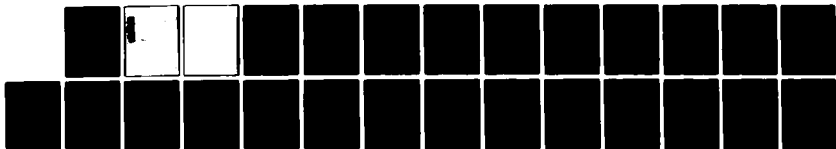
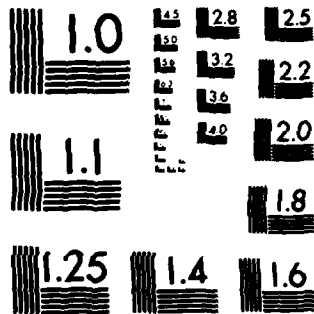


AD-A127 352 193188 MLRS MISSILE NUMBERS DK-106 DK-105 ROUND NUMBERS 1/1
V-417/PW-08 V-418..(U) ARMY ELECTRONICS RESEARCH AND
DEVELOPMENT COMMAND WSMR NM ATM.. D C KELLER FEB 83
UNCLASSIFIED ERADCOM/ASL-DR-1289 F/G 4/2 NL

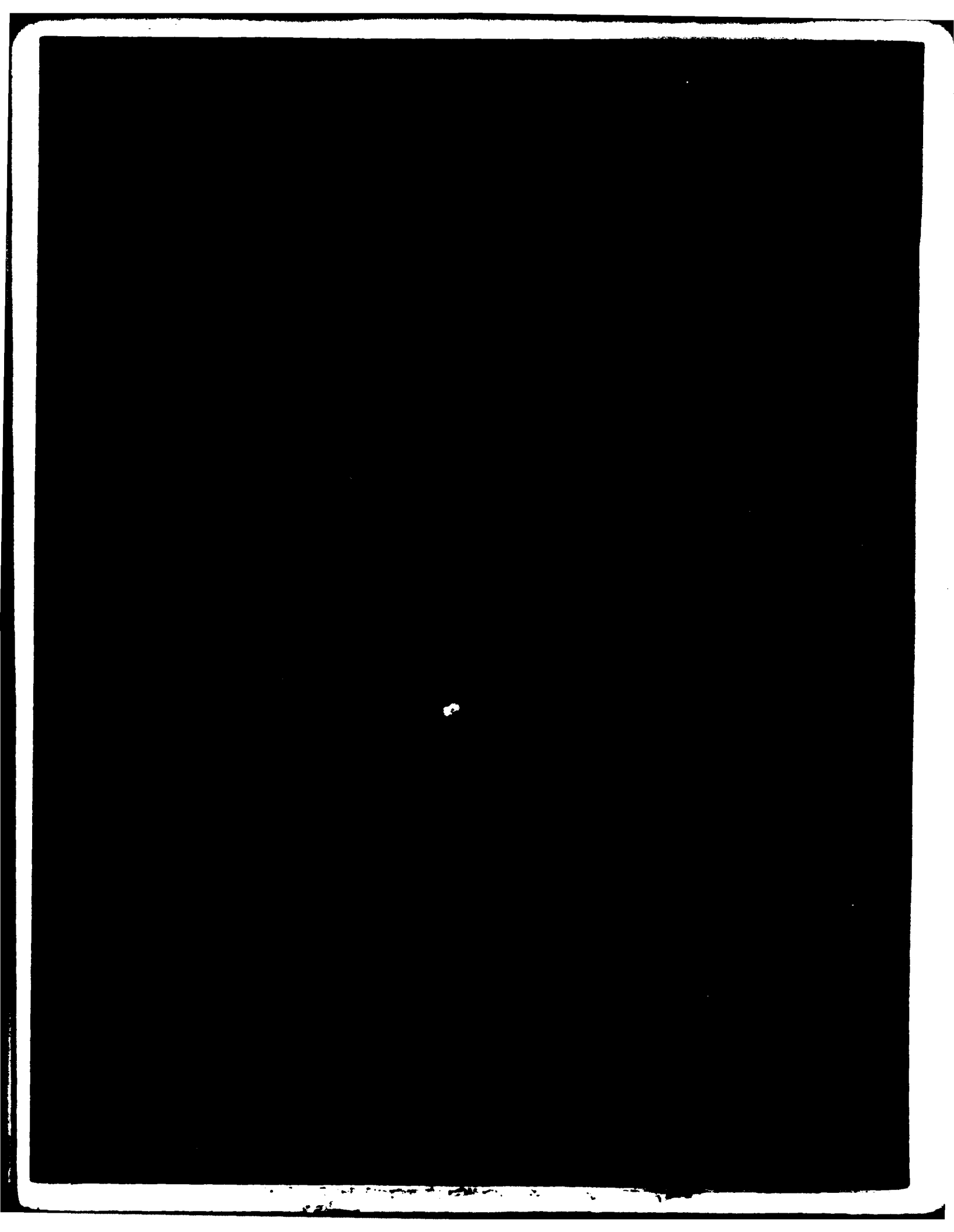


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1. REPORT NUMBER DR 1299	2. GOVT ACCESSION NO. AD-A127352	3. RECIPIENT'S CATALOG NUMBER
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	6. PERFORMING ORG. REPORT NUMBER	
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 193108 MLRS, Missile Number DK-106, DK-105, Round Number V-417/PII-08, V-418/PII-09 are presented in tabular form.		

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INTRODUCTION

193188 MILRS, Missile Numbers DK-106, and DK-105, Round Numbers V-417/PW-08 and V-418/PW-09, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0839:26 and 0839:31 MST, 14 Feb 1983. The scheduled launch times were 0835:00 and 0835:04.5 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 ($^{\circ}\text{C}$), 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

LC-33	2 km
DOH	2 km

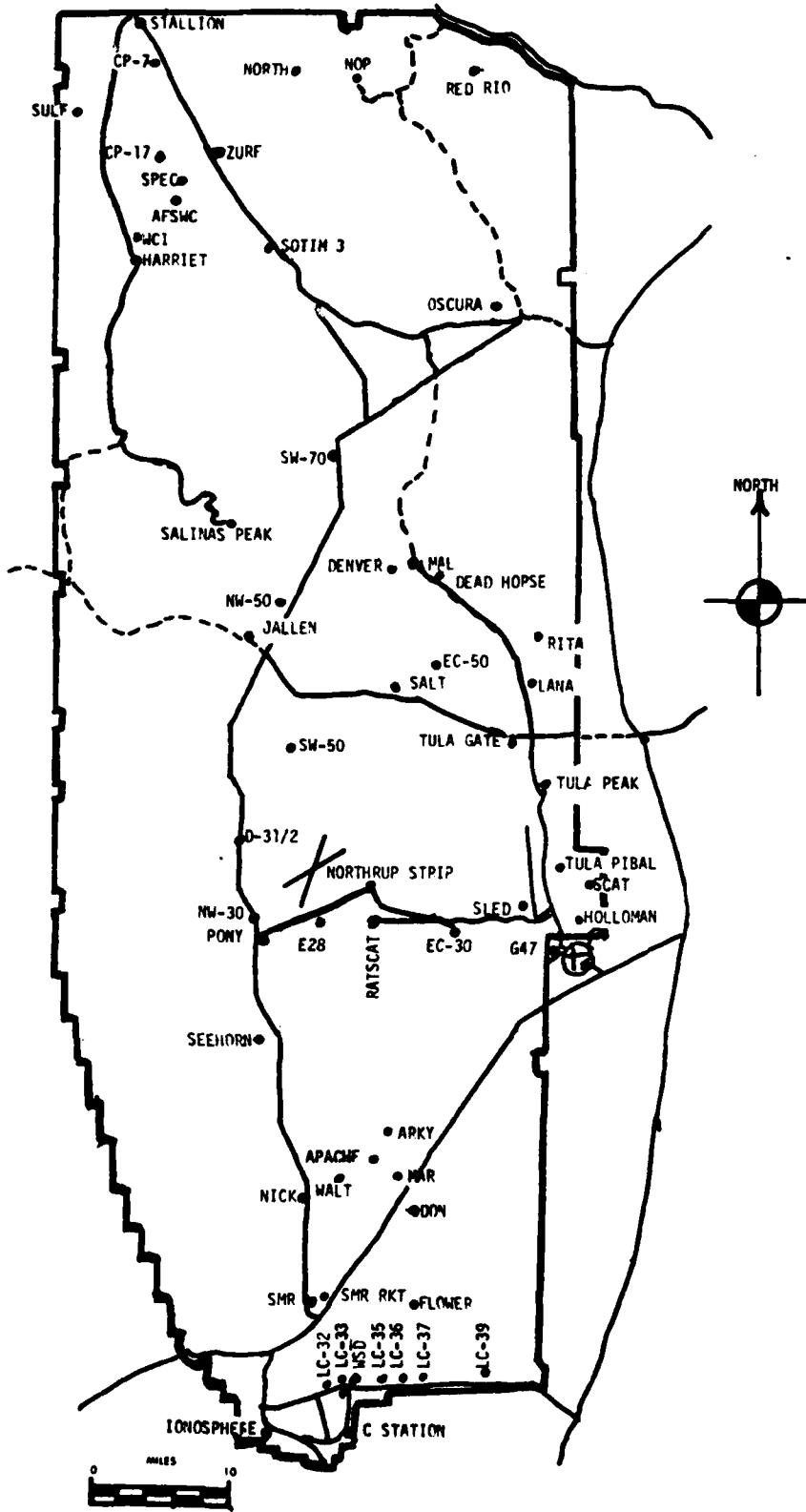
(2) Air structure data (rawinsonde) were collected at the following Met Site:

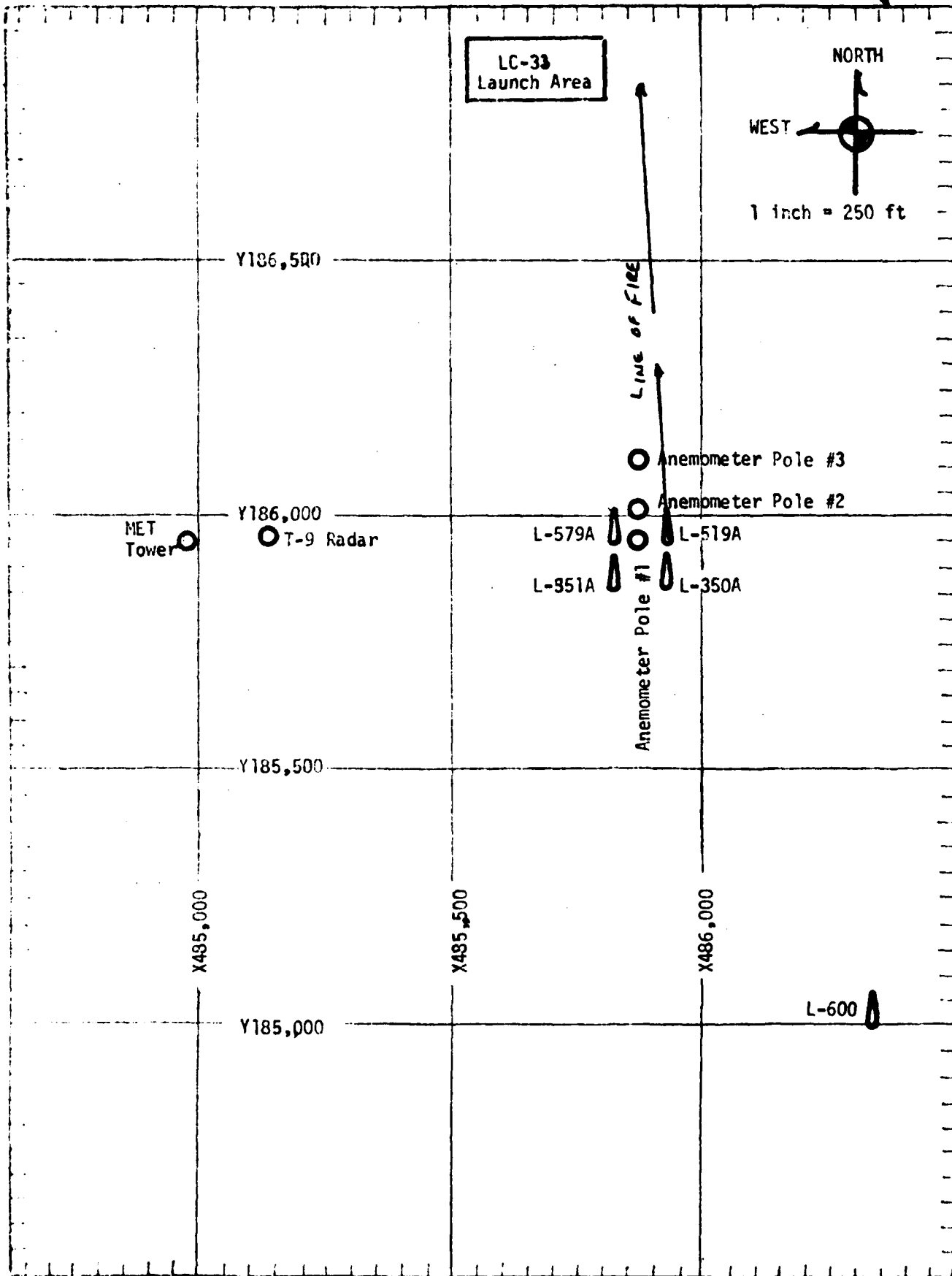
SITE AND TIME

WSD	0650 MST
LC-37	0730 MST
WSD	0830 MST

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WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE 1
 STATION: LC-33 F&A
 DATE: 16 DAY 08 MONTH 80 YEAR
 X = 484,992.64 Y = 105,957.73 H = 3005.00

TIME M	PRESSURE mb	TEMPERATURE CF	TEMPERATURE OC	DEW POINT OF OC	RELATIVE HUMIDITY %	DENSITY gm/m ³	DIRECTION degs Tn	SPEED kts	WIND CHARACTER kts	VISIBIL- ITY

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS		
	1st LAYER		2nd LAYER		3rd LAYER				
	AMT	HGT	AMT	HGT	AMT	HGT			
1	CU	4000	4	SC	4500	4	AC	10000	VTRCA MW

PSYCHROMETRIC COMPUTATION

TIME: MST	0830
DRY BULB TEMP.	5.1
WET BULB TEMP.	3.2
WET BULB DEPR.	1.9
DEW POINT	1.0
RELATIVE HUMID.	75

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	276	05	-30	285	03	-30	299	05
-20	288	05	-20	285	04	-20	314	08
-10	282	05	-10	285	03	-10	320	10
0.0	268	04	0.0	299	04	0.0	312	10
+10	305	06	+10	305	05	+10	313	09

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	298	06	-30	288	06
-20	313	05	-20	295	06
-10	307	05	-10	297	07
0.0	311	05	0.0	300	05
+10	310	04	+10	296	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	303	07	-30	305	10
-20	306	09	-20	310	08
-10	313	08	-10	310	08
0.0	315	07	0.0	288	08
+10	312	08	+10	301	09

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 14 February 1983

SITE: LC-33
 TIME: 0839 MST
 WSTM COORDINATES:
 X= 494,837.36
 Y= 104,124.44
 H= 3,975.57

SITE: 000
 TIME: 0839 MST
 WSTM COORDINATES:
 X= 511,938.37
 Y= 247,396.36
 H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	311	04
150	311	04
210	320	05
270	329	05
330	336	05
390	341	05
500	347	06
650	343	09
800	338	12
950	335	14
1150	330	13
1350	327	26
1550	325	30
1750	323	31
2000	320	32

Data obtained from a double Theodolite tracked pilot-balloon observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	000	02
150	026	03
210	020	10
270	014	12
330	000	13
390	360	14
500	341	14
650	322	15
800	313	20
950	310	26
1150	313	31
1350	305	33
1550	292	29
1750	297	24
2000	302	21

Data obtained from a single Theodolite tracked pilot-balloon observation.

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ARRIVING AND T-TIME COMPUTER NET MESSAGES
 14 February 1983

USD 0650 MST
 METCOM1324064
 141300122072
 00010004 27720073
 01503005 27760063
 02544023 27690037
 03524020 27370796
 04517030 27070748
 05512044 26790702
 06490043 26310650
 07496045 25900627
 08500040 25600577
 09500032 25100540

LC-37
 METCOM1324063
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 01500013 27900061
 02505017 27740035
 03561010 27420795
 04523030 27050747
 05511040 26690701
 06490045 26300657
 07507043 25910616
 08504030 25600577
 09490041 26260539

USD 0830 MST
 METCOM1324064
 141550122074
 00490003 28050874
 01507005 27960863
 02622008 27710837
 03632017 27330797
 04506024 26980748
 05546027 26460702
 06527029 26000650
 07525020 25700620
 08510030 25330570
 09496035 25000530

ALTITUDE 5000.00 FEET MSL
 19 FEB. 63
 ASCENDING: 180. 76

STATIONARY LEVEL DATA
 0450Z0076
 WHITE SANDS
 20017-2

GEODETIC COORDINATES
 32.40093 LAT DEG
 106.37033 LONG DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE FEET	TEMPERATURE		RELATIVE HUMIDITY
		AIR DEGREES CENTIGRADE	WET-BULB DEGREES CENTIGRADE	
873.9	5089.0	3.0	1.2	88.0
861.2	4768.2	3.8	-1.5	88.0
850.0	4713.8	3.0	-0.0	79.0
840.5	5020.1	3.4	-0.6	75.0
800.4	6309.6	0.0	-2.7	62.0
771.0	7092.5	-1.4	-0.8	57.0
751.0	7965.0	-2.8	-9.9	58.0
731.6	8659.8	-3.4	-10.0	57.0
700.0	9800.0	-6.6	-19.1	36.0
656.0	11954.8	-10.5	-26.9	24.0
620.5	12533.5	-12.9	-24.8	36.0
625.0	12673.4	-13.1	-21.5	50.0
613.6	13250.8	-13.5	-20.0	28.0
567.2	15083.2	-18.4	-28.9	39.0
500.0	18133.4	-25.7	-36.5	30.0

GEODETIC COORDINATES
 32.40045 LAT LEG
 106.37033 LONG LEG

UPPER AIR DATA
 0450020070
 WHITE SANDS
 TABLE-7

STATION ALTITUDE 5000.0 FEET MSL
 19 FEB. 63 9650 HRS. (Z)
 OBSERVATION NO. 76

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM ³ METER	SPEED OF SOUND KINOTS	WIND DATA U, V (KNOTS)	INDEX OF REFRACTION
3089.0	873.4	3.0	30.0	1070.0	648.3	10.0	1.000278
4000.0	873.0	3.0	47.4	1090.1	648.4	0.4	1.000270
4500.0	850.8	3.8	71.1	1075.1	649.1	32.0	1.000278
5000.0	840.4	3.0	75.1	1050.4	640.7	307.0	1.000264
5500.0	825.2	2.1	77.6	1041.7	647.2	300.7	1.000260
6000.0	807.8	0.8	70.3	1027.2	645.6	297.3	1.000255
6500.0	794.6	-0.3	77.2	1012.2	644.3	295.2	1.000249
7000.0	779.6	-1.0	64.4	996.1	643.3	293.8	1.000241
7500.0	764.4	-1.8	57.3	980.6	642.2	292.4	1.000234
8000.0	750.4	-2.8	56.9	965.7	641.0	291.1	1.000230
8500.0	730.1	-3.3	41.8	949.2	640.3	289.9	1.000222
9000.0	722.0	-4.4	36.7	935.0	639.0	288.7	1.000217
9500.0	708.2	-5.8	36.3	921.9	637.3	287.2	1.000213
10000.0	694.5	-7.0	34.5	908.6	635.7	285.6	1.000209
10500.0	681.0	-8.2	30.4	894.6	634.3	284.1	1.000205
11000.0	667.8	-9.3	27.3	881.3	633.0	281.6	1.000201
11500.0	654.6	-10.4	24.5	867.9	631.6	279.0	1.000197
12000.0	642.0	-11.6	20.1	854.7	630.2	276.7	1.000193
12500.0	629.3	-12.8	15.6	841.7	628.7	270.7	1.000187
13000.0	616.4	-13.5	12.7	828.7	628.1	260.0	1.000184
13500.0	604.0	-14.2	10.5	815.0	627.1	277.1	1.000184
14000.0	592.0	-15.5	12.5	800.9	625.5	274.6	1.000182
14500.0	580.7	-16.0	15.5	789.0	623.0	262.3	1.000179
15000.0	569.1	-17.2	18.5	777.3	622.2	265.5	1.000176
15500.0	557.5	-19.4	19.1	765.1	620.7	262.0	1.000173
16000.0	546.1	-20.6	14.1	753.0	619.2	61.9	1.000170
16500.0	534.0	-21.3	17.0	741.2	617.7	3.0	1.000167
17000.0	524.2	-23.0	17.1	729.5	616.3	3.0	1.000165
17500.0	513.5	-24.2	16.5	718.0	614.8	3.0	1.000162
18000.0	502.8	-25.4	16.1	706.7	613.3	3.0	1.000159

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STATION ALTITUDE 5200.00 FEET (1584)
 IN FEB. 65
 ACCELERATOR 140. 76

PARAMETER LEVELS
 0450020076
 WHITE 500000
 TAP 100000

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

PRESSURE (EQUENTIAL) MILLIBARS	TEMPERATURE ATP DEGREES CELSIUS	RELATIVE HUMIDITY PERCENT	WIND DATA	
			DIRECTION DEGREES (TR)	SPEED KNOTS
850.0	3.8	70.	313.0	0.8
700.0	7.0	82.	295.7	24.5
750.0	-2.8	57.	291.1	37.2
700.0	-6.6	36.	280.3	43.1
650.0	-10.9	27.	270.0	43.5
600.0	-14.7	31.	270.0	39.9
550.0	-20.2	36.	282.2	38.2
500.0	-25.7	36.		

STATION ALTITUDE 4051.37 FEET MSL
 14 FEB. 43 0730 HRS MST
 ASCENSION NO. 9

SIGNIFICANT LEVEL DATA
 0450160009
 LC-37
 TABLE-O

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
871.9	4051.4	3.1	2.1	93.0
860.2	4412.3	4.5	.3	74.0
850.0	4731.6	4.4	-1.8	64.0
830.3	5229.9	3.9	-7.2	44.0
813.9	5888.8	2.4	-10.8	37.0
763.5	7571.4	-2.2	-12.5	45.0
743.9	8249.3	-2.8	-17.2	32.0
700.0	9821.9	-6.5	-24.1	23.0
651.7	11646.5	-9.7	-28.4	20.0
600.5	13372.2	-14.1	-22.7	48.0
591.7	14070.0	-14.7	-25.5	39.0
550.5	15097.5	-18.3	-29.6	36.0
542.7	16199.4	-20.2	-28.8	46.0
526.7	16925.9	-22.1	-31.5	42.0
511.5	17631.4	-24.0	-31.6	49.0
500.0	18175.2	-25.9	-31.0	62.0

STATION ALTITUDE 4051.37 FEET P SL
 14 FEB. 43
 ASCENSION NO. 9

UPPER AIR DATA
 0450180009
 LC-37
 TABLE 10

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4051.4	871.9	3.1	2.1	93.0	1096.1	648.5	0	0	1.000279
4500.0	857.4	4.5	-3	71.3	1073.0	650.0	303.7	4.1	1.000269
5000.0	841.5	4.1	-4.5	51.2	1055.2	649.4	303.7	8.6	1.000257
5500.0	825.4	3.3	-8.6	41.1	1039.3	648.2	303.7	13.1	1.000247
6000.0	810.5	2.1	-10.9	37.5	1024.5	646.7	303.7	17.6	1.000242
6500.0	795.2	.7	-11.3	32.9	1010.3	645.1	303.7	22.1	1.000238
7000.0	780.3	-0.6	-11.8	42.3	996.2	643.5	303.7	26.7	1.000235
7500.0	765.6	-2.0	-12.4	44.7	982.5	641.9	299.5	31.6	1.000231
8000.0	751.0	-2.6	-15.3	36.8	966.1	641.1	296.1	36.7	1.000225
8500.0	736.7	-3.4	-17.2	30.6	950.7	640.1	293.4	41.7	1.000219
9000.0	722.6	-4.6	-20.4	27.7	936.7	638.7	290.2	43.5	1.000215
9500.0	708.8	-5.7	-22.6	24.8	922.9	637.2	287.3	45.5	1.000211
10000.0	695.1	-6.8	-24.6	22.7	908.8	635.9	284.8	47.2	1.000207
10500.0	681.6	-7.7	-25.7	21.9	894.2	634.9	283.8	47.2	1.000203
11000.0	668.4	-8.6	-26.9	21.1	879.7	633.9	282.7	47.3	1.000200
11500.0	655.5	-9.4	-28.0	20.2	865.6	632.7	281.6	47.4	1.000196
12000.0	642.6	-10.6	-26.4	25.7	852.3	631.4	282.3	46.4	1.000194
12500.0	630.0	-11.9	-24.6	33.8	839.5	629.9	283.0	45.4	1.000192
13000.0	617.6	-13.2	-23.3	42.0	827.0	628.4	283.8	44.4	1.000189
13500.0	605.4	-14.2	-21.2	46.4	814.0	627.1	284.2	43.4	1.000187
14000.0	593.4	-14.6	-25.2	39.9	799.2	626.5	283.2	42.2	1.000182
14500.0	581.5	-15.8	-26.8	38.1	786.8	625.1	283.2	41.0	1.000179
15000.0	569.9	-17.0	-28.2	37.0	774.8	623.6	282.3	41.0	1.000176
15500.0	558.4	-18.3	-29.6	36.0	763.1	622.0	281.2	39.8	1.000173
16000.0	547.1	-19.7	-29.0	43.2	751.6	620.4			1.000171
16500.0	536.0	-21.0	-29.9	44.3	740.3	618.7			1.000168
17000.0	525.1	-22.3	-31.5	42.7	729.0	617.1			1.000165
17500.0	514.3	-23.6	-31.6	47.7	717.9	615.5			1.000163
18000.0	503.7	-25.3	-31.1	57.8	707.7	613.4			1.000160

STATION ALTITUDE 4051.37 FEET MSL
 IN PER. 1.3
 ASCENSION NO. 9

MANDATORY LEVELS
 0450180009
 LC-37
 TABLE-12

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

PRESSURE GEOPOTENTIAL MILLIBARS	FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA DIRECTION SPEED KNOTS
850.0	4728.	4.4	64.	303.7 6.1
800.0	6340.	1.2	39.	303.7 20.7
750.0	8030.	-2.6	36.	295.9 37.0
700.0	9812.	-6.5	23.	285.8 46.8
650.0	11700.	-9.9	21.	281.9 47.0
600.0	13707.	-14.4	43.	285.8 42.9
550.0	15853.	-19.3	41.	
500.0	18150.	-25.9	62.	

STATION ALTITUDE 3989.00 FEET MSL
 14 FEB. 43
 ASCENSION NO. 77

SIGNIFICANT LEVEL DATA
 0450020077

WHITE SANDS
 TABLE 1

GEODETIC COORDINATES
 32.40093 LAT DEG
 106.37033 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
874.0	3989.0	6.3	66.0
864.0	4298.5	5.5	41.0
850.0	4736.1	4.2	42.0
780.8	6679.8	-1.2	56.0
780.0	7006.6	-1.9	57.0
759.4	7703.5	-3.9	65.0
749.6	8040.0	-4.7	61.0
700.0	9795.6	-9.4	97.0
673.4	10776.5	-11.5	99.0
594.5	13876.7	-18.5	97.0
569.8	14913.2	-20.8	79.0
522.5	17005.5	-24.3	73.0
500.0	18055.8	-26.7	70.0
478.3	19102.8	-29.8	69.0
456.9	20171.4	-31.9	82.0
431.6	21486.6	-35.2	69.0
427.1	21727.4	-34.4	42.0
408.0	22790.1	-29.8	16.0
400.0	23253.5	-30.8	16.0
376.0	24692.1	-33.0	16.0
370.6	25027.4	-32.3	16.0
332.8	27502.8	-36.6	16.0
316.2	28667.5	-37.5	16.0
310.6	29074.5	-36.3	16.0
301.3	29769.9	-35.5	16.0
300.0	29869.3	-34.4	16.0
295.4	30225.5	-33.8	16.0
284.8	31068.8	-33.9	16.0
250.0	34042.3	-39.3	16.0
242.0	34773.9	-40.6	16.0
237.2	35224.0	-39.9	16.0
223.8	36527.0	-41.9	16.0
219.4	36970.7	-41.2	16.0
200.0	39034.4	-43.1	16.0
192.9	39840.2	-41.2	16.0
171.0	42525.6	-43.4	16.0
150.0	45199.9	-48.5	16.0
144.9	46150.0	-48.7	16.0
110.7	51837.6	-60.2	16.0
100.7	53769.9	-63.7	16.0

STATION ALTITUDE 3989.00 FEET MSL
 14 FEB. 63 0830 HRS MST
 ASCENSION NO. 77

SIGNIFICANT LEVEL DATA
 0450020077
 WHITE SANDS
 TABLE-12 cont'd

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MFL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
100.0	53.0	11.5	-62.6
97.5	54.2	7.9	-61.6
92.7	57.5	3.2	-66.8
78.3	58.4	5.6	-66.2
75.3	59.6	2.7	-68.1
72.1	60.4	4.4	-68.3
70.0	61.0	7.0	-62.7
63.1	63.2	16.4	-57.5
50.0	67.0	80.4	-65.6
44.5	70.3	44.5	-61.5
38.3	73.4	23.2	-60.9
32.5	76.8	33.4	-56.5
30.0	78.5	10.1	-57.3
26.3	81.2	69.2	-56.3
20.0	87.0	69.9	-52.9
14.1	94.6	62.4	-45.5
10.9	100.3	54.4	-45.1

STATION ALTITUDE 3989.00 FEET MSL
 14 FEB. 63 0830 HRS MST
 ASCENSION NO. 77

UPPER AIR DATA
 0450020077
 WHITE SANDS
 TABLE 1

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (DEGREES TRUE)	SPEED (KNOTS)	INDEX OF REFRACTION
3989.00	874.00	6.3	4	66.0	1086.6	652.1	270.0	2.9	1.000273
4000.0	873.6	6.3	.2	65.1	1086.3	652.1	271.4	2.9	1.000272
4500.0	857.5	4.9	-7.1	41.5	1072.7	650.1	325.6	4.1	1.000257
5000.0	841.6	3.5	-7.6	43.4	1058.2	648.4	345.4	7.0	1.000253
5500.0	825.4	2.1	-7.9	47.5	1043.6	646.8	353.3	10.1	1.000249
6000.0	810.4	.7	-8.2	51.1	1029.3	645.2	356.5	13.4	1.000246
6500.0	795.2	-7.7	-8.7	54.7	1015.2	643.5	350.2	16.2	1.000242
7000.0	780.2	-1.9	-9.3	57.0	1000.5	642.1	345.7	19.1	1.000238
7500.0	765.4	-3.3	-9.4	62.7	986.6	640.4	338.6	20.8	1.000235
8000.0	750.8	-4.6	-10.9	61.5	972.6	638.0	332.7	22.9	1.000231
8500.0	736.3	-5.9	-10.4	70.4	958.5	637.3	325.0	23.9	1.000228
9000.0	722.1	-7.3	-10.0	40.7	944.7	635.7	317.8	25.2	1.000226
9500.0	708.1	-8.6	-9.8	30.9	931.0	634.1	311.2	26.2	1.000223
10000.0	694.4	-9.8	-10.2	97.4	917.3	632.7	305.0	26.9	1.000220
10500.0	680.4	-10.9	-11.1	98.4	903.1	631.3	299.9	27.8	1.000216
11000.0	667.4	-12.0	-12.1	98.9	889.1	630.0	297.8	28.3	1.000211
11500.0	654.1	-13.1	-13.3	98.5	875.2	628.8	295.9	28.9	1.000207
12000.0	641.1	-14.3	-14.5	98.2	861.6	627.2	296.9	29.7	1.000203
12500.0	628.3	-15.4	-15.6	97.9	848.3	625.8	297.7	30.5	1.000199
13000.0	615.8	-16.5	-16.8	97.6	835.1	624.4	298.6	30.1	1.000195
13500.0	603.6	-17.6	-18.0	97.2	822.2	623.0	295.2	29.7	1.000192
14000.0	591.5	-18.8	-19.4	94.9	809.4	621.6	292.6	29.5	1.000188
14500.0	579.5	-19.9	-21.6	86.2	796.6	620.2	289.8	29.5	1.000184
15000.0	567.8	-20.9	-23.6	78.8	783.8	618.4	285.8	30.6	1.000180
15500.0	556.1	-21.8	-24.7	77.3	770.3	617.8	282.0	31.8	1.000177
16000.0	544.7	-22.6	-25.7	75.9	757.0	616.8	276.7	33.6	1.000173
16500.0	533.6	-23.5	-26.7	74.4	744.0	615.8	272.0	35.6	1.000170
17000.0	522.6	-24.3	-27.7	73.0	731.3	614.7	269.7	37.3	1.000167
17500.0	511.8	-25.4	-29.0	71.6	719.4	613.3	267.9	39.0	1.000164
18000.0	501.2	-26.6	-30.3	70.2	707.8	611.9	266.9	40.6	1.000161
18500.0	490.7	-28.0	-31.8	69.6	697.1	610.1	267.0	41.8	1.000158
19000.0	480.4	-29.5	-33.3	69.1	686.6	608.2	267.0	43.1	1.000155
19500.0	470.2	-30.6	-33.7	73.8	675.1	606.8	267.5	44.0	1.000153
20000.0	460.3	-31.6	-33.9	74.9	663.5	605.6	268.0	44.8	1.000150
20500.0	450.4	-32.7	-35.1	78.8	652.5	604.1	269.8	45.4	1.000147
21000.0	440.8	-34.0	-37.0	73.8	641.9	602.6	273.0	46.1	1.000145
21500.0	431.3	-35.2	-39.0	67.5	631.3	601.1	277.7	48.0	1.000142
22000.0	422.1	-35.2	-43.3	35.3	612.8	603.5	283.4	47.7	1.000137
22500.0	413.1	-31.1	-45.2	23.1	594.4	606.2	289.9	45.9	1.000133
23000.0	404.4	-30.3	-47.8	16.0	579.9	607.2	295.8	43.2	1.000130

STATION ALTITUDE 3909.00 F. T. SL
 14 FEB. 63 0830 HRS MST
 ASCENSION NO. 77

UPPER AIR DATA
 0450020077
 WHITE SANDS
 (Part of cont'd)

GEODETLIC COORDINATES
 32.40043 LAT DEG
 106.37033 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	WIND DIRECTION (DEGREES (TN))	WIND SPEED KNOTS	INDEX OF REFRACTION
23500.0	395.8	-31.2	-48.6	16.0	569.8	600.0	302.2	41.3	1.000127
24000.0	387.4	-31.9	-49.2	16.0	559.4	605.1	307.7	40.9	1.000125
24500.0	379.1	-32.7	-49.9	16.0	549.3	604.1	312.8	40.8	1.000123
25000.0	371.0	-33.4	-50.6	16.0	536.8	604.5	315.9	40.9	1.000120
25500.0	363.1	-33.1	-50.2	16.0	526.9	603.0	315.0	41.1	1.000118
26000.0	355.3	-34.0	-50.9	16.0	517.5	602.5	312.9	39.6	1.000116
26500.0	347.6	-34.4	-51.7	16.0	508.2	601.4	310.4	38.1	1.000114
27000.0	340.2	-35.7	-52.4	16.0	499.1	600.3	307.0	35.2	1.000111
27500.0	332.8	-36.6	-53.1	16.0	490.1	599.2	302.8	32.0	1.000109
28000.0	325.6	-37.0	-53.5	16.0	480.3	598.7	295.2	33.8	1.000107
28500.0	318.5	-37.4	-53.8	16.0	470.6	598.2	289.3	38.4	1.000105
29000.0	311.6	-38.5	-53.1	16.0	458.7	599.3	287.9	41.7	1.000102
29500.0	304.9	-35.8	-52.5	16.0	447.5	600.2	286.5	35.9	1.000100
30000.0	298.3	-34.2	-51.1	16.0	434.0	602.3	288.4	33.9	1.000097
30500.0	291.9	-33.8	-50.8	16.0	424.9	602.7	291.2	32.7	1.000095
31000.0	285.6	-33.9	-50.9	16.0	415.9	602.0	293.5	30.5	1.000093
31500.0	279.5	-34.7	-51.5	16.0	408.2	601.6	296.0	28.2	1.000091
32000.0	273.4	-35.6	-52.3	16.0	400.9	600.5	296.8	26.1	1.000090
32500.0	267.5	-36.5	-53.0	16.0	393.7	599.3	293.0	24.5	1.000088
33000.0	261.7	-37.4	-53.8	16.0	386.7	598.2	288.7	23.0	1.000086
33500.0	256.0	-38.3	-54.6	16.0	379.8	597.0	283.5	23.0	1.000085
34000.0	250.5	-39.2	-55.3	16.0	373.0	595.9	278.3	24.2	1.000083
34500.0	245.0	-40.1	-55.3	16.0	366.2	594.7	274.5	26.3	1.000082
35000.0	239.6	-40.2	-63.6	6.0**	358.4	594.5	275.9	32.1	1.000080
35500.0	234.3	-40.3			350.6	594.4	276.7	37.9	1.000078
36000.0	229.1	-41.1			344.0	593.5	276.3	42.2	1.000077
36500.0	224.1	-41.9			337.5	592.5	275.0	45.2	1.000075
37000.0	219.1	-41.2			329.1	593.3	274.8	41.7	1.000073
37500.0	214.3	-41.7			322.5	592.7	274.2	39.1	1.000072
38000.0	209.5	-42.1			315.9	592.1	274.5	37.9	1.000070
38500.0	204.9	-42.6			309.5	591.5	274.5	37.5	1.000069
39000.0	200.3	-43.1			303.3	590.9	274.4	37.3	1.000068
39500.0	195.4	-42.0			295.2	592.3	275.0	40.1	1.000066
40000.0	191.3	-41.3			287.8	593.2	277.3	43.5	1.000064
40500.0	187.3	-41.7			281.9	592.0	270.4	47.0	1.000063
41000.0	183.1	-42.2			276.2	592.1	279.4	50.5	1.000062
41500.0	179.1	-42.6			270.5	591.0	277.6	45.7	1.000060
42000.0	175.1	-43.0			265.0	591.1	275.0	40.3	1.000059
42500.0	171.2	-43.4			259.6	590.5	272.3	37.6	1.000058
43000.0	167.3	-44.2			254.7	589.4	269.8	36.7	1.000057

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

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GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

UPPER AIR DATA
 0450020077
 WHITE SANDS
 TABLE-13 Cont'd

STATION ALTITUDE 3989.00 F ET MSL
 14 FEB. 53
 0830 HRS MST
 ASCENSION NO. 11

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 DATA SPEED KNOTS	INDEX OF REFRACTION
43500.0	163.6	-45.1		249.9	586.3	268.4	37.0	1.000056
44000.0	159.9	-46.0		245.2	587.1	269.6	40.2	1.000055
44500.0	156.3	-46.9		240.6	586.0	270.6	43.5	1.000054
45000.0	152.8	-47.8		236.1	584.8	272.8	41.5	1.000053
45500.0	149.3	-48.7		231.6	583.9	275.3	39.2	1.000052
46000.0	145.9	-48.7		226.4	583.7	276.5	37.3	1.000050
46500.0	142.5	-49.4		221.9	582.7	276.6	35.6	1.000049
47000.0	139.2	-50.4		217.7	581.4	276.1	35.8	1.000048
47500.0	135.9	-51.4		213.6	580.1	275.3	37.1	1.000048
48000.0	132.8	-52.4		209.5	578.8	277.4	38.1	1.000047
48500.0	129.6	-53.5		205.6	577.4	280.9	39.0	1.000046
49000.0	126.6	-54.5		201.7	576.1	282.9	39.7	1.000045
49500.0	123.7	-55.5		197.9	574.8	283.6	40.2	1.000044
50000.0	120.8	-56.5		194.2	573.4	284.1	40.5	1.000043
50500.0	117.9	-57.5		190.5	572.1	286.6	38.0	1.000042
51000.0	115.2	-58.5		186.9	570.8	276.7	35.7	1.000042
51500.0	112.5	-59.5		183.4	569.4	271.5	33.1	1.000041
52000.0	109.8	-60.5		179.9	568.1	264.8	30.6	1.000040
52500.0	107.2	-61.4		176.3	566.9	257.5	27.6	1.000039
53000.0	104.6	-62.3		172.8	565.7	248.9	24.2	1.000038
53500.0	102.0	-63.2		169.3	564.5	240.0	20.7	1.000038
54000.0	99.6	-64.4		164.6	563.5	230.5	16.4	1.000037
54500.0	97.2	-64.7		160.1	562.5	221.0	13.1	1.000036
55000.0	94.8	-65.5		156.7	561.4	217.3	10.5	1.000035
55500.0	92.5	-66.3		153.5	560.4	211.0	8.0	1.000034
56000.0	90.2	-67.1		150.3	559.3	227.7	6.4	1.000033
56500.0	88.0	-67.8		147.2	562.3	243.2	6.1	1.000033
57000.0	85.8	-68.6		144.1	561.2	271.0	7.1	1.000032
57500.0	83.7	-69.4		141.1	560.2	274.1	11.0	1.000031
58000.0	81.7	-70.2		137.8	559.0	274.8	15.1	1.000031
58500.0	79.7	-70.9		134.2	558.2	272.5	18.6	1.000030
59000.0	77.7	-71.6		131.0	559.9	259.8	20.0	1.000029
59500.0	75.8	-72.3		128.5	558.3	249.2	22.3	1.000029
60000.0	73.9	-73.0		125.6	557.7	243.1	24.3	1.000028
60500.0	72.0	-73.7		122.4	557.0	239.4	26.0	1.000027
61000.0	70.3	-74.4		116.7	564.2	236.6	27.6	1.000026
61500.0	68.6	-75.1		113.0	566.5	242.7	26.0	1.000025
62000.0	66.9	-75.8		109.6	568.2	249.5	24.7	1.000024
62500.0	65.3	-76.5		106.4	569.8	259.2	21.6	1.000024
63000.0	63.8	-77.2		103.3	571.4	278.3	16.8	1.000023

UPPER AIR DATA
 0450020077
 WHITE SANDS
 TABLE 77 CONT'D

STATION ALTITUDE 3989.00 FT. T MSL
 14 FEB. 63 0830 HRS MST
 ASCENSION NO. 77

GEODETI. COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION (DEGREES(TN))	SPEED KNOTS	
63500.0	62.2	-58.0	100.0	571.5	306.5		14.8	1.000022
64000.0	60.7	-58.8	98.7	570.3	332.7		14.4	1.000022
64500.0	59.3	-59.7	96.7	569.2	352.7		16.8	1.000022
65000.0	57.8	-60.5	94.8	568.1	12.1		16.6	1.000021
65500.0	56.4	-61.4	92.8	566.9	30.5		15.4	1.000021
66000.0	55.1	-62.2	91.0	565.8	45.7		15.2	1.000020
66500.0	53.7	-63.1	89.1	564.6	49.1		13.5	1.000020
67000.0	52.5	-63.9	87.3	563.5	53.6		11.9	1.000019
67500.0	51.2	-64.8	85.6	562.4	40.7		9.9	1.000019
68000.0	50.0	-65.6	83.8	561.3	20.3		8.9	1.000019
68500.0	48.7	-64.7	81.4	562.5	10.8		8.0	1.000018
69000.0	47.5	-63.8	79.1	563.6	21.1		8.9	1.000018
69500.0	46.4	-63.0	76.9	564.8	9.2		8.9	1.000017
70000.0	45.3	-62.1	74.7	566.0	48.2		7.3	1.000017
70500.0	44.2	-61.5	72.7	566.8	78.4		6.0	1.000016
71000.0	43.1	-61.4	70.9	566.9	112.2		6.6	1.000016
71500.0	42.1	-61.3	69.2	567.1	138.8		8.5	1.000015
72000.0	41.1	-61.2	67.5	567.2	153.6		11.6	1.000015
72500.0	40.1	-61.1	65.8	567.3	164.2		10.6	1.000015
73000.0	39.1	-61.0	64.2	567.5	182.9		7.7	1.000014
73500.0	38.2	-60.8	62.6	567.7	215.4		6.3	1.000014
74000.0	37.3	-60.2	60.9	568.6	225.6		5.5	1.000014
74500.0	36.4	-59.5	59.3	569.4	238.3		5.0	1.000013
75000.0	35.5	-58.9	57.7	570.3	248.3		2.9	1.000013
75500.0	34.7	-58.2	56.2	571.1	61.3		2.1	1.000013
76000.0	33.8	-57.6	54.7	572.0	64.2		7.2	1.000012
76500.0	33.0	-56.9	53.2	572.9	61.9		9.9	1.000012
77000.0	32.2	-56.6	51.9	573.3	58.4		11.2	1.000012
77500.0	31.5	-56.8	50.7	573.0	55.7		12.5	1.000011
78000.0	30.7	-57.1	49.6	572.7	58.4		11.9	1.000011
78500.0	30.0	-57.3	48.4	572.4	63.0		10.8	1.000011
79000.0	29.3	-57.1	47.3	572.0	68.6		9.9	1.000011
79500.0	28.6	-56.9	46.1	572.0	63.7		9.9	1.000010
80000.0	27.9	-56.8	45.0	573.1	58.8		10.0	1.000010
80500.0	27.3	-56.6	43.9	573.3	54.1		10.1	1.000010
81000.0	26.6	-56.4	42.8	573.6	49.0		9.8	1.000010
81500.0	26.0	-56.2	41.8	573.9	43.7		9.6	1.000009
82000.0	25.4	-55.9	40.7	574.3	40.3		9.3	1.000009
82500.0	24.8	-55.6	39.7	574.6	40.6		8.8	1.000009
83000.0	24.2	-55.3	38.8	575.0	40.9		8.2	1.000009

UPPER AIR DATA
0450020077
WHITE SANDS
TABLE-13 CONT.

STATION ALTITUDE 3989.00 FT TUSL
14 FEB. 63 0830 HRS MST
ASCENSION NO. 77

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON 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
43500.0	23.7	-55.0		37.8	575.4	49.5	7.7	1.000008
54000.0	23.1	-54.7		36.9	575.8	66.3	7.7	1.000008
64500.0	22.6	-54.4		36.0	576.2	81.8	8.3	1.000008
75000.0	22.1	-54.1		35.1	576.6	93.7	9.0	1.000008
85500.0	21.5	-53.8		34.2	577.0	103.5	9.8	1.000008
96000.0	21.0	-53.5		33.4	577.3	111.7	10.8	1.000007
106500.0	20.5	-53.2		32.5	577.7	112.7	8.2	1.000007
117000.0	20.1	-52.9		31.7	578.1	112.2	4.9	1.000007
127500.0	19.6	-52.5		31.0	578.7	109.5	1.6	1.000007
138000.0	19.2	-52.0		30.2	579.4	104.5	1.0	1.000007
148500.0	18.7	-51.5		29.4	580.0	298.6	3.3	1.000007
159000.0	18.3	-51.0		28.7	580.6	297.5	5.7	1.000006
169500.0	17.9	-50.5		28.0	581.3	296.4	6.7	1.000006
180000.0	17.5	-50.0		27.3	581.9	294.4	6.2	1.000006
190500.0	17.1	-49.6		26.6	582.5	292.1	5.8	1.000006
201000.0	16.7	-49.1		25.9	583.2	290.7	5.4	1.000006
211500.0	16.3	-48.6		25.3	583.8	294.0	5.4	1.000006
222000.0	15.9	-48.1		24.7	584.4	297.4	5.3	1.000005
232500.0	15.6	-47.6		24.1	585.1	300.9	5.3	1.000005
243000.0	15.2	-47.1		23.5	585.7	301.7	6.1	1.000005
253500.0	14.9	-46.6		22.9	586.3	302.1	7.1	1.000005
264000.0	14.5	-46.1		22.3	587.0	302.5	8.0	1.000005
274500.0	14.2	-45.7		21.8	587.6	303.6	8.2	1.000005
285000.0	13.9	-45.5		21.2	587.8	305.2	7.9	1.000005
295500.0	13.6	-45.4		20.8	587.9	307.0	7.7	1.000005
306000.0	13.3	-45.4		20.3	587.9	302.7	8.0	1.000005
316500.0	13.0	-45.4		19.8	588.0	289.1	10.0	1.000004
327000.0	12.7	-45.3		19.4	588.0	280.4	12.4	1.000004
337500.0	12.4	-45.3		19.0	588.1	274.6	15.0	1.000004
348000.0	12.1	-45.3		18.5	588.1			1.000004
358500.0	11.9	-45.2		18.1	588.1			1.000004
369000.0	11.6	-45.2		17.7	588.2			1.000004
379500.0	11.3	-45.2		17.3	588.2			1.000004
390000.0	11.1	-45.1		16.9	588.3			1.000004

STATION ALTITUDE 3989.00 FEET SL
 14 FEB. 63 0830 HRS MST
 ASCENSION NO. 77

MANDATORY LEVELS
 0450020077
 WHITE SANDS
 TABLE-17

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	WIND DATA	
					DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4733.	4.2	-7.5	42.	337.4	5.4
800.0	6338.	-3	-8.5	54.	352.0	15.3
750.0	8019.	-4.7	-11.0	61.	332.4	25.0
700.0	9786.	-9.4	-9.8	97.	307.6	26.5
650.0	11653.	-13.5	-13.7	98.	290.3	29.1
600.0	13635.	-18.0	-18.3	97.	294.4	29.6
550.0	15751.	-22.2	-23.2	77.	279.2	32.7
500.0	18031.	-26.7	-30.5	70.	266.9	40.7
450.0	20494.	-32.8	-35.2	79.	269.8	45.4
400.0	23216.	-30.8	-48.3	16.	299.0	42.1
350.0	26303.	-34.6	-51.4	16.	311.2	38.6
300.0	29812.	-34.4	-51.3	16.	287.6	34.2
250.0	33970.	-39.3	-55.4	16.	278.1	24.3
200.0	38942.	-43.1			274.3	37.3
175.0	41907.	-43.0			275.0	40.4
150.0	45279.	-48.5			274.6	39.8
125.0	49167.	-55.0			263.3	40.0
100.0	53746.	-62.6			233.1	17.3
80.0	58224.	-66.4			275.1	18.3
70.0	60869.	-62.7			237.2	27.5
60.0	64034.	-59.3			344.2	15.2
50.0	67726.	-65.6			22.7	9.0
40.0	72204.	-61.1			154.0	10.7
30.0	78177.	-57.3			62.7	10.9
25.0	81971.	-55.7			40.4	9.0
20.0	86665.	-52.9			112.1	4.7
15.0	92838.	-46.8			301.9	0.6