

AD-A081 758 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19702A GSRS, MISSILE NUMBER 315, ROUND NUMBER B-40, 12 OCTOBER --ETC(U)
OCT 79

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October 1979

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METEOROLOGICAL DATA REPORT

19702A GSRS
Missile No. 315
Round No. B-40
12 October 1979

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ELECTE
MAR 12 1980
S D C

BY

White Sands Meteorological Team

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number) 1. Ballistics 2. Meteorology 3. Wind | | |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19702A GSRS, Missile Number 315, Round Number B-40 are presented in tabular form. | | |

REPORT DOCUMENTATION PAGE
CONTENTS

| | PAGE |
|---|------|
| INTRODUCTION----- | 1 |
| DISCUSSION----- | 1 |
| LAUNCH AREA MAP----- | 2 |
| GENERAL AREA MAP----- | 3 |
| TABLES: | |
| 1. Surface Observations taken at 1613 MDT at LC-33----- | 4 |
| 2. Anemometer-Measured Wind Speed and Direction, LC-33 Fixed Pole, taken at 1612 MDT----- | 5 |
| 3. Anemometer-Measured Wind Speed and direction, Tower Levels 1, 2, 3 and 4, taken at 1612----- | 6 |
| 4. LC-33 Pilot Balloon Measured Wind Data at 1550 MDT----- | 7 |
| 5. LC-33 Pilot Balloon Measured Wind Data at 1612 MDT----- | 8 |
| 6. NICK SITE Pilot Balloon Measured Wind Data at 1612 MDT----- | 9 |
| 7. SMR Significant Level Data at 1530 MST----- | 10 |
| 8. SMR Upper Air Data at 1530 MST----- | 11 |
| 9. SMR Mandatory Levels at 1530 MST----- | 15 |

INTRODUCTION

19702A GSRS, Missile Number 315, Round Number B-40, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1612:06 MDT, 12 October 1979. The scheduled launch time was 1600 MDT.

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 RPTS T-9 pibal observation at:

SITE AND ALTITUDE

LC-33 2 km
NICK 2 km

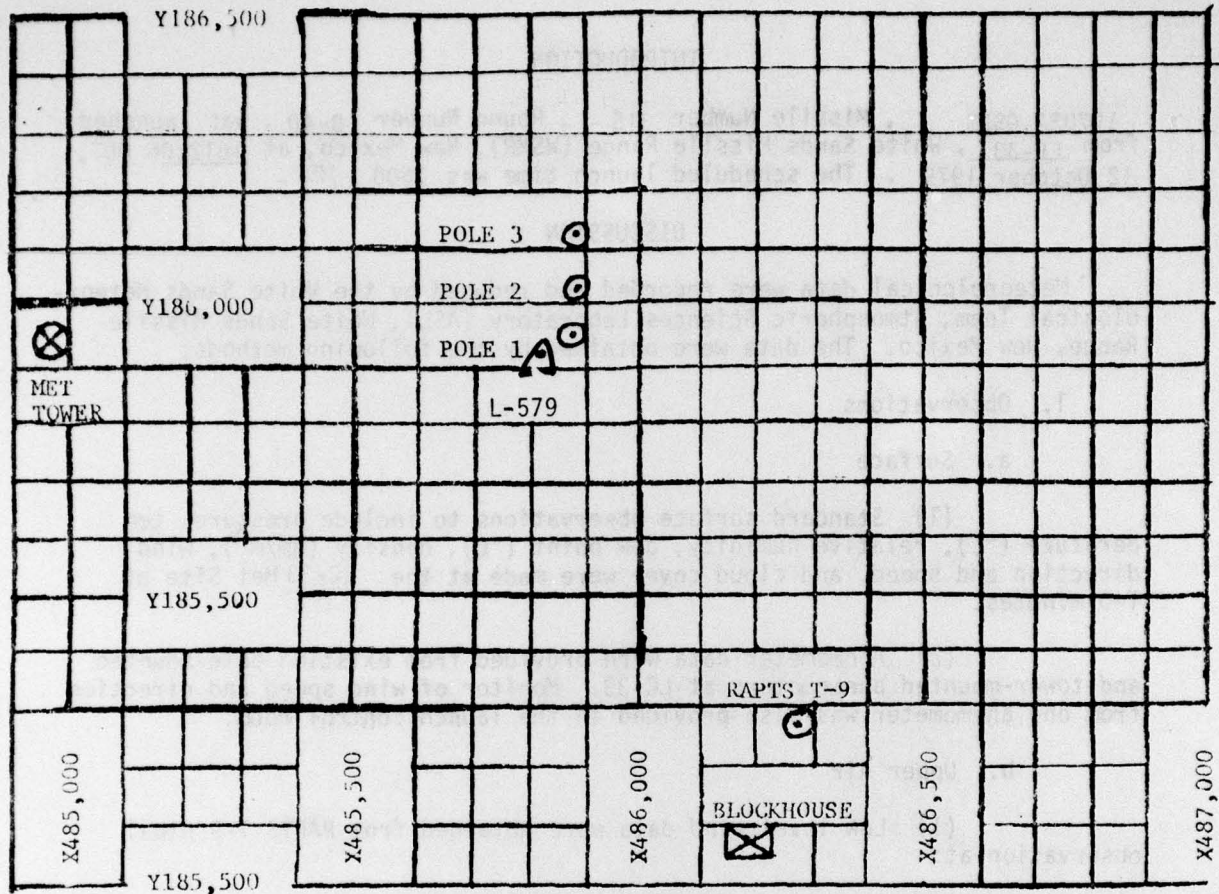
(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 78,500 feet in 500-foot increments.

SITE AND TIME

SMR 1530 MST

| | |
|--------------------|-------------------------------------|
| Accession For | |
| NTIS GAMA | <input checked="" type="checkbox"/> |
| DDC TAB | <input type="checkbox"/> |
| Unannounced | <input type="checkbox"/> |
| Justification | |
| By _____ | |
| Distribution/ | |
| Availability Codes | |
| Dist | Avail and/or special |
| A | 23 8 |

NORTH



1. MET TOWER - 4 Bendix Model T-20 Anemometers at 12 ft, 62 ft, 102 ft, and 202 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. RAPT'S T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

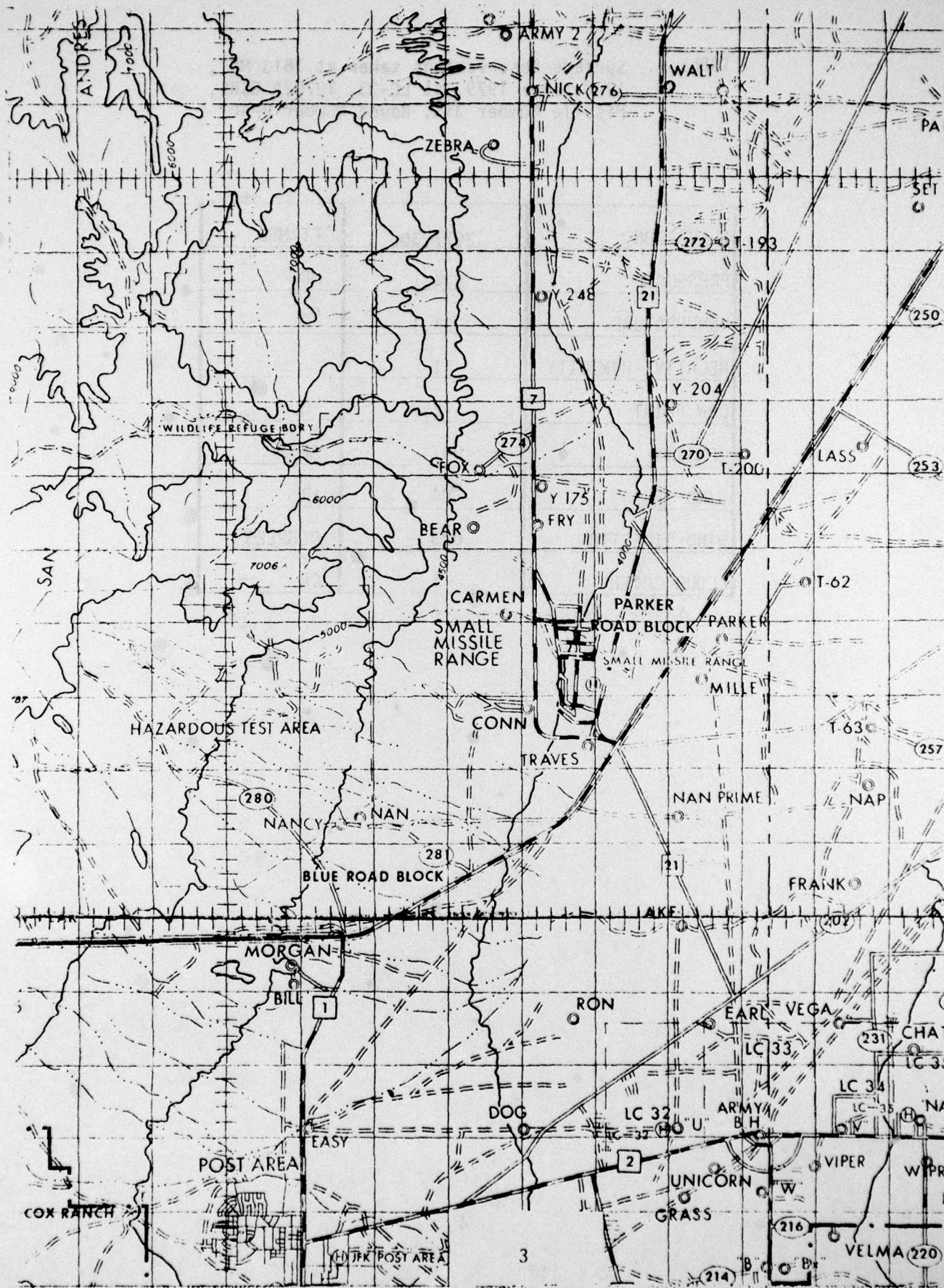


TABLE 1. Surface Observations taken at 1613 MDT,
12 October 1979, at LC-33, 19702A GSRS,
Missile Number 315, Round Number B-40.

| | | |
|-------------------|---------|-------------------|
| ELEVATION | 3977.30 | FT/MSL |
| PRESSURE | 874.1 | MBS |
| TEMPERATURE | 31.1 | °C |
| RELATIVE HUMIDITY | 11 | % |
| DEW POINT | -2.7 | °C |
| DENSITY | 997 | GM/M ³ |
| WIND SPEED | 04 | KTS |
| WIND DIRECTION | 023 | DEGREES |
| CLOUD COVER | 1 | Ci |

LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

| POLE #1 | | | POLE #2 | | | POLE #3 | | |
|---------------|------------|--------------|---------------|------------|--------------|---------------|------------|--------------|
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| -30 | 282 | 14 | -30 | 280 | 13 | -30 | 273 | 13 |
| -20 | 273 | 16 | -20 | 280 | 10 | -20 | 257 | 11 |
| -10 | 282 | 16 | -10 | 284 | 14 | -10 | 279 | 13 |
| 0.0 | 276 | 14 | 0.0 | 280 | 14 | 0.0 | 276 | 14 |
| +10 | 278 | 11 | +10 | 281 | 11 | +10 | 268 | 13 |

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft AGL

TABLE 2

TYPE 19702A GSRS MISSILE NO. 315 ROUND NO. B-40

LAUNCHED FROM LC-33 DATE 12 October 1979 TIME 1612:06 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

| LEVEL #1 12 Feet | | | LEVEL #2 62 Feet | | |
|----------------------|------------|--------------|----------------------|------------|--------------|
| T-TIME SEC | DIR DLG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| -30 | MISG | 10 | -30 | 267 | 10 |
| -20 | MISG | 10 | -20 | 275 | 11 |
| -10 | MISG | 10 | -10 | 283 | 11 |
| 0.0 | MISG | 09 | 0.0 | 258 | 09 |
| +10 | MISG | 07 | +10 | 255 | 06 |
| LEVEL #3 102 Feet | | | LEVEL #4 202 Feet | | |
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| -30 | 264 | 12 | -30 | 239 | 10 |
| -20 | 275 | 11 | -20 | 256 | 11 |
| -10 | 263 | 10 | -10 | 249 | 11 |
| 0.0 | 263 | 09 | 0.0 | 230 | 09 |
| +10 | 246 | 08 | +10 | 241 | 13 |

WTSM COORDINATES: X484,982.64 Y185,057.73 H3983.00 (base)

TABLE 3

TYPE 19702A GSRS MISSILE NO. 315 ROUND NO. B-40

LAUNCHED FROM LC-33 DATE 12 October 1979 TIME 1612:06 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

STATION ALTITUDE 3997.30 FEET MSL
 12 OCT. 79
 ASCENSION NO. 349

SIGNIFICANT LEVEL DATA
 205000349
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 7

| PRESSURE MILLIBARS | GEOMETRIC ALTITUDE MSL FEET | TEMPERATURE | | REL. HUM. PERCENT |
|-----------------------|-----------------------------------|------------------------------|------------------------|----------------------|
| | | AIR DEGREES CENTIGRADE | DEWPOINT CENTIGRADE | |
| 873.7 | 3997.3 | 30.2 | -2.3 | 12.0 |
| 861.5 | 4414.1 | 28.2 | .9 | 17.0 |
| 850.0 | 4797.4 | 27.3 | .1 | 17.0 |
| 758.3 | 6797.2 | 15.3 | -8.8 | 18.0 |
| 700.0 | 10266.3 | 11.5 | -12.0 | 18.0 |
| 679.6 | 11071.1 | 11.2 | -13.7 | 16.0 |
| 581.5 | 15281.5 | .6 | -13.4 | 34.0 |
| 546.8 | 16382.8 | -4.0 | -17.2 | 35.0 |
| 522.6 | 18046.0 | -4.5 | -27.1 | 15.0 |
| 500.0 | 19196.1 | -6.5 | -28.8 | 15.0 |
| 400.0 | 24791.1 | -19.5 | -35.7 | 22.0 |
| 300.0 | 31585.9 | -36.9 | -47.8 | 31.0 |
| 292.5 | 32176.5 | -38.4 | -49.4 | 30.0 |
| 250.0 | 35648.5 | -47.4 | | |
| 200.0 | 40355.7 | -58.9 | | |
| 175.8 | 42683.0 | -62.8 | | |
| 173.3 | 43320.8 | -60.8 | | |
| 150.0 | 46288.9 | -62.6 | | |
| 135.3 | 45353.9 | -65.1 | | |
| 122.3 | 50386.6 | -64.6 | | |
| 108.8 | 52717.5 | -69.2 | | |
| 100.0 | 54370.9 | -71.4 | | |
| 90.8 | 56260.0 | -69.9 | | |
| 75.4 | 59867.9 | -72.6 | | |
| 73.9 | 60281.3 | -68.8 | | |
| 70.0 | 61356.1 | -67.5 | | |
| 50.0 | 68172.5 | -60.0 | | |
| 41.5 | 72137.8 | -57.7 | | |
| 33.5 | 76699.5 | -51.0 | | |
| 30.0 | 78941.2 | -51.8 | | |

STATION ALTITUDE 3997.30 FEET MSL
 12 OCT. 79
 ASCENSION NO. 349

UPPER AIR DATA
 2650060349
 S M R
 TABLE 8

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND M/SEC | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|------------------------------|------------------------|----------------------|------------------------------|----------------------------|----------------------------|----------------|---------------------------|
| | | AIR DEGREES CENTIGRADE | DEWPOINT CENTIGRADE | | | | DIRECTION, DEGREES (TR) | SPEED KNOTS | |
| 3997.3 | 873.7 | 30.2 | -2.3 | 12.0 | 1001.1 | 679.3 | 240.0 | 9.9 | 1.000244 |
| 4000.0 | 873.6 | 30.2 | -2.3 | 12.0 | 1001.1 | 679.3 | 240.0 | 9.9 | 1.000244 |
| 4500.0 | 830.8 | 28.0 | .7 | 17.0 | 990.6 | 677.0 | 247.5 | 10.3 | 1.000248 |
| 5000.0 | 844.0 | 26.7 | -1.4 | 17.1 | 977.9 | 675.5 | 254.3 | 10.9 | 1.000243 |
| 5500.0 | 829.2 | 25.2 | -1.4 | 17.2 | 965.8 | 673.7 | 260.4 | 11.6 | 1.000239 |
| 6000.0 | 814.7 | 23.7 | -2.5 | 17.3 | 953.9 | 672.0 | 269.0 | 11.0 | 1.000234 |
| 6500.0 | 800.5 | 22.2 | -3.7 | 17.4 | 942.2 | 670.2 | 279.2 | 10.5 | 1.000230 |
| 7000.0 | 785.5 | 20.7 | -4.8 | 17.6 | 930.6 | 668.5 | 281.2 | 11.4 | 1.000226 |
| 7500.0 | 772.8 | 19.2 | -5.9 | 17.7 | 919.1 | 666.7 | 282.3 | 12.4 | 1.000222 |
| 8000.0 | 759.3 | 17.7 | -7.0 | 17.8 | 907.9 | 665.0 | 282.8 | 13.5 | 1.000218 |
| 8500.0 | 746.1 | 16.2 | -8.2 | 17.9 | 896.8 | 663.2 | 282.4 | 14.6 | 1.000215 |
| 9000.0 | 732.9 | 14.8 | -9.3 | 18.0 | 885.4 | 661.0 | 282.7 | 15.6 | 1.000211 |
| 9500.0 | 719.7 | 13.5 | -10.3 | 18.0 | 873.5 | 658.0 | 284.4 | 16.0 | 1.000207 |
| 10000.0 | 706.8 | 12.2 | -11.4 | 18.0 | 861.8 | 655.5 | 286.2 | 16.1 | 1.000204 |
| 10500.0 | 694.1 | 11.4 | -12.4 | 17.4 | 848.6 | 657.6 | 289.0 | 15.8 | 1.000200 |
| 11000.0 | 681.0 | 11.2 | -13.5 | 16.2 | 835.9 | 657.4 | 293.0 | 15.4 | 1.000196 |
| 11500.0 | 669.0 | 10.1 | -13.2 | 17.8 | 821.8 | 650.1 | 298.0 | 14.9 | 1.000193 |
| 12000.0 | 658.7 | 8.9 | -12.9 | 20.0 | 810.2 | 654.7 | 293.5 | 15.7 | 1.000191 |
| 12500.0 | 644.6 | 7.6 | -12.7 | 22.1 | 798.8 | 653.2 | 297.0 | 16.5 | 1.000189 |
| 13000.0 | 632.8 | 6.3 | -12.6 | 24.2 | 787.6 | 651.8 | 294.5 | 17.2 | 1.000187 |
| 13500.0 | 621.1 | 5.1 | -12.6 | 26.4 | 776.6 | 650.3 | 291.0 | 17.6 | 1.000184 |
| 14000.0 | 609.7 | 3.8 | -12.7 | 28.5 | 765.7 | 648.8 | 287.2 | 17.4 | 1.000182 |
| 14500.0 | 598.4 | 2.6 | -13.0 | 30.7 | 755.0 | 647.3 | 285.1 | 16.9 | 1.000179 |
| 15000.0 | 587.4 | 1.3 | -13.2 | 32.8 | 744.5 | 645.9 | 285.9 | 16.1 | 1.000177 |
| 15500.0 | 576.5 | .0 | -13.9 | 34.1 | 734.3 | 644.3 | 288.4 | 14.9 | 1.000174 |
| 16000.0 | 565.6 | -1.5 | -15.1 | 34.4 | 724.3 | 642.5 | 293.2 | 13.4 | 1.000171 |
| 16500.0 | 554.9 | -2.9 | -16.3 | 34.8 | 714.4 | 640.8 | 295.6 | 12.5 | 1.000168 |
| 17000.0 | 544.3 | -4.1 | -17.9 | 33.0 | 703.9 | 639.4 | 290.5 | 11.9 | 1.000165 |
| 17500.0 | 533.9 | -4.3 | -21.0 | 24.4 | 691.2 | 639.1 | 292.3 | 13.1 | 1.000160 |
| 18000.0 | 523.7 | -4.5 | -26.8 | 15.8 | 676.7 | 637.7 | 285.3 | 14.7 | 1.000155 |
| 18500.0 | 513.7 | -5.3 | -27.8 | 15.0 | 667.6 | 637.7 | 285.0 | 16.5 | 1.000152 |
| 19000.0 | 503.8 | -6.2 | -28.5 | 15.0 | 657.1 | 636.7 | 285.0 | 18.4 | 1.000149 |
| 19500.0 | 494.0 | -7.2 | -29.1 | 15.4 | 646.8 | 635.4 | 289.0 | 20.1 | 1.000147 |
| 20000.0 | 484.2 | -8.4 | -29.0 | 16.0 | 636.6 | 634.1 | 291.9 | 21.8 | 1.000145 |
| 20500.0 | 474.7 | -9.5 | -30.2 | 16.6 | 627.0 | 632.7 | 292.4 | 23.3 | 1.000142 |
| 21000.0 | 465.3 | -10.7 | -30.8 | 17.3 | 617.4 | 631.3 | 290.1 | 24.3 | 1.000140 |
| 21500.0 | 456.1 | -11.9 | -31.4 | 17.9 | 607.9 | 629.9 | 284.6 | 25.0 | 1.000138 |
| 22000.0 | 447.1 | -13.0 | -32.0 | 18.5 | 598.5 | 628.4 | 280.5 | 26.0 | 1.000136 |
| 22500.0 | 438.3 | -14.2 | -32.6 | 19.1 | 589.4 | 627.0 | 276.6 | 27.1 | 1.000135 |
| 23000.0 | 429.6 | -15.3 | -33.3 | 19.8 | 580.3 | 625.6 | 270.2 | 28.1 | 1.000131 |

UPPER AIR DATA
 285000349
 S M R

STATION ALTITUDE 3997.30 FEET MSL
 12 OCT. 79
 ASCENSION NO. 349

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LONG DEG

TABLE 8 (CONT)

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL. HUM. PERCENT | DE. DENSITY GM/CUBIC METER | SPEED SOUND KNOTS | WIND DIRECTION DEGREES (T.M) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|------------------------------------|-------------------|----------------------------|-------------------|------------------------------|-------------|---------------------|
| 23500.0 | 421.1 | -16.5 | 20.4 | 571.5 | 624.2 | 276.7 | 29.2 | 1.000129 |
| 24000.0 | 412.0 | -17.7 | 21.0 | 562.7 | 622.8 | 279.1 | 30.0 | 1.000127 |
| 24500.0 | 404.7 | -18.8 | 21.6 | 554.1 | 621.4 | 279.4 | 30.6 | 1.000125 |
| 25000.0 | 396.5 | -20.0 | 22.3 | 545.5 | 619.9 | 280.2 | 31.2 | 1.000123 |
| 25500.0 | 388.2 | -21.3 | 22.9 | 536.8 | 618.3 | 281.6 | 31.8 | 1.000121 |
| 26000.0 | 380.0 | -22.6 | 23.6 | 528.3 | 616.7 | 283.1 | 32.5 | 1.000119 |
| 26500.0 | 372.1 | -23.9 | 24.3 | 519.9 | 615.1 | 284.7 | 33.4 | 1.000117 |
| 27000.0 | 364.3 | -25.2 | 24.9 | 511.6 | 613.6 | 285.4 | 34.3 | 1.000115 |
| 27500.0 | 356.7 | -26.4 | 25.6 | 503.5 | 612.0 | 285.4 | 35.3 | 1.000113 |
| 28000.0 | 349.2 | -27.7 | 26.3 | 495.5 | 610.4 | 285.6 | 36.8 | 1.000111 |
| 28500.0 | 341.9 | -29.0 | 26.9 | 487.7 | 608.8 | 285.5 | 38.6 | 1.000110 |
| 29000.0 | 334.7 | -30.3 | 27.6 | 480.0 | 607.2 | 287.9 | 40.0 | 1.000108 |
| 29500.0 | 327.7 | -31.6 | 28.2 | 472.5 | 605.6 | 289.5 | 41.4 | 1.000106 |
| 30000.0 | 320.8 | -32.8 | 28.9 | 465.0 | 604.0 | 289.3 | 42.5 | 1.000104 |
| 30500.0 | 314.1 | -34.1 | 29.6 | 457.7 | 602.3 | 288.9 | 43.5 | 1.000103 |
| 31000.0 | 307.5 | -35.4 | 30.2 | 450.6 | 600.7 | 287.8 | 42.9 | 1.000101 |
| 31500.0 | 301.1 | -36.7 | 30.9 | 443.5 | 599.1 | 286.4 | 42.0 | 1.000099 |
| 32000.0 | 294.6 | -38.0 | 30.3 | 436.3 | 597.5 | 286.0 | 40.4 | 1.000098 |
| 32500.0 | 288.1 | -39.2 | 27.2** | 429.0 | 595.8 | 287.2 | 38.5 | 1.000096 |
| 33000.0 | 281.7 | -40.5 | 22.9** | 421.8 | 594.2 | 288.0 | 39.4 | 1.000094 |
| 33500.0 | 275.4 | -41.8 | 18.6** | 414.7 | 592.5 | 288.0 | 40.5 | 1.000093 |
| 34000.0 | 269.3 | -43.1 | 14.2** | 407.6 | 590.9 | 288.1 | 41.3 | 1.000091 |
| 34500.0 | 263.3 | -44.4 | 9.9** | 401.0 | 589.2 | 287.7 | 42.0 | 1.000089 |
| 35000.0 | 257.4 | -45.7 | 5.6** | 394.3 | 587.5 | 287.6 | 40.4 | 1.000088 |
| 35500.0 | 251.7 | -47.0 | 1.3** | 387.7 | 585.8 | 287.9 | 38.8 | 1.000086 |
| 36000.0 | 245.9 | -48.3 | | 380.9 | 584.2 | 288.0 | 38.4 | 1.000085 |
| 36500.0 | 240.2 | -49.5 | | 374.0 | 582.7 | 288.1 | 38.1 | 1.000083 |
| 37000.0 | 234.6 | -50.7 | | 367.3 | 581.1 | 288.0 | 38.2 | 1.000082 |
| 37500.0 | 229.1 | -51.9 | | 360.7 | 579.5 | 287.6 | 39.4 | 1.000080 |
| 38000.0 | 223.8 | -53.1 | | 354.3 | 577.9 | 288.7 | 39.7 | 1.000079 |
| 38500.0 | 218.5 | -54.3 | | 348.0 | 576.3 | 288.2 | 40.0 | 1.000078 |
| 39000.0 | 213.5 | -55.5 | | 341.8 | 574.7 | 288.1 | 40.7 | 1.000076 |
| 39500.0 | 208.7 | -56.7 | | 335.7 | 573.1 | 290.5 | 41.4 | 1.000075 |
| 40000.0 | 203.7 | -58.0 | | 329.7 | 571.5 | 295.5 | 42.4 | 1.000073 |
| 40500.0 | 198.9 | -59.1 | | 323.7 | 570.0 | 299.5 | 43.5 | 1.000072 |
| 41000.0 | 194.1 | -59.9 | | 317.1 | 568.9 | 301.5 | 44.3 | 1.000071 |
| 41500.0 | 189.4 | -60.7 | | 310.8 | 567.6 | 302.9 | 44.9 | 1.000069 |
| 42000.0 | 184.9 | -61.5 | | 304.3 | 566.8 | 299.5 | 43.7 | 1.000068 |
| 42500.0 | 180.4 | -62.3 | | 298.1 | 565.7 | 295.7 | 42.7 | 1.000066 |
| 43000.0 | 176.0 | -61.7 | | 290.0 | 565.5 | 285.5 | 42.0 | 1.000065 |

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

STATION ALTITUDE 3997.30 FEET MSL
 12 OCT. 79 1530 HRS MST
 ASCENSION NO. 349

UPPER AIR DATA
 205000349
 5 HR

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LOG DEG

TABLE 8 (CONT)

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DIRECTION DEGREES (T) | WIND SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|------------------------------------|-------------------|------------------------|----------------------|----------------------------|------------------|---------------------|
| | | | | | | | | |
| 4350.0 | 171.8 | -60.9 | | 282.0 | 507.0 | 275.5 | 42.6 | 1.000063 |
| 4400.0 | 167.6 | -61.2 | | 275.5 | 507.1 | 269.7 | 44.3 | 1.000061 |
| 4450.0 | 163.6 | -61.5 | | 269.3 | 507.0 | 267.0 | 46.7 | 1.000060 |
| 4500.0 | 159.6 | -61.8 | | 263.1 | 506.3 | 270.3 | 49.7 | 1.000059 |
| 4550.0 | 155.8 | -62.1 | | 257.1 | 505.9 | 272.0 | 51.0 | 1.000057 |
| 4600.0 | 152.0 | -62.4 | | 251.3 | 505.5 | 272.4 | 50.0 | 1.000056 |
| 4650.0 | 148.3 | -62.9 | | 245.7 | 504.9 | 274.2 | 47.0 | 1.000055 |
| 4700.0 | 144.7 | -63.5 | | 240.4 | 504.1 | 260.4 | 39.7 | 1.000054 |
| 4750.0 | 141.1 | -64.1 | | 235.2 | 503.3 | 267.9 | 33.4 | 1.000052 |
| 4800.0 | 137.7 | -64.7 | | 230.1 | 502.5 | 290.2 | 29.3 | 1.000051 |
| 4850.0 | 134.3 | -65.1 | | 224.9 | 502.0 | 291.7 | 25.4 | 1.000050 |
| 4900.0 | 131.0 | -64.9 | | 219.2 | 502.1 | 278.4 | 24.1 | 1.000049 |
| 4950.0 | 127.8 | -64.8 | | 213.7 | 502.3 | 265.3 | 23.9 | 1.000048 |
| 5000.0 | 124.7 | -64.7 | | 208.3 | 502.5 | 263.0 | 21.4 | 1.000046 |
| 5050.0 | 121.6 | -64.8 | | 203.3 | 502.3 | 268.5 | 18.9 | 1.000045 |
| 5100.0 | 118.6 | -65.8 | | 199.3 | 501.0 | 263.0 | 17.7 | 1.000044 |
| 5150.0 | 115.7 | -66.8 | | 195.2 | 500.0 | 263.2 | 16.5 | 1.000043 |
| 5200.0 | 112.8 | -67.8 | | 191.3 | 500.3 | 265.5 | 17.1 | 1.000043 |
| 5250.0 | 110.0 | -68.8 | | 187.5 | 500.9 | 268.2 | 18.0 | 1.000042 |
| 5300.0 | 107.2 | -69.6 | | 183.5 | 500.8 | 272.7 | 17.7 | 1.000041 |
| 5350.0 | 104.5 | -70.2 | | 179.5 | 504.9 | 273.2 | 17.1 | 1.000040 |
| 5400.0 | 101.9 | -70.9 | | 175.5 | 504.0 | 270.0 | 16.9 | 1.000039 |
| 5450.0 | 99.3 | -71.3 | | 171.4 | 503.5 | 270.0 | 16.8 | 1.000038 |
| 5500.0 | 96.8 | -70.9 | | 166.8 | 504.0 | 270.4 | 15.7 | 1.000037 |
| 5550.0 | 94.4 | -70.5 | | 162.3 | 504.0 | 277.9 | 14.0 | 1.000036 |
| 5600.0 | 92.0 | -70.1 | | 157.9 | 503.1 | 264.1 | 12.4 | 1.000035 |
| 5650.0 | 89.7 | -70.1 | | 153.9 | 505.2 | 293.4 | 11.2 | 1.000034 |
| 5700.0 | 87.4 | -70.5 | | 150.2 | 504.7 | 303.0 | 10.9 | 1.000033 |
| 5750.0 | 85.2 | -70.8 | | 146.7 | 504.1 | 304.1 | 11.5 | 1.000033 |
| 5800.0 | 83.1 | -71.2 | | 143.3 | 503.6 | 303.0 | 11.8 | 1.000032 |
| 5850.0 | 81.0 | -71.6 | | 139.9 | 503.1 | 303.4 | 10.9 | 1.000031 |
| 5900.0 | 78.9 | -71.9 | | 136.6 | 502.6 | 307.4 | 10.1 | 1.000030 |
| 5950.0 | 76.9 | -72.3 | | 133.4 | 502.1 | 310.9 | 11.3 | 1.000030 |
| 6000.0 | 75.0 | -71.5 | | 129.3 | 503.2 | 313.7 | 12.8 | 1.000029 |
| 6050.0 | 73.1 | -68.5 | | 124.4 | 507.3 | 318.2 | 12.7 | 1.000028 |
| 6100.0 | 71.3 | -67.9 | | 121.0 | 506.1 | 324.3 | 11.9 | 1.000027 |
| 6150.0 | 69.5 | -67.3 | | 117.6 | 500.9 | 331.6 | 10.2 | 1.000026 |
| 6200.0 | 67.8 | -66.8 | | 114.5 | 500.6 | 343.6 | 7.2 | 1.000025 |
| 6250.0 | 66.2 | -66.2 | | 111.4 | 500.4 | 349.0 | 5.1 | 1.000025 |
| 6300.0 | 64.5 | -65.7 | | 108.4 | 501.1 | 357.7 | 3.3 | 1.000024 |

STATION ALTITUDE 3997.30 FEET MSL
 12 OCT. 79 1530 HRS MST
 ASCENSION NO. 349

UPPER AIR DATA
 2050000349

TABLE 8 (CONT)

GEODETIC COORDINATES
 32.40034 LAT DEG
 106.42307 LON DEG

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DIRECTION DEGREES (TR) | WIND SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|------------------------------------|-------------------|------------------------|----------------------|-----------------------------|------------------|---------------------|
| 6350.0 | 63.0 | -65.1 | | 105.5 | 501.9 | 29.0 | 1.6 | 1.000023 |
| 6400.0 | 61.4 | -64.6 | | 102.0 | 502.6 | 23.9 | .8 | 1.000023 |
| 6450.0 | 59.9 | -64.0 | | 99.9 | 503.4 | 329.0 | .4 | 1.000022 |
| 6500.0 | 58.5 | -63.5 | | 97.2 | 504.1 | 300.7 | 1.2 | 1.000022 |
| 6550.0 | 57.1 | -62.9 | | 94.5 | 504.8 | 305.0 | 2.7 | 1.000021 |
| 6600.0 | 55.7 | -62.4 | | 92.0 | 505.6 | 299.9 | 4.0 | 1.000020 |
| 6650.0 | 54.3 | -61.8 | | 89.5 | 506.3 | 283.7 | 5.2 | 1.000020 |
| 6700.0 | 53.0 | -61.3 | | 87.1 | 507.0 | 273.9 | 6.6 | 1.000019 |
| 6750.0 | 51.7 | -60.7 | | 84.8 | 507.8 | 260.0 | 7.3 | 1.000019 |
| 6800.0 | 50.4 | -60.2 | | 82.5 | 508.5 | 250.1 | 8.4 | 1.000018 |
| 6850.0 | 49.2 | -59.8 | | 80.4 | 509.0 | 249.1 | 8.3 | 1.000018 |
| 6900.0 | 48.0 | -59.5 | | 78.3 | 509.4 | 231.4 | 7.8 | 1.000017 |
| 6950.0 | 46.9 | -59.2 | | 76.4 | 509.8 | 258.9 | 7.2 | 1.000017 |
| 7000.0 | 45.8 | -58.9 | | 74.5 | 510.2 | 270.0 | 6.8 | 1.000017 |
| 7050.0 | 44.7 | -58.6 | | 72.6 | 510.6 | 294.5 | 7.1 | 1.000016 |
| 7100.0 | 43.6 | -58.4 | | 70.8 | 511.0 | 306.2 | 7.9 | 1.000016 |
| 7150.0 | 42.6 | -58.1 | | 69.0 | 511.3 | 313.5 | 9.0 | 1.000015 |
| 7200.0 | 41.6 | -57.8 | | 67.2 | 511.7 | 313.5 | 9.5 | 1.000015 |
| 7250.0 | 40.6 | -57.2 | | 65.5 | 512.5 | 305.7 | 9.1 | 1.000015 |
| 7300.0 | 39.7 | -56.4 | | 63.7 | 513.5 | 293.3 | 9.0 | 1.000014 |
| 7350.0 | 38.7 | -55.7 | | 62.0 | 514.5 | 282.2 | 9.3 | 1.000014 |
| 7400.0 | 37.8 | -55.0 | | 60.4 | 515.5 | 269.9 | 9.9 | 1.000013 |
| 7450.0 | 36.9 | -54.2 | | 58.8 | 516.4 | 259.4 | 10.6 | 1.000013 |
| 7500.0 | 36.1 | -53.5 | | 57.2 | 517.4 | 249.4 | 10.7 | 1.000013 |
| 7550.0 | 35.2 | -52.8 | | 55.7 | 518.3 | 239.0 | 11.1 | 1.000012 |
| 7600.0 | 34.4 | -52.0 | | 54.2 | 519.3 | 237.9 | 11.8 | 1.000012 |
| 7650.0 | 33.6 | -51.3 | | 52.8 | 520.3 | 236.2 | 12.6 | 1.000012 |
| 7700.0 | 32.8 | -51.1 | | 51.5 | 520.5 | 238.5 | 13.4 | 1.000011 |
| 7750.0 | 32.1 | -51.3 | | 50.4 | 520.3 | | | 1.000011 |
| 7800.0 | 31.3 | -51.5 | | 49.5 | 520.0 | | | 1.000011 |
| 7850.0 | 30.6 | -51.6 | | 48.2 | 519.8 | | | 1.000011 |

STATION ALTITUDE 3997.30 FEET MSL
 12 OCT. 79 1530 HRS MST
 ASCENSION NO. 349

MANDATORY LEVELS
 2050000349
 S M R

GEODETIC COORDINATES
 32.46034 LAT UEG
 106.42307 LONG DEG

TABLE 9

| PRESSURE GEOPOTENTIAL | | TEMPERATURE | | REL. HUM. | | WIN. DATA | |
|-----------------------|--------|-------------|------------------|-----------|------------------------|-------------|--|
| MILLIBARS | FEET | AIR DEGREES | DEWPOINT DEGREES | PERCENT | DIRECTION DEGREES (IN) | SPEED KNOTS | |
| 850.0 | 4794. | 27.3 | .1 | 17. | 251.0 | 10.7 | |
| 800.0 | 6284. | 22.1 | -5.7 | 17. | 230.0 | 10.5 | |
| 750.0 | 7774. | 17.0 | -12.0 | 10. | 201.0 | 23.7 | |
| 700.0 | 9264. | -19.5 | -35.7 | 22. | 279.0 | 30.9 | |
| 650.0 | 10754. | -27.6 | -41.0 | 20. | 285.8 | 30.8 | |
| 600.0 | 12244. | -30.9 | -47.4 | 31. | 280.2 | 41.9 | |
| 550.0 | 13734. | -47.4 | -50.9 | | 267.9 | 30.7 | |
| 500.0 | 15224. | -50.9 | -61.4 | | 290.7 | 43.2 | |
| 450.0 | 16714. | -61.4 | -62.6 | | 203.2 | 42.0 | |
| 400.0 | 18204. | -62.6 | -64.7 | | 272.6 | 49.5 | |
| 350.0 | 19694. | -64.7 | -71.4 | | 205.7 | 21.8 | |
| 300.0 | 21184. | -71.4 | -71.7 | | 277.3 | 16.8 | |
| 250.0 | 22674. | -71.7 | -67.5 | | 300.2 | 10.6 | |
| 200.0 | 24164. | -67.5 | -64.1 | | 320.7 | 11.3 | |
| 175.0 | 25654. | -64.1 | -60.0 | | 340.2 | .4 | |
| 150.0 | 27144. | -60.0 | -50.7 | | 247.7 | 0.7 | |
| 125.0 | 28634. | -50.7 | -51.8 | | 300.1 | 9.0 | |
| 100.0 | 30124. | | | | | | |
| 80.0 | 31614. | | | | | | |
| 70.0 | 33104. | | | | | | |
| 60.0 | 34594. | | | | | | |
| 50.0 | 36084. | | | | | | |
| 40.0 | 37574. | | | | | | |
| 30.0 | 39064. | | | | | | |

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