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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19702A GSRS MISSILE NUMBER 344, ROUND NUMBER B-14.(U)
MAY 79

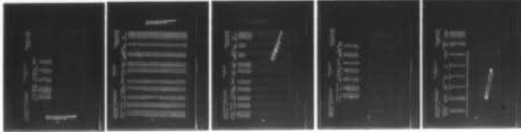
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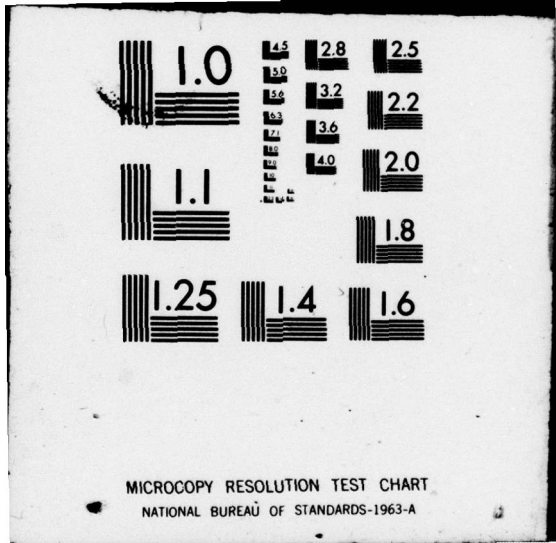
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REPORT DOCUMENTATION PAGE

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1. REPORT NUMBER DR 1013		2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 19702A GSRS Missile No. 344 Round No. B-14		5. TYPE OF REPORT & PERIOD COVERED	
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18. SUPPLEMENTARY NOTES

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

- 1. Ballistics
- 2. Meteorology
- 3. Wind

Dist. Avail and/or special

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Meteorological data gathered for the launching of 19702A GSRS, Missile No. 1154, Round No. V-19, are presented in tabular form.

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INTRODUCTION

19702A GSRS, Missile Number 344, Round Number B-14, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1500 MDT, 14 May 1979. The scheduled launch time was 1500 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

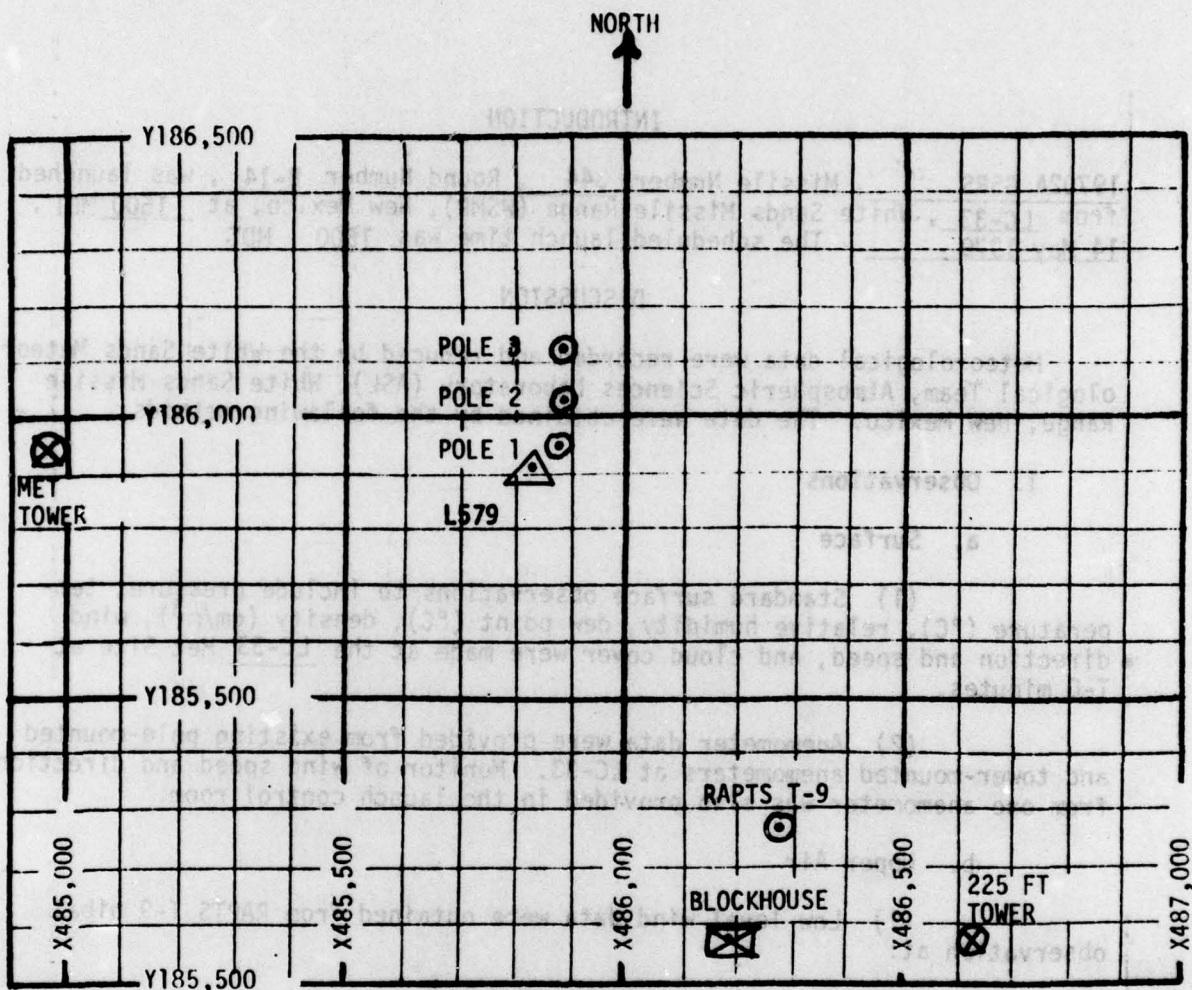
LC-33 1000 meters (30-meter increments)

LC-33 1000 meters (30-meter increments)

(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 1400 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. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.
4. RPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar

TABLE 1. SURFACE OBSERVATIONS TAKEN AT 1500 MDT,
 14 MAY 1979, AT LC-33, 19702A GSRS,
 MISSILE NO. 344, ROUND NO. B-14

ELEVATION	3977.30	FT/MSL
PRESSURE	880.0	MBS
TEMPERATURE	31.6	°C
RELATIVE HUMIDITY	26	%
DEW POINT	9.7	°C
DENSITY	1000	GM/M ³
WIND SPEED	12	MPH
WIND DIRECTION	210	DEGREES
CLOUD COVER	2	Cu

NOTE: Wind directions are referenced to the true north or true north true north

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	215	04	-30	200	05	-30	000	00
-20	225	02	-20	208	03	-20	000	00
-10	225	01	-10	239	03	-10	211	02
0.0	252	03	0.0	207	04	0.0	000	00
+10	243	05	+10	234	06	+10	231	01

19702A GSRS, Missile No. 344, Round No. B-14, launched from LC-33 on 14 May 1979, at 1500 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	196	06	-30	187	07
-20	186	07	-20	186	07
-10	189	05	-10	195	06
0.0	203	03	0.0	189	06
+10	193	04	+10	184	05
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	200	07	-30	195	07
-20	201	05	-20	193	07
-10	210	04	-10	194	06
0.0	204	05	0.0	200	07
+10	204	05	+10	208	06

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

Type 19702A GSRS, Missile No. 344, Round No. B-14 launched
from LC-33 on 14 May 1979 at 1500 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	HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
SFC	210	8.0	390	243	2.0
30	212	7.0	420	186	5.0
60	205	6.5	450	196	5.0
90	203	6.5	480	162	4.0
120	188	5.0	510	145	3.5
150	180	4.5	540	170	3.0
180	200	4.5	570	180	1.0
210	241	7.0	600	150	5.0
240	239	4.0	630	124	2.0
270	242	6.0	660	117	4.0
300	255	5.0	690	134	5.0
330	284	4.0	720	133	3.5
360	257	4.5	750	126	5.5

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

Released from LC-33 on 14 May 1979 at 1450 MDT.Type 19702A GSRS, Missile No. 344, Round No. B-14 launched from LC-33 on 15 May 1979 at 1500 MDT.NOTE: Wind directions are referenced to the firing azimuth or true north true north.

*These data are manually computer, non-quality assured, quick-look data and therefore are subject to computational errors.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	136	7.0
810	137	5.0
840	136	6.0
870	162	3.0
900	162	3.0
930	151	4.0
960	125	6.5
990	126	5.0
1000	119	6.0
1050		
1080		
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	240	2.0
30	242	3.5
60	250	6.0
90	247	8.0
120	259	10.0
150	259	10.0
180	254	9.0
210	246	7.0
240	237	9.5
270	219	7.0
300	231	8.0
330	240	7.0
360	246	7.0

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
390	238	6.5
420	225	8.5
450	208	8.0
480	218	7.5
510	218	8.0
540	206	7.0
570	187	8.0
600	169	10.0
630	166	9.5
660	164	9.0
690	163	8.0
720	160	7.0
750	173	7.5

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30
 Released from LC-33 on 14 May 1979 at 1505 MDT.

Type 19702A GSRS, Missile No. 344, Round No. B-14 launched from LC-33 on 14 May 1979 at 1500 MDT.

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

*These data are manually computed, non-quality assured, quick-look data and therefore are subject to computational errors.

HEIGHT METERS AGL	DIRECTION DEGREES	SPEED MPH
780	180	8.5
810	191	10.5
840	193	10.0
870	204	8.5
900	202	9.0
930	175	10.0
960	169	10.0
990	159	7.0
1000	162	6.0
1050		
1080		
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		
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STATION ALTITUDE 3997.30 FEET MSL
 14 MAY 79
 ASCENSION NO. 119

SIGNIFICANT LEVEL DATA
 1340060109
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
879.2	3997.3	29.6	-3.9	11.0
866.8	4409.7	26.4	-0.6	17.0
850.0	4973.8	25.1	-1.6	17.0
700.0	10409.6	9.5	-12.9	19.0
544.0	17064.6	-7.9	-29.9	15.0
500.0	17197.9	-13.5	-34.3	15.0
429.0	22978.1	-20.7	-39.8	16.0
400.0	24667.9	-24.6	-43.1	16.0
347.8	27959.1	-33.4	-49.4	18.0

HEIGHT METERS	DIRECTION DEGREES	SPEED MPH
140		
150		
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STATION ALTITUDE 3997.30 FEET MSL
 14 MAY 79 1400 HRS MST
 ASCENSION NO. 102

UPPER AIR DATA
 134006C109
 S M R

GEODETIC COORDINATES
 52.48034 LAT DEG
 106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY CM ³ /CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3997.3	379.2	29.6	11.0	1009.7	578.5	140.0	8.0	1.000244
4000.0	379.1	29.6	11.0	1009.7	578.5	140.0	8.0	1.000244
4500.0	364.1	26.2	17.0	1003.1	574.9	140.8	6.0	1.000248
5000.0	349.2	23.5	17.0	999.8	573.5	142.4	4.1	1.000244
5500.0	334.2	20.8	17.2	977.1	571.9	146.7	2.2	1.000239
6000.0	319.4	18.2	17.4	964.6	570.2	191.9	.4	1.000235
6500.0	304.9	15.7	17.6	952.2	568.5	235.8	.2	1.000231
7000.0	290.7	13.3	17.7	940.1	566.8	238.2	1.3	1.000227
7500.0	276.7	10.9	17.9	928.1	565.2	203.4	2.0	1.000223
8000.0	262.9	8.4	18.1	916.3	563.5	203.4	2.9	1.000219
8500.0	249.4	5.9	18.3	904.7	561.8	183.9	3.8	1.000216
9000.0	236.1	3.5	18.5	893.2	560.1	182.1	5.1	1.000212
9500.0	223.1	1.1	18.7	881.9	558.4	181.8	6.5	1.000209
10000.0	210.3	-1.3	18.8	870.7	556.7	182.4	7.0	1.000205
10500.0	197.6	-3.7	18.9	859.5	555.1	182.6	7.3	1.000202
11000.0	185.4	-6.1	18.6	847.4	553.5	181.7	7.3	1.000198
11500.0	173.7	-8.6	18.3	835.4	552.0	182.6	7.1	1.000195
12000.0	162.1	-11.1	18.0	823.7	550.4	184.5	7.0	1.000191
12500.0	150.7	-13.6	17.7	812.1	548.9	184.2	6.9	1.000188
13000.0	139.6	-16.1	17.4	800.7	547.3	183.8	6.8	1.000185
13500.0	128.7	-18.6	17.1	789.5	545.8	182.5	6.4	1.000182
14000.0	118.0	-21.1	16.8	778.4	544.2	181.2	5.9	1.000179
14500.0	107.5	-23.6	16.5	767.5	542.6	179.9	5.3	1.000176
15000.0	97.2	-26.1	16.2	756.8	541.1	178.1	5.3	1.000173
15500.0	87.2	-28.6	15.9	746.2	539.5	176.4	5.6	1.000170
16000.0	77.4	-31.1	15.6	735.8	537.9	173.7	5.0	1.000167
16500.0	67.8	-33.6	15.3	725.6	536.4	169.7	4.1	1.000165
17000.0	58.4	-36.1	15.0	715.5	534.8	159.5	3.1	1.000162
17500.0	49.1	-38.6	15.0	705.0	533.3	139.3	2.2	1.000160
18000.0	40.0	-41.1	15.0	694.5	531.7	138.1	2.1	1.000157
18500.0	31.1	-43.6	15.0	684.2	530.2	139.7	2.0	1.000155
19000.0	22.4	-46.1	15.0	674.1	528.7	176.7	2.4	1.000152
19500.0	13.9	-48.6	15.1	663.5	527.4	198.3	3.7	1.000150
20000.0	5.5	-51.1	15.2	652.7	526.2	215.4	5.2	1.000147
20500.0	-3.0	-53.6	15.3	642.0	525.0	225.3	7.0	1.000145
21000.0	-11.6	-56.1	15.5	631.6	523.8	238.6	8.0	1.000142
21500.0	-20.2	-58.6	15.6	621.3	522.6	249.5	9.2	1.000140
22000.0	-28.8	-61.1	15.7	611.2	521.4	249.9	11.5	1.000137
22500.0	-37.4	-63.6	15.9	601.2	520.2	249.5	13.8	1.000135
23000.0	-46.0	-66.1	16.0	591.5	519.0	255.6	15.6	1.000133

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STATION ALTITUDE 3997.30 FEET MSL
 14 MAY 79
 ASCENSION NO. 109

UPPER AIR DATA
 1340060109
 S M R

GEODETTIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE	TEMPERATURE DEWPOINT DEGREE	REL. HUM. PERCENT	DENSITY G/M ³ CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
23500.0	419.2	-21.9	-40.8	16.0	582.0	617.6	261.2	17.5	1.000131
24000.0	411.2	-23.1	-41.8	16.0	572.7	616.1	267.0	19.2	1.000128
24500.0	402.8	-24.2	-42.8	16.0	563.6	614.7	272.1	20.9	1.000126
25000.0	394.4	-25.5	-43.7	16.2	554.7	613.1	274.1	22.1	1.000124
25500.0	386.1	-26.8	-44.6	16.5	546.0	611.5	273.4	22.6	1.000122
26000.0	378.0	-28.2	-45.6	16.8	537.4	609.8			1.000120
26500.0	370.0	-29.5	-46.6	17.1	529.0	608.1			1.000118
27000.0	362.3	-30.8	-47.5	17.4	520.8	606.5			1.000117
27500.0	354.7	-32.2	-48.5	17.7	512.7	604.8			1.000115

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100-5520A TOM DEP
 08-48034 LAT DEG
 GEODETTIC COORDINATES

STATION ALTITUDE 3997.30 FEET MSL
 14 MAY 79
 ASCENSION NO. 109

MRN MANDATORY LEVELS
 1340060109
 5 M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

GEOPOTENTIAL ALTITUDE DECAMETERS	DIRECTION DEG (TN)	SPEED MPS	WIND DATA		DEW PT DEP DEG C	TEMPERATURE		PRESSURE MILLIBARS
			N-S MPS	E-W MPS		AIR DEG C		
846.	9999.**	9999.**	-9999.**	-9999.**	16	-33.0	3.500+2	
751.	274.	11.	-1.	11.	18	-24.6	4.000+2	
664.	250.	5.	2.	5.	20	-18.4	4.500+2	
584.	187.	1.	1.	0.	21	-13.3	5.000+2	
511.	155.	2.	3.	-0.	22	-7.1	5.500+2	
442.	180.	3.	4.	0.	22	-1.1	6.000+2	
375.	184.	4.	4.	0.	22	4.4	6.500+2	
317.	183.	4.	4.	0.	22	9.5	7.000+2	
259.	184.	2.	2.	0.	24	15.0	7.500+2	
204.	238.	1.	0.	0.	25	20.2	8.000+2	
151.	142.	2.	2.	-1.	27	25.1	8.500+2	

** WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

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