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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2
19701A 6SRS, MISSILE NUMBER 022, ROUND NUMBER B-21. 5 JULY 1979--ETC(U)
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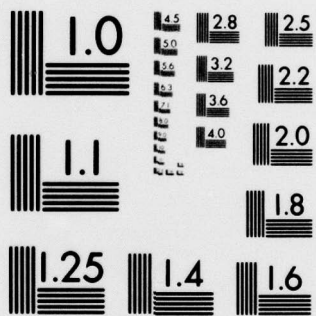
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JULY 1979
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METEOROLOGICAL DATA REPORT

19701A GMS
Missile No. 022
Round No. 3-31
3 July 1979

by

White Sands Meteorological Team

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ATMOSPHERIC SCIENCE LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONIC COMMAND

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
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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 19701A GSRS, Missile Number 022, Round Number B-21, are presented in tabular form. 470 663		

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INTRODUCTION

19701A GSRS, Missile Number 022, Round Number B-21, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1030 MDT, 5 July 1979. The scheduled launch time was 1030 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 RAPTS T-9 pibal observation at:

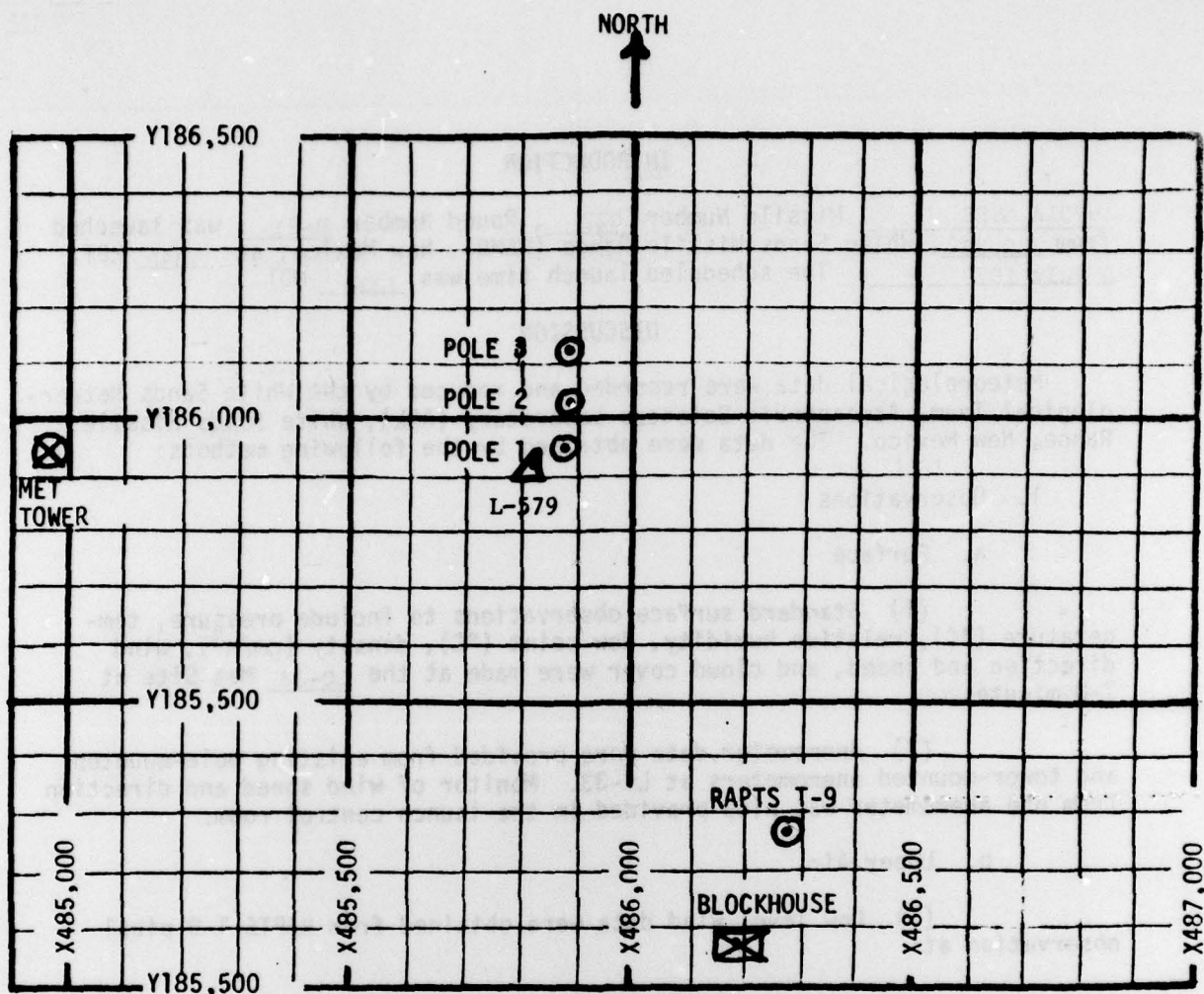
SITE AND ALTITUDE

LC-33	1080 meters	1020 MDT
LC-33	1080 meters	1030 MDT

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 27,500 feet in 500-foot increments.

SITE AND TIME

SMR 0900 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 Observation taken at LC-33
5 July 1979 at 1030 MDT, 19701A GSRS,
Missile No. 022, Round No. B-21.

ELEVATION	3977.30	FT/MSL
PRESSURE	883.6	MBS
TEMPERATURE	26.0	°C
RELATIVE HUMIDITY	40	%
DEW POINT	11.4	°C
DENSITY	1021	GM/M ³
WIND SPEED	CALM	MPH
WIND DIRECTION		DEGREES
CLOUD COVER	CLEAR	

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	326	M	-30	329	02	-30	006	07
-20	353	M	-20	339	03	-20	344	05
-10	332	M	-10	360	02	-10	012	04
0.0	336	M	0.0	351	02	0.0	005	02
+10	330	M	+10	339	01	+10	017	01

Type 19701A GSRS, Missile No. 022, Round No. B-21 launched
from LC-33 on 5 July 1979 at 1030 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	360	03	-30	002	02
-20	359	02	-20	360	02
-10	353	01	-10	003	01
0.0	000	00	0.0	015	01
+10	000	00	+10	000	00
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	000	00	-30	003	02
-20	000	00	-20	004	02
-10	000	00	-10	357	01
0.0	000	00	0.0	000	00
+10	000	00	+10	326	01

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

Type 19701A GSRS, Missile No. 022, Round No. B-21 launched
from LC-33 on 5 July 1979 at 1030 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	039	0.5
60	077	0.5
90	115	1.0
120	153	1.0
150	110	2.0
180	066	2.5
210	022	3.5
240	338	4.0
270	344	5.5
300	350	7.0
330	356	8.5
360	002	9.5

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	004	9.0
420	005	8.0
450	006	7.0
480	007	6.0
510	014	6.0
540	018	20.0
570	026	6.0
600	032	5.5
630	033	5.5
660	034	5.0
690	035	5.0
720	035	4.5
750	027	4.0

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

Released from LC-33 on 5 July 1979 at 1020 MDT.

Type 19701A GSRS, Missile No. 022, Round No. B-21 launched from LC-33 on 5 July 1979 at 1030 MDT.

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

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	018	3.5
810	009	3.0
840	360	2.0
870	350	3.0
900	340	4.0
930	330	5.0
960	320	5.5
990	321	6.5
1020	321	7.0
1050	321	8.0
1080	321	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	340	0.5
60	320	1.0
90	300	1.5
120	280	1.5
150	312	2.0
180	343	2.0
210	014	2.5
240	045	2.5
270	039	3.0
300	032	3.5
330	025	4.0
360	018	4.5

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	015	5.5
420	012	6.0
450	009	6.5
480	006	7.0
510	012	7.0
540	017	7.0
570	022	7.0
600	027	6.5
630	029	6.0
660	030	5.0
690	032	4.5
720	033	3.5
750	030	4.0

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

Released from LC-33 on 5 July 1979 at 1030 MDT.Type 19701A GSRS, Missile No. 022, Round No. B-21 launched
from LC-33 on 5 July 1979 at 1030 MDT.NOTE: Wind directions are referenced to the firing azimuth _____
or true north true north.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	026	4.5
810	022	5.0
840	018	5.5
870	008	5.5
900	358	5.0
930	348	5.0
960	337	4.5
990	335	5.5
1020	332	6.0
1050	330	6.5
1080	327	7.0
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 5929.00 FEET MSL
5 JULY 79 0700 HRS MST
ASCENSION NO. 507

SIGNIFICANT LEVEL DATA

1250020007
WHITE SANDS

GEODETTIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE	GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
883.9	3969.0	24.3	33.0
850.0	5105.3	20.3	43.0
840.2	5433.5	19.1	44.0
817.0	6223.4	18.4	49.0
772.8	7797.3	17.5	32.0
717.0	9872.2	12.4	50.0
709.0	10531.9	10.6	46.0
681.2	11275.9	9.2	47.0
656.4	13114.0	4.1	59.0
619.0	13854.4	2.7	70.0
593.4	14973.2	-4	79.0
576.8	15719.3	-1.4	60.0
560.6	16094.9	-1.6	67.0
560.2	16465.1	-1.1	32.0
527.8	18038.3	-4.4	33.0
500.0	19432.9	-7.1	14.0
465.6	21245.3	-11.5	13.0
454.5	21653.3	-11.4	13.0
429.0	23259.9	-15.2	13.0
400.0	25032.4	-17.5	13.0
359.8	27605.0	-24.9	14.0

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

UPPER AIR DATA
 1050020307
 WHITE SANDS

GEODETTIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GRAMS/CUBIC METER	SPEED OF SOUND M/S	WIND DATA DIRECTION DEGREES (T)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	883.9	24.3	33.0	1030.8	673.3	40.0	1.9	1.000273
4000.0	883.6	24.3	33.1	1030.5	673.3	39.0	1.9	1.000273
4500.0	868.2	22.5	37.6	1018.0	671.3	31.8	2.1	1.000271
5000.0	853.1	20.7	42.1	1006.5	669.3	23.0	2.3	1.000269
5500.0	838.2	19.0	44.4	995.0	667.4	19.3	2.5	1.000265
6000.0	823.5	18.6	47.6	978.7	667.0	14.0	2.7	1.000264
6500.0	809.0	18.2	46.0	962.8	666.5	4.7	3.1	1.000258
7000.0	794.7	18.0	40.6	947.3	666.0	33.0	4.9	1.000248
7500.0	780.7	17.7	35.1	932.0	665.5	32.0	6.8	1.000240
8000.0	760.9	17.0	33.8	917.9	664.7	32.4	8.2	1.000234
8500.0	753.3	15.9	38.2	905.2	663.3	32.1	9.0	1.000233
9000.0	739.8	14.5	42.5	892.7	662.0	32.0	9.2	1.000231
9500.0	726.7	13.3	46.6	880.4	660.0	32.3	9.3	1.000229
10000.0	713.7	12.1	49.2	868.5	659.1	33.5	9.8	1.000226
10500.0	700.8	10.7	46.2	857.4	657.4	34.7	10.2	1.000219
11000.0	688.1	9.7	46.6	844.8	656.2	4.4	9.9	1.000215
11500.0	673.6	8.6	49.7	832.0	654.9	20.8	10.3	1.000212
12000.0	663.2	7.2	55.7	821.5	653.3	37.3	9.9	1.000210
12500.0	651.0	5.6	61.7	810.3	651.7	31.9	10.3	1.000208
13000.0	639.1	4.4	67.6	799.4	650.1	47.9	10.6	1.000206
13500.0	627.3	3.4	71.7	787.7	648.9	44.0	11.0	1.000202
14000.0	615.6	2.3	79.0	776.1	647.0	34.4	11.1	1.000199
14500.0	604.1	.9	75.2	765.5	645.9	23.0	11.5	1.000195
15000.0	592.8	-.4	79.7	755.0	644.3	23.3	11.6	1.000192
15500.0	581.6	-1.1	70.3	742.6	643.3	24.7	10.8	1.000188
16000.0	570.7	-1.5	72.0	730.1	642.9	24.2	8.1	1.000182
16500.0	559.9	-1.1	72.0	718.2	642.3	19.4	5.1	1.000169
17000.0	549.2	-2.2	72.0	705.3	641.0	327.0	2.4	1.000166
17500.0	538.8	-3.3	72.0	694.7	640.4	273.0	3.7	1.000163
18000.0	528.6	-4.3	72.0	684.2	639.1	233.4	4.8	1.000160
18500.0	518.4	-5.3	72.0	673.7	637.9	297.2	5.9	1.000156
19000.0	508.5	-6.3	72.0	663.3	636.0	309.0	7.2	1.000152
19500.0	498.7	-7.3	72.0	653.1	635.4	311.5	6.3	1.000148
20000.0	489.0	-8.5	72.0	643.4	633.9	309.9	9.3	1.000146
20500.0	479.5	-9.7	72.0	633.6	632.4	300.7	9.8	1.000143
21000.0	470.1	-10.3	72.0	624.3	631.0	291.4	10.4	1.000141
21500.0	460.9	-11.5	72.0	613.4	630.3	270.0	11.4	1.000136
22000.0	451.9	-11.8	72.0	602.4	629.7	270.0	12.5	1.000130
22500.0	442.9	-13.1	72.0	593.2	629.3	270.0	12.5	1.000134
23000.0	434.2	-14.4	72.0	584.4	629.7	270.0	13.1	1.000132

STATION ALTITUDE 3969.00 FEET MSL 5 JULY 79 0900 HRS MST ASCENSION NO. 307				UPPER AIR DATA 100020307 WHITE SANDS				GEODETIC COORDINATES 32.40043 LAT DEG 106.37033 LON DEG			
GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TR)	SPEED KNOTS	INDEX OF REFRACTION			
23500.0	425.5	-15.5	13.0	575.2	623.4	270.0	13.5	1.000129			
24000.0	417.0	-16.1	13.0	565.1	624.0	269.9	13.6	1.000127			
24500.0	408.7	-16.8	13.0	555.3	623.8	269.4	14.0	1.000125			
25000.0	400.5	-17.5	13.0	545.6	623.0	269.6	13.5	1.000123			
25500.0	392.4	-18.8	13.2	537.4	621.5	261.2	12.2	1.000121			
26000.0	384.4	-20.3	13.4	529.8	619.5			1.000119			
26500.0	376.5	-21.7	13.6	521.6	617.6			1.000117			
27000.0	368.9	-23.2	13.8	514.0	615.0			1.000115			
27500.0	361.4	-24.6	14.0	506.4	614.2			1.000114			

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STATION ALTITUDE 3449.00 FEET MSL
5 JULY 79
ASCENSION NO. 307

MANDATORY LEVELS
1560020307
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES (IN)	SPEED KNOTS
850.0	5102.	20.3	7.3	43.	23.8	2.3
800.0	6810.	18.1	5.2	43.	345.7	4.1
750.0	8617.	15.5	1.7	39.	321.5	9.0
700.0	10521.	10.6	-5	40.	345.3	10.2
650.0	12532.	5.7	-1.0	52.	51.5	10.3
600.0	14064.	.4	-3.2	77.	20.2	11.5
550.0	16944.	-2.1	-16.4	52.	334.5	2.5
500.0	19405.	-7.1	-30.0	14.	311.5	8.2
450.0	22070.	-12.1	-34.3	13.	272.5	12.5
400.0	24990.	-17.5	-39.2	13.	265.5	13.4

STATION ALTITUDE 3939.00 FEET NSL
5 JULY 79 0300 HRS MST
ASCENSION NO. 507

ASR MANDATORY LEVELS
1500020007
WHITE SPRING

GEODETIC COORDINATES
32.40043 LAT DEG
105.37033 LONG DEG

GEOPOTENTIAL ALTITUDE DECIMETERS	DIRECTION DEG (TN)	WIND DATA		U-M MPS	U-M PI DEG DEG C	TEMPERATURE		PRESSURE MILLIBARS
		SPEED MPS	N-S MPS			AIR DEG C		
704.	266.	7.	1.	7.	22	-17.5	4.000+2	
673.	273.	9.	-0.	0.	23	-12.1	4.500+2	
591.	312.	4.	-3.	3.	29	-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	
392.	52.	5.	-3.	-7.	07	5.7	6.500+2	
321.	348.	5.	-3.	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.	15	20.3	8.500+2	

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