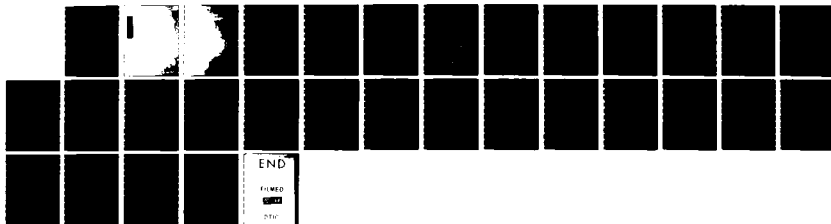


AD-A137 325 193188 MLRS MISSILE NUMBER V53-03 ROUND NUMBER 521/CH-2 1/1
10 NOVEMBER 1983(U) ARMY ELECTRONICS RESEARCH AND
DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER NOV 83
UNCLASSIFIED ERADCOM/ASL-DR-1325 F/G 4/2 NL





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

| REPORT DOCUMENTATION PAGE | | READ INSTRUCTIONS BEFORE COMPLETING FORM |
|--|--|---|
| 1. REPORT NUMBER DR-1325 | 2. GOVT ACCESSION NO. AD-A137325 | 3. RECIPIENT'S CATALOG NUMBER |
| 4. TITLE (and Subtitle) 19318B MLRS Missile Number V53-03 Round Number 521/CH-2 | 5. TYPE OF REPORT & PERIOD COVERED | |
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| 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 19318B MLRS, Missile Number V53-03, Round Number 521/CH-2 are presented in tabular form. | | |

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INTRODUCTION

193188 MLRS, Missile Number V53-03, Round Number 521/CH-2, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0930 MST, 10 Nov 1983. The scheduled launch time was 0930 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 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 2km
Don 2km

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

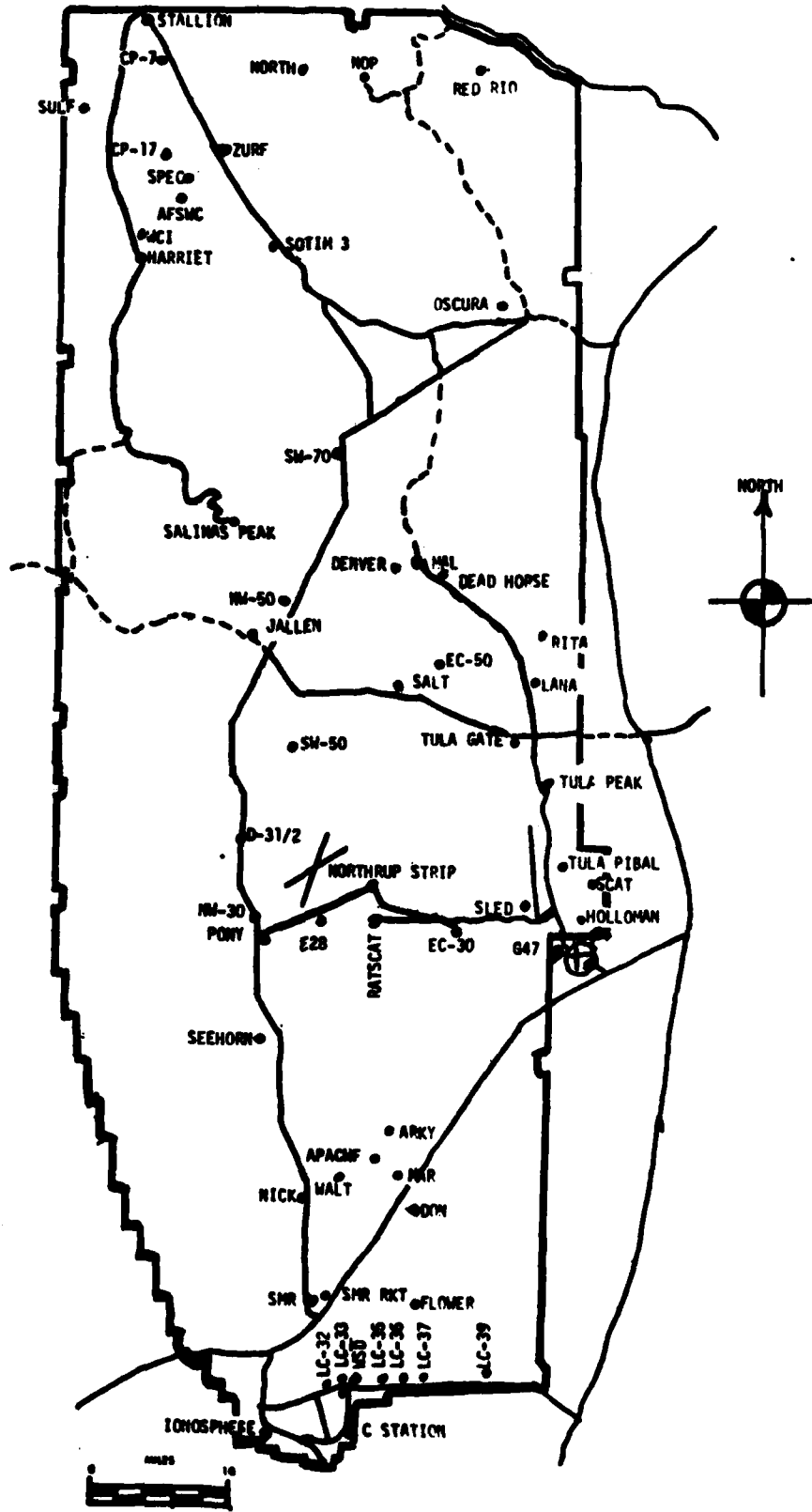
SITE AND TIME

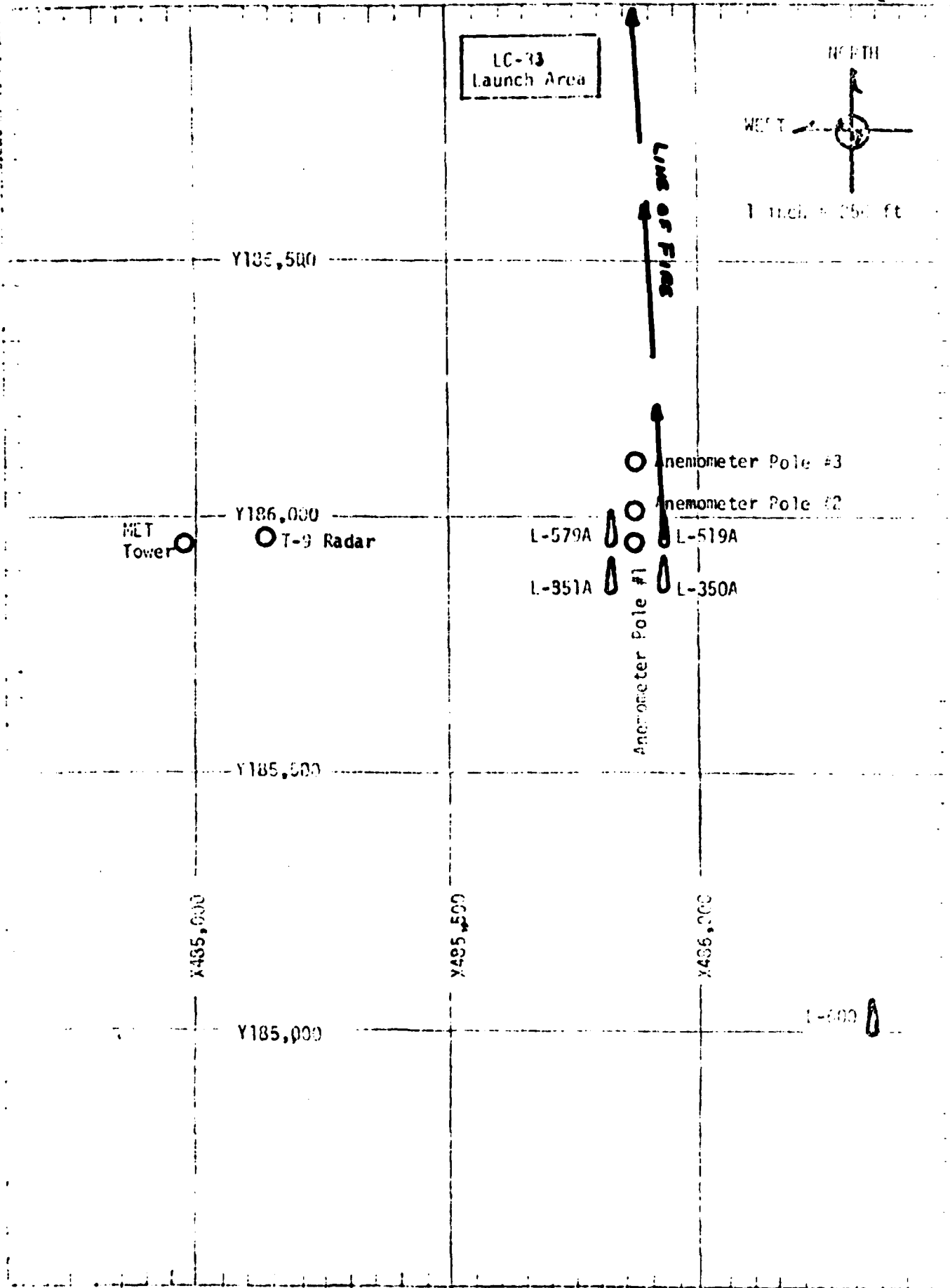
WSD 0700 MST
LC-37 0800 MST
WSD 0935 MST

| | |
|----------------------|-------------------------------------|
| Accession For | |
| 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 |
| A-1 | |



WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE 1 STATION: LC-33

DATE 10 NOV 83 X = 484.982.73 Y = 185.957.73 H = 3995.00

| TIME M S I | PRESSURE mb | TEMPERATURE OF OC | DEW POINT OF OC | RELATIVE HUMIDITY % | DENSITY gm/m ³ | WIND | | VISIBIL- ITY |
|---------------|----------------|-------------------------|-----------------------|---------------------------|------------------------------|----------------------|--------------|-----------------|
| | | | | | | DIRECTION degs Tn | SPEED kts | |
| 0930 | 884.4 | 8.5 | -1.2 | 51 | | | CALM | 60 |
| | | | | | | | | |
| | | | | | | | | |

| OBSTRUCTIONS TO VISIBILITY | CLOUDS | | | | | | REMARKS |
|-------------------------------|-----------|------|-----------|------|-----------|-------|---------|
| | 1st LAYER | | 2nd LAYER | | 3rd LAYER | | |
| | AMT | TYPE | AMT | TYPE | AMT | TYPE | |
| | 1 | AC | 16000 | 3 | CI | 25000 | |
| | | | | | | | |
| | | | | | | | |

PSYCHROMETRIC COMPUTATION

| | |
|-----------------|------|
| TIME: | 0930 |
| DRY BULB TEMP. | 8.5 |
| WET BULB TEMP. | 4.0 |
| WET BULB DEPR. | 4.5 |
| DEW POINT | -1.2 |
| RELATIVE HUMID. | 51 |

TABLE 2

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 10 November 1983

SITE: LC-33
TIME: 0933 MST
WSTM COORDINATES:
X= 486,872.00
Y= 184,146.75
H= 3,981.15

SITE: Don
TIME 0930 MST
WSTM COORDINATES:
X= 511,988.37
Y= 247,396.36
H= 3,996.83

| <u>LAYER MIDPOINT</u> <u>METERS AGL</u> | <u>DIRECTION</u> <u>DEGREES</u> | <u>SPEED</u> <u>KNOTS</u> |
|--|------------------------------------|------------------------------|
| SURFACE | | CALM |
| 150 | 024 | 05 |
| 210 | 028 | 02 |
| 270 | 201 | 05 |
| 330 | 206 | 06 |
| 390 | 201 | 07 |
| 500 | 227 | 03 |
| 650 | 267 | 05 |
| 800 | 290 | 11 |
| 950 | 287 | 14 |
| 1150 | 286 | 13 |
| 1350 | 309 | 12 |
| 1550 | 314 | 12 |
| 1750 | 310 | 14 |
| 2000 | 294 | 14 |

| <u>LAYER MIDPOINT</u> <u>METERS AGL</u> | <u>DIRECTION</u> <u>DEGREES</u> | <u>SPEED</u> <u>KNOTS</u> |
|--|------------------------------------|------------------------------|
| SURFACE | | CALM |
| 150 | 013 | 02 |
| 210 | 001 | 02 |
| 270 | 321 | 01 |
| 330 | 284 | 02 |
| 390 | 276 | 02 |
| 500 | 274 | 03 |
| 650 | 299 | 03 |
| 800 | 295 | 06 |
| 950 | 289 | 10 |
| 1150 | 299 | 09 |
| 1350 | 303 | 11 |
| 1550 | 311 | 13 |
| 1750 | 309 | 14 |
| 2000 | 299 | 14 |

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

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

TABLE 3

AIMING AND T-TIME COMPUTER MET MESSAGES

10 November 1983

WSD 0700 MST

METCM1324064

101400122884

0000000 27360884

01044004 27780873

02349003 28090847

03480005 28080807

04561011 28100759

05552011 28070715

06505016 27820672

07515016 27540632

08521018 27220594

09515022 26860558

LC-37 0800 MST

METCM1324063

101500124883

00053022 27770883

01048004 27950872

02398004 28080846

03507008 28030806

04530013 28120758

05554013 28050714

06512014 27790671

07507015 27560631

08504020 27220593

09519025 26840557

WSD 0935 MST

METCM1324064

101660122884

0000000 28260884

01616001 28310874

02354003 28130848

03496008 28140808

04527012 28210760

05547013 28080716

06506013 27830673

07507016 27590633

08517021 27320995

09526022 26970559

STATION ALTITUDE 3989.00 FEET MSL
 10 NOV. 85
 ASCENSION NO. 551

SIGNIFICANT LEVEL DATA
 3140020551
 WHITE SANDS

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 4

| PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET | TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE | REL. HUM. PERCENT |
|--|---|----------------------|
| 889.0 | 3.4 | 99.0 |
| 878.2 | 3.4 | 64.0 |
| 857.6 | 7.0 | 50.0 |
| 850.0 | 7.2 | 55.0 |
| 841.0 | 7.2 | 57.0 |
| 829.1 | 7.2 | 37.0 |
| 813.4 | 7.7 | 27.0 |
| 787.4 | 6.3 | 57.0 |
| 774.5 | 5.1 | 47.0 |
| 760.3 | 7.5 | 36.0 |
| 756.0 | 8.2 | 16.0 |
| 741.0 | 8.6 | 15.0 |
| 700.0 | 6.6 | 15.0 |
| 618.5 | 1.0 | 17.0 |
| 510.2 | -9.2 | 69.0 |
| 508.8 | -9.9 | 56.0 |
| 507.0 | -11.1 | 57.0 |
| 460.8 | -15.2 | 85.0 |
| 462.3 | -16.4 | 82.0 |
| 443.0 | -17.6 | 57.0 |
| 422.2 | -20.2 | 48.0 |
| 400.0 | -23.4 | 54.0 |
| 389.4 | -25.1 | 33.0 |
| 324.6 | -34.7 | 32.0 |
| 305.4 | -39.0 | 63.0 |
| 300.0 | -39.4 | 57.0 |
| 250.0 | -50.0 | 48.0 |
| 200.0 | -61.7 | 54.0 |
| 171.6 | -65.2 | 33.0 |
| 161.0 | -64.8 | 32.0 |
| 150.0 | -66.0 | 63.0 |
| 131.2 | -66.0 | 57.0 |
| 119.0 | -68.3 | |
| 100.0 | -66.2 | |
| 70.0 | -64.0 | |

STATION ALTITUDE 5489.00 FT. T. J. S. L.
 10 NOV. 63 0700 HRS MSJ
 ASCENDING NO. 551

UPFLR AIR DATA
 31400205.1
 WHITE SANDS

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.57033 LONG DEG

TABLE 5 Cont

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES | TEMPERATURE DEGREES, CENTIGRADE | REL. HUM. PERCENT | WIND DIRECTION DEGREES (TN) | WIND DATA SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|-------------------------|---------------------------------|-------------------|-----------------------------|-----------------------|---------------------|
| 23500.0 | 910.4 | -20.7 | -28.0 | 49.0 | 296.6 | 31.9 | 1.000132 |
| 24000.0 | 899.9 | -22.0 | -29.3 | 51.3 | 296.6 | 32.3 | 1.000130 |
| 24500.0 | 891.5 | -23.2 | -29.7 | 53.6 | 294.3 | 32.0 | 1.000128 |
| 25000.0 | 883.0 | -24.4 | -33.6 | 41.9 | 291.4 | 32.1 | 1.000125 |
| 25500.0 | 875.1 | -25.6 | -37.0 | 33.0 | 288.1 | 32.5 | 1.000122 |
| 26000.0 | 877.0 | -26.7 | -38.1 | 32.8 | 285.6 | 33.0 | 1.000120 |
| 26500.0 | 869.0 | -27.8 | -39.2 | 32.7 | 283.2 | 33.3 | 1.000118 |
| 27000.0 | 861.2 | -29.0 | -40.2 | 32.6 | 281.4 | 32.2 | 1.000116 |
| 27500.0 | 853.6 | -30.1 | -41.3 | 32.5 | 280.0 | 31.3 | 1.000114 |
| 28000.0 | 846.1 | -31.3 | -42.3 | 32.4 | 281.0 | 31.6 | 1.000112 |
| 28500.0 | 838.8 | -32.4 | -43.4 | 32.2 | 281.5 | 31.8 | 1.000110 |
| 29000.0 | 831.7 | -33.5 | -44.4 | 32.1 | 280.9 | 31.8 | 1.000108 |
| 29500.0 | 824.7 | -34.7 | -45.5 | 32.0 | 280.5 | 31.3 | 1.000106 |
| 30000.0 | 817.7 | -36.2 | -46.2 | 43.0 | 280.3 | 30.4 | 1.000105 |
| 30500.0 | 810.8 | -37.8 | -43.6 | 54.2 | 281.3 | 30.4 | 1.000103 |
| 31000.0 | 804.0 | -39.1 | -43.7 | 61.5 | 282.8 | 30.9 | 1.000102 |
| 31500.0 | 797.3 | -39.9 | -45.6 | 54.1** | 283.3 | 30.8 | 1.000100 |
| 32000.0 | 790.6 | -41.2 | -49.1 | 47.1** | 283.6 | 30.6 | 1.000098 |
| 32500.0 | 784.1 | -42.6 | -50.7 | 40.0** | 284.1 | 31.5 | 1.000096 |
| 33000.0 | 777.7 | -43.9 | -52.5 | 32.9** | 284.6 | 32.6 | 1.000094 |
| 33500.0 | 771.5 | -45.2 | -56.7 | 25.8** | 284.7 | 35.1 | 1.000093 |
| 34000.0 | 765.4 | -46.5 | -60.3 | 18.7** | 284.7 | 37.5 | 1.000091 |
| 34500.0 | 759.2 | -47.8 | -65.0 | 11.6** | 284.8 | 39.4 | 1.000089 |
| 35000.0 | 753.6 | -49.2 | -72.6 | 4.5** | 284.3 | 40.9 | 1.000088 |
| 35500.0 | 747.8 | -50.5 | | | 283.0 | 41.4 | 1.000086 |
| 36000.0 | 742.0 | -51.7 | | | 281.5 | 41.9 | 1.000085 |
| 36500.0 | 736.3 | -53.0 | | | 281.2 | 42.5 | 1.000083 |
| 37000.0 | 730.7 | -54.2 | | | 281.3 | 43.4 | 1.000082 |
| 37500.0 | 725.3 | -55.5 | | | 282.3 | 44.3 | 1.000080 |
| 38000.0 | 720.0 | -56.7 | | | 283.6 | 45.1 | 1.000079 |
| 38500.0 | 714.8 | -58.0 | | | 285.1 | 45.7 | 1.000077 |
| 39000.0 | 709.7 | -59.2 | | | 286.7 | 46.0 | 1.000076 |
| 39500.0 | 704.8 | -60.5 | | | 288.3 | 46.1 | 1.000075 |
| 40000.0 | 700.0 | -61.7 | | | 289.3 | 46.5 | 1.000073 |
| 40500.0 | 695.1 | -62.3 | | | 289.9 | 47.1 | 1.000072 |
| 41000.0 | 690.3 | -62.9 | | | 289.4 | 46.2 | 1.000070 |
| 41500.0 | 685.7 | -63.5 | | | 288.2 | 44.6 | 1.000069 |
| 42000.0 | 681.1 | -64.1 | | | 286.6 | 42.9 | 1.000067 |
| 42500.0 | 676.7 | -64.8 | | | 285.3 | 41.2 | 1.000066 |
| 43000.0 | 672.4 | -65.2 | | | 284.8 | 41.0 | 1.000064 |

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

UPPER AIR DATA
 3140020551
 WHITE SANDS

STATION ALTITUDE 5989.00 FEET (MSL)
 10 NOV. 63
 ASCENSION NO. 521

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

TABLE 5 Con't

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES | REL. HUM. PERCENT | DENSITY GM/CM ³ METER | SPEED OF SOUND KNOTS | WIND DIRECTION DEGREES (TN) | WIND SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|-------------------------|-------------------|----------------------------------|----------------------|-----------------------------|------------------|---------------------|
| 43500.0 | 160.2 | -65.0 | | 281.5 | 562.0 | 284.8 | 41.2 | 1.000003 |
| 44000.0 | 164.0 | -64.9 | | 274.4 | 562.2 | 286.0 | 40.4 | 1.000061 |
| 44500.0 | 160.0 | -64.9 | | 267.7 | 562.2 | 287.6 | 39.5 | 1.000060 |
| 45000.0 | 150.1 | -65.3 | | 261.6 | 561.6 | 288.4 | 40.1 | 1.000058 |
| 45500.0 | 152.2 | -65.8 | | 255.7 | 561.0 | 289.2 | 40.8 | 1.000057 |
| 46000.0 | 140.5 | -66.0 | | 249.7 | 560.7 | 294.4 | 41.4 | 1.000056 |
| 46500.0 | 144.8 | -66.0 | | 243.5 | 560.7 | 299.4 | 42.1 | 1.000054 |
| 47000.0 | 141.2 | -66.0 | | 237.5 | 560.7 | 303.2 | 38.8 | 1.000053 |
| 47500.0 | 137.7 | -66.0 | | 231.6 | 560.7 | 307.6 | 35.8 | 1.000052 |
| 48000.0 | 134.3 | -66.0 | | 225.9 | 560.7 | 304.4 | 29.8 | 1.000050 |
| 48500.0 | 131.0 | -66.3 | | 220.7 | 560.3 | 298.9 | 23.8 | 1.000049 |
| 49000.0 | 127.8 | -66.8 | | 215.8 | 559.9 | 290.2 | 21.6 | 1.000048 |
| 49500.0 | 124.6 | -67.4 | | 210.9 | 558.9 | 280.3 | 20.6 | 1.000047 |
| 50000.0 | 121.5 | -67.9 | | 206.2 | 558.2 | 276.6 | 23.0 | 1.000046 |
| 50500.0 | 118.5 | -68.2 | | 201.5 | 557.7 | 275.1 | 26.3 | 1.000045 |
| 51000.0 | 115.6 | -67.9 | | 196.2 | 558.1 | 276.3 | 28.2 | 1.000044 |
| 51500.0 | 112.7 | -67.6 | | 191.0 | 556.5 | 278.0 | 29.8 | 1.000043 |
| 52000.0 | 109.9 | -67.3 | | 186.0 | 558.9 | 279.3 | 30.6 | 1.000041 |
| 52500.0 | 107.2 | -67.0 | | 181.1 | 559.3 | 280.6 | 31.3 | 1.000040 |
| 53000.0 | 104.5 | -66.7 | | 176.4 | 559.7 | 282.5 | 31.7 | 1.000039 |
| 53500.0 | 101.9 | -66.4 | | 171.7 | 560.1 | 284.7 | 32.0 | 1.000038 |
| 54000.0 | 99.4 | -66.2 | | 167.3 | 560.5 | 286.8 | 31.5 | 1.000037 |
| 54500.0 | 96.9 | -66.0 | | 163.0 | 560.7 | 289.2 | 30.4 | 1.000036 |
| 55000.0 | 94.6 | -65.9 | | 158.9 | 560.9 | 290.7 | 29.1 | 1.000035 |
| 55500.0 | 92.2 | -65.7 | | 154.9 | 561.1 | 290.9 | 27.3 | 1.000034 |
| 56000.0 | 90.0 | -65.5 | | 151.0 | 561.3 | 291.6 | 25.7 | 1.000034 |
| 56500.0 | 87.8 | -65.4 | | 147.2 | 561.5 | 293.6 | 24.3 | 1.000033 |
| 57000.0 | 85.6 | -65.2 | | 143.5 | 561.7 | 295.3 | 22.6 | 1.000032 |
| 57500.0 | 83.5 | -65.1 | | 139.8 | 561.9 | 296.3 | 20.0 | 1.000031 |
| 58000.0 | 81.5 | -64.9 | | 136.3 | 562.1 | 296.7 | 17.3 | 1.000030 |
| 58500.0 | 79.5 | -64.8 | | 132.8 | 562.4 | 295.6 | 14.4 | 1.000030 |
| 59000.0 | 77.5 | -64.6 | | 129.5 | 562.6 | 294.9 | 12.4 | 1.000029 |
| 59500.0 | 75.6 | -64.5 | | 126.2 | 562.8 | 295.4 | 11.7 | 1.000028 |
| 60000.0 | 73.8 | -64.3 | | 123.0 | 563.0 | | | 1.000027 |
| 60500.0 | 71.9 | -64.2 | | 119.9 | 563.2 | | | 1.000027 |
| 61000.0 | 70.2 | -64.0 | | 116.9 | 563.4 | | | 1.000026 |

STATION ALTITUDE 3989.00 FEET MSL
 10 NOV. 83
 ASCENDING NO. 001

MANDATORY LEVELS
 3140020551
 WHITE SANDS
 TABLE 6

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

| PRESSURE GEOPOTENTIAL | | TEMPERATURE | | REL. HUMIDITY | | WIND DATA | |
|-----------------------|--------|---------------------------|------------------------|---------------|--------------------------|----------------|--|
| MILLIBARS | FEET | AIR DEGREES CENTIGRADE | DEWPOINT CENTIGRADE | PERCENT | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 850.0 | 5077. | 7.2 | -1.2 | 55. | 232.9 | 1.7 | |
| 800.0 | 6675. | 7.1 | -5.5 | 40. | 281.6 | 6.5 | |
| 750.0 | 8415. | 8.4 | -16.3 | 16. | 319.7 | 10.7 | |
| 700.0 | 10279. | 6.6 | -14.1 | 15. | 298.2 | 12.9 | |
| 650.0 | 12260. | 3.2 | -20.0 | 16. | 285.7 | 15.7 | |
| 600.0 | 14374. | -7. | -14.1 | 25. | 292.4 | 17.9 | |
| 550.0 | 16674. | -5.6 | -14.0 | 49. | 291.8 | 25.4 | |
| 500.0 | 19062. | -11.1 | -17.9 | 57. | 290.1 | 32.3 | |
| 450.0 | 21684. | -17.2 | -21.9 | 60. | 293.5 | 30.7 | |
| 400.0 | 24551. | -23.4 | -30.1 | 54. | 293.9 | 32.0 | |
| 350.0 | 27709. | -30.7 | -41.8 | 32. | 280.5 | 31.5 | |
| 300.0 | 31236. | -39.4 | -44.6 | 57. | 283.1 | 30.9 | |
| 250.0 | 35239. | -50.0 | | | 283.5 | 41.2 | |
| 200.0 | 39899. | -61.7 | | | 289.3 | 46.5 | |
| 175.0 | 42591. | -65.0 | | | 284.9 | 40.9 | |
| 150.0 | 45672. | -66.0 | | | 292.0 | 41.1 | |
| 125.0 | 49298. | -67.3 | | | 282.1 | 20.7 | |
| 100.0 | 53710. | -66.2 | | | 286.2 | 31.8 | |
| 80.0 | 58163. | -64.8 | | | 290.0 | 15.4 | |
| 70.0 | 60841. | -64.0 | | | | | |

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

STATION ALTITUDE 4051.37 FEET MSL
 10 NOV. 83
 ASCENSION NO. 101

SIGNIFICANT LEVEL DATA
 3140180161
 LC-37

GEODETIC COORDINATES
 32-40175 LAT DEG
 106-31232 LON DEG

TABLE 7

| PRESSURE MILLIBARS | GEOMETRIC ALTITUDE MSL FEET | TEMPERATURE AIR DEGREES CENTIGRADE | TEMPERATURE DEWPOINT DEGREES CENTIGRADE | REL. HUM. PERCENT |
|-----------------------|-----------------------------------|---|--|----------------------|
| 882.6 | 4051.4 | 3.7 | -2.0 | 56.0 |
| 877.5 | 4206.1 | 4.0 | -4.0 | 56.0 |
| 876.4 | 4239.7 | 5.6 | -2.2 | 57.0 |
| 866.9 | 4533.3 | 7.0 | -5.0 | 42.0 |
| 850.0 | 5064.7 | 6.8 | -2.6 | 51.0 |
| 844.2 | 5249.5 | 7.0 | -2.2 | 52.0 |
| 834.0 | 5576.2 | 7.5 | -3.4 | 46.0 |
| 825.1 | 5860.2 | 7.3 | -13.0 | 22.0 |
| 814.9 | 6204.3 | 7.5 | -13.4 | 21.0 |
| 782.8 | 7287.4 | 5.5 | -1.9 | 59.0 |
| 776.1 | 7518.4 | 5.3 | -1.8 | 60.0 |
| 774.0 | 7591.3 | 6.2 | -3.7 | 42.0 |
| 763.6 | 7957.0 | 8.3 | -9.1 | 28.0 |
| 745.9 | 8593.3 | 8.7 | -15.7 | 19.0 |
| 700.0 | 10310.7 | 6.5 | -17.5 | 16.0 |
| 678.9 | 11132.8 | 4.9 | -18.6 | 16.0 |
| 623.9 | 13483.6 | 1.9 | -18.0 | 20.0 |
| 562.0 | 16121.7 | -4.5 | -13.1 | 51.0 |
| 553.6 | 16511.1 | -5.7 | -12.0 | 61.0 |
| 500.0 | 19112.3 | -10.9 | -17.7 | 57.0 |
| 460.4 | 20749.2 | -15.5 | -16.5 | 92.0 |
| 452.5 | 21604.7 | -17.2 | -19.0 | 66.0 |
| 433.8 | 22300.4 | -17.9 | -22.7 | 66.0 |
| 434.2 | 22390.0 | -18.5 | -23.1 | 67.0 |
| 417.0 | 23609.4 | -20.3 | -26.4 | 58.0 |
| 400.0 | 24610.0 | -23.4 | -28.0 | 62.0 |
| 394.6 | 24044.9 | -24.1 | -29.8 | 59.0 |
| 386.9 | 25410.9 | -25.4 | -29.9 | 66.0 |
| 380.4 | 25920.9 | -26.3 | -31.7 | 60.0 |
| 345.8 | 28060.9 | -31.5 | -39.6 | 44.0 |
| 318.8 | 29944.9 | -35.7 | -41.3 | 56.0 |
| 310.0 | 30583.3 | -37.6 | -40.9 | 71.0 |
| 300.0 | 31320.1 | -39.0 | -43.6 | 61.0 |
| 260.2 | 33740.8 | -45.1 | | |
| 250.0 | 35350.4 | -48.5 | | |
| 210.1 | 38264.6 | -56.2 | | |
| 200.0 | 40059.3 | -60.8 | | |
| 182.7 | 41902.0 | -63.3 | | |
| 163.9 | 44097.2 | -64.0 | | |
| 150.0 | 45884.7 | -65.0 | | |

STATION ALTITUDE 4051.37 FEET MSL
 10 NOV. 83
 ASCENSION NO. 161
 0800 HRS MST

SIGNIFICANT LEVEL DATA
 3140180161
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LONG DEG

TABLE 7 Con't

| PRESSURE GEOMETRIC MILLIBARS MSL FEET | TEMPERATURE AIR DEGREES CENTIGRADE | RELATIVE HUMIDITY PERCENT |
|--|--|---------------------------------|
| | | |
| 130.1 | 48735.8 | -66.5 |
| 110.5 | 50590.3 | -68.7 |
| 100.0 | 53761.8 | -66.5 |
| 86.5 | 56874.7 | -64.2 |
| 70.0 | 61163.1 | -63.0 |
| 64.7 | 62762.7 | -63.2 |
| 61.0 | 63665.9 | -61.0 |
| 50.0 | 68055.5 | -60.3 |

STATION ALTITUDE 4051.37 FTET ASL
 10 NOV. 83
 ASCENSION NO. 161

UPPER AIR DATA
 314010U161
 LC-37
 TABLE 8

GEODETIC COORDINATES
 32.40175 LAT (N)
 106.31232 LONG (E)

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES | WIND DIRECTION DEGREES (TN) | SPEED KNOTS | DENSITY GM/CM ³ | SOUND SPEED KNOTS | WIND DIRECTION DEGREES (TN) | SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|----------------------------|-----------------------------------|----------------|-------------------------------|-------------------------|-----------------------------------|----------------|---------------------------|
| | | | | | | | | | |
| 4051.4 | 842.6 | 3.7 | -2.0 | 66.0 | 1100.1 | 648.9 | 30.0 | 1.9 | 1.000273 |
| 4500.0 | 860.0 | 6.8 | -4.0 | 43.7 | 1077.9 | 652.5 | 345.5 | 1.2 | 1.000261 |
| 5000.0 | 852.0 | 6.8 | -2.9 | 49.9 | 1057.6 | 652.6 | 286.5 | 1.8 | 1.000260 |
| 5500.0 | 830.4 | 7.4 | -3.1 | 47.4 | 1036.4 | 653.2 | 267.8 | 3.1 | 1.000254 |
| 6000.0 | 821.1 | 7.4 | -13.1 | 21.6 | 1018.6 | 652.8 | 270.9 | 4.9 | 1.000238 |
| 6500.0 | 806.0 | 7.0 | -8.8 | 31.4 | 1001.0 | 652.5 | 286.0 | 7.8 | 1.000258 |
| 7000.0 | 791.2 | 6.0 | -3.9 | 48.9 | 985.1 | 651.6 | 291.3 | 10.3 | 1.000242 |
| 7500.0 | 770.6 | 5.3 | -1.0 | 59.9 | 969.1 | 650.9 | 293.3 | 12.1 | 1.000242 |
| 8000.0 | 762.4 | 8.3 | -0.5 | 27.2 | 942.2 | 654.1 | 297.9 | 12.7 | 1.000224 |
| 8500.0 | 743.5 | 8.6 | -14.5 | 17.8 | 924.4 | 654.3 | 304.1 | 12.8 | 1.000215 |
| 9000.0 | 734.8 | 8.2 | -16.1 | 16.0 | 909.0 | 653.7 | 307.5 | 12.7 | 1.000211 |
| 9500.0 | 721.3 | 7.5 | -16.0 | 16.0 | 894.4 | 653.0 | 309.5 | 12.6 | 1.000207 |
| 10000.0 | 705.1 | 6.9 | -17.1 | 16.0 | 880.1 | 652.2 | 306.2 | 12.9 | 1.000204 |
| 10500.0 | 695.1 | 6.1 | -17.0 | 16.0 | 866.3 | 651.3 | 300.9 | 13.3 | 1.000200 |
| 11000.0 | 682.3 | 5.2 | -18.0 | 16.0 | 853.3 | 650.2 | 293.1 | 14.2 | 1.000197 |
| 11500.0 | 669.6 | 4.4 | -18.7 | 16.7 | 839.8 | 649.3 | 287.8 | 14.8 | 1.000194 |
| 12000.0 | 657.2 | 3.7 | -18.0 | 17.5 | 826.1 | 648.5 | 284.0 | 15.2 | 1.000191 |
| 12500.0 | 644.9 | 3.1 | -18.6 | 18.4 | 812.7 | 647.7 | 284.1 | 15.6 | 1.000188 |
| 13000.0 | 632.9 | 2.4 | -18.6 | 19.3 | 799.5 | 647.0 | 285.7 | 16.0 | 1.000185 |
| 13500.0 | 621.1 | 1.6 | -18.1 | 21.3 | 786.8 | 646.1 | 285.6 | 17.1 | 1.000183 |
| 14000.0 | 609.4 | .5 | -16.3 | 27.0 | 775.1 | 644.7 | 285.3 | 18.2 | 1.000181 |
| 14500.0 | 597.9 | -.7 | -15.1 | 32.6 | 763.6 | 643.4 | 283.9 | 19.4 | 1.000180 |
| 15000.0 | 586.6 | -1.9 | -14.2 | 38.3 | 752.3 | 642.1 | 283.4 | 20.7 | 1.000178 |
| 15500.0 | 575.3 | -3.0 | -13.0 | 44.0 | 741.2 | 640.7 | 284.0 | 22.2 | 1.000176 |
| 16000.0 | 564.6 | -4.2 | -13.1 | 49.6 | 730.3 | 639.4 | 288.2 | 23.6 | 1.000174 |
| 16500.0 | 553.8 | -5.7 | -12.0 | 60.7 | 720.1 | 637.7 | 293.2 | 25.0 | 1.000173 |
| 17000.0 | 543.1 | -6.7 | -13.1 | 60.2 | 708.9 | 636.4 | 294.0 | 26.7 | 1.000170 |
| 17500.0 | 532.6 | -7.7 | -14.2 | 59.5 | 697.9 | 635.2 | 294.0 | 28.3 | 1.000166 |
| 18000.0 | 522.3 | -8.7 | -15.3 | 58.7 | 687.0 | 634.0 | 291.7 | 30.2 | 1.000163 |
| 18500.0 | 512.1 | -9.7 | -16.4 | 57.9 | 676.3 | 632.8 | 290.5 | 31.8 | 1.000160 |
| 19000.0 | 502.2 | -10.7 | -17.5 | 57.2 | 665.8 | 631.5 | 291.4 | 32.9 | 1.000157 |
| 19500.0 | 492.3 | -12.0 | -17.1 | 65.3 | 655.9 | 630.0 | 291.7 | 33.4 | 1.000155 |
| 20000.0 | 482.6 | -13.4 | -16.7 | 76.0 | 646.4 | 628.3 | 291.6 | 33.4 | 1.000153 |
| 20500.0 | 473.1 | -14.8 | -16.3 | 86.7 | 637.1 | 626.6 | 290.7 | 32.9 | 1.000151 |
| 21000.0 | 463.7 | -16.0 | -17.2 | 90.2 | 627.3 | 625.1 | 289.5 | 32.4 | 1.000149 |
| 21500.0 | 454.4 | -17.0 | -18.7 | 86.7 | 617.3 | 623.9 | 288.3 | 31.4 | 1.000146 |
| 22000.0 | 445.3 | -17.6 | -21.0 | 74.7 | 606.4 | 623.0 | 287.1 | 30.3 | 1.000142 |
| 22500.0 | 436.3 | -18.7 | -23.4 | 66.2 | 596.8 | 621.7 | 286.3 | 29.7 | 1.000138 |
| 23000.0 | 427.5 | -19.4 | -24.7 | 62.5 | 586.5 | 620.8 | 285.5 | 29.5 | 1.000135 |
| 23500.0 | 418.4 | -20.1 | -26.1 | 58.8 | 576.4 | 619.9 | 290.5 | 30.4 | 1.000133 |

STATION ALTITUDE 4051.37 FF. T MSL
 10 NOV. 83
 ASCENSION NO. 161

UPPER AIR DATA
 3140180161
 LC-37

GEODLTIC COORDINATES
 32.40175 LAT UEG
 106.31232 LON UEG

TABLE 8 Con't

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE HILLIAMS | AIR TEMPERATURE DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CM ³ METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEG (T/N) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|-------------------|------------------------------------|-------------------|----------------------------------|----------------------|-------------------------------|-------------|---------------------|
| 24000.0 | 410.5 | -21.5 | 59.5 | 567.7 | 618.2 | 290.9 | 31.0 | 1.000130 |
| 24500.0 | 402.0 | -23.0 | 61.5 | 559.5 | 616.3 | 291.0 | 31.5 | 1.000128 |
| 25000.0 | 393.7 | -24.5 | 59.8 | 550.8 | 614.8 | 290.2 | 31.4 | 1.000126 |
| 25500.0 | 385.6 | -25.6 | 64.8 | 542.3 | 613.1 | 289.3 | 31.2 | 1.000124 |
| 26000.0 | 377.5 | -26.7 | 58.7 | 533.5 | 611.7 | 288.8 | 31.8 | 1.000121 |
| 26500.0 | 369.6 | -27.9 | 55.2 | 524.7 | 610.2 | 288.4 | 32.4 | 1.000119 |
| 27000.0 | 361.8 | -29.0 | 51.6 | 516.2 | 608.8 | 287.7 | 33.2 | 1.000117 |
| 27500.0 | 354.2 | -30.2 | 48.0 | 507.8 | 607.3 | 286.7 | 33.7 | 1.000115 |
| 28000.0 | 346.8 | -31.5 | 44.5 | 499.5 | 605.9 | 284.1 | 34.0 | 1.000113 |
| 28500.0 | 339.4 | -32.5 | 44.8 | 491.1 | 604.5 | 282.0 | 34.2 | 1.000111 |
| 29000.0 | 332.1 | -33.6 | 50.0 | 482.6 | 603.0 | 280.6 | 34.2 | 1.000109 |
| 29500.0 | 325.0 | -34.7 | 53.2 | 474.7 | 601.6 | 279.3 | 34.2 | 1.000107 |
| 30000.0 | 318.0 | -35.9 | 57.3 | 466.8 | 600.2 | 278.2 | 34.0 | 1.000105 |
| 30500.0 | 311.1 | -37.4 | 69.0 | 459.6 | 598.3 | 277.5 | 33.3 | 1.000104 |
| 31000.0 | 304.5 | -38.4 | 65.4 | 451.5 | 597.0 | 277.4 | 31.5 | 1.000102 |
| 31500.0 | 297.7 | -39.4 | 56.6** | 443.6 | 595.6 | 277.8 | 30.2 | 1.000100 |
| 32000.0 | 291.1 | -40.7 | 44.0** | 436.2 | 594.0 | 279.0 | 29.6 | 1.000098 |
| 32500.0 | 284.0 | -42.0 | 31.3** | 428.8 | 592.4 | 279.8 | 30.6 | 1.000096 |
| 33000.0 | 278.5 | -43.2 | 18.7** | 421.6 | 590.7 | 280.2 | 33.6 | 1.000094 |
| 33500.0 | 272.1 | -44.5 | 6.1** | 414.8 | 589.1 | 280.2 | 36.9 | 1.000092 |
| 34000.0 | 266.0 | -45.6 | | 407.3 | 587.6 | 280.1 | 40.6 | 1.000091 |
| 34500.0 | 260.0 | -46.7 | | 400.0 | 586.3 | 280.3 | 43.5 | 1.000089 |
| 35000.0 | 254.1 | -47.7 | | 392.7 | 584.9 | 280.7 | 45.6 | 1.000087 |
| 35500.0 | 248.5 | -48.9 | | 385.7 | 583.4 | 280.7 | 47.1 | 1.000086 |
| 36000.0 | 242.6 | -50.2 | | 379.0 | 581.7 | 280.5 | 48.0 | 1.000084 |
| 36500.0 | 236.9 | -51.5 | | 372.4 | 580.0 | 280.0 | 49.1 | 1.000083 |
| 37000.0 | 231.4 | -52.9 | | 366.0 | 578.2 | 279.4 | 50.2 | 1.000082 |
| 37500.0 | 226.1 | -54.2 | | 359.7 | 576.5 | 279.7 | 51.4 | 1.000080 |
| 38000.0 | 220.8 | -55.5 | | 353.4 | 574.7 | 280.9 | 52.6 | 1.000079 |
| 38500.0 | 215.6 | -56.8 | | 347.2 | 573.0 | 282.6 | 52.8 | 1.000077 |
| 39000.0 | 210.5 | -58.1 | | 341.0 | 571.3 | 284.9 | 52.2 | 1.000076 |
| 39500.0 | 205.5 | -59.4 | | 334.8 | 569.6 | 286.6 | 50.5 | 1.000075 |
| 40000.0 | 200.6 | -60.6 | | 328.6 | 567.9 | 287.8 | 47.7 | 1.000073 |
| 40500.0 | 195.7 | -61.4 | | 322.0 | 566.9 | 288.4 | 46.0 | 1.000072 |
| 41000.0 | 191.0 | -62.1 | | 315.2 | 566.0 | 288.6 | 45.2 | 1.000070 |
| 41500.0 | 186.3 | -62.8 | | 308.5 | 565.1 | 288.3 | 44.8 | 1.000069 |
| 42000.0 | 181.8 | -63.5 | | 301.9 | 564.3 | 287.8 | 44.7 | 1.000067 |
| 42500.0 | 177.4 | -63.5 | | 294.7 | 564.1 | 286.9 | 44.4 | 1.000066 |
| 43000.0 | 173.1 | -63.6 | | 287.6 | 563.9 | 285.9 | 44.0 | 1.000064 |
| 43500.0 | 168.8 | -63.8 | | 280.9 | 563.7 | 284.7 | 43.7 | 1.000063 |

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

UPPER AIR DATA
3140180161
LC-37

STATION ALTITUDE 4051.7 FEET MSL
10 NOV. 83
ASCENSION NO. 161

GEOMETRIC COORDINATES
52.40175 LAT DEG
106.31232 LON DEG

TABLE 8 Con't

| 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 |
|-----------------------------------|-----------------------|---|----------------------|------------------------------|----------------------------|---|----------------|---------------------------|
| 44000.0 | 164.7 | -64.0 | | 274.3 | 563.5 | 284.7 | 43.4 | 1.000061 |
| 43500.0 | 160.7 | -64.2 | | 267.9 | 563.1 | 285.0 | 42.9 | 1.000060 |
| 43000.0 | 156.7 | -64.5 | | 261.7 | 562.7 | 286.4 | 41.1 | 1.000058 |
| 42500.0 | 152.7 | -64.8 | | 255.6 | 562.4 | 288.0 | 39.2 | 1.000057 |
| 42000.0 | 149.1 | -65.1 | | 249.7 | 562.0 | 292.9 | 34.0 | 1.000056 |
| 41500.0 | 145.5 | -65.3 | | 243.8 | 561.6 | 299.6 | 29.1 | 1.000054 |
| 41000.0 | 141.9 | -65.6 | | 238.1 | 561.3 | 301.8 | 24.7 | 1.000053 |
| 40500.0 | 138.4 | -65.8 | | 232.5 | 560.9 | 303.7 | 20.4 | 1.000052 |
| 40000.0 | 135.0 | -66.1 | | 227.1 | 560.6 | 291.9 | 19.1 | 1.000051 |
| 39500.0 | 131.6 | -66.4 | | 221.8 | 560.2 | 275.7 | 20.3 | 1.000049 |
| 39000.0 | 128.4 | -66.8 | | 216.7 | 559.6 | 268.9 | 23.6 | 1.000048 |
| 38500.0 | 125.2 | -67.4 | | 212.0 | 558.8 | 267.6 | 27.7 | 1.000047 |
| 38000.0 | 122.1 | -68.0 | | 207.3 | 558.0 | 270.5 | 30.2 | 1.000046 |
| 37500.0 | 119.0 | -68.6 | | 202.7 | 557.2 | 277.4 | 31.4 | 1.000045 |
| 37000.0 | 116.1 | -68.4 | | 197.5 | 557.4 | 282.3 | 32.4 | 1.000044 |
| 36500.0 | 113.2 | -68.1 | | 192.3 | 557.9 | 284.3 | 32.4 | 1.000043 |
| 36000.0 | 110.4 | -67.8 | | 187.2 | 558.3 | 285.9 | 32.4 | 1.000042 |
| 35500.0 | 107.6 | -67.5 | | 182.3 | 558.7 | 286.0 | 31.9 | 1.000041 |
| 35000.0 | 105.0 | -67.1 | | 177.5 | 559.2 | 286.1 | 31.5 | 1.000040 |
| 34500.0 | 102.4 | -66.8 | | 172.8 | 559.6 | 289.5 | 30.9 | 1.000038 |
| 34000.0 | 99.8 | -66.5 | | 168.2 | 560.1 | 293.0 | 30.4 | 1.000037 |
| 33500.0 | 97.4 | -66.1 | | 163.8 | 560.6 | 293.8 | 30.4 | 1.000036 |
| 33000.0 | 95.0 | -65.7 | | 159.5 | 561.1 | 295.6 | 30.5 | 1.000035 |
| 32500.0 | 92.6 | -65.3 | | 155.2 | 561.7 | 299.6 | 27.3 | 1.000034 |
| 32000.0 | 90.4 | -64.9 | | 151.1 | 562.2 | 299.6 | 22.1 | 1.000033 |
| 31500.0 | 88.1 | -64.5 | | 147.1 | 562.7 | 303.6 | 17.9 | 1.000033 |
| 31000.0 | 85.9 | -64.2 | | 143.3 | 563.2 | 305.1 | 14.8 | 1.000032 |
| 30500.0 | 83.7 | -64.0 | | 139.7 | 563.4 | 307.7 | 11.9 | 1.000031 |
| 30000.0 | 81.6 | -63.9 | | 136.2 | 563.6 | 300.7 | 12.0 | 1.000030 |
| 29500.0 | 79.6 | -63.7 | | 132.8 | 563.6 | 294.7 | 12.2 | 1.000030 |
| 29000.0 | 77.4 | -63.6 | | 129.5 | 563.9 | 289.2 | 11.6 | 1.000029 |
| 28500.0 | 75.0 | -63.5 | | 126.2 | 564.1 | 282.9 | 10.8 | 1.000028 |
| 28000.0 | 74.1 | -63.3 | | 123.1 | 564.3 | 273.7 | 10.8 | 1.000027 |
| 27500.0 | 72.3 | -63.2 | | 120.0 | 564.5 | 262.8 | 12.1 | 1.000027 |
| 27000.0 | 70.6 | -63.0 | | 117.0 | 564.7 | 255.0 | 13.6 | 1.000026 |
| 26500.0 | 69.0 | -63.0 | | 114.4 | 564.7 | 259.3 | 14.2 | 1.000025 |
| 26000.0 | 67.2 | -63.1 | | 111.4 | 564.6 | 253.2 | 15.0 | 1.000025 |
| 25500.0 | 65.5 | -63.2 | | 108.7 | 564.5 | 253.2 | 14.7 | 1.000024 |
| 25000.0 | 64.0 | -62.6 | | 105.8 | 563.3 | 261.9 | 14.1 | 1.000024 |
| 24500.0 | 62.4 | -61.4 | | 102.7 | 560.9 | 262.4 | 13.8 | 1.000023 |

STATION ALTITUDE 4051.37 FT MSL
 10 NOV. 63
 ASCENSION NO. 161

UPPER AIR DATA
 3140180161
 LC-37

GEOMETRIC COORDINATES
 32.91175 LAT DEG
 106.31232 LONG DEG

TABLE 8 Con't

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION (DEGREES(TN)) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|---|----------------------|------------------------------|----------------------------|---|----------------|---------------------------|
| 64000.0 | 60.9 | -60.9 | | 100.0 | 567.5 | 255.3 | 14.0 | 1.000022 |
| 64500.0 | 59.4 | -60.9 | | 97.5 | 567.6 | 268.5 | 14.3 | 1.000022 |
| 65000.0 | 58.0 | -60.8 | | 95.2 | 567.7 | 283.2 | 12.4 | 1.000021 |
| 65500.0 | 56.6 | -60.7 | | 92.8 | 567.6 | 301.5 | 11.6 | 1.000021 |
| 66000.0 | 55.3 | -60.6 | | 90.0 | 567.9 | 314.7 | 10.0 | 1.000020 |
| 66500.0 | 53.9 | -60.5 | | 88.4 | 568.0 | 329.1 | 7.9 | 1.000020 |
| 67000.0 | 52.6 | -60.5 | | 86.2 | 568.1 | | | 1.000019 |
| 67500.0 | 51.4 | -60.4 | | 84.1 | 568.3 | | | 1.000019 |
| 68000.0 | 50.1 | -60.3 | | 82.1 | 568.4 | | | 1.000018 |

STATION ALTITUDE 4051.37 FEET MSL
 10 NOV. 83
 ASCENSION NO. 161

MAINTAINRY LEVELLS
 3140180161
 LC-37

GEOMETIC COORDINATES
 32-44N75 LAT DEG
 105-31232 LON DEG

TABLE 9

| PRESSURE GEOPOTENTIAL | | TEMPERATURE | | REL. HUM. | | WIND DATA | |
|-----------------------|--------|-------------------------------|------------------------|-----------|--------------------------|----------------|--|
| MILLIBARS | FEET | AIR DEGREEFS CENTIGRADE | DEWPOINT CENTIGRADE | PERCENT | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 850.0 | 5061. | 6.8 | -2.6 | 51. | 282.8 | 1.9 | |
| 800.0 | 6627. | 6.6 | -6.5 | 38. | 289.2 | 9.1 | |
| 750.0 | 8437. | 8.6 | -13.8 | 19. | 303.4 | 12.8 | |
| 700.0 | 10301. | 6.5 | -17.5 | 16. | 304.2 | 13.1 | |
| 650.0 | 12281. | 3.4 | -18.6 | 18. | 283.4 | 15.5 | |
| 600.0 | 14377. | -0.5 | -15.3 | 32. | 284.1 | 19.2 | |
| 550.0 | 16658. | -6.0 | -12.4 | 61. | 293.7 | 25.6 | |
| 500.0 | 19085. | -10.9 | -17.7 | 57. | 291.5 | 33.1 | |
| 450.0 | 21708. | -17.3 | -19.6 | 82. | 287.7 | 30.9 | |
| 400.0 | 24577. | -23.4 | -28.6 | 62. | 291.0 | 31.6 | |
| 350.0 | 27734. | -30.8 | -38.6 | 46. | 285.3 | 33.9 | |
| 300.0 | 31264. | -39.0 | -43.6 | 61. | 277.4 | 30.5 | |
| 250.0 | 35279. | -49.5 | | | 280.8 | 46.8 | |
| 200.0 | 39963. | -60.8 | | | 287.9 | 47.4 | |
| 175.0 | 42666. | -63.6 | | | 280.2 | 44.2 | |
| 150.0 | 45761. | -65.0 | | | 291.4 | 35.4 | |
| 125.0 | 49300. | -67.4 | | | 267.6 | 27.7 | |
| 100.0 | 53796. | -66.5 | | | 292.6 | 30.5 | |
| 80.0 | 58262. | -63.8 | | | 295.6 | 12.1 | |
| 70.0 | 60954. | -63.0 | | | 256.2 | 13.7 | |
| 60.0 | 64076. | -60.0 | | | 266.9 | 14.2 | |
| 50.0 | 67800. | -60.3 | | | | | |

STATION ALTITUDE 3989.00 FEET MSL
 10 NOV. 63
 ASCENSION NO. 552

3140020552
 WHITE SANDS

32.40043 LAT DEG
 106.37033 LONG DEG

SIGNIFICANT LEVEL DATA

TABLE 10

| PRESSURE GEOMETRIC MILLIBARS MSL FEET | TEMPERATURE AIR DEGREES | TEMPERATURE DEWPOINT CENTIGRADE | R. L. HUM. PERCENT | |
|--|----------------------------|---------------------------------------|-----------------------|----------|
| | | | | ALTITUDE |
| 884.4 | 5289.0 | 8.5 | -1.0 | 51.0 |
| 877.8 | 4193.0 | 10.3 | -5.2 | 33.0 |
| 855.8 | 4483.1 | 7.7 | -6.0 | 37.0 |
| 850.0 | 5067.1 | 7.5 | -2.5 | 49.0 |
| 834.4 | 5400.4 | 7.1 | -2.1 | 52.0 |
| 826.6 | 5822.0 | 7.9 | -13.6 | 20.0 |
| 821.2 | 5999.5 | 8.2 | -10.6 | 25.0 |
| 801.3 | 6663.8 | 7.6 | -5.1 | 40.0 |
| 782.0 | 7123.0 | 6.8 | -1.3 | 56.0 |
| 774.8 | 7572.7 | 6.7 | -3.0 | 47.0 |
| 765.5 | 7799.5 | 8.7 | -14.3 | 18.0 |
| 756.6 | 8217.6 | 10.1 | -15.3 | 15.0 |
| 700.0 | 10323.4 | 6.5 | -19.0 | 14.0 |
| 614.8 | 13790.2 | 1.5 | -21.5 | 16.0 |
| 591.3 | 14417.9 | -0.6 | -12.5 | 40.0 |
| 575.3 | 15537.3 | -1.7 | -15.6 | 33.0 |
| 554.8 | 17429.8 | -6.8 | -17.0 | 44.0 |
| 500.0 | 19140.0 | -12.3 | -17.1 | 67.0 |
| 493.7 | 19459.4 | -11.7 | -17.5 | 62.0 |
| 463.1 | 21060.1 | -15.8 | -20.2 | 69.0 |
| 450.5 | 21010.2 | -16.0 | -20.0 | 71.0 |
| 440.0 | 21427.1 | -15.9 | -22.2 | 58.0 |
| 437.6 | 22463.2 | -17.4 | -24.4 | 54.0 |
| 400.0 | 24652.8 | -23.4 | -27.0 | 72.0 |
| 380.3 | 25862.1 | -26.3 | -29.2 | 76.0 |
| 300.0 | 31357.7 | -39.5 | -43.3 | 67.0 |
| 250.0 | 35382.6 | -49.1 | | |
| 200.0 | 40089.5 | -60.0 | | |
| 172.3 | 43131.8 | -53.5 | | |
| 150.0 | 45931.5 | -64.4 | | |
| 124.1 | 48940.7 | -65.8 | | |
| 117.4 | 50037.3 | -60.5 | | |
| 100.1 | 52290.0 | -66.0 | | |
| 100.0 | 54038.3 | -66.3 | | |
| 70.0 | 61230.4 | -62.4 | | |
| 50.0 | 68119.9 | -61.1 | | |
| 45.5 | 70069.6 | -58.0 | | |
| 37.7 | 74003.0 | -56.2 | | |
| 34.1 | 76107.2 | -57.1 | | |
| 30.9 | 78180.1 | -54.2 | | |

STATION ALTITUDE 3449.00 FEET MSL
10 NOV. 63
ASCENSION NO. 552

STATIONARY LEVEL DATA
31400 20552
WHITE SANDS

GEODETTIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

TABLE 10 Con't

| PRESSURE GEOMETRIC | TEMPERATURE | REL. HUM. |
|--------------------|--------------------|-----------|
| ALTITUDE | AIR DEWPOINT | PERCENT |
| MILLIBARS MSL FEET | DEGREES CENTIGRADE | |
| 30.0 7800.0 | -55.0 | |
| 26.0 87442.3 | -51.9 | |
| 15.1 93502.6 | -49.7 | |

STATION ALTITUDE 3989.00 FEET MSL
 10 NOV. 63
 ASCENSION NO. 552

UPPER AIR DATA
 3140020552
 WHITE SANDS

GEOMETRIC COORDINATES
 52.40043 LAT DEG
 106.37033 LONG DEG

TABLE 11

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARMS | AIR TEMPERATURE DEGREES | WIND POINT DEGREES | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DIRECTION (DEGREES TRUE) | WIND SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|---------------------|-------------------------|--------------------|-------------------|------------------------|----------------------|-------------------------------|------------------|---------------------|
| 3989.0 | 884.4 | 8.5 | -1.0 | 51.0 | 1091.2 | 654.6 | .0 | .0 | 1.000270 |
| 4000.0 | 884.0 | 8.6 | -1.2 | 50.0 | 1090.5 | 654.7 | | | 1.000270 |
| 4500.0 | 867.9 | 9.1 | -5.6 | 34.8 | 1069.2 | 655.1 | | | 1.000257 |
| 5000.0 | 852.1 | 7.6 | -3.7 | 44.6 | 1055.3 | 653.4 | | | 1.000257 |
| 5500.0 | 836.5 | 7.3 | -3.9 | 44.8 | 1037.0 | 653.1 | | | 1.000253 |
| 6000.0 | 821.2 | 8.2 | -10.6 | 25.0 | 1015.5 | 653.9 | | | 1.000239 |
| 6500.0 | 806.2 | 7.7 | -6.3 | 36.3 | 998.0 | 653.5 | | | 1.000241 |
| 7000.0 | 791.4 | 7.2 | -3.0 | 48.2 | 981.1 | 653.1 | | | 1.000242 |
| 7500.0 | 776.9 | 6.7 | -3.0 | 49.6 | 964.7 | 652.5 | | | 1.000239 |
| 8000.0 | 762.7 | 9.1 | -14.0 | 17.1 | 940.3 | 654.9 | | | 1.000219 |
| 8500.0 | 748.8 | 9.6 | -15.8 | 14.9 | 921.6 | 655.4 | | | 1.000214 |
| 9000.0 | 735.1 | 8.8 | -16.7 | 14.6 | 907.6 | 654.4 | | | 1.000210 |
| 9500.0 | 721.6 | 7.9 | -17.6 | 14.4 | 893.7 | 653.4 | | | 1.000206 |
| 10000.0 | 708.5 | 7.1 | -18.5 | 14.2 | 880.1 | 652.4 | | | 1.000203 |
| 10500.0 | 695.4 | 6.2 | -19.1 | 14.1 | 866.5 | 651.4 | | | 1.000200 |
| 11000.0 | 682.5 | 5.5 | -19.5 | 14.4 | 852.6 | 650.6 | | | 1.000196 |
| 11500.0 | 669.9 | 4.8 | -19.8 | 14.7 | 839.0 | 649.7 | | | 1.000193 |
| 12000.0 | 657.4 | 4.1 | -20.2 | 15.0 | 825.5 | 648.9 | | | 1.000190 |
| 12500.0 | 645.2 | 3.4 | -20.6 | 15.3 | 812.4 | 648.0 | | | 1.000187 |
| 13000.0 | 633.3 | 2.6 | -20.9 | 15.5 | 799.4 | 647.2 | | | 1.000184 |
| 13500.0 | 621.5 | 1.9 | -21.3 | 15.8 | 786.6 | 646.3 | | | 1.000181 |
| 14000.0 | 609.9 | 1.1 | -18.8 | 20.9 | 774.2 | 645.4 | | | 1.000179 |
| 14500.0 | 598.5 | .0 | -14.4 | 32.6 | 762.2 | 644.3 | | | 1.000180 |
| 15000.0 | 587.2 | -.9 | -13.3 | 38.2 | 750.3 | 643.3 | | | 1.000178 |
| 15500.0 | 576.1 | -1.6 | -15.6 | 33.4 | 738.3 | 642.3 | | | 1.000174 |
| 16000.0 | 565.1 | -2.9 | -16.6 | 35.7 | 727.7 | 640.6 | | | 1.000171 |
| 16500.0 | 554.3 | -4.3 | -16.3 | 38.6 | 717.4 | 639.2 | | | 1.000169 |
| 17000.0 | 543.7 | -5.6 | -16.9 | 41.5 | 707.3 | 637.6 | | | 1.000166 |
| 17500.0 | 533.3 | -7.0 | -16.9 | 44.9 | 697.3 | 635.9 | | | 1.000164 |
| 18000.0 | 522.9 | -8.6 | -16.6 | 51.7 | 687.9 | 634.0 | | | 1.000162 |
| 18500.0 | 512.8 | -10.2 | -16.8 | 58.4 | 678.6 | 632.1 | | | 1.000160 |
| 19000.0 | 502.8 | -11.8 | -17.0 | 65.1 | 669.5 | 630.1 | | | 1.000158 |
| 19500.0 | 492.9 | -11.8 | -17.5 | 62.2 | 656.2 | 630.2 | | | 1.000155 |
| 20000.0 | 483.1 | -13.1 | -18.4 | 64.4 | 648.5 | 628.6 | | | 1.000152 |
| 20500.0 | 473.6 | -14.4 | -19.2 | 66.6 | 636.8 | 627.0 | | | 1.000149 |
| 21000.0 | 464.2 | -15.6 | -20.1 | 68.7 | 627.4 | 625.5 | | | 1.000147 |
| 21500.0 | 455.0 | -16.0 | -20.4 | 68.3 | 615.7 | 625.1 | | | 1.000144 |
| 22000.0 | 445.9 | -16.3 | -20.8 | 56.9 | 604.3 | 624.0 | | | 1.000140 |
| 22500.0 | 436.9 | -17.5 | -24.5 | 54.3 | 595.0 | 623.1 | | | 1.000137 |
| 23000.0 | 428.1 | -18.9 | -25.0 | 58.4 | 586.0 | 621.4 | | | 1.000135 |

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 3989.00 FEET MSL
 10 NOV. 83
 ASCENSION NO. 552
 0935 HRS. MST

UPPER AIR DATA
 3140020552
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 11 Con't

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES CENTIGRADE | WETBULB TEMPERATURE DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CM ³ | SPEED OF SOUND KNOTS | WIND DIRECTION DEGREES (TN) | WIND SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|---|-------------------|-------------------------------|-------------------------|--------------------------------|---------------------|---------------------|
| 23500.0 | 419.4 | -20.2 | -25.5 | 62.5 | 577.3 | 619.0 | 286.1 | 28.5 | 1.000133 |
| 24000.0 | 410.9 | -21.6 | -26.1 | 66.6 | 568.6 | 618.1 | 286.7 | 28.9 | 1.000131 |
| 24500.0 | 402.5 | -23.0 | -26.6 | 70.7 | 560.2 | 616.4 | 286.6 | 28.6 | 1.000129 |
| 25000.0 | 394.2 | -24.2 | -27.0 | 73.1 | 551.4 | 614.8 | 285.9 | 27.7 | 1.000127 |
| 25500.0 | 386.1 | -25.4 | -28.0 | 74.8 | 542.7 | 613.3 | 285.1 | 27.5 | 1.000124 |
| 26000.0 | 378.0 | -26.6 | -28.6 | 75.8 | 533.9 | 611.6 | 284.4 | 27.6 | 1.000122 |
| 26500.0 | 370.0 | -27.8 | -30.9 | 75.0 | 525.1 | 610.3 | 283.3 | 29.3 | 1.000120 |
| 27000.0 | 362.1 | -29.0 | -32.2 | 74.1 | 516.5 | 608.6 | 282.3 | 31.0 | 1.000118 |
| 27500.0 | 354.3 | -30.2 | -33.4 | 73.3 | 508.0 | 607.3 | 282.0 | 30.6 | 1.000115 |
| 28000.0 | 346.8 | -31.4 | -34.7 | 72.5 | 499.6 | 605.8 | 281.7 | 30.1 | 1.000113 |
| 28500.0 | 339.4 | -32.6 | -36.0 | 71.7 | 491.4 | 604.3 | 281.8 | 28.9 | 1.000111 |
| 29000.0 | 332.1 | -33.8 | -37.3 | 70.9 | 483.3 | 602.8 | 281.8 | 27.9 | 1.000109 |
| 29500.0 | 325.0 | -35.0 | -38.5 | 70.0 | 475.4 | 601.2 | 281.3 | 27.4 | 1.000107 |
| 30000.0 | 318.1 | -36.2 | -39.8 | 69.2 | 467.7 | 599.7 | 281.2 | 27.3 | 1.000105 |
| 30500.0 | 311.3 | -37.4 | -41.1 | 68.4 | 460.0 | 598.2 | 281.5 | 28.0 | 1.000104 |
| 31000.0 | 304.7 | -38.6 | -42.3 | 67.6 | 452.5 | 596.6 | 282.1 | 28.8 | 1.000102 |
| 31500.0 | 298.1 | -39.8 | -43.9 | 64.6** | 445.0 | 595.1 | 283.2 | 29.9 | 1.000100 |
| 32000.0 | 291.4 | -41.0 | -46.3 | 56.3** | 437.3 | 593.6 | 284.0 | 31.0 | 1.000098 |
| 32500.0 | 284.9 | -42.2 | -48.0 | 48.0** | 429.7 | 592.0 | 284.5 | 32.2 | 1.000096 |
| 33000.0 | 278.5 | -43.4 | -51.5 | 39.7** | 422.3 | 590.5 | 284.6 | 33.4 | 1.000094 |
| 33500.0 | 272.3 | -44.6 | -54.6 | 31.3** | 415.0 | 589.0 | 284.1 | 34.5 | 1.000093 |
| 34000.0 | 266.2 | -45.8 | -58.1 | 23.0** | 407.8 | 587.4 | 283.5 | 35.5 | 1.000091 |
| 34500.0 | 260.2 | -47.0 | -62.0 | 14.7** | 400.8 | 585.9 | 282.4 | 35.7 | 1.000089 |
| 35000.0 | 254.4 | -48.2 | -66.5 | 6.4** | 393.9 | 584.3 | 281.3 | 35.9 | 1.000088 |
| 35500.0 | 248.6 | -49.4 | | | 387.0 | 582.8 | 278.8 | 36.9 | 1.000086 |
| 36000.0 | 242.8 | -50.5 | | | 379.9 | 581.3 | 276.5 | 38.1 | 1.000085 |
| 36500.0 | 237.1 | -51.7 | | | 373.0 | 579.8 | 274.7 | 41.7 | 1.000083 |
| 37000.0 | 231.5 | -52.8 | | | 366.1 | 578.2 | 273.4 | 45.2 | 1.000082 |
| 38000.0 | 220.1 | -54.0 | | | 359.5 | 576.7 | 273.8 | 47.1 | 1.000080 |
| 38500.0 | 220.8 | -55.2 | | | 352.9 | 575.2 | 274.2 | 49.0 | 1.000079 |
| 38500.0 | 215.7 | -56.3 | | | 346.5 | 573.7 | 273.9 | 50.4 | 1.000077 |
| 39000.0 | 210.6 | -57.5 | | | 340.2 | 572.1 | 273.6 | 51.8 | 1.000076 |
| 39500.0 | 205.7 | -58.6 | | | 334.0 | 570.6 | 274.5 | 50.7 | 1.000074 |
| 40000.0 | 200.9 | -59.8 | | | 327.9 | 569.0 | 275.6 | 49.2 | 1.000073 |
| 40500.0 | 196.0 | -60.5 | | | 321.1 | 568.1 | 277.3 | 47.5 | 1.000072 |
| 41000.0 | 191.3 | -61.0 | | | 314.2 | 567.4 | 279.2 | 45.7 | 1.000070 |
| 41500.0 | 186.6 | -61.6 | | | 307.4 | 566.6 | 280.1 | 44.6 | 1.000068 |
| 42000.0 | 182.1 | -62.2 | | | 300.8 | 565.8 | 280.0 | 44.2 | 1.000067 |
| 42500.0 | 177.7 | -62.8 | | | 294.3 | 565.1 | 280.0 | 43.5 | 1.000066 |
| 43000.0 | 173.4 | -63.3 | | | 287.9 | 564.3 | 280.4 | 42.3 | 1.000064 |

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

UPPER AIR DATA
 3141020552
 WHITE SANDS
 TABLE 11 Con't

STATION: ALTITUDE 3949.00 FEET MSL
 20 NOV. 63
 ASCENSION NO. 352

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LO. DEG

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES CENTIGRADE | REL.HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|---|---------------------|------------------------------|----------------------------|--------------------------|----------------|---------------------------|
| | | | | | | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 43500.0 | 169.2 | -63.6 | | 281.3 | 563.9 | 280.7 | 41.3 | 1.000063 |
| 44000.0 | 163.1 | -63.8 | | 274.6 | 563.7 | 280.5 | 40.7 | 1.000061 |
| 44500.0 | 161.0 | -63.9 | | 268.1 | 563.5 | 280.0 | 40.3 | 1.000060 |
| 45000.0 | 157.1 | -64.1 | | 261.8 | 563.3 | 281.9 | 40.4 | 1.000058 |
| 45500.0 | 153.2 | -64.3 | | 255.6 | 563.1 | 283.1 | 40.6 | 1.000057 |
| 46000.0 | 149.5 | -64.4 | | 249.5 | 562.8 | 287.0 | 39.2 | 1.000056 |
| 46500.0 | 145.8 | -64.7 | | 243.6 | 562.5 | 291.0 | 37.8 | 1.000054 |
| 47000.0 | 142.2 | -64.9 | | 237.9 | 562.2 | 293.3 | 33.0 | 1.000053 |
| 47500.0 | 138.7 | -65.1 | | 232.3 | 561.9 | 292.8 | 25.8 | 1.000052 |
| 48000.0 | 135.3 | -65.4 | | 226.9 | 561.6 | 287.5 | 20.4 | 1.000051 |
| 48500.0 | 132.0 | -65.6 | | 221.0 | 561.3 | 272.5 | 18.9 | 1.000049 |
| 49000.0 | 128.8 | -65.9 | | 216.4 | 560.9 | 259.6 | 19.5 | 1.000048 |
| 49500.0 | 125.6 | -66.6 | | 211.8 | 559.9 | 263.9 | 23.8 | 1.000047 |
| 50000.0 | 122.4 | -67.3 | | 207.2 | 558.9 | 266.8 | 28.3 | 1.000046 |
| 50500.0 | 119.4 | -68.0 | | 202.8 | 558.0 | 272.0 | 31.5 | 1.000045 |
| 51000.0 | 116.4 | -68.2 | | 197.9 | 557.7 | 276.2 | 34.9 | 1.000044 |
| 51500.0 | 113.6 | -67.4 | | 192.2 | 558.9 | 279.7 | 36.3 | 1.000043 |
| 52000.0 | 110.7 | -66.5 | | 186.7 | 560.0 | 282.9 | 36.0 | 1.000042 |
| 52500.0 | 108.0 | -66.0 | | 181.6 | 560.7 | 286.9 | 36.7 | 1.000040 |
| 53000.0 | 105.3 | -66.1 | | 177.2 | 560.5 | 292.4 | 35.6 | 1.000039 |
| 53500.0 | 102.7 | -66.2 | | 172.9 | 560.4 | 297.5 | 34.6 | 1.000037 |
| 54000.0 | 100.2 | -66.3 | | 168.7 | 560.3 | 297.8 | 32.2 | 1.000036 |
| 54500.0 | 97.7 | -66.0 | | 164.4 | 560.6 | 298.1 | 29.8 | 1.000037 |
| 55000.0 | 95.3 | -65.8 | | 160.2 | 561.0 | 296.6 | 27.6 | 1.000036 |
| 55500.0 | 93.0 | -65.5 | | 156.1 | 561.4 | 294.2 | 25.5 | 1.000035 |
| 56000.0 | 90.7 | -65.2 | | 152.0 | 561.7 | 292.8 | 22.6 | 1.000034 |
| 56500.0 | 88.5 | -65.0 | | 148.1 | 562.1 | 293.2 | 18.6 | 1.000033 |
| 57000.0 | 86.4 | -64.7 | | 144.3 | 562.5 | 293.0 | 14.8 | 1.000032 |
| 57500.0 | 84.2 | -64.4 | | 140.6 | 562.8 | 286.8 | 12.7 | 1.000031 |
| 58000.0 | 82.2 | -64.2 | | 137.0 | 563.2 | 278.4 | 10.9 | 1.000031 |
| 58500.0 | 80.2 | -63.9 | | 133.5 | 563.6 | 277.1 | 11.4 | 1.000030 |
| 59000.0 | 78.2 | -63.6 | | 130.0 | 563.9 | 277.6 | 12.3 | 1.000029 |
| 59500.0 | 76.3 | -63.3 | | 126.7 | 564.3 | 275.7 | 12.4 | 1.000028 |
| 60000.0 | 74.4 | -63.1 | | 123.4 | 564.7 | 271.6 | 12.0 | 1.000027 |
| 60500.0 | 72.5 | -62.8 | | 120.2 | 565.0 | 268.5 | 12.4 | 1.000027 |
| 61000.0 | 70.8 | -62.5 | | 117.2 | 565.4 | 269.9 | 15.3 | 1.000026 |
| 61500.0 | 69.1 | -62.4 | | 114.2 | 565.6 | 270.6 | 18.2 | 1.000025 |
| 62000.0 | 67.4 | -62.3 | | 111.4 | 565.8 | 275.0 | 18.5 | 1.000025 |
| 62500.0 | 65.8 | -62.2 | | 108.7 | 565.9 | 279.3 | 18.8 | 1.000024 |
| 63000.0 | 64.2 | -62.1 | | 106.0 | 566.0 | 280.0 | 17.1 | 1.000024 |

STATION ALTITUDE 3989.00 FEET MSL
 10 NOV. 83 0935 HR; MST
 ASCENSION NO. 552

UPPER AIR DATA
 3140020552
 WHITE SANDS

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 11 Con't

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CM ³ METER | SPEED OF SOUND KNOTS | WIND DIRECTION DEGREES (TN) | WIND SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|------------------------------------|-------------------|----------------------------------|----------------------|-----------------------------|------------------|---------------------|
| 63500.0 | 62.7 | -62.0 | | 103.4 | 560.1 | 278.4 | 14.3 | 1.000023 |
| 64000.0 | 61.2 | -61.9 | | 100.8 | 566.3 | 278.0 | 12.3 | 1.000022 |
| 64500.0 | 59.7 | -61.8 | | 98.4 | 566.4 | 280.7 | 11.7 | 1.000022 |
| 65000.0 | 58.2 | -61.7 | | 95.9 | 566.5 | 283.9 | 11.1 | 1.000021 |
| 65500.0 | 56.8 | -61.6 | | 93.6 | 566.6 | 291.3 | 11.1 | 1.000021 |
| 66000.0 | 55.5 | -61.5 | | 91.3 | 566.8 | 298.5 | 11.3 | 1.000020 |
| 66500.0 | 54.1 | -61.4 | | 89.0 | 566.9 | 301.9 | 9.7 | 1.000020 |
| 67000.0 | 52.8 | -61.3 | | 86.9 | 567.0 | 305.4 | 7.7 | 1.000019 |
| 67500.0 | 51.5 | -61.2 | | 84.7 | 567.1 | 306.7 | 6.9 | 1.000019 |
| 68000.0 | 50.3 | -61.1 | | 82.6 | 567.3 | 304.4 | 7.0 | 1.000018 |
| 68500.0 | 49.1 | -60.5 | | 80.4 | 568.1 | 303.0 | 7.1 | 1.000018 |
| 69000.0 | 47.9 | -59.7 | | 78.2 | 569.2 | 304.1 | 6.6 | 1.000017 |
| 69500.0 | 46.8 | -58.9 | | 76.1 | 570.2 | 305.5 | 6.1 | 1.000017 |
| 70000.0 | 45.7 | -58.1 | | 74.0 | 571.3 | 301.7 | 4.5 | 1.000016 |
| 70500.0 | 44.6 | -57.8 | | 72.1 | 571.7 | 292.4 | 2.8 | 1.000016 |
| 71000.0 | 43.5 | -57.6 | | 70.3 | 572.0 | 261.6 | 2.3 | 1.000016 |
| 71500.0 | 42.5 | -57.3 | | 68.6 | 572.3 | 234.8 | 3.2 | 1.000015 |
| 72000.0 | 41.5 | -57.1 | | 66.9 | 572.6 | 222.8 | 4.3 | 1.000015 |
| 72500.0 | 40.5 | -56.9 | | 65.3 | 572.9 | 220.1 | 4.4 | 1.000015 |
| 73000.0 | 39.6 | -56.7 | | 63.6 | 573.2 | 217.6 | 4.6 | 1.000014 |
| 73500.0 | 38.6 | -56.4 | | 62.1 | 573.5 | 208.6 | 3.9 | 1.000014 |
| 74000.0 | 37.7 | -56.2 | | 60.5 | 573.8 | 193.1 | 3.2 | 1.000013 |
| 74500.0 | 36.8 | -56.4 | | 59.2 | 573.5 | 185.1 | 3.4 | 1.000013 |
| 75000.0 | 35.9 | -56.6 | | 57.8 | 573.3 | 189.5 | 4.6 | 1.000013 |
| 75500.0 | 34.9 | -56.8 | | 56.5 | 573.0 | 196.0 | 5.7 | 1.000013 |
| 76000.0 | 34.3 | -57.1 | | 55.3 | 572.7 | 230.6 | 7.7 | 1.000012 |
| 76500.0 | 33.5 | -56.6 | | 53.8 | 573.4 | 247.4 | 11.2 | 1.000012 |
| 77000.0 | 32.7 | -55.9 | | 52.4 | 574.3 | 259.0 | 13.3 | 1.000012 |
| 77500.0 | 31.9 | -55.2 | | 51.0 | 575.2 | 269.7 | 14.8 | 1.000011 |
| 78000.0 | 31.2 | -54.5 | | 49.7 | 576.1 | 278.1 | 16.6 | 1.000011 |
| 78500.0 | 30.4 | -54.6 | | 48.5 | 575.9 | 281.2 | 15.4 | 1.000011 |
| 79000.0 | 29.7 | -54.9 | | 47.5 | 575.5 | 284.8 | 14.4 | 1.000011 |
| 79500.0 | 29.0 | -54.8 | | 46.3 | 575.7 | 291.6 | 13.6 | 1.000010 |
| 80000.0 | 28.4 | -54.6 | | 45.2 | 576.0 | 302.3 | 13.5 | 1.000010 |
| 80500.0 | 27.7 | -54.4 | | 44.1 | 576.2 | 312.7 | 13.9 | 1.000010 |
| 81000.0 | 27.1 | -54.2 | | 43.1 | 576.4 | 319.0 | 14.1 | 1.000010 |
| 81500.0 | 26.4 | -54.0 | | 42.0 | 576.7 | 324.4 | 14.2 | 1.000009 |
| 82000.0 | 25.8 | -53.9 | | 41.0 | 576.9 | 329.2 | 14.0 | 1.000009 |
| 82500.0 | 25.2 | -53.7 | | 40.0 | 577.1 | 332.5 | 11.8 | 1.000009 |
| 83000.0 | 24.6 | -53.5 | | 39.1 | 577.4 | 337.4 | 9.7 | 1.000009 |

STATION ALTITUDE 5989.00 FT. T MSL
 10 NOV. 63 0935 HRS MSL
 ASCENSION NO. 552

UPPER AIR DATA
 3140020552
 WHITE SAWS

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 11 Con't

| 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 | |
| 83500.0 | 24.1 | -53.3 | | 38.1 | 577.6 | 339.6 | 8.5 | 1.000008 |
| 84000.0 | 23.5 | -53.1 | | 37.2 | 577.4 | 338.7 | 7.9 | 1.000008 |
| 84500.0 | 23.0 | -53.0 | | 36.3 | 578.1 | 337.7 | 7.3 | 1.000008 |
| 85000.0 | 22.4 | -52.8 | | 35.5 | 578.3 | 314.3 | 6.6 | 1.000008 |
| 85500.0 | 21.9 | -52.6 | | 34.6 | 578.6 | 289.9 | 7.1 | 1.000008 |
| 86000.0 | 21.4 | -52.4 | | 33.8 | 578.8 | 272.7 | 8.8 | 1.000008 |
| 86500.0 | 20.9 | -52.2 | | 33.0 | 579.0 | 267.2 | 11.2 | 1.000007 |
| 87000.0 | 20.4 | -52.1 | | 32.2 | 579.3 | 263.7 | 13.7 | 1.000007 |
| 87500.0 | 19.9 | -51.9 | | 31.4 | 579.5 | 262.2 | 15.9 | 1.000007 |
| 88000.0 | 19.5 | -51.7 | | 30.7 | 579.7 | 266.1 | 16.1 | 1.000007 |
| 88500.0 | 19.0 | -51.5 | | 29.9 | 580.0 | 270.0 | 16.4 | 1.000007 |
| 89000.0 | 18.6 | -51.3 | | 29.2 | 580.2 | 273.6 | 16.4 | 1.000006 |
| 89500.0 | 18.2 | -51.2 | | 28.5 | 580.5 | 277.8 | 13.2 | 1.000006 |
| 90000.0 | 17.8 | -51.0 | | 27.9 | 580.7 | 284.4 | 10.1 | 1.000006 |
| 90500.0 | 17.4 | -50.8 | | 27.2 | 580.9 | 295.4 | 7.4 | 1.000006 |
| 91000.0 | 17.0 | -50.6 | | 26.5 | 581.2 | 296.9 | 6.6 | 1.000006 |
| 91500.0 | 16.6 | -50.4 | | 25.9 | 581.4 | 298.9 | 5.8 | 1.000006 |
| 92000.0 | 16.2 | -50.2 | | 25.3 | 581.6 | | | 1.000005 |
| 92500.0 | 15.8 | -50.1 | | 24.7 | 581.9 | | | 1.000005 |
| 93000.0 | 15.5 | -49.9 | | 24.1 | 582.1 | | | 1.000005 |
| 93500.0 | 15.1 | -49.7 | | 23.5 | 582.4 | | | 1.000005 |

STATION ALTITUDE 3989.00 FEET MSL
 10 NOV. 83
 ASCENSION NO. 352

MANDATORY LEVELS
 3140020552
 WHITE SANDS
 TABLE 12

GEOMETRIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

| PRESSURE GEOPOTENTIAL MILLIBARS | FLEET | AIR TEMPERATURE DEGREES CENTIGRADE | REL. HUMIDITY PERCENT | WIND DATA | |
|------------------------------------|--------|---|--------------------------|-----------------------------|----------------|
| | | | | DIRECTION (DEGREES TRUE) | SPEED KNOTS |
| 850.0 | 3063. | 7.5 | 49. | 9999.0 | 9999.0XX |
| 800.0 | 6702. | 7.5 | 41. | 283.7 | 10.0 |
| 750.0 | 8449. | 9.7 | 15. | 305.2 | 11.7 |
| 700.0 | 10315. | 6.5 | 14. | 298.0 | 12.7 |
| 650.0 | 12298. | 3.6 | 15. | 283.2 | 15.0 |
| 600.0 | 14416. | .2 | 31. | 289.7 | 20.2 |
| 550.0 | 16686. | -4.8 | 40. | 298.8 | 21.8 |
| 500.0 | 19113. | -12.3 | 67. | 290.9 | 25.9 |
| 450.0 | 21738. | -15.9 | 60. | 279.9 | 28.5 |
| 400.0 | 24611. | -23.4 | 72. | 286.4 | 28.4 |
| 350.0 | 27769. | -30.9 | 73. | 281.7 | 30.4 |
| 300.0 | 31295. | -39.5 | 67. | 282.8 | 29.6 |
| 250.0 | 35305. | -49.1 | | 279.5 | 36.6 |
| 200.0 | 39993. | -60.0 | | 275.8 | 49.0 |
| 175.0 | 42708. | -63.1 | | 280.2 | 42.8 |
| 150.0 | 45808. | -64.4 | | 266.2 | 39.5 |
| 125.0 | 49449. | -66.7 | | 264.3 | 24.4 |
| 100.0 | 53872. | -66.3 | | 297.8 | 32.1 |
| 80.0 | 58374. | -63.9 | | 277.1 | 11.3 |
| 70.0 | 61029. | -62.4 | | 270.3 | 10.5 |
| 60.0 | 64155. | -61.9 | | 279.8 | 11.8 |
| 50.0 | 67864. | -61.1 | | 304.1 | 7.1 |
| 40.0 | 72471. | -56.8 | | 219.0 | 4.5 |
| 30.0 | 78473. | -55.0 | | 283.1 | 14.9 |
| 25.0 | 82307. | -53.6 | | 333.7 | 11.2 |
| 20.0 | 87034. | -51.9 | | 261.7 | 15.7 |

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

END

FILMED

02-84

DTIC