AD-A073 392 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19701A GSRS, MISSILE NUMBERS 304, 305, 307, ROUND NUMBERS B-22,--ETC(U)
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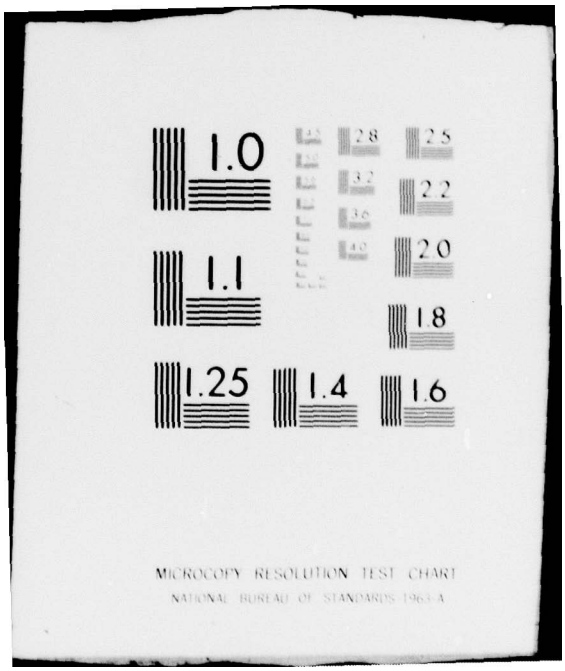
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NATIONAL BUREAU OF STANDARDS 1963-A

DR 1041
July 1979
AD

METEOROLOGICAL DATA REPORT

19701A GSRS
Missile Nos. 304, 305, 307
Round Nos. B-22, B-23, B-24
5 July 1979

by

White Sands Meteorological Team

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

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ERADCOM/ASL-DR-1041

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 19701A GSRS, Missile Numbers, 304, 305, 307, Round Numbers B-22, B-23, B-24, are presented in tabular form.

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CONTENTS

INTRODUCTION

19701A GSRS , Missile Numbers 304, 305, 307, Round Number B-22, B-23 and B-24 , were launched from LC-33 , White Sands Missile Range (WSMR), New Mexico, at 1138:01, 1138:05 and 1138-10 MDT, 5 Jul 79. The schedule launch times were 1115, 1115:04, 1115:08 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 (°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) 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.

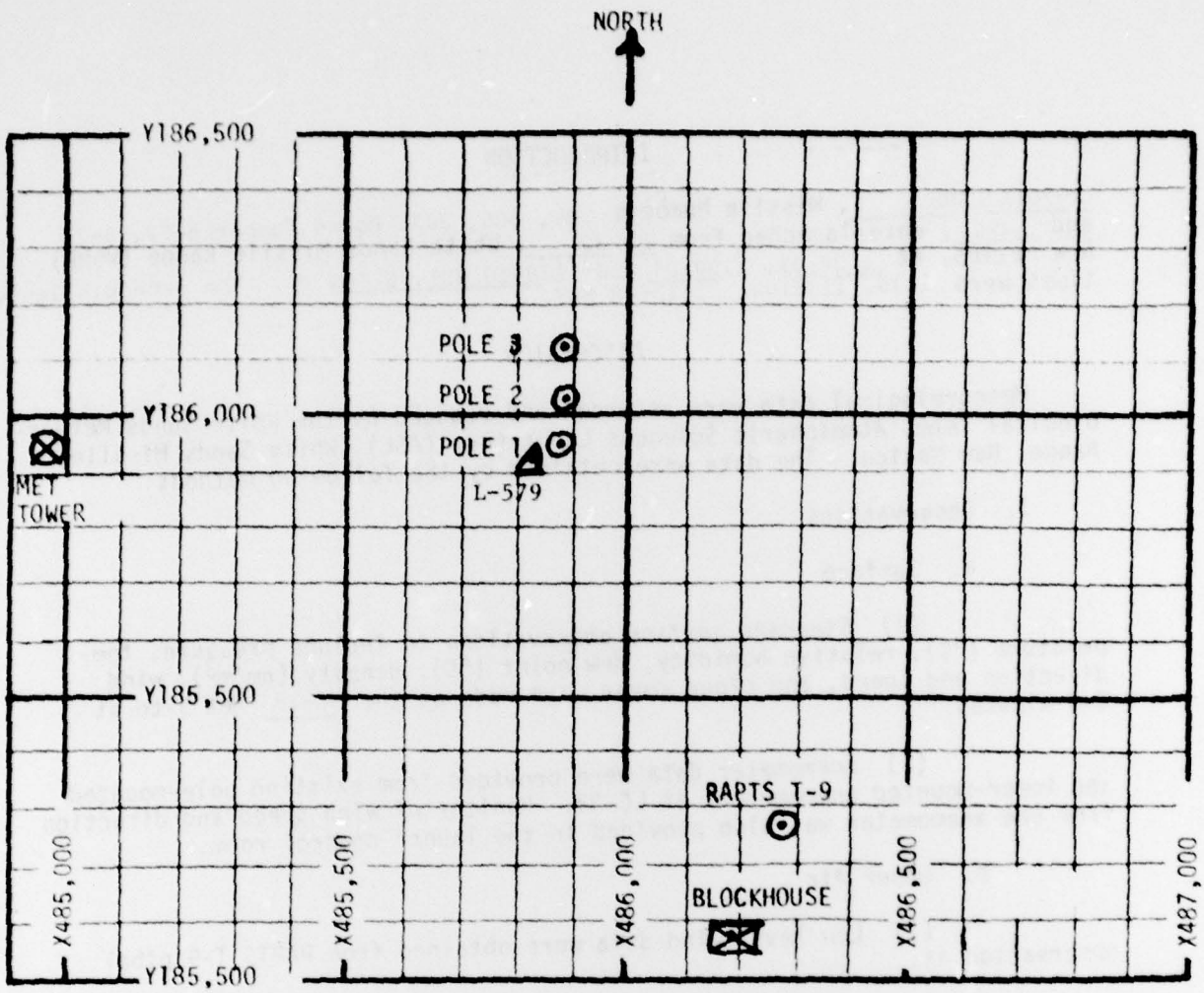
b. Upper Air

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

SITE AND ALTITUDE		
LC-33	1080 meters	1133 MDT
LC-33	1080 meters	1147 MDT

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 26,000 feet in 500-feet increments.

SITE AND TIME	
SMR	1015 MST



1. MET TOWER - 4 Bendix Model T-120 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. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

TABLE 1. Surface Observations taken at LC-33 5 July 1979 at 1138 MDT, 19701A GSRS, Missile Nos. 304, 305, 307, Round Nos. B-22, B-23, B-24.

ELEVATION	3977.30	FT/MSL
PRESSURE	883.3	MBS
TEMPERATURE	27.0	°C
RELATIVE HUMIDITY	41	%
DEW POINT	12.6	°C
DENSITY	1017	GM/M^3
WIND SPEED	CALM	MPH
WIND DIRECTION		DEGREES
CLOUD COVER	1 cu	

TABLE 2. LC-33 FIXED POLE ANEMOMETER-MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	335	M	-30	002	02	-30	006	06
-20	336	M	-20	330	03	-20	349	06
-10	343	M	-10	002	02	-10	004	06
0.0	341	M	0.0	003	02	0.0	353	06
+10	342	M	+10	360	01	+10	011	06

Type 19701A GSRS , Missile No. 304, 305, 307, Round No. B-22, B-23, B-24 launched from LC-33 on 5 July 1979 at 1138:01, 1138:05, 1138:10 MDT.

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

NOTE: Wind directions are referenced to the firing azimuth _____ or true north true north.

TABLE 3. LC-33 METEOROLOGICAL TOWER ANEMOMETER-MEASURED WINDS (202 FT. TOWER)

LEVEL #1 12 ft.			LEVEL #2 62 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	339	05	-30	002	06
-20	345	05	-20	360	04
-10	354	04	-10	339	04
0.0	346	04	0.0	336	05
+10	347	07	+10	352	04
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	012	04	-30	336	02
-20	360	02	-20	009	05
-10	006	02	-10	003	06
0.0	360	02	0.0	003	06
+10	360	02	+10	006	04

WTSM Coordinates: X484,982.64 Y185,957.73 H3983.00 (base)

Type 19701A GSRS, , Missile No. 304, 305, 307 Round No. B-22, B-23, B-24, launched from LC-33 on 5 July 1979 at 1138:01, 1138:05, 1138:10 MDT.

NOTE: Wind directions are referenced to the firing azimuth _____ or true north true north .

TABLE 4. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	CALM	
30	357	1.0
60	353	1.5
90	349	2.5
120	345	3.0
150	346	5.0
180	347	7.0
210	348	9.0
240	349	11.0
270	001	9.5
300	012	8.0
330	023	7.0
360	034	5.0

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	036	5.5
420	038	5.5
450	040	5.5
480	041	5.5
510	042	5.5
540	042	5.0
570	042	5.0
600	042	4.5
630	035	4.5
660	027	4.0
690	019	3.5
720	011	3.0
750	357	3.0

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30

Released from LC-33 on 5 July 1979 at 1133 MDT.

Type 19701A GSRS, Missile No. 304, 305, 307, Round No. B-22, B-23, B-24 launched from LC-33 on 5 July 1979 at 1138:01, 1138:05, 1138:10 MDT.

NOTE: Wind directions are referenced to the firing azimuth or true north true north.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	343	3.0
810	329	3.0
840	314	3.0
870	311	4.0
900	307	4.5
930	304	5.5
960	300	6.0
990	303	7.0
1020	306	7.5
1050	309	8.0
1080	312	8.5
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

TABLE 5. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	CALM	
30	360	0.5
60	360	0.5
90	360	0.5
120	360	0.5
150	006	1.0
180	011	1.0
210	017	1.0
240	022	1.0
270	021	2.0
300	020	2.5
330	019	3.5
360	017	4.0

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	024	4.0
420	031	3.5
450	038	3.5
480	044	3.0
510	046	3.0
540	048	3.0
570	050	3.0
600	051	2.5
630	048	2.5
660	044	2.5
690	040	2.5
720	036	2.5
750	012	3.0

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30

Released from LC-33 on 5 July 1979 at 1147.

Type 19701A GSRS, Missile No. 304, 305, 307 Round No. B-22, B-23, B-24 launched from LC-33 on 5 July 1979 at 1138:01, 1138:05, 1138:10 MDT.

NOTE: Wind directions are referenced to the firing azimuth or true north true north.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	347	3.0
810	322	3.5
840	297	3.5
870	307	4.0
900	317	4.5
930	327	5.0
960	337	5.5
990	341	7.0
1020	344	8.0
1050	347	9.0
1080	350	10.0
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
1440		
1470		
1500		
1530		
1560		
1590		
1620		
1650		
1680		
1710		
1740		
1770		
1800		
1830		
1860		
1890		
1920		
1950		
1980		
2010		
2040		
2070		

STATION ALTITUDE 3989.00 FEET MSL
5 JULY 79 1015 HRS MST
ASCENSION NO. 306

SIGNIFICANT LEVEL DATA
1860020306
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
683.5	3989.0	27.5	13.1	41.0
850.0	5102.3	21.5	9.7	47.0
796.4	5944.2	17.1	7.2	52.0
780.4	7298.9	17.3	7.1	51.0
700.0	10525.3	10.1	1.5	55.0
690.0	10918.4	9.4	-.2	51.0
653.2	12403.3	5.6	-1.5	60.0
625.6	13559.3	2.6	-1.6	74.0
581.6	15469.7	-.8	-5.6	70.0
564.4	16278.4	-1.1	-9.2	54.0
556.0	16671.1	-2.3	-13.7	41.0
539.0	17479.4	-4.1	-16.0	39.0
522.6	18279.2	-5.2	-27.0	16.0
500.0	19415.8	-7.0	-28.5	16.0
436.4	22859.3	-14.2	-34.4	16.0
429.0	23286.2	-14.2	-34.4	16.0
400.0	25022.8	-17.3	-37.0	16.0
378.6	26368.7	-21.2	-40.2	16.0

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STATION ALTITUDE 3989.00 FEET MSL
5 JULY 79 0900 HRS MST
ASCENSION NO. 307

SIGNIFICANT LEVEL DATA
1660020007
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	TEMPERATURE DEWPOINT	REL.HUM. PERCENT
MILLIBARS	MSL FEET	DEGREES CENTIGRADE		
883.9	3989.0	24.3	7.0	33.0
850.0	5105.3	20.3	7.3	43.0
840.2	5433.5	19.1	6.6	44.0
817.0	6223.4	18.4	7.3	49.0
772.8	7787.3	17.5	.6	32.0
717.0	9872.2	12.4	2.3	50.0
700.0	10531.9	10.6	-.5	46.0
681.2	11275.9	9.2	-1.5	47.0
636.4	13114.0	4.1	-1.1	69.0
613.0	13054.4	2.7	-2.2	70.0
593.4	14973.3	-.4	-3.6	79.0
576.8	15719.3	-1.4	-4.4	80.0
566.6	16094.9	-1.6	-6.9	67.0
556.2	16465.1	-1.1	-15.7	32.0
527.8	18038.3	-4.4	-18.2	33.0
500.0	19432.9	-7.1	-30.0	14.0
465.6	21245.3	-11.5	-34.5	13.0
454.5	21853.8	-11.4	-34.2	13.0
429.0	23299.9	-15.2	-37.3	13.0
400.0	25032.4	-17.5	-39.2	13.0
359.6	27605.0	-24.9	-44.5	14.0

UPPER AIR DATA
1960020307
WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
5 JULY 79 0900 HRS MST
ASCENSION NO. 307

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(T'N)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	883.9	24.3	7.0	33.0	1030.8	670.3	40.0	1.9	1.000273
4000.0	883.6	24.3	7.0	33.1	1030.5	670.3	39.6	1.9	1.000273
4500.0	868.2	22.5	7.3	37.6	1010.8	671.3	31.8	2.1	1.000271
5000.0	853.1	20.7	7.3	42.1	1000.9	669.0	25.0	2.3	1.000269
5500.0	838.2	19.0	6.7	44.4	990.0	667.4	19.3	2.5	1.000265
6000.0	823.5	18.6	7.0	47.6	976.7	667.0	14.6	2.7	1.000264
6500.0	809.0	18.2	6.4	46.0	962.8	666.5	4.7	3.1	1.000258
7000.0	794.7	18.0	4.4	40.6	947.3	665.0	338.5	4.9	1.000248
7500.0	780.7	17.7	2.1	35.1	932.0	663.5	328.8	6.8	1.000240
8000.0	766.9	17.0	1.0	33.8	917.9	662.7	324.4	8.2	1.000234
8500.0	753.3	15.9	1.5	38.2	905.2	663.3	321.9	9.0	1.000233
9000.0	739.8	14.5	1.9	42.5	892.7	662.0	320.1	9.2	1.000231
9500.0	726.7	13.3	2.2	46.8	880.4	660.8	323.3	9.3	1.000229
10000.0	713.7	12.1	1.7	49.2	868.5	659.1	333.5	9.8	1.000226
10500.0	700.8	10.7	-.4	46.2	857.4	657.4	347.5	10.2	1.000219
11000.0	688.1	9.7	-1.1	46.8	844.8	656.6	4.4	9.9	1.000215
11500.0	675.6	8.6	-1.3	49.7	832.8	654.9	20.8	10.3	1.000212
12000.0	663.2	7.2	-1.1	55.7	821.3	653.3	27.3	9.9	1.000210
12500.0	651.0	5.6	-1.0	61.7	810.3	651.7	31.9	10.3	1.000208
13000.0	639.1	4.4	-1.0	67.6	799.4	650.1	47.9	10.6	1.000206
13500.0	627.3	3.4	-1.7	69.5	787.7	648.9	44.0	11.0	1.000202
14000.0	615.8	2.3	-2.4	71.2	776.1	647.8	54.4	11.1	1.000199
14500.0	604.1	.9	-3.0	75.2	765.3	646.9	60.8	11.5	1.000195
15000.0	592.8	-.4	-3.6	79.0	755.0	644.8	63.5	11.6	1.000192
15500.0	581.5	-1.1	-4.2	79.7	742.5	643.3	24.7	10.8	1.000188
16000.0	570.7	-1.5	-6.2	70.3	730.1	642.9	24.2	8.1	1.000182
16500.0	559.9	-1.1	-13.7	32.0	718.2	642.9	18.4	5.1	1.000169
17000.0	549.2	-2.2	-16.5	32.3	705.3	642.0	327.0	2.4	1.000166
17500.0	538.5	-3.3	-17.3	32.7	694.7	640.4	270.8	3.7	1.000163
18000.0	528.6	-4.3	-18.1	33.0	684.2	639.1	260.4	4.8	1.000160
18500.0	518.4	-5.3	-21.4	26.7	673.7	637.9	297.2	5.9	1.000156
19000.0	508.5	-6.3	-25.5	19.9	663.3	636.8	309.8	7.2	1.000152
19500.0	498.7	-7.3	-30.2	14.0	653.1	635.4	311.3	8.3	1.000148
20000.0	489.0	-8.5	-31.3	13.7	643.4	633.9	309.7	9.3	1.000146
20500.0	479.5	-9.7	-32.5	13.4	633.9	632.4	300.7	9.8	1.000143
21000.0	470.1	-10.9	-33.7	13.1	624.6	631.0	291.4	10.4	1.000141
21500.0	460.9	-11.5	-34.3	13.0	615.4	630.3	280.6	11.4	1.000138
22000.0	451.9	-11.8	-34.5	13.0	606.1	629.9	272.1	12.5	1.000136
22500.0	442.9	-12.1	-35.0	13.0	598.2	629.3	270.2	12.8	1.000134
23000.0	434.2	-14.4	-35.7	13.0	589.4	628.7	269.0	13.1	1.000132

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STATION ALTITUDE 5969.00 FEET MSL
5 JULY 79 0900 HRS MST
ASCENSION NO. 307

UPPER AIR DATA
1660020307
WHITE SANDS

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
23500.0	425.5	-15.5	-37.5	13.0	575.2	625.4	270.0	13.5	1.000129
24000.0	417.0	-16.1	-38.1	13.0	566.1	624.0	269.9	13.8	1.000127
24500.0	408.7	-16.8	-38.6	13.0	555.3	623.8	269.4	14.0	1.000125
25000.0	400.5	-17.5	-39.1	13.0	545.6	623.0	269.6	13.5	1.000123
25500.0	392.4	-18.8	-40.1	13.2	537.4	621.9	271.2	12.2	1.000121
26000.0	384.4	-20.3	-41.2	13.4	529.5	619.5			1.000119
26500.0	376.5	-21.7	-42.2	13.6	521.6	617.6			1.000117
27000.0	368.9	-23.2	-43.3	13.8	514.0	615.8			1.000115
27500.0	361.4	-24.6	-44.3	14.0	506.4	614.2			1.000114

STATION ALTITUDE 3989.00 FEET MSL
5 JULY 79 0960 HRS MST
ASCENSION NO. 307

MANDATORY LEVELS
1560020307
WHITE SANDS

GEODETIC COORDINATES
32.46043 LAT DEG
106.37033 LON DEG

PRESSURE	GEOPOTENTIAL	TEMPERATURE		REL.HUM.	WIND DATA	
		AIR	DEWPOINT	PERCENT	DIRECTION	SPEED
MILLIBARS	FEET	DEGREES CENTIGRADE			DEGREES(TN)	KNOTS
850.0	5102.	20.3	7.3	46.	23.6	2.3
800.0	6810.	18.1	5.2	43.	345.7	4.1
750.0	8617.	15.5	1.7	39.	321.6	9.0
700.0	10521.	10.6	-.5	46.	345.3	10.2
650.0	12532.	5.7	-1.0	62.	51.6	10.3
600.0	14664.	.4	-3.2	77.	26.2	11.5
550.0	16944.	-2.1	-16.4	32.	334.6	2.5
500.0	19406.	-7.1	-30.0	14.	311.6	6.2
450.0	22070.	-12.1	-34.8	10.	272.6	12.5
400.0	24990.	-17.5	-39.2	10.	265.6	13.4

STATION ALTITUDE 3939.00 FEET MSL
5 JULY 79 0900 HRS MST
ASCENSION NO. 307

MRN MANDATORY LEVELS
1560020307
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

GEOPOTENTIAL ALTITUDE DECAMETERS	WIND DATA DIRECTION DEG (TN)	SPEED MPS	N-S MPS	E-W MPS	DEW PT DEP DEG C	TEMPERATURE AIR DEG C	PRESSURE MILLIBARS
762.	266.	7.	1.	7.	22	-17.5	4.000+2
673.	273.	6.	-0.	6.	23	-12.1	4.500+2
591.	312.	4.	-3.	3.	25	-7.1	5.000+2
516.	335.	1.	-1.	1.	14	-2.1	5.500+2
447.	26.	6.	-5.	-3.	04	.4	6.000+2
382.	52.	5.	-3.	-4.	07	5.7	6.500+2
321.	348.	5.	-5.	1.	11	10.6	7.000+2
263.	321.	5.	-4.	3.	14	15.5	7.500+2
206.	346.	2.	-2.	1.	13	18.1	8.000+2
155.	24.	1.	-1.	-0.	13	20.3	8.500+2