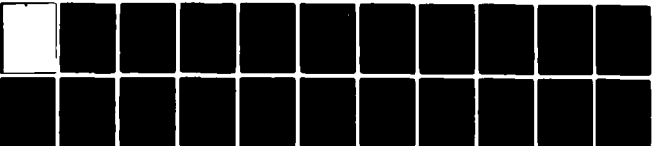
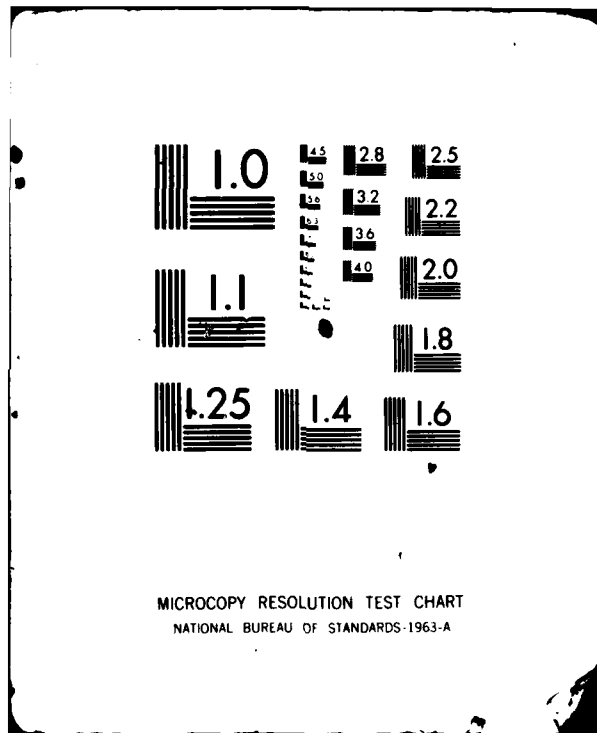


AD-A115 015 ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/O 4/2  
193108 AND 193109 MLRS MISSILE NUMBERS BN-032, BN-022, BN-023, --ETC(U)  
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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19318B and 19319A MLRS Missile Number BN-032, BN-023, BN-022, Bn-025, BN-026, BN-029, Round Number Y-238/MD-90 thru Y-243/MD-95 are presented in tabular form. ↑		

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## INTRODUCTION

193188/19319A MLRS, Missile Numbers BN-032, BN-022, BN-023, BN-025, BN-026, and BN-029, were launched from LC-33, White Sands Missile Range (NSMR), New Mexico, at 1020:05, 1020:09, 1020:14, 1028:29, 1028:34 and 1028:38 MST, 16 April 1982. The scheduled launch times were 1000, 1000:04.5, 1000:09, 1005, 1005:04.5 and 1005:09 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 ( $\text{gm}/\text{m}^3$ ), 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.

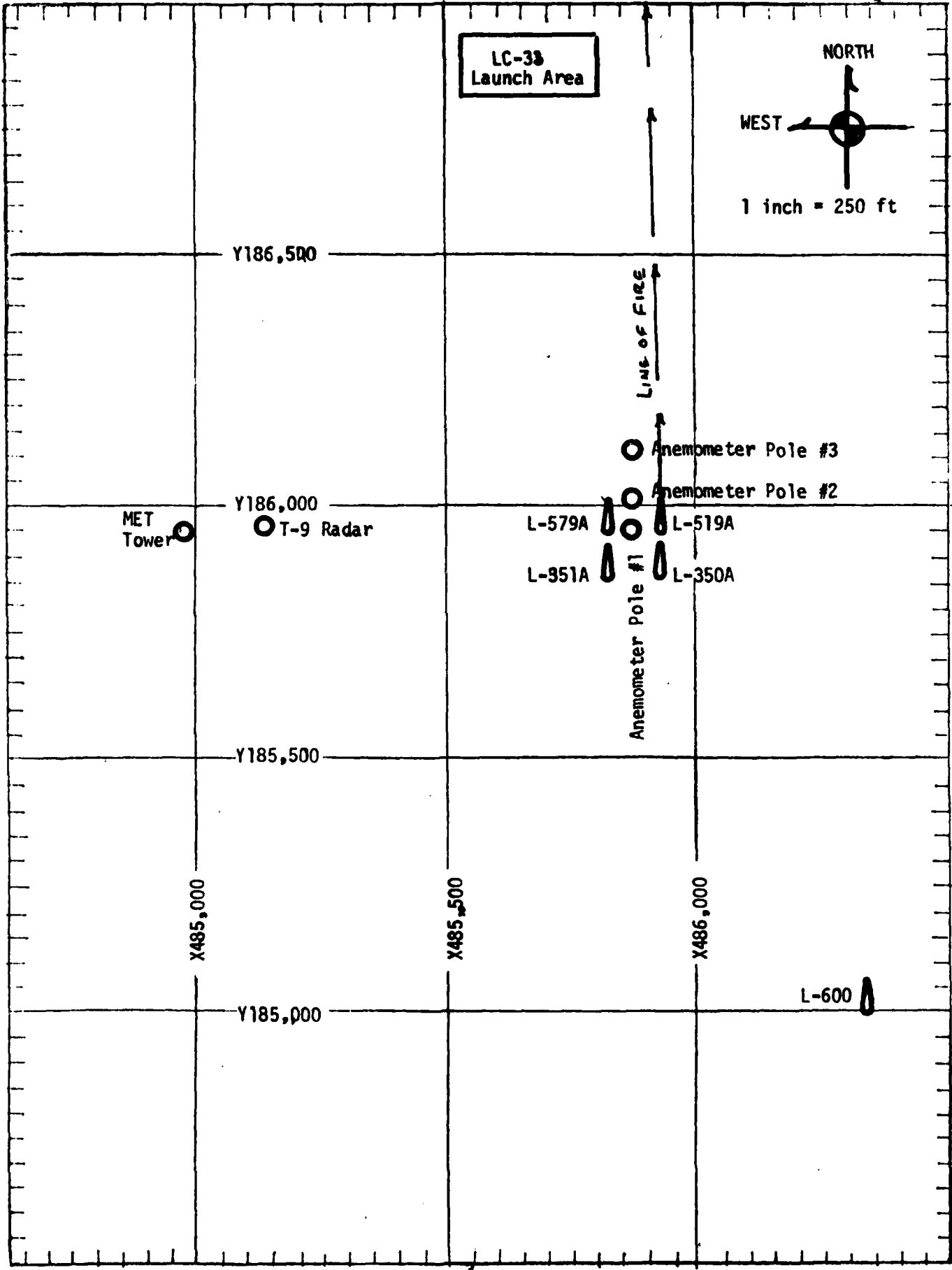
### SITE AND TIME

WSD 0700 MST  
LC-37 0830 MST  
WSD 0900 MST  
LC-37 1020 MST



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NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Avail and/or	
Dist	Special
<b>A</b>	





LC-38  
Launch Area

NORTH  
WEST  
1 inch = 250 ft

Y186,500

LINE OF FIRE

Y186,000

Anemometer Pole #3

MET  
Tower

T-9 Radar

L-579A

Anemometer Pole #2

L-519A

L-351A

Anemometer Pole #1

L-350A

Y185,500

X485,000

X485,500

X486,000

Y185,000

L-600

PROJECT SURFACE OBSERVATION

TABLE <u>1</u>		STATION <u>LC 33 E &amp; A</u>										
DATE <u>16</u> <u>APR</u> <u>82</u>		X = <u>484,982.64</u>		Y = <u>185,957.73</u>		H = <u>3995.00</u>						
TIME <u>M S I</u>		DAY	MONTH	YEAR	TEMPERATURE OF	DEW POINT OF	RELATIVE HUMIDITY	DENSITY	DIRECTION	WIND SPEED	CHARACTER	VISIBILITY
		mb			°C	°C	%	gm/m <sup>3</sup>	degs	kts	kts	
<u>1020</u>		<u>876.6</u>			<u>21.5</u>	<u>-4.8</u>	<u>17</u>	<u>1031</u>	<u>300</u>	<u>06</u>		<u>50</u>
<u>1028</u>		<u>876.6</u>			<u>21.8</u>	<u>-5.0</u>	<u>16</u>	<u>1032</u>	<u>255</u>	<u>12</u>		<u>50</u>

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

PSYCHROMETRIC COMPUTATION

TIME:	<u>1020</u>	<u>1028</u>
DRY BULB TEMP.	<u>21.5</u>	<u>21.8</u>
WET BULB TEMP.	<u>8.9</u>	<u>9.0</u>
WET BULB DEPR.	<u>12.6</u>	<u>12.8</u>
DEW POINT	<u>-4.8</u>	<u>-5.0</u>
RELATIVE HUMID.	<u>17</u>	<u>16</u>

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	249	10	T-30	287	07	T-30	283	12
T-20	265	11	T-20	275	08	T-20	275	11
T-10	258	11	T-10	272	09	T-10	279	12
T0.0	253	11	T0.0	271	09	T0.0	258	08
T+10	255	10	T+10	275	09	T+10	283	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	293	08	T-30	273	11
T-20	277	08	T-20	285	10
T-10	305	07	T-10	290	09
T0.0	295	06	T0.0	275	07
T+10	248	06	T+10	253	12

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
F-30	266	10	T-30	266	11
F-20	270	09	T-20	256	16
F-10	255	10	T-10	252	16
T0.0	273	08	T0.0	246	12
T+10	242	12	T+10	232	12

TABLE 4 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	243	19	T-30	261	16	T-30	271	18
T-20	242	17	T-20	258	14	T-20	265	19
T-10	240	15	T-10	265	12	T-10	264	21
T0.0	243	16	T0.0	258	14	T0.0	269	18
T+10	242	16	T+10	257	15	T+10	279	20

TABLE 5 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	268	14	T-30	260	21
T-20	273	15	T-20	264	20
T-10	272	14	T-10	261	20
T0.0	255	14	T0.0	259	18
T+10	253	12	T+10	261	18

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	255	19	T-30	255	18
T-20	256	19	T-20	246	19
T-10	250	20	T-10	254	17
T0.0	251	17	T0.0	251	17
T+10	248	17	T+10	255	17

TABLE 6

T-TIME PILOT-BALLOON MEASUREMENT

DATE 16 April 1982

SITE: **WSD**  
 TIME: **1020 MST**  
 WSTN COORDINATES:  
 X= **488,580.00**  
 Y= **185,580.00**  
 H= **3,989.00**

SITE: **DON**  
 TIME: **1020 MST**  
 WSTN COORDINATES:  
 X= **511,988.37**  
 Y= **247,396.36**  
 H= **3,996.83**

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	<b>300</b>	<b>06</b>
150	<b>280</b>	<b>14</b>
210	<b>272</b>	<b>15</b>
270	<b>284</b>	<b>19</b>
330	<b>276</b>	<b>21</b>
390	<b>270</b>	<b>19</b>
500	<b>278</b>	<b>18</b>
650	<b>277</b>	<b>18</b>
800	<b>286</b>	<b>18</b>
950	<b>290</b>	<b>20</b>
1150	<b>283</b>	<b>21</b>
1350	<b>272</b>	<b>20</b>
1550	<b>268</b>	<b>19</b>
1750	<b>264</b>	<b>17</b>
2000	<b>261</b>	<b>19</b>

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	<b>260</b>	<b>10</b>
150	<b>252</b>	<b>11</b>
210	<b>250</b>	<b>11</b>
270	<b>257</b>	<b>11</b>
330	<b>264</b>	<b>10</b>
390	<b>270</b>	<b>10</b>
500	<b>281</b>	<b>11</b>
650	<b>291</b>	<b>10</b>
800	<b>280</b>	<b>11</b>
950	<b>276</b>	<b>11</b>
1150	<b>277</b>	<b>13</b>
1350	<b>277</b>	<b>16</b>
1550	<b>273</b>	<b>21</b>
1750	<b>263</b>	<b>24</b>
2000	<b>262</b>	<b>36</b>

Data obtained from Nike-Herc Radar  
 Tracked pilot-balloon observation

Data obtained from single Theodolite  
 Tracked pilot-balloon observation

TABLE 7

1-LINE PILOT-BALLOON OBSERVATION DATA

DATE 16 April 1982

SITE: WSD  
 TIME: 1028 MST  
 UTM COORDINATES:  
 Y= 488,580.00  
 X= 185,045.00  
 H= 3,989.00

SITE: DON  
 TIME: 1028 MST  
 UTM COORDINATES:  
 X= 511,988.37  
 Y= 247,396.36  
 H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	255	12
150	280	27
210	285	24
270	271	23
330	279	22
390	281	19
500	285	20
650	290	19
800	269	20
950	267	23
1150	271	24
1350	272	24
1550	274	26
1750	268	26
2000	255	31

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	270	08
150	268	09
210	269	09
270	270	08
330	271	08
390	271	08
500	271	07
650	278	08
800	288	10
950	277	10
1150	266	11
1350	263	13
1550	266	17
1750	269	24
2000		MISG

Data obtained for Nike-Herc  
 Tracked pilot-balloon observation.

Data obtained from single Theodolite  
 Tracked pilot-balloon observation.

AIMING and T-TIME COMPUTER MET MESSAGES  
16 APRIL 1982

WSD 0700 MST  
METCM1324064  
161400122875

00480004 29060875  
01505015 29070865  
02498013 28980840  
03505022 28600801  
04501024 28130754  
05486031 27690709  
06471035 27270667  
07459041 27070626  
08474040 26970588  
09470038 26720552  
10467039 26350517  
11459041 25940485  
12465053 25410439

LC-37 0830 MST  
METCM1324063  
161550124875

00462008 29340875  
01514015 29210865  
02518016 28930840  
03526009 28570801  
04479019 28130754  
05479026 27700710  
06466041 27440667  
07455041 27220627  
08463034 26980589  
09460033 26590552  
10465037 26200518  
11459039 25820485  
12457052 25350439

WSD 0900 MST  
METCM1324064  
161600122876

00444013 29480876  
01496016 29180865  
02494021 28900840  
03519021 28550801  
04488024 28090755  
05475027 27610710  
06473031 27270667  
07459041 27130626  
08466032 27020588  
09462030 26690552  
10459038 26240518  
11456040 25830485  
12459048 25330439

LC-37 1020 MST  
METCM1324063  
161730124876

00480007 29500876  
01475017 29260866  
02472023 28940841  
03477022 28590802  
04473023 28150755  
05467027 27720710  
06457041 27420668  
07469039 27170627  
08462037 26880589  
09459038 26540553  
10454038 26220518  
11454045 25900485  
12455046 25380439

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 82 0700 HRS MST  
 ASCENSION NO. 155

SIGNIFICANT LEVEL DATA  
 1060020155  
 WHITE SANDS  
 TABLE 9

GEOMETRIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
874.8	3989.0	16.6	-6	31.0
850.0	4792.9	16.5	4.5	45.0
738.8	8640.8	6.0	-4.7	46.0
700.0	10083.6	2.4	-6.9	50.0
675.6	11021.7	-3	-6.7	53.0
658.0	11714.1	-1.8	-11.3	48.0
649.2	12066.4	-1.7	-12.3	44.0
617.4	13375.6	-3.7	-14.7	42.0
611.4	13629.8	-2.5	-13.9	41.0
564.4	15706.3	-5.2	-16.4	41.0
548.2	16456.9	-6.4	-17.4	41.0
500.0	18799.0	-11.9	-22.7	40.0
477.2	19967.1	-15.1	-25.6	40.0
462.0	20771.0	-15.9	-26.3	40.0
400.0	24283.3	-24.7	-34.3	40.0
355.6	27065.8	-31.0	-39.9	41.0
336.2	28366.7	-34.3	-42.9	41.0
300.0	30956.5	-40.5		
250.0	34967.6	-49.6		

UPPER AIR DATA  
 1060020155  
 WHITE SANDS  
 TABLE 10

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 62 0700 HRS MST  
 ASCENSION NO. 155

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 KNOTS	WIND DIRECTION DEGREES(TN)	WIND SPEED KNOTS	INJEX OF REFRACTION
3989.0	874.8	16.6	31.0	1049.1	664.0	270.0	4.1	1.000260
4000.0	874.5	16.6	31.2	1048.7	664.0	270.3	4.2	1.000260
4500.0	859.0	16.5	39.9	1029.5	664.2	278.3	7.6	1.000263
5000.0	843.6	15.9	45.1	1012.9	663.5	281.4	11.1	1.000263
5500.0	828.4	14.6	45.2	999.5	661.9	282.9	14.6	1.000257
6000.0	813.4	13.2	45.3	986.4	660.3	283.9	18.1	1.000252
6500.0	798.7	11.8	45.4	973.4	658.7	284.1	20.7	1.000246
7000.0	784.3	10.5	45.6	960.7	657.0	283.9	22.5	1.000241
7500.0	770.2	9.1	45.7	948.1	655.4	283.1	24.0	1.000236
8000.0	756.3	7.7	45.8	935.6	653.7	281.4	25.0	1.000232
8500.0	742.6	6.4	46.0	923.4	652.1	279.9	26.0	1.000227
9000.0	728.9	5.1	47.0	910.7	650.5	277.1	27.0	1.000223
9500.0	715.4	3.9	48.4	897.9	649.1	274.5	28.0	1.000219
10000.0	702.2	2.6	49.8	885.3	647.6	271.9	29.6	1.000216
10500.0	689.1	1.2	51.3	873.3	645.9	269.4	31.4	1.000212
11000.0	676.2	-0.2	52.9	861.6	644.2	267.0	33.3	1.000208
11500.0	663.4	-1.3	49.5	848.9	642.8	264.3	35.2	1.000203
12000.0	650.8	-1.7	44.8	834.2	642.3	261.9	37.0	1.000198
12500.0	638.5	-2.4	43.3	820.3	641.5	259.5	38.5	1.000194
13000.0	626.4	-3.1	42.6	807.1	640.6	258.5	40.8	1.000191
13500.0	614.5	-3.1	41.5	791.7	640.6	259.4	44.1	1.000187
14000.0	602.7	-3.0	41.0	776.2	640.7	262.7	43.9	1.000183
14500.0	591.2	-3.6	41.0	763.3	640.0	266.0	42.0	1.000180
15000.0	580.0	-4.3	41.0	750.6	639.2	268.7	38.7	1.000177
15500.0	568.9	-4.9	41.0	738.0	638.4	266.9	38.3	1.000174
16000.0	558.0	-5.7	41.0	725.9	637.5	265.2	38.0	1.000170
16500.0	547.3	-6.5	41.0	714.2	636.5	264.0	37.8	1.000167
17000.0	536.6	-7.7	40.8	703.5	635.1	264.1	37.6	1.000164
17500.0	526.2	-8.8	40.6	692.9	633.6	264.1	37.6	1.000161
18000.0	515.9	-10.0	40.3	682.5	632.2	262.6	38.2	1.000158
18500.0	505.9	-11.2	40.1	672.3	630.8	261.2	38.9	1.000156
19000.0	496.0	-12.5	40.0	662.3	629.2	259.7	39.8	1.000153
19500.0	486.2	-13.8	40.0	652.7	627.6	258.3	40.8	1.000150
20000.0	476.6	-15.1	40.0	643.1	626.0	258.2	43.4	1.000148
20500.0	467.1	-16.6	40.0	631.5	625.4	259.2	47.4	1.000145
21000.0	457.7	-18.5	40.0	620.8	624.3	260.6	50.7	1.000142
21500.0	448.4	-19.7	40.0	611.2	623.8	262.0	52.8	1.000140
22000.0	439.3	-21.0	40.0	601.8	623.2	263.9	54.1	1.000137
22500.0	430.4	-22.2	40.0	592.5	619.7	263.3	53.2	1.000135
23000.0	421.6	-23.5	40.0	583.4	618.1	261.0	53.1	1.000133

UPPER AIR DATA  
 1060020155  
 WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 82 0700 HRS MST  
 ASCENSION NO. 155

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

TABLE 10 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
23500.0	415.1	-22.7	-32.6	40.0	574.4	616.6	259.7	53.6	1.000130
24000.0	404.7	-24.0	-33.7	40.0	565.6	615.0	258.7	52.9	1.000128
24500.0	396.4	-25.2	-34.8	40.1	556.7	613.5	257.9	52.0	1.000126
25000.0	388.1	-26.3	-35.8	40.3	547.5	612.1	257.5	51.8	1.000124
25500.0	379.9	-27.5	-36.8	40.4	538.6	610.7	257.1	51.8	1.000122
26000.0	372.0	-28.6	-37.7	40.6	529.8	609.3	257.2	52.9	1.000119
26500.0	364.2	-29.7	-38.7	40.8	521.1	607.9	257.4	53.7	1.000117
27000.0	356.6	-30.9	-39.7	41.0	512.6	606.5	257.6	53.1	1.000115
27500.0	349.0	-32.1	-40.9	41.0	504.3	604.9	257.7	52.6	1.000113
28000.0	341.6	-33.4	-42.0	41.0	496.2	603.3	257.7	50.6	1.000111
28500.0	334.2	-34.6	-43.7	38.9**	488.1	601.7	257.7	48.7	1.000110
29000.0	327.0	-35.8	-46.8	31.0**	479.9	600.2	257.9	48.7	1.000107
29500.0	319.9	-37.0	-50.4	23.1**	471.8	598.7	258.1	49.3	1.000105
30000.0	312.9	-38.2	-54.9	15.1**	463.9	597.1	258.5	50.9	1.000104
30500.0	306.1	-39.4	-61.7	7.2**	456.2	595.6	259.1	53.3	1.000102
31000.0	299.4	-40.6			448.5	594.1	259.7	55.7	1.000100
31500.0	292.7	-41.7			440.6	592.6	260.2	58.2	1.000098
32000.0	286.1	-42.9			432.8	591.2	260.6	59.7	1.000096
32500.0	279.7	-44.0			425.2	589.7	260.8	59.3	1.000095
33000.0	273.4	-45.1			417.7	588.3	261.0	58.3	1.000093
33500.0	267.2	-46.3			410.3	586.8	261.3	56.1	1.000091
34000.0	261.2	-47.4			403.1	585.3			1.000090
34500.0	255.4	-48.5			396.1	583.9			1.000088

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 82 0700 HRS MST  
 ASCENSION NO. 155

MANDATORY LEVELS  
 1060020155  
 WHITE SANUS  
 TABLE 11

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR		REL. HUM. PERCENT	WIND DATA	
		DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4789.	16.5	4.5	45.	280.4	9.6
800.0	6469.	12.0	.5	45.	284.1	20.6
750.0	8228.	7.1	-3.7	46.	280.7	25.4
700.0	10074.	2.4	-6.9	50.	271.5	29.8
650.0	12021.	-1.7	-12.2	44.	261.8	37.1
600.0	14104.	-3.1	-14.5	41.	263.5	43.9
550.0	16352.	-6.3	-17.3	41.	264.1	37.8
500.0	18773.	-11.9	-22.7	40.	260.3	39.4
450.0	21389.	-17.5	-27.8	40.	262.3	52.4
400.0	24243.	-24.7	-34.3	40.	258.3	52.4
350.0	27386.	-31.9	-40.7	41.	257.7	52.7
300.0	30895.	-40.5			259.6	55.5
250.0	34892.	-49.6				

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 82  
 ASCENSION NO. 29

SIGNIFICANT LEVEL DATA  
 1060180029  
 LC-37

TABLE 12

STATION ALTITUDE 16 APR. 82 ASCENSION NO. 29	GEODETIC COORDINATES 32.40175 LAT DEG 106.31232 LON DEG	PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DENPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
875.2	4051.4	19.8	-9.4	13.0
850.0	4871.1	16.5	-8.6	17.0
700.0	10156.8	2.4	-15.1	26.0
678.2	10995.2	1.6	-22.2	15.0
622.6	13245.9	-1.5	-25.5	14.0
605.6	13969.7	-1.9	-25.8	14.0
500.0	18871.2	-13.3	-35.0	14.0
465.2	20662.8	-17.5	-37.8	15.0
441.8	21929.9	-19.2	-39.2	15.0
400.0	24334.7	-25.0	-41.3	20.0

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 82 0830 HRS MST  
 ASCENSION NO. 29

UPPER AIR DATA  
 1060180029  
 LC-37

TABLE 13

GEOMETRIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE						
4051.4	875.2	19.8	-9.4	13.0	1039.4	667.2	260.0	8.0	1.000245
4500.0	861.3	18.0	-8.8	15.2	1029.2	665.2	268.6	8.0	1.000243
5000.0	846.0	16.2	-8.7	17.2	1017.2	663.1	277.9	8.2	1.000241
5500.0	830.6	14.8	-9.2	18.1	1003.4	661.6	286.6	8.5	1.000237
6000.0	815.5	13.5	-9.7	18.9	989.7	660.0	294.4	9.1	1.000234
6500.0	800.6	12.2	-10.2	19.8	976.3	658.5	291.4	10.1	1.000231
7000.0	786.1	10.8	-10.8	20.6	963.1	656.9	283.6	11.4	1.000227
7500.0	771.8	9.5	-11.4	21.5	950.0	655.4	277.5	15.9	1.000224
8000.0	757.7	8.2	-12.1	22.3	937.2	653.8	274.4	21.8	1.000220
8500.0	743.9	6.8	-12.7	23.2	924.6	652.2	272.4	24.6	1.000217
9000.0	730.4	5.5	-13.4	24.0	912.1	650.7	270.6	26.6	1.000214
9500.0	717.1	4.2	-14.1	24.9	899.9	649.1	269.2	27.2	1.000211
10000.0	704.0	2.8	-14.9	25.7	887.8	647.5	267.9	26.5	1.000207
10500.0	691.0	2.1	-17.7	21.5	873.9	646.6	265.5	28.5	1.000202
11000.0	678.1	1.6	-22.2	15.0	859.3	645.9	262.6	33.1	1.000197
11500.0	665.3	0.9	-22.9	14.8	845.3	645.1	259.3	37.7	1.000193
12000.0	652.8	0.2	-23.6	14.6	831.5	644.3	256.7	41.5	1.000190
12500.0	640.5	-0.5	-24.4	14.3	817.9	643.5	256.5	41.8	1.000186
13000.0	628.4	-1.2	-25.1	14.1	804.5	642.6	257.0	41.2	1.000183
13500.0	616.6	-1.6	-25.6	14.0	790.7	642.1	258.8	39.3	1.000180
14000.0	604.9	-2.0	-25.8	14.0	776.7	641.7	260.1	37.6	1.000177
14500.0	593.2	-3.1	-26.8	14.0	765.0	640.3	260.1	36.5	1.000174
15000.0	581.7	-4.3	-27.7	14.0	753.4	638.9	260.1	35.4	1.000171
15500.0	570.4	-5.5	-28.7	14.0	742.1	637.5	259.6	34.8	1.000168
16000.0	559.4	-6.6	-29.6	14.0	730.9	636.1	259.2	34.7	1.000166
16500.0	548.6	-7.8	-30.6	14.0	719.9	634.7	258.7	34.5	1.000163
17000.0	537.9	-8.9	-31.5	14.0	709.1	633.3	258.9	34.7	1.000160
17500.0	527.5	-10.1	-32.4	14.0	698.5	631.9	259.4	34.9	1.000158
18000.0	517.3	-11.3	-33.4	14.0	688.0	630.5	259.6	35.2	1.000155
18500.0	507.3	-12.4	-34.3	14.0	677.7	629.1	259.0	35.8	1.000153
19000.0	497.4	-13.6	-35.2	14.1	667.5	627.7	258.5	36.5	1.000150
19500.0	487.5	-14.8	-36.0	14.4	657.1	626.3	257.8	38.2	1.000148
20000.0	477.8	-15.9	-36.8	14.6	647.0	624.9	257.2	40.3	1.000146
20500.0	468.3	-17.1	-37.5	14.9	637.0	623.4	256.9	45.2	1.000143
21000.0	458.9	-18.0	-38.2	15.0	626.3	622.4	256.9	49.6	1.000141
21500.0	449.6	-18.6	-38.7	15.0	615.3	621.6	257.0	53.5	1.000138
22000.0	440.5	-19.4	-39.2	15.1	604.6	620.7	257.3	53.8	1.000136
22500.0	431.5	-20.6	-39.6	16.2	595.1	619.2	257.1	51.8	1.000134
23000.0	422.7	-21.8	-40.0	17.2	585.7	617.7	255.9	46.8	1.000132
23500.0	414.0	-23.0	-40.5	18.3	576.5	616.2			1.000129

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 82 0830 HRS MST  
 ASCENSION NO. 29

UPPER AIR DATA  
 1060180029  
 LC-37

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

TABLE 13 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	405.6	-24.2	-41.0	19.3	567.4	614.7		1.000127

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 82  
 ASCENSION NO. 29

MANDATORY LEVELS  
 1060180029  
 LC-37  
 TABLE 14

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4868.	16.5	-8.6	17.	275.5	8.1	
800.0	6545.	12.1	-10.3	20.	290.6	10.2	
750.0	8301.	7.4	-12.4	23.	273.1	23.8	
700.0	10147.	2.4	-15.1	26.	267.5	26.3	
650.0	12103.	.1	-23.8	15.	256.6	41.6	
600.0	14195.	-2.5	-26.2	14.	260.1	37.1	
550.0	16438.	-7.6	-30.4	14.	258.8	34.5	
500.0	18845.	-13.3	-35.0	14.	258.7	36.3	
450.0	21447.	-18.6	-38.7	15.	257.0	53.2	
400.0	24294.	-25.0	-41.3	20.			

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

SIGNIFICANT LEVEL DATA

1060020156  
 WHITE SANDS

TABLE 15

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 82 0900 HRS MST  
 ASCENSION NO. 156

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
875.6	3989.0	21.0	-0.9	23.0
867.0	4267.3	17.5	-1.7	27.0
850.0	4820.8	16.1	-2.9	27.0
778.6	7240.1	9.7	-6.6	31.0
700.0	10099.2	1.5	-10.9	39.0
676.0	11018.8	-0.8	-12.7	40.0
659.5	11667.7	-0.4	-19.0	23.0
650.3	12035.8	-1.9	-20.2	23.0
626.8	12997.3	-2.0	-20.3	23.0
600.4	14121.0	-2.2	-21.5	21.0
565.6	15672.2	-4.8	-23.7	21.0
500.0	18809.8	-13.2	-30.8	21.0
458.4	20964.7	-18.2	-34.6	22.0
435.2	22236.3	-20.0	-35.7	23.0
400.0	24274.3	-24.9	-37.1	31.0
327.4	28955.7	-36.5	-46.6	34.0
307.6	30370.3	-39.5	-50.1	31.0
300.0	30932.1	-41.0		

UPPER AIR DATA  
 1060020156  
 WHITE SANDS  
 TABLE 16

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 82  
 0900 HRS MST  
 ASCENSION NO. 156

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
3989.0	875.6	21.0	23.0	1034.4	669.0	250.0	13.0	1.000256
4000.0	875.3	20.9	23.2	1034.5	668.8	250.4	13.0	1.000256
4500.0	859.8	16.9	27.0	1030.3	664.3	266.4	14.9	1.000253
5000.0	844.5	15.6	27.3	1016.5	662.7	278.2	17.7	1.000249
5500.0	829.3	14.3	28.1	1003.0	661.2	285.7	20.1	1.000244
6000.0	814.4	13.0	28.9	989.6	659.6	290.7	20.8	1.000241
6500.0	799.8	11.7	29.8	976.4	658.1	289.2	21.0	1.000237
7000.0	785.4	10.3	30.6	963.4	656.5	286.0	21.5	1.000233
7500.0	771.1	9.0	31.7	950.5	654.9	279.6	23.4	1.000229
8000.0	756.9	7.5	33.1	937.8	653.2	275.3	25.1	1.000225
8500.0	742.9	6.1	34.5	925.3	651.5	272.7	26.5	1.000222
9000.0	729.2	4.7	35.9	913.0	649.8	270.3	27.3	1.000218
9500.0	715.8	3.2	37.3	900.9	648.1	267.9	26.5	1.000215
10000.0	702.6	1.8	38.7	889.0	646.4	266.4	26.7	1.000212
10500.0	689.4	.5	39.4	876.5	644.9	266.2	28.1	1.000208
11000.0	676.5	-0.8	40.0	864.0	643.4	264.0	28.4	1.000204
11500.0	663.7	-2.1	27.4	847.3	643.6	261.9	30.3	1.000197
12000.0	651.2	-3.4	23.0	835.3	642.0	260.9	35.8	1.000192
12500.0	638.8	-4.7	23.0	820.0	641.8	261.1	46.0	1.000189
13000.0	626.7	-6.0	23.0	804.6	641.7	260.2	47.8	1.000185
13500.0	614.8	-7.3	22.1	789.6	641.6	260.2	42.4	1.000182
14000.0	603.2	-8.6	21.2	774.9	641.5	260.8	34.0	1.000178
14500.0	591.7	-9.9	21.0	762.0	640.7	261.4	27.3	1.000175
15000.0	580.4	-11.2	21.0	749.9	639.7	260.2	28.2	1.000172
15500.0	569.4	-12.5	21.0	737.9	638.7	259.4	30.2	1.000169
16000.0	558.4	-13.8	21.0	726.8	637.3	258.8	32.7	1.000166
16500.0	547.5	-15.1	21.0	716.3	635.7	258.3	34.5	1.000164
17000.0	536.8	-16.4	21.0	705.9	634.1	257.6	34.3	1.000161
17500.0	526.4	-17.7	21.0	695.8	632.5	257.3	34.1	1.000158
18000.0	516.2	-19.0	21.0	685.7	630.9	257.0	34.6	1.000156
18500.0	506.1	-20.3	21.0	675.9	629.2	256.7	35.2	1.000153
19000.0	496.2	-21.6	21.1	665.8	627.7	256.7	36.5	1.000151
19500.0	486.3	-22.9	21.3	655.5	626.3	257.4	39.6	1.000148
20000.0	476.6	-24.2	21.6	645.3	624.9	257.8	43.0	1.000146
20500.0	467.1	-25.5	21.8	635.3	623.4	258.0	46.9	1.000144
21000.0	457.7	-26.8	22.0	625.4	622.1	258.1	49.5	1.000141
21500.0	448.5	-28.1	22.4	614.5	621.2	258.2	50.1	1.000139
22000.0	439.4	-29.4	22.8	603.7	620.3	258.5	47.0	1.000136
22500.0	430.5	-30.7	24.0	593.7	619.1	257.9	45.0	1.000134
23000.0	421.7	-32.0	26.0	584.4	617.7	257.8	47.5	1.000132

UPPER AIR DATA  
 1060020156  
 WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 82 0900 HRS MST  
 ASCENSION NO. 156

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

TABLE 16 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DEWPOINT CENTIGRADE	DIRECTION DEGREES(TN)	
23500.0	413.0	-23.0	28.0	575.1	616.2	257.6	50.5	1.000130
24000.0	404.6	-24.2	29.9	566.1	614.7	257.8	51.5	1.000128
24500.0	396.2	-25.5	31.1	557.0	613.2	257.7	51.7	1.000126
25000.0	387.8	-26.7	31.5	548.0	611.7	257.3	50.6	1.000123
25500.0	379.6	-27.9	31.8	539.1	610.1	257.1	50.3	1.000121
26000.0	371.5	-29.2	32.1	530.4	608.6	257.1	51.0	1.000119
26500.0	363.7	-30.4	32.4	521.8	607.0	257.0	51.6	1.000117
27000.0	356.0	-31.7	32.7	513.4	605.5	256.9	52.0	1.000115
27500.0	348.4	-32.9	33.1	505.2	603.9	256.7	52.5	1.000113
28000.0	341.1	-34.1	33.4	497.0	602.3	256.6	54.2	1.000111
28500.0	333.8	-35.4	33.7	489.1	600.8	256.6	55.5	1.000110
29000.0	326.8	-36.6	33.9	481.2	599.2	256.9	53.7	1.000108
29500.0	319.6	-37.7	32.8	472.8	597.9	257.3	50.9	1.000106
30000.0	312.7	-38.7	31.8	464.6	596.5	257.7	46.8	1.000104
30500.0	305.8	-39.8	23.8**	456.6	595.1			1.000102

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL  
 16 APR. 82 0900 HRS MST  
 ASCENSION NO. 156

MANDATORY LEVELS  
 1060020150  
 WHITE SANDS  
 TABLE 17

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4817.	16.1	-2.9	27.	274.4	16.6	
800.0	6493.	11.7	-5.4	30.	289.2	21.0	
750.0	8248.	6.8	-8.0	34.	273.9	25.8	
700.0	10089.	1.5	-10.9	39.	266.3	27.0	
650.0	12035.	-1.9	-20.2	23.	260.9	36.7	
600.0	14122.	-2.2	-21.5	21.	261.0	31.7	
550.0	16372.	-6.7	-25.3	21.	258.4	34.5	
500.0	18784.	-13.2	-30.8	21.	256.5	35.5	
450.0	21386.	-18.8	-35.0	22.	258.1	50.4	
400.0	24234.	-24.9	-37.1	31.	257.8	52.0	
350.0	27371.	-32.6	-43.4	33.	256.7	52.4	
300.0	30871.	-41.0					

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 82 1020 HRS MST  
 ASCENSION NO. 30

SIGNIFICANT LEVEL DATA  
 1060180030  
 LC-37

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

TABLE 18

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
876.0	4051.4	21.3	13.0
862.4	4492.8	18.2	16.0
850.0	4898.1	16.5	17.0
751.6	8279.8	7.9	19.0
700.0	10187.2	2.7	18.0
604.0	14065.0	-3.1	15.0
552.6	16357.6	-8.0	14.0
500.0	18890.0	-12.7	15.0
441.4	21981.1	-18.9	15.0
400.0	24364.0	-25.3	22.0

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 82  
 ASCENSION NO. 30

UPPER AIR DATA  
 1060180030  
 LC-37  
 TABLE 19

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4051.4	876.0	21.3	-8.2	13.0	1034.9	669.0	270.0	7.0	1.000245
4500.0	862.2	18.2	-8.0	16.0	1029.5	665.4	267.6	10.4	1.000244
5000.0	846.9	16.2	-8.8	17.1	1018.0	663.2	266.3	14.3	1.000241
5500.0	831.6	15.0	-9.6	17.4	1004.1	661.7	265.5	18.2	1.000237
6000.0	816.6	13.7	-10.4	17.7	990.5	660.2	267.0	19.1	1.000233
6500.0	801.9	12.4	-11.2	17.9	977.0	658.7	268.9	19.9	1.000230
7000.0	787.4	11.2	-12.1	18.2	963.7	657.3	270.2	22.0	1.000226
7500.0	773.2	9.9	-12.9	18.5	950.7	655.8	269.0	23.2	1.000222
8000.0	759.3	8.6	-13.8	18.8	937.8	654.3	266.6	23.9	1.000219
8500.0	745.5	7.3	-14.8	18.9	925.1	652.7	262.0	24.3	1.000215
9000.0	731.7	5.9	-16.1	18.6	912.5	651.1	259.5	25.6	1.000212
9500.0	718.2	4.6	-17.4	18.4	900.1	649.5	259.4	27.7	1.000208
10000.0	704.9	3.2	-18.7	18.1	887.9	647.9	260.0	30.0	1.000205
10500.0	691.7	2.2	-19.7	17.8	874.4	646.7	260.7	32.4	1.000201
11000.0	678.7	1.5	-20.6	17.4	860.3	645.8	261.3	33.9	1.000198
11500.0	665.9	.7	-21.5	17.0	846.5	644.9	261.5	32.6	1.000194
12000.0	653.4	-.0	-22.4	16.6	832.8	644.0	261.7	31.4	1.000191
12500.0	641.0	-.8	-23.2	16.2	819.4	643.1	261.8	30.9	1.000187
13000.0	629.0	-1.5	-24.1	15.8	806.2	642.3	261.8	31.0	1.000184
13500.0	617.1	-2.3	-25.0	15.4	793.2	641.4	261.7	31.1	1.000181
14000.0	605.5	-3.0	-25.9	15.1	780.5	640.5	261.3	33.4	1.000178
14500.0	593.9	-4.0	-26.9	14.8	768.4	639.2	260.6	37.9	1.000175
15000.0	582.5	-5.1	-27.9	14.6	756.7	638.0	260.1	42.4	1.000172
15500.0	571.3	-6.2	-29.0	14.4	745.2	636.7	259.7	44.6	1.000169
16000.0	560.3	-7.2	-30.0	14.2	733.8	635.4	259.4	45.3	1.000166
16500.0	549.5	-8.3	-30.9	14.1	722.5	634.1	258.9	44.3	1.000163
17000.0	538.8	-9.2	-31.5	14.3	710.8	633.0	257.9	40.8	1.000161
17500.0	528.2	-10.1	-32.1	14.5	699.4	631.9	256.8	38.1	1.000158
18000.0	517.9	-11.0	-32.7	14.6	688.1	630.8	255.7	36.7	1.000155
18500.0	507.8	-12.0	-33.4	14.8	677.1	629.7	255.1	37.7	1.000153
19000.0	497.8	-12.9	-34.0	15.0	666.2	628.5	254.7	39.9	1.000150
19500.0	487.8	-13.9	-34.9	15.0	655.4	627.3	254.5	44.4	1.000148
20000.0	478.1	-14.9	-35.7	15.0	644.9	626.1	254.3	46.7	1.000145
20500.0	468.6	-15.9	-36.5	15.0	634.5	624.9	254.3	46.7	1.000143
21000.0	459.2	-16.9	-37.3	15.0	624.2	623.7	254.8	45.7	1.000140
21500.0	450.0	-17.9	-38.2	15.0	614.2	622.4	255.7	44.2	1.000138
22000.0	441.1	-19.0	-39.0	15.1	604.3	621.2	256.5	44.7	1.000136
22500.0	433.0	-20.3	-39.2	16.5	595.1	619.5	257.0	46.9	1.000134
23000.0	425.2	-21.6	-39.5	18.0	586.1	617.9	257.0	46.9	1.000132
23500.0	414.5	-23.0	-39.9	19.5	577.2	616.2	257.0	46.9	1.000130

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 62 1020 HRS MST  
 ASCENSION NO. 30

UPPER AIR DATA  
 1060180030  
 LC-37

TABLE 19 CONT'D

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	400.1	-24.3	20.9	568.4	614.6			1.000128

STATION ALTITUDE 4051.37 FEET MSL  
 16 APR. 82 1020 HRS MST  
 ASCENSION NO. 30

MANDATORY LEVELS  
 1060180030  
 LC-37

TABLE 20

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4895.	16.5	-8.6	17.	266.5	13.5
800.0	6572.	12.3	-11.3	18.	269.1	20.2
750.0	8330.	7.7	-14.4	19.	263.5	24.2
700.0	10177.	2.7	-19.2	18.	260.3	30.9
650.0	12133.	-.2	-22.6	16.	261.8	31.1
600.0	14221.	-3.5	-26.4	15.	261.0	35.5
550.0	16457.	-8.2	-30.9	14.	258.9	44.5
500.0	18864.	-12.7	-33.9	15.	254.8	38.9
450.0	21475.	-17.9	-38.2	15.	255.7	44.2
400.0	24324.	-25.3	-40.7	22.		

GEODETIC COORDINATES  
 32.40175 LAT DEG  
 106.31232 LON DEG

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