AD-A094 841 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/0 4/2
19311A MLRS, MISSILE NUMBER V18-002, ROUND NUMBER V-131/DF-4, S--ETC(U)
DEC 80
UNCLASSIFIED ERADCOM/ASL-OR-1164 NL

1 OF 1
AD A094841

END
DATE FILMED
3-81
DTIC

DR 1164
DECEMBER 1980
AD

12

LEVEL II

METEOROLOGICAL DATA REPORT
19311A MLRS
MISSILE NO. V18-002
ROUND NO. V-131/DF-4
05 December 1980

by
White Sands Meteorological Team

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

DISPOSITION INSTRUCTIONS

Destroy this report when it is no longer needed. Do not return to the originator.

DISCLAIMER

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

The citation of trade names and names of manufacturers in this report is not to be construed as official Government indorsement or approval of commercial products or services referenced herein.

(14) ERADCOM/ASL-DR-1164

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER: DR 1164 (Nimbus) 2. GOVT ACCESSION NO.: AD A094841	3. RECIPIENT'S CATALOG NUMBER: 1
4. TITLE (and Subtitle): (6) 19311A MLRS, Missile No. V18-002, Round Number V-131/DF-4, 5 December 1980	5. TYPE OF REPORT & PERIOD COVERED
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): (Meteorology Laboratory) White Sands Meteorological Team	8. CONTRACT OR GRANT NUMBER(s): (16) DA Task 1F665702D127-02
9. PERFORMING ORGANIZATION NAME AND ADDRESS: (12) 29	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: (17) 02
11. CONTROLLING OFFICE NAME AND ADDRESS: US Army Electronics Research & Development Cmd (11) Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002	12. REPORT DATE: December 1980 / 13. NUMBER OF PAGES: 19
14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*: US Army Electronics Research & Development Cmd Adelphi, MD 20783	15. SECURITY CLASS. *(of this report)*: UNCLASSIFIED / 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

Approved for public release; distribution unlimited.

18. SUPPLEMENTARY NOTES

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 19311A MLRS, Missile Number V18-002, Round Number V-131/DF-4 presented in tabular form.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED 410665

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

CONTENTS

INTRODUCTION

19311A MLRS, Missile Number V18-002, Round Number V-131/DF-4, was launched from LC 33, White Sands Missile Range (WSMR), New Mexico, at 0930 MST on 05 December 1980. The scheduled launch time was 0930MST.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature (°C), relative humidity, dew point (°C), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC 33 met site at T-0 minutes.

(2) Monitor of wind speed and direction from one anemometer was provided in the launch control room.

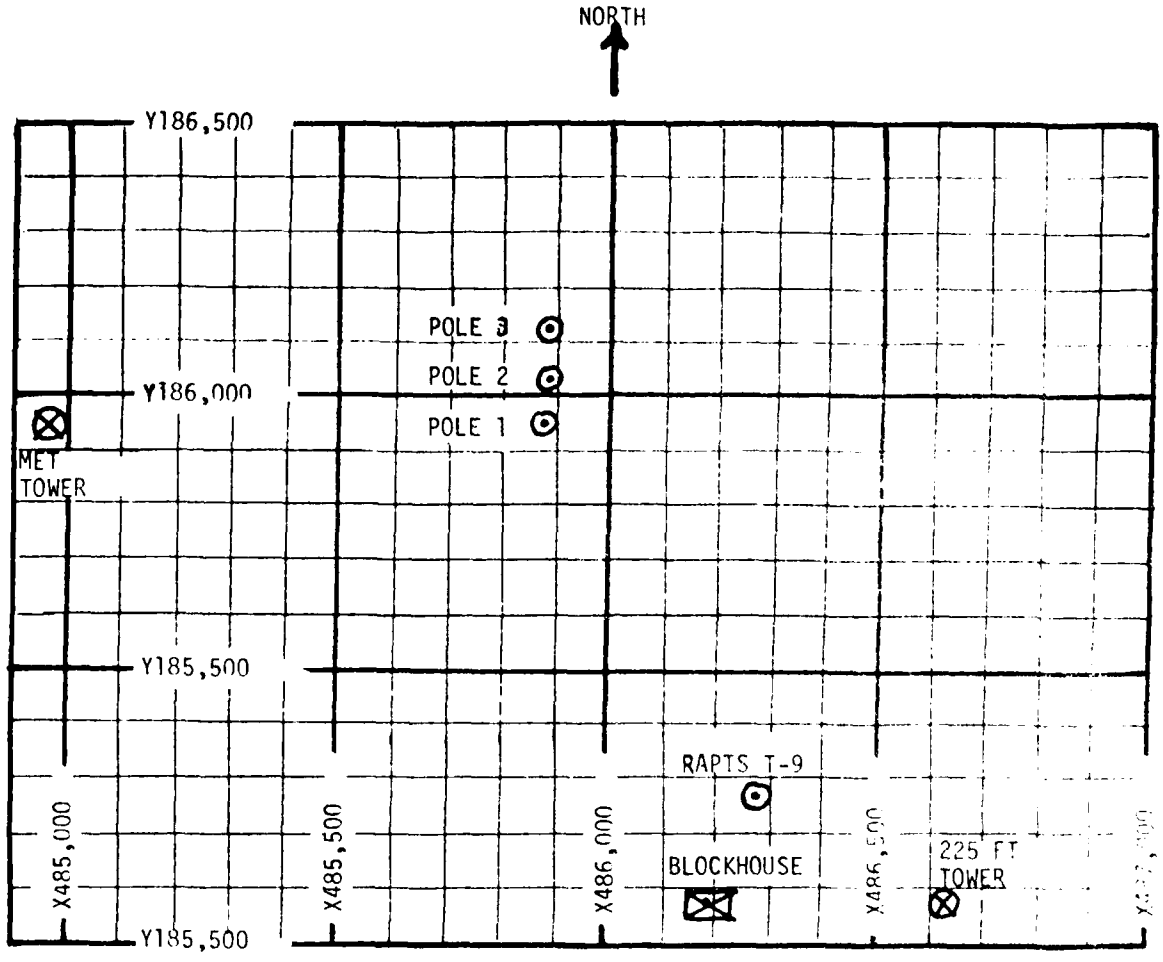
b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

SITE AND ALTITUDE	
LC 33	2KM
SMR	2KM

(b) Air structure data (rawinsonde) were collected at the following met sites. Data were collected from surface to as high as possible in 500-foot increments.

SITE AND TIME	
WSD	0930 MST



1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 200 ft with E/A recorders.

2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.

   (a) Pole #1 - 38.7 ft

   (b) Pole #2 - 53.0 ft

   (c) Pole #3 - 83.6 ft

3. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.

4. RAPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar

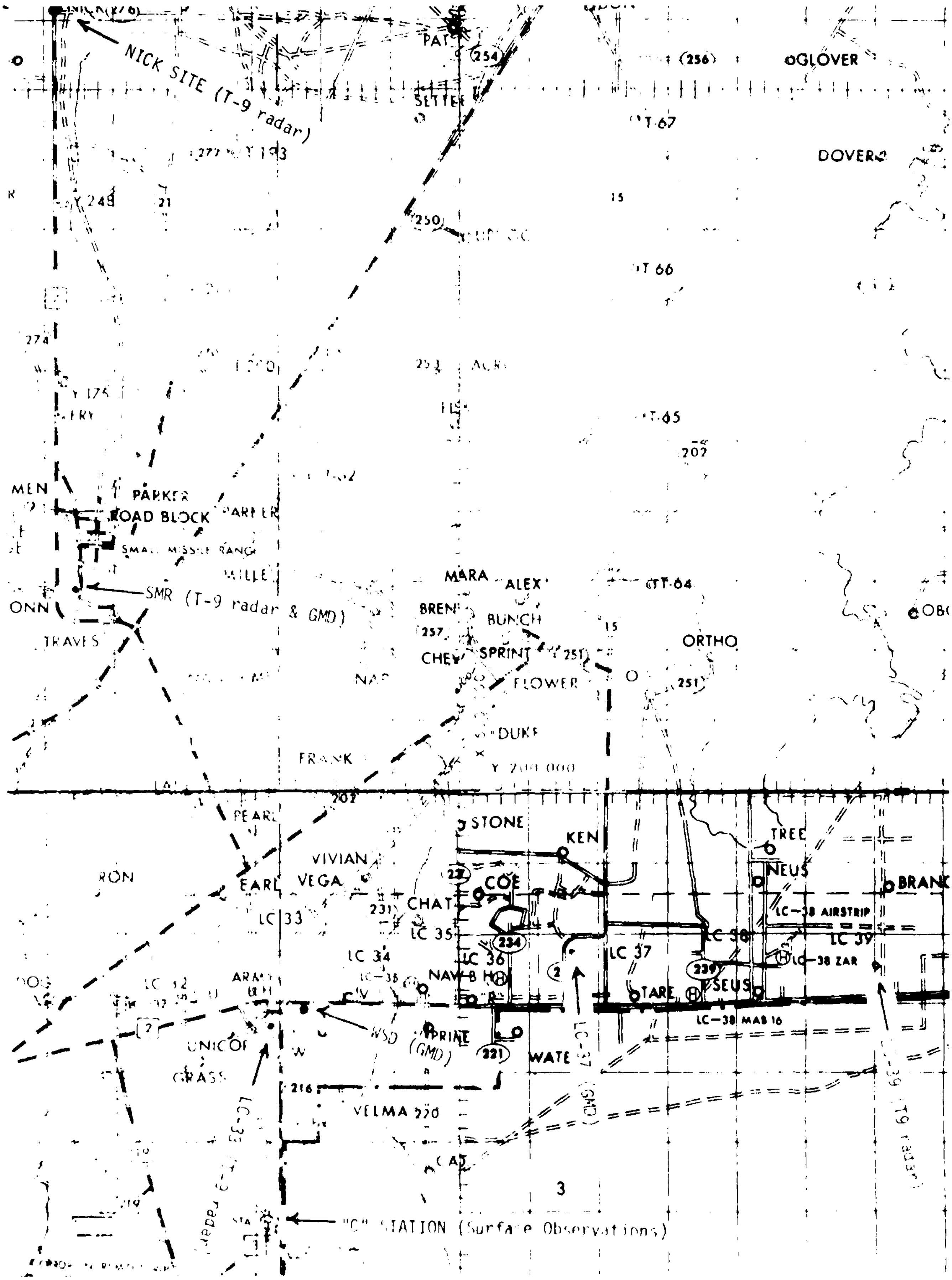

NICK SITE (T-9 radar)
PAT
(254)
(256)
GLOVER
SETTER
T-67
DOVER
Y 249
(250)
T 66
274
Y 175
T-65
202
MEN
PARKER
ROAD BLOCK
SMALL MISSILE RANGE
MARA
ALEX
T-64
SMR (T-9 radar & GMD)
ONN
BREN
BUNCH
TRAVES
CHEW
SPRINT
FLOWER
ORTHO
(251)
DUKE
FRANK
202
PEARL
STONE
KEN
TREE
VIVIAN
NEUS
BRANC
RON
EARL
VEGA
COE
CHAT
LC-38 AIRSTRIP
LC 33
LC 35
(234)
LC 37
LC 38
LC 39
LC 34
LC 36
LC-38 ZAR
NAV B H
(239)
TARE
SEUS
LC-38 MAB 16
WSD (GMD)
SPRINT
UNICOR
GRASS
(221)
WATE
LC-37 (GMD)
LC-33 (T-9 radar)
216
VELMA 220
LC-39 (T9 radar)
CAD
"C" STATION (Surface Observations)

TABLE 1. **Surface Observation taken at 0930 MST 05 December 1980, at LC-33, 19311A MLRS Missile Number V18-002, Round Number V-131/DF-4**

ELEVATION	3983.00	FT/MSL
PRESSURE	878.3	MBS
TEMPERATURE	12.9	^{o}C
RELATIVE HUMIDITY	41	%
DEW POINT	-0.3	^{o}C
DENSITY	1065	GM/M^{3}
WIND SPEED	02	KTS
WIND DIRECTION	150	DEGREES
CLOUD COVER	1st 1/AC/140 2nd 1/CI/250	AMT/TYPE/HGT

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 X485,874.03 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	138	03	T-30	152	M	T-30	149	08
T-20	130	03	T-20	150	M	T-20	144	08
T-10	132	03	T-10	139	M	T-10	146	08
T-0	132	02	T-0	138	M	T-0	144	07
T+10	132	02	T+10	138	M	T+10	144	07

TABLE 3 LC-33 METEOROLOGICAL TOWER PROGRAMMED MEASURED WINDS (10 KTS)

LEVEL #1, 15 FEET X484,982.64, Y185,957.73, H4018.74 (Data)			LEVEL #2, 60 FEET X485,042.41, Y185,957.73, H4033.57 (Data)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	163	08	T-30	178	09
T-20	160	07	T-20	180	09
T-10	170	08	T-10	167	09
T-0	163	08	T-0	164	08
T+10	161	07	T+10	166	08

LEVEL #3, 105 FEET X485,102.63, Y185,957.73, H4048.10 (Data)			LEVEL #4, 150 FEET X485,162.40, Y185,957.73, H4063.92 (Data)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	170	09	T-30	152	14
T-20	171	09	T-20	155	13
T-10	167	08	T-10	151	13
T-0	167	08	T-0	142	14
T+10	164	07	T+10	146	14

PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC 33 DATE 05 December 1980 TIME 0928 MST

COORDINATES (WSTM) X- 486,037.24 182,350.16 3977.30

NOTE: WIND DIRECTIONS ARE REFERENCED TO

HEIGHTS ARE METERS AGL XX OR FEET AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC	163	08
150	161	06
210	177	07
270	199	07
330	201	04
390	205	04
500	196	01
650	226	02
800	237	04
950	218	02
1150	221	04
1350	219	05
1550	230	08
1750	229	13
2000	214	15

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS

PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM SMR DATE 05 December 1980 TIME 0931 MST

COORDINATES (WSTM) X= 472,441.28 Y 214,137,54 4 3999.00

NOTE: WIND DIRECTIONS ARE REFERENCED TO

HEIGHTS ARE METERS AGL XX OR FEET AGL ____.

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC	180	02
150	254	04
210	263	05
270	266	05
330	270	05
390	338	09
500	328	07
650	250	03
800	209	09
950	191	11
1150	203	10
1350	171	13
1550	197	19
1750	201	20
2000	207	19

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS

SIGNIFICANT LEVEL DATA

...N ALTITUDE 3989.00 FEET MSL
...C. 80 0930 HRS MST
...ION NO. 663

3400020663
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT
878.2	3989.0	13.4	-1.0	37.0
861.6	4514.5	11.5	-1.3	41.0
850.0	4888.5	14.4	.6	39.0
820.8	5857.2	13.8	.1	39.0
751.8	8259.9	7.3	-5.1	41.0
700.0	10179.2	4.1	-9.6	36.0
675.6	11124.2	2.1	-7.2	50.0
639.4	12573.6	-2.6	-8.4	64.0
630.0	12959.5	-3.3	-11.5	53.0
612.0	13712.3	-4.2	-14.9	43.0
564.4	15792.0	-9.1	-20.2	40.0
550.8	16413.4	-8.5	-22.5	31.0
500.0	18856.9	-13.7	-27.5	30.0
468.4	20475.0	-18.2	-31.5	30.0
460.6	20887.4	-18.5	-31.7	30.0
400.0	24295.3	-26.5	-36.5	38.0
342.8	27900.0	-35.2	-44.4	38.0
315.4	29663.5	-70.5	-76.8	38.0
300.0	30640.5	-73.5		
271.4	32688.8	-48.8		
250.0	34457.5	-51.0		
242.2	35135.4	-51.9		
225.8	36631.4	-52.1		
214.8	37699.2	-51.0		
200.0	39225.5	-52.2		
171.0	42534.0	-56.5		
150.0	45264.7	-58.1		
145.0	45964.8	-60.5		
125.0	48990.3	-63.7		
110.2	51511.1	-68.5		
100.0	53423.8	-70.2		
75.7	58936.6	-66.4		
70.0	60482.3	-71.5		
64.0	62236.5	-70.0		
54.9	65330.6	-59.2		
50.0	67163.4	-81.9		
42.6	70262.1	-64.6		
37.0	73163.5	-56.4		
35.9	73798.1	-55.6		
33.3	75406.8	-69.3		

STATION ALTITUDE 3989.00 FEET MSL
5 DEC. 60 0930 HRS MST
ASCENSION NO. 663

SIGNIFICANT LEVEL DATA
340020663
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 6 (cont)

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
30.0	77662.9	-50.2		
27.6	79460.1	-51.1		
20.0	86466.2	-46.3		
18.6	88061.6	-46.5		
15.1	92739.0	-37.1		
10.4	101217.5	-40.6		
10.0	102106.0	-39.0		
7.8	107780.2	-37.0		
7.0	110249.8	-39.5		
6.8	110907.1	-40.1		

UPPER AIR DATA

3400020663

WHITE SANDS

TABLE 7

[illegible] ALTITUDE 3989.00 FEET MSL

[illegible] 80 0930 HRS MST

ASCENSION NO. 663

GEODETIC COORDINATES

32.40043 LAT DEG

106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	870.2	13.4	-1.0	37.0	1065.0	660.3	160.0	6.0	1.000264
4000.0	871.8	13.4	-1.0	37.1	1064.8	660.2	160.2	6.0	1.000263
4500.0	862.1	11.6	-1.3	40.9	1052.2	658.1	171.4	5.3	1.000260
5000.0	846.6	14.3	.6	39.0	1023.0	661.5	185.5	4.8	1.000257
5500.0	831.4	14.0	.3	39.0	1005.8	661.1	201.6	4.6	1.000253
6000.0	816.5	13.4	-.2	39.1	989.9	660.4	230.6	5.5	1.000248
6500.0	801.7	12.1	-1.3	39.5	976.7	658.8	244.9	7.2	1.000244
7000.0	787.2	10.7	-2.3	40.0	963.7	657.2	240.0	8.1	1.000239
7500.0	773.0	9.4	-3.4	40.4	951.0	655.6	236.6	9.5	1.000234
8000.0	759.0	8.0	-4.5	40.8	938.4	653.9	235.2	12.1	1.000230
8500.0	745.1	6.9	-5.6	40.4	925.0	652.2	233.8	15.7	1.000225
9000.0	731.4	6.1	-6.8	39.1	910.8	651.6	232.7	20.1	1.000221
9500.0	717.9	5.2	-8.0	37.8	896.8	650.6	228.1	23.3	1.000216
10000.0	704.7	4.4	-9.2	36.5	883.0	649.6	223.9	26.2	1.000212
10500.0	691.6	3.4	-8.6	40.8	869.6	648.4	222.2	27.5	1.000210
11000.0	678.8	2.4	-7.5	48.2	856.6	647.3	221.1	28.6	1.000208
11500.0	666.0	.9	-7.4	53.6	845.0	645.5	222.5	29.0	1.000206
12000.0	653.5	-.7	-7.9	58.5	834.1	643.6	223.6	29.4	1.000203
12500.0	641.2	-2.4	-8.4	63.3	823.3	641.7	225.1	29.7	1.000200
13000.0	629.0	-3.3	-11.7	52.5	811.0	640.4	225.5	30.3	1.000194
13500.0	617.0	-3.9	-13.9	45.8	797.4	639.6	225.1	31.2	1.000189
14000.0	605.2	-4.9	-15.6	42.6	785.0	638.5	224.3	32.4	1.000184
14500.0	593.5	-6.1	-16.9	41.9	773.3	637.0	223.3	33.6	1.000181
15000.0	582.1	-7.2	-18.2	41.1	761.8	635.6	223.5	34.8	1.000178
15500.0	570.9	-8.4	-19.4	40.4	750.5	634.1	223.9	36.0	1.000174
16000.0	559.8	-8.9	-20.9	37.0	737.4	633.5	224.5	37.1	1.000171
16500.0	548.9	-8.7	-22.7	31.0	722.6	633.8	224.3	38.3	1.000166
17000.0	538.2	-9.7	-23.7	30.8	711.3	632.5	224.6	39.5	1.000163
17500.0	527.6	-10.8	-24.7	30.6	700.2	631.2	224.2	40.9	1.000160
18000.0	517.3	-11.9	-25.8	30.4	689.3	629.9	222.[illegible]	[illegible].5	1.000158
18500.0	507.1	-12.9	-26.8	30.1	678.6	628.6	221.4	43.8	1.000155
19000.0	497.1	-14.1	-27.8	30.0	668.2	627.2	219.6	44.2	1.000152
19500.0	487.2	-15.5	-29.1	30.0	658.4	625.5	218.5	44.4	1.000150
20000.0	477.5	-16.9	-30.3	30.0	648.8	623.8	218.8	44.1	1.000147
20500.0	467.9	-18.2	-31.5	30.0	639.2	622.1	219.[illegible]	[illegible].3	1.000145
21000.0	458.5	-18.8	-31.9	30.3	627.6	621.5	221.3	46.4	1.000142
21500.0	449.1	-19.9	-32.5	31.4	617.[illegible]	620.0	223.[illegible]	48.5	1.000140
22000.0	439.9	-21.1	-33.2	32.6	607.[illegible]	618.6	225.0	50.6	1.000138
22500.0	430.9	-22.3	-33.9	33.8	598.1	617.1	226.[illegible]	52.4	1.000135
23000.0	422.0	-23.5	-34.6	35.0	588.6	615.[illegible]	228.[illegible]	52.0	1.000133

UPPER AIR DATA

STATION ALTITUDE 3989.00 FEET MSL
5 DEC. 80 0930 HRS MST
ASCENSION NO. 663

3400020663
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

Table 7 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
23500.0	413.4	-24.6	-35.3	36.1	579.3	614.2	230.3	51.8	1.000131
24000.0	404.9	-25.8	-36.0	37.3	570.2	612.8	230.6	51.8	1.000129
24500.0	396.5	-27.0	-36.9	38.0	561.0	611.3	231.4	52.4	1.000127
25000.0	388.1	-28.2	-38.0	38.0	551.9	609.8	232.1	54.5	1.000124
25500.0	379.9	-29.4	-39.1	38.0	542.8	608.3	233.0	56.9	1.000122
26000.0	371.8	-30.6	-40.2	38.0	534.0	606.8	234.1	59.6	1.000120
26500.0	364.0	-31.8	-41.3	38.0	525.3	605.3	235.1	61.0	1.000118
27000.0	356.3	-33.0	-42.4	38.0	516.8	603.7	236.0	62.4	1.000116
27500.0	348.7	-34.2	-43.5	38.0	508.4	602.2	236.5	63.2	1.000114
28000.0	341.2	-37.2	-46.2	38.0	503.7	598.5	236.8	63.7	1.000113
28500.0	333.3	-47.2	-55.3	38.0	513.7	585.7	236.3	63.4	1.000115
29000.0	325.5	-57.1	-64.5	38.0	524.9	572.6	235.6	62.7	1.000117
29500.0	317.9	-67.1	-73.7	38.0	537.6	559.2	234.6	61.0	1.000120
30000.0	310.1	-71.5	-80.3	25.1**	535.7	553.2	233.9	60.1	1.000119
30500.0	302.2	-73.1	-90.2	5.5**	526.1	551.1	233.6	60.3	1.000117
31000.0	294.8	-69.2			503.4	556.4	234.3	60.8	1.000112
31500.0	287.6	-63.1			477.1	564.6	235.8	61.6	1.000106
32000.0	280.7	-57.1			452.6	572.6	237.8	62.1	1.000101
32500.0	273.9	-51.1			429.7	580.6	240.5	62.5	1.000096
33000.0	267.5	-49.2			416.1	583.0	242.6	62.3	1.000093
33500.0	261.4	-49.8			407.7	582.2	244.5	61.7	1.000091
34000.0	255.4	-50.4			399.4	581.4	244.7	61.4	1.000089
34500.0	249.5	-51.1			391.4	580.6	244.5	61.3	1.000087
35000.0	243.7	-51.7			383.5	579.7	243.7	63.0	1.000085
35500.0	238.1	-51.9			375.0	579.4	242.6	64.6	1.000084
36000.0	232.6	-52.0			366.4	579.3	242.2	65.8	1.000082
36500.0	227.2	-52.1			358.0	579.2	241.7	67.0	1.000080
37000.0	221.9	-51.7			349.2	579.7	241.1	67.8	1.000078
37500.0	216.8	-51.2			340.3	580.4	240.5	68.5	1.000076
38000.0	211.8	-51.2			332.5	580.3	239.7	69.3	1.000074
38500.0	206.9	-51.6			325.4	579.8	238.8	70.1	1.000072
39000.0	202.1	-52.0			318.4	579.3	237.9	69.4	1.000071
39500.0	197.4	-52.6			311.8	578.6	236.9	67.9	1.000069
40000.0	192.8	-53.2			305.4	577.8	235.7	66.1	1.000068
40500.0	188.3	-53.9			299.1	576.9	234.3	64.0	1.000067
41000.0	183.9	-54.5			293.0	576.1	232.8	62.9	1.000065
41500.0	179.6	-55.2			287.0	575.2	231.2	62.7	1.000064
42000.0	175.4	-55.8			281.1	574.3	230.3	62.8	1.000063
42500.0	171.3	-56.5			275.3	573.5	229.8	63.0	1.000061
43000.0	167.2	-56.8			269.2	573.1	229.8	63.1	1.000060

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

UPPER AIR DATA

ALTITUDE 3989.00 FEET MSL
0930 HRS MST
ASCENSION NO. 663

3400020663
WHITE SANDS
TABLE 7 (Cont)

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
43500.0	165.3	-57.1			263.2	572.7	230.1	63.2	1.000059
44000.0	159.4	-57.4			257.3	572.3	230.8	62.7	1.000057
44500.0	155.6	-57.7			251.5	571.9	231.8	61.9	1.000056
45000.0	151.9	-57.9			245.9	571.5	233.5	60.6	1.000055
45500.0	148.3	-58.9			241.1	570.2	235.7	59.1	1.000054
46000.0	144.8	-60.5			237.2	568.1	237.7	57.3	1.000053
46500.0	141.2	-61.1			232.0	567.3	239.7	55.4	1.000052
47000.0	137.8	-61.6			226.9	566.6	240.9	54.1	1.000051
47500.0	134.5	-62.1			222.0	565.9	240.9	53.7	1.000049
48000.0	131.2	-62.7			217.2	565.2	240.6	53.8	1.000048
48500.0	128.0	-63.2			212.4	564.5	240.1	54.8	1.000047
49000.0	124.9	-63.7			207.8	563.8	239.5	55.9	1.000046
49500.0	121.9	-64.7			203.6	562.5	239.2	56.5	1.000045
50000.0	118.8	-65.6			199.5	561.2	239.0	57.1	1.000044
50500.0	115.9	-66.6			195.5	559.9	238.7	56.6	1.000044
51000.0	113.1	-67.5			191.5	558.6	238.6	55.1	1.000043
51500.0	110.3	-68.5			187.7	557.3	238.5	53.6	1.000042
52000.0	107.5	-68.9			183.4	556.7	238.4	51.8	1.000041
52500.0	104.8	-69.4			179.2	556.1	238.4	49.9	1.000040
53000.0	102.2	-69.8			175.1	555.5	239.0	50.3	1.000039
53500.0	99.6	-70.1			170.9	555.1	239.7	51.0	1.000038
54000.0	97.1	-69.8			166.4	555.5	240.2	52.2	1.000037
54500.0	94.7	-69.5			162.0	556.0	240.7	53.7	1.000036
55000.0	92.3	-69.1			157.7	556.5	242.3	54.6	1.000035
55500.0	90.0	-68.8			153.5	557.0	244.5	55.4	1.000034
56000.0	87.8	-68.4			149.4	557.4	247.1	56.7	1.000033
56500.0	85.6	-68.1			145.4	557.9	251.1	58.4	1.000032
57000.0	83.5	-67.7			141.6	558.4	255.6	60.5	1.000032
57500.0	81.4	-67.4			137.8	558.8	256.4	59.2	1.000031
58000.0	79.4	-67.0			134.1	559.3	256.6	57.6	1.000030
58500.0	77.4	-66.7			130.6	559.8	252.9	53.3	1.000029
59000.0	75.5	-66.6			127.3	559.9	243.3	49.8	1.000028
59500.0	73.6	-68.3			125.1	557.6	230.3	47.1	1.000028
60000.0	71.7	-69.9			122.9	555.4	223.8	46.3	1.000027
60500.0	69.9	-71.5			120.8	553.2	219.0	47.7	1.000027
61000.0	68.2	-71.1			117.5	553.8	214.8	47.5	1.000026
61500.0	66.5	-70.6			114.3	554.4	209.9	46.8	1.000025
62000.0	64.8	-70.2			111.2	555.0	204.6	44.1	1.000025
62500.0	63.2	-69.1			107.8	556.1	200.4	40.5	1.000024
63000.0	61.6	-67.3			104.3	557.9	200.9	40.3	1.000023

UPPER AIR DATA

STATION ALTITUDE 3989.00 FEET MSL
5 DEC. 80 0930 HRS MST
ASCENSION NO. 663

3400020663
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 7 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	60.1	-65.6			100.9	561.3	212.0	10.4	1.000022
64000.0	58.6	-63.8			97.6	563.6	218.8	11.7	1.000022
64500.0	57.2	-62.1			94.4	566.0	224.2	13.1	1.000021
65000.0	55.8	-60.4			91.4	568.3	227.9	15.1	1.000020
65500.0	54.4	-61.3			89.5	567.0	230.7	17.1	1.000020
66000.0	53.1	-67.5			89.9	558.7	232.2	18.6	1.000020
66500.0	51.7	-73.7			90.3	550.2	232.9	19.7	1.000020
67000.0	50.4	-79.9			90.9	541.6	233.5	20.7	1.000020
67500.0	49.1	-80.0			88.6	541.4	233.7	21.5	1.000020
68000.0	47.9	-77.2			85.1	545.3	233.9	22.3	1.000019
68500.0	46.7	-74.4			81.8	549.2	236.1	23.6	1.000018
69000.0	45.5	-71.6			78.6	553.0	238.3	25.0	1.000018
69500.0	44.3	-68.9			75.6	556.8	241.1	27.4	1.000017
70000.0	43.2	-66.1			72.6	560.6	244.2	30.7	1.000016
70500.0	42.1	-63.9			70.1	563.5	246.7	34.1	1.000016
71000.0	41.1	-62.5			68.0	565.4	248.4	37.2	1.000015
71500.0	40.1	-61.1			65.9	567.3	249.9	40.2	1.000015
72000.0	39.2	-59.7			63.9	569.2	251.7	40.6	1.000014
72500.0	38.2	-58.3			62.0	571.1	254.3	38.4	1.000014
73000.0	37.3	-56.9			60.1	572.9	257.2	36.3	1.000013
73500.0	36.4	-56.0			58.4	574.1	260.6	31.1	1.000013
74000.0	35.6	-54.8			56.7	575.7	265.4	26.0	1.000013
74500.0	34.7	-52.8			54.9	578.2	269.6	22.2	1.000012
75000.0	33.9	-50.9			53.2	580.8	270.1	20.1	1.000012
75500.0	33.2	-49.3			51.6	582.8	270.7	18.0	1.000011
76000.0	32.4	-49.5			50.5	582.6	265.7	19.1	1.000011
76500.0	31.7	-49.7			49.4	582.3	259.8	21.8	1.000011
77000.0	30.9	-49.9			48.3	582.0	255.3	24.8	1.000011
77500.0	30.2	-50.1			47.2	581.8	252.7	28.9	1.000011
78000.0	29.5	-50.4			46.2	581.5	250.8	33.1	1.000010
78500.0	28.9	-50.6			45.2	581.2	249.4	36.6	1.000010
79000.0	28.2	-50.9			44.2	580.8	248.6	37.8	1.000010
79500.0	27.5	-51.1			43.2	580.6	247.9	39.0	1.000010
80000.0	26.9	-50.7			42.2	581.0	246.7	38.9	1.000009
80500.0	26.3	-50.4			41.1	581.5	245.0	37.8	1.000009
81000.0	25.7	-50.0			40.2	581.9	243.2	36.7	1.000009
81500.0	25.1	-49.7			39.2	582.3	245.4	35.9	1.000009
82000.0	24.6	-49.4			38.2	582.8	248.7	35.3	1.000009
82500.0	24.0	-49.0			37.3	583.2	252.3	34.8	1.000008
83000.0	23.5	-48.7			36.4	583.7	256.6	34.5	1.000008

UPPER AIR DATA

3400020663
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

[illegible] ALTITUDE 3989.00 FEET MSL
[illegible] 80 0930 HRS MST
[illegible]SION NO. 063

TABLE 7 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
83500.0	22.9	-48.3			35.5	584.1	265.5	34.6	1.000008
84000.0	22.4	-48.0			34.7	584.6	269.4	34.1	1.000008
84500.0	21.9	-47.6			33.8	585.0	268.1	31.4	1.000008
85000.0	21.4	-47.3			33.0	585.5	266.6	28.8	1.000007
85500.0	20.9	-47.0			32.2	585.9	262.8	27.2	1.000007
86000.0	20.4	-46.6			31.4	586.4	257.3	26.3	1.000007
86500.0	20.0	-46.3			30.7	586.8	251.4	25.7	1.000007
87000.0	19.5	-46.4			30.0	586.7	247.1	26.3	1.000007
87500.0	19.1	-46.4			29.3	586.6	247.0	29.2	1.000007
88000.0	18.7	-46.5			28.7	586.5	247.0	32.1	1.000006
88500.0	18.2	-45.6			27.9	587.6	246.9	35.0	1.000006
89000.0	17.8	-44.6			27.2	588.9	247.3	37.8	1.000006
89500.0	17.4	-43.6			26.5	590.2	247.6	40.6	1.000006
90000.0	17.1	-42.6			25.8	591.5	247.9	43.4	1.000006
90500.0	16.7	-41.6			25.1	592.8	248.0	44.7	1.000006
91000.0	16.3	-40.6			24.4	594.1	248.0	44.9	1.000005
91500.0	16.0	-39.6			23.8	595.4	248.0	45.1	1.000005
92000.0	15.6	-38.6			23.2	596.7	248.0	45.1	1.000005
92500.0	15.3	-37.6			22.6	597.9	247.9	44.0	1.000005
93000.0	14.9	-37.2			22.0	598.4	247.9	42.9	1.000005
93500.0	14.6	-37.4			21.6	598.1	247.8	41.9	1.000005
94000.0	14.3	-37.6			21.1	597.9	247.4	40.9	1.000005
94500.0	14.9	-37.8			20.7	597.6	246.7	40.0	1.000005
95000.0	13.7	-38.0			20.3	597.4	246.1	39.0	1.000005
95500.0	13.4	-38.2			19.8	597.1	245.3	38.3	1.000004
96000.0	13.1	-38.4			19.4	596.8	244.6	37.4	1.000004
96500.0	12.8	-38.7			19.0	596.6	243.9	36.5	1.000004
97000.0	12.5	-38.9			18.6	596.3	243.2	35.5	1.000004
97500.0	12.2	-39.1			18.2	596.0	243.7	36.1	1.000004
98000.0	12.0	-39.3			17.8	595.8	244.5	37.5	1.000004
98500.0	11.7	-39.5			17.5	595.5	245.2	37.0	1.000004
99000.0	11.5	-39.7			17.1	595.3	246.0	35.8	1.000004
99500.0	11.2	-39.9			16.8	595.0	247.7	33.7	1.000004
100000.0	11.0	-40.1			16.4	594.7	253.0	31.7	1.000004
100500.0	10.7	-40.3			16.1	594.5	258.2	29.8	1.000004
101000.0	10.5	-40.5			15.7	594.2	259.8	25.7	1.000004
101500.0	10.3	-40.1			15.4	594.7	268.9	21.6	1.000003
102000.0	10.0	-39.2			15.0	595.9	277.9	17.6	1.000003
102500.0	9.8	-38.9			14.6	596.3	278.1	14.2	1.000003
103000.0	9.6	-38.7			14.3	596.5	281.9	11.3	1.000003

STATION ALTITUDE 3989.00 FEET MSL
5 DEC. 80 0930 HRS MST
ASCENSION NO. 663

UPPER AIR DATA
3400020663
WHITE SANDS

GEODLTIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 7 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
103500.0	9.4	-38.5			14.0	596.8	291.3	8.6	1.000003
104000.0	9.2	-38.3			13.7	597.0	304.8	6.5	1.000003
104500.0	9.0	-38.2			13.3	597.2	271.0	9.4	1.000003
105000.0	8.8	-38.0			13.1	597.4	255.9	13.9	1.000003
105500.0	8.6	-37.8			12.8	597.7	248.3	18.8	1.000003
106000.0	8.4	-37.6			12.5	597.9	243.6	20.4	1.000003
106500.0	8.2	-37.5			12.2	598.1	238.7	19.8	1.000003
107000.0	8.1	-37.3			11.9	598.3	233.5	19.3	1.000003
107500.0	7.9	-37.1			11.7	598.5			1.000003
108000.0	7.7	-37.2			11.4	598.4			1.000003
108500.0	7.6	-37.7			11.2	597.7			1.000002
109000.0	7.4	-38.2			11.0	597.1			1.000002
109500.0	7.2	-38.7			10.8	596.5			1.000002
110000.0	7.1	-39.2			10.5	595.8			1.000002
110500.0	6.9	-39.7			10.3	595.2			1.000002

STATION ALTITUDE 3989.00 FEET MSL
. 60 0930 HRS MST
SESSION NO. 663

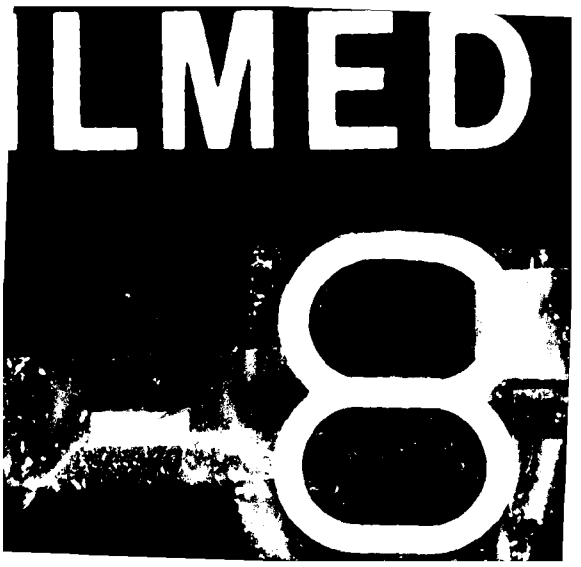
MANDATORY LEVELS
3400020663
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 8

PRESSURE	GEOPOTENTIAL	TEMPERATURE		REL.HUM.	WIND DATA	
		AIR	DEWPOINT	PERCENT	DIRECTION	SPEED
MILLIBARS	FEET	DEGREES	CENTIGRADE		DEGREES(TN)	KNOTS
850.0	4885.	14.4	.6	39.	182.0	4.9
800.0	6560.	11.9	-1.4	40.	244.2	7.3
750.0	8317.	7.2	-5.2	41.	234.4	14.1
700.0	10169.	4.1	-9.6	36.	223.3	26.6
650.0	12130.	-1.2	-8.0	60.	224.2	29.5
600.0	14208.	-5.4	-16.2	42.	223.8	32.9
550.0	16429.	-8.6	-22.6	31.	224.9	38.1
500.0	18831.	-13.7	-27.5	30.	220.2	44.1
450.0	21425.	-19.8	-32.4	31.	222.8	48.3
400.0	24255.	-26.5	-36.5	38.	231.1	51.7
350.0	27372.	-34.0	-43.3	38.	236.4	53.0
300.0	30580.	-73.5			233.6	60.4
250.0	34384.	-51.0			244.6	61.1
200.0	39132.	-52.2			237.5	68.8
175.0	41944.	-55.9			230.3	62.8
150.0	45144.	-58.1			234.5	58.9
125.0	48851.	-63.7			239.6	55.8
100.0	53261.	-70.2			239.5	50.8
80.0	57646.	-67.2			256.5	32.9
70.0	60277.	-71.5			219.6	15.7
60.0	63294.	-65.5			211.8	18.4
50.0	66914.	-81.9			233.5	[illegible]
40.0	71264.	-60.9			249.9	30.3
30.0	77336.	-50.2			252.2	[illegible]
25.0	81237.	-49.6			245.8	[illegible]
20.0	86066.	-48.3			252.3	25.7
15.0	92433.	-37.2			247.9	45.3
10.0	101558.	-39.0			270.7	17.2
7.0	109615.	-39.5				

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


LMED
8