000218
10000.0	704.2	6.4	41.5	875.0	652.1	215.5	33.1	1.000214
10500.0	691.3	5.2	43.0	863.5	650.0	218.4	36.4	1.000211
11000.0	678.5	3.9	44.6	851.4	649.1	222.2	38.7	1.000207
11500.0	665.9	2.6	46.1	839.5	647.0	229.9	38.8	1.000204
12000.0	653.4	1.3	48.4	827.8	646.0	229.9	38.1	1.000201
12500.0	641.1	-0.1	51.9	816.5	644.5	232.5	37.4	1.000198
13000.0	628.9	-1.6	55.4	805.3	642.0	235.1	36.7	1.000195
13500.0	617.0	-3.0	58.9	794.3	640.8	236.3	37.0	1.000192
14000.0	605.3	-4.5	62.3	783.5	639.1	237.3	37.4	1.000189
14500.0	593.9	-5.9	65.8	772.9	637.4	238.0	39.2	1.000186
15000.0	582.4	-7.1	70.0	761.2	636.0	239.9	40.9	1.000183
15500.0	571.2	-8.2	79.3	749.7	634.7	241.8	42.3	1.000181
16000.0	560.1	-8.1	90.1	738.0	634.9	243.5	43.6	1.000180
16500.0	549.2	-8.4	95.4	721.2	634.5	242.3	42.7	1.000177
17000.0	538.5	-9.2	96.2	709.9	633.0	240.8	41.7	1.000174
17500.0	528.0	-10.0	96.9	697.0	632.0	238.8	40.6	1.000171
18000.0	517.7	-10.8	97.7	686.1	631.0	237.5	41.2	1.000167
18500.0	507.6	-11.6	98.4	674.8	630.0	236.0	42.8	1.000164
19000.0	497.7	-12.4	95.3	663.9	629.0	234.4	45.6	1.000160
19500.0	487.9	-13.5	79.6	653.7	628.2	232.2	47.7	1.000155
20000.0	478.2	-14.7	75.4	643.7	626.7	230.0	49.0	1.000152
20500.0	468.7	-15.9	75.9	634.0	625.2	229.0	50.7	1.000149
21000.0	459.3	-16.8	70.8	625.0	624.1	228.4	52.4	1.000146
21500.0	450.1	-17.0	45.3	611.8	623.7	229.2	55.6	1.000140
22000.0	441.1	-17.5	26.8	600.8	623.0	230.0	59.0	1.000136
22500.0	432.1	-18.5	26.0	591.0	621.0	230.7	62.5	1.000134
23000.0	423.4	-19.5	25.2	581.4	620.5	231.5	66.1	1.000131

UPPER AIR DATA
 3120020549
 WHITE SANDS
 TABLE 16 Cont'd

STATION ALTITUDE 3989.00 FT (1.2151)
 A HOV. 82
 ACQUISITION NO. 500

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND METERS PER SECOND	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
25000.0	414.8	-20.6	24.4	571.9	619.2			1.000129
24000.0	400.4	-21.6	23.6	562.7	616.0			1.000127

STATION ALTITUDE 3989.00 FEET ASL
 R. NOV. 82 1507 HRS EST
 ASCENSION NO. 549

MANDATORY LEVELS
 3123020545
 WHITE SANDS

GEODETIC COORDINATES
 32-40043 LAT DEG
 106-37033 LON DEG

TABLE 17

PRESSURE POTENTIAL		TEMPERATURE		REL. HUMID. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT		DIRECTION DEGREES(TN)	SPEED KNOTS
650.0	4000.	19.7	.2	27.	130.5	9.0
600.0	5504.	15.4	-1.3	32.	200.4	9.0
750.0	8234.	10.9	-3.3	37.	211.4	10.5
700.0	10155.	6.0	-5.9	42.	215.9	34.6
650.0	12129.	.2	-8.5	49.	230.7	37.9
600.0	14218.	-5.1	-10.9	64.	237.9	30.2
550.0	16445.	-8.4	-9.0	95.	242.4	42.7
500.0	18657.	-12.2	-12.3	99.	234.9	44.9
450.0	21473.	-17.0	-26.1	45.	229.2	55.6
400.0	24346.	-22.4	-37.8	23.		

2-8

DT