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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19704A MLRS, Missile Number 067, Round Number B-71 are presented in tabular form.		

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INTRODUCTION

19704A MLRS, Missile Number 067, Round Number B-71,
was launched from BRILLO, White Sands Missile Range (WSMR), New Mexico,
at 1530 MST on 07 January 1980. The scheduled launch time was
1530 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 D 3 $\frac{1}{2}$ 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

D 3 $\frac{1}{2}$ 2km
DENVER 2km

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 60,000 feet in 500-foot increments.

SITE AND TIME

NW 30 1530 MST

TABLE 1. Surface Observations taken at 1535 MST,
 07 January 1980, at D 3½, 19704A MRLS,
 Missile Number 067, Round Number B-71.

ELEVATION	3975	FT/MSL
PRESSURE	870.9	MBARS
TEMPERATURE	16.1	°C
RELATIVE HUMIDITY	46	
DEW POINT	4.5	°C
DENSITY		GM/M ³
WIND SPEED	15	KTS
WIND DIRECTION	270	DEGREES
CLOUD COVER	4	Sc
CLOUD COVER	6	Ac

STATION ALTITUDE 4010.40 FEET MSL
 7 JAN. 60
 ASCENSION NO. 2

SIGNIFICANT LEVEL DATA
 0070220002
 NW 30

GEODETIC COORDINATES
 32.88497 LAT DEG
 106.49714 LON DEG

TABLE 5

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM.
MILLIBARS	MSL FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT
870.9	4010.4	16.2	4.6	46.0
850.0	4687.1	14.8	2.4	43.0
736.4	8596.7	3.9	-4.8	53.0
700.0	9941.7	.1	-6.9	59.0
679.2	10733.4	-2.0	-7.7	65.0
624.6	12903.3	-7.3	-9.2	86.0
572.2	15132.1	-11.4	-14.6	77.0
564.0	15496.3	-11.5	-15.7	71.0
555.0	15902.2	-11.2	-20.0	48.0
538.4	16668.2	-11.6	-19.9	50.0
500.0	18517.4	-16.1	-24.1	50.0
481.6	19441.6	-18.7	-24.0	63.0
473.6	19851.6	-19.8	-25.5	60.0
435.6	21872.0	-25.3	-25.4	99.0
400.0	23891.6	-29.6	-29.7	99.0
350.8	26933.1	-36.0	-36.1	99.0
344.2	27366.8	-36.7	-37.3	94.0
300.0	30450.8	-44.2	-46.1	81.0
276.0	32274.2	-48.6	-50.6	79.0
255.1	33962.6	-53.1		
250.0	34392.7	-51.6		
242.4	35050.4	-53.0		
221.4	36966.7	-54.9		
216.4	37448.7	-54.0		
206.4	38458.6	-49.9		
200.0	39137.2	-49.9		
183.0	41051.2	-49.9		
160.6	43848.1	-52.6		
150.0	45299.9	-53.3		
100.0	53691.6	-64.5		
88.8	56070.4	-67.4		
71.4	60428.7	-65.5		

UPPER AIR DATA
 0070220002
 NW 30
 TABLE 6

STATION ALTITUDE 4010.40 FEET MSL
 7 JAN. 60
 1530 HRS MST
 ASCENSION NO. 2

GEODETIC COORDINATES
 32-88497 LAT DEG
 106-49714 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARMS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	WEMPOINT CENTIGRADE					SPEED KNOTS	REFRACTION	
4010.4	870.9	16.2	4.6	46.0	1044.7	663.9	270.0	15.0	1.000271	
4500.0	855.7	15.2	3.0	43.8	1030.4	662.6	264.0	17.0	1.000264	
5000.0	840.3	13.9	1.8	43.8	1016.5	661.1	260.3	19.2	1.000259	
5500.0	825.0	12.5	1.0	45.1	1003.0	659.5	256.8	21.5	1.000254	
6000.0	810.0	11.1	.1	46.4	989.7	657.8	254.1	23.8	1.000249	
6500.0	795.3	9.7	-.8	47.6	976.7	656.1	255.5	24.0	1.000245	
7000.0	780.8	8.4	-1.7	48.9	963.8	654.5	257.3	24.1	1.000240	
7500.0	766.6	7.0	-2.7	50.2	951.1	652.8	259.7	24.0	1.000236	
8000.0	752.7	5.6	-3.6	51.5	938.6	651.2	262.8	23.7	1.000232	
8500.0	739.0	4.2	-4.6	52.8	926.3	649.5	266.0	23.5	1.000228	
9000.0	725.3	2.8	-5.4	54.8	913.8	647.8	270.7	23.0	1.000224	
9500.0	711.8	1.3	-6.2	57.0	901.4	646.1	275.6	22.6	1.000220	
10000.0	698.4	-.1	-7.0	59.4	889.2	644.4	279.0	22.6	1.000216	
10500.0	685.3	-1.4	-7.4	63.2	876.7	642.9	281.6	22.7	1.000213	
11000.0	672.2	-2.7	-7.8	67.6	864.1	641.3	282.4	23.8	1.000210	
11500.0	659.4	-3.9	-8.1	72.4	851.4	639.9	280.8	26.0	1.000207	
12000.0	646.8	-5.1	-8.4	77.3	839.0	638.4	279.4	28.3	1.000204	
12500.0	634.4	-6.3	-8.9	82.1	826.7	637.0	276.2	31.3	1.000201	
13000.0	622.2	-7.5	-9.5	85.6	814.4	635.6	273.5	34.4	1.000197	
13500.0	610.1	-8.4	-10.7	83.6	801.5	634.4	270.9	37.9	1.000193	
14000.0	598.2	-9.3	-11.9	81.6	788.7	633.3	268.5	42.1	1.000189	
14500.0	586.6	-10.2	-13.1	79.6	776.1	632.1	266.5	46.1	1.000185	
15000.0	575.2	-11.2	-14.3	77.5	763.8	631.0	264.7	48.2	1.000181	
15500.0	563.9	-11.5	-15.7	70.8	749.9	630.5	263.0	49.5	1.000177	
16000.0	552.9	-11.3	-20.0	48.3	734.8	630.7	260.4	46.2	1.000171	
16500.0	542.0	-11.5	-19.9	49.6	721.0	630.4	260.1	44.5	1.000168	
17000.0	531.3	-12.4	-20.6	50.0	709.2	629.3	260.9	44.2	1.000165	
17500.0	520.8	-13.6	-21.8	50.0	698.5	627.8	261.8	45.8	1.000162	
18000.0	510.5	-14.8	-22.9	50.0	687.9	626.4	262.6	48.0	1.000159	
18500.0	500.3	-16.1	-24.0	50.0	677.5	624.9	263.1	51.1	1.000156	
19000.0	490.3	-17.5	-23.9	56.8	667.6	623.2	263.3	53.9	1.000154	
19500.0	480.3	-18.9	-24.2	62.6	657.7	621.5	263.0	55.7	1.000152	
20000.0	470.7	-20.2	-25.4	62.9	647.9	619.8	262.7	57.6	1.000149	
20500.0	461.1	-21.6	-25.2	72.5	638.0	618.1	261.4	57.9	1.000147	
21000.0	451.6	-22.9	-25.1	82.2	628.3	616.5	259.9	58.1	1.000145	
21500.0	442.4	-24.3	-25.2	91.8	618.8	614.8	258.7	58.6	1.000143	
22000.0	433.3	-25.6	-25.7	99.0	609.2	613.2	257.8	59.9	1.000140	
22500.0	424.2	-26.6	-26.7	99.0	599.1	611.9	257.0	61.3	1.000138	
23000.0	415.3	-27.7	-27.8	99.0	589.2	610.5	256.4	62.9	1.000135	
23500.0	406.7	-28.8	-28.9	99.0	579.4	609.2	256.1	64.8	1.000133	

STATION ALTITUDE 4010.40 FEET MSL
 7 JAN. 80
 ASCENSION NO. 2 1530 HRS MST

UPPER AIR DATA
 0070220002
 NW 30
 TABLE 6 (CONT)

GEODETIC COORDINATES
 32.88497 LAT DEG
 106.49714 LON DEG

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	
24000.0	398.1	-29.8	99.0	569.7	607.8	255.7	66.8	1.000130
24500.0	389.6	-30.9	99.0	560.0	606.5	255.4	67.5	1.000128
25000.0	381.3	-31.9	99.0	550.5	605.2	255.1	68.2	1.000125
25500.0	373.2	-33.0	99.0	541.1	603.9	254.9	68.8	1.000123
26000.0	365.2	-34.0	99.0	531.9	602.5	254.7	69.3	1.000121
26500.0	357.4	-35.1	99.0	522.9	601.2	254.4	70.0	1.000118
27000.0	349.8	-36.1	98.2	513.9	599.9	254.0	71.6	1.000116
27500.0	342.2	-37.0	93.4	504.7	598.7	253.5	73.1	1.000114
28000.0	334.6	-38.2	91.3	496.1	597.2	252.4	74.2	1.000112
28500.0	327.2	-39.5	89.2	487.7	595.6	251.3	75.5	1.000110
29000.0	320.0	-40.7	87.1	479.5	594.1	250.2	77.3	1.000108
29500.0	313.0	-41.9	85.0	471.4	592.5	249.3	79.3	1.000106
30000.0	306.1	-43.1	82.9	463.5	590.9	248.9	81.6	1.000104
30500.0	299.3	-44.3	80.9	455.6	589.4	248.5	83.7	1.000102
31000.0	292.6	-45.5	80.4	447.7	587.8	248.3	85.3	1.000100
31500.0	285.9	-46.7	79.8	439.9	586.2	248.2	86.9	1.000098
32000.0	279.3	-47.9	79.3	432.3	584.7	247.8	86.1	1.000097
32500.0	273.1	-49.2	68.4**	424.8	583.0	247.4	85.2	1.000095
33000.0	266.8	-50.5	45.0**	417.5	581.3	247.0	83.3	1.000093
33500.0	260.7	-51.9	21.6**	410.4	579.5	246.6	81.1	1.000091
34000.0	254.7	-53.0		402.9	578.1	246.6	79.7	1.000090
34500.0	248.7	-51.8		391.5	579.6	246.6	78.7	1.000087
35000.0	243.0	-52.9		384.3	578.2	246.7	77.9	1.000086
35500.0	237.3	-53.4		376.3	577.5	246.6	77.3	1.000084
36000.0	231.8	-53.9		368.3	576.8	246.4	76.8	1.000082
36500.0	226.3	-54.4		360.5	576.1	246.9	77.0	1.000080
37000.0	221.1	-54.8		352.7	575.6	247.3	77.1	1.000079
37500.0	215.9	-55.8		342.8	577.0	248.4	78.8	1.000076
38000.0	210.9	-51.8		331.8	579.7	249.5	80.8	1.000074
38500.0	206.0	-49.9		321.5	582.1	251.0	84.8	1.000072
39000.0	201.3	-49.9		314.1	582.1	252.3	89.1	1.000070
39500.0	196.7	-49.9		306.9	582.1	253.6	91.5	1.000068
40000.0	192.1	-49.9		299.8	582.1	254.9	93.3	1.000067
40500.0	187.7	-49.9		293.0	582.1	256.0	94.4	1.000065
41000.0	183.4	-49.9		286.2	582.1	256.8	92.7	1.000064
41500.0	179.2	-50.3		280.2	581.5	257.6	91.0	1.000062
42000.0	175.1	-50.8		274.3	580.9	258.1	88.7	1.000061
42500.0	171.0	-51.3		268.6	580.3	258.4	86.1	1.000060
43000.0	167.1	-51.8		262.9	579.6	258.7	83.2	1.000059
43500.0	163.2	-52.3		257.4	579.0	258.8	79.8	1.000057

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

UPPER AIR DATA
 0070220002
 NW 30

STATION ALTITUDE 4010.40 FEET MSL
 7 JAN. 80 1530 HRS MST
 ASCENSION NO. 2

GEODETIC COORDINATES
 32.68497 LAT DEG
 106.49714 LON DEG

TABLE 6 (CONT)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
							DIRECTION DEGREES(TN)	SPEED KNOTS	
44000.0	159.5	-52.7			251.9	578.5	259.0	76.3	1.000056
44500.0	155.8	-52.9			246.4	578.1	258.2	73.2	1.000055
45000.0	152.1	-53.2			240.9	577.8	257.3	70.1	1.000054
45500.0	148.6	-53.6			235.7	577.3	256.1	68.6	1.000052
46000.0	145.0	-54.2			230.8	576.4	254.6	69.4	1.000051
46500.0	141.5	-54.9			225.9	575.5	253.2	70.2	1.000050
47000.0	138.2	-55.6			221.2	574.7	252.6	73.6	1.000049
47500.0	134.9	-56.2			216.6	573.8	252.1	77.0	1.000048
48000.0	131.7	-56.9			212.1	572.9	251.7	80.1	1.000047
48500.0	128.5	-57.6			207.7	572.0	251.5	80.4	1.000046
49000.0	125.4	-58.2			203.3	571.1	251.2	80.7	1.000045
49500.0	122.4	-58.9			199.1	570.2	251.0	81.0	1.000044
50000.0	119.5	-59.6			195.0	569.3	251.2	80.8	1.000043
50500.0	116.7	-60.2			190.9	568.5	251.6	80.2	1.000043
51000.0	113.9	-60.9			186.9	567.6	252.1	79.6	1.000042
51500.0	111.2	-61.6			183.0	566.7	252.5	79.0	1.000041
52000.0	108.5	-62.2			179.2	565.8	253.8	78.3	1.000040
52500.0	105.9	-62.9			175.5	564.9	255.0	77.7	1.000039
53000.0	103.4	-63.6			171.9	564.0	256.3	77.1	1.000038
53500.0	100.9	-64.2			168.3	563.1	257.5	76.2	1.000037
54000.0	98.5	-64.9			164.7	562.2	258.8	74.9	1.000037
54500.0	96.0	-65.5			161.1	561.4	260.1	73.6	1.000036
55000.0	93.7	-66.1			157.6	560.6	261.4	73.1	1.000035
55500.0	91.4	-66.7			154.2	559.8	262.6	73.2	1.000034
56000.0	89.1	-67.3			150.8	558.9	263.8	73.4	1.000034
56500.0	86.9	-67.2			147.0	559.1	265.5	73.0	1.000033
57000.0	84.8	-67.0			143.2	559.4	267.4	72.5	1.000032
57500.0	82.7	-66.8			139.5	559.7	269.3	72.0	1.000031
58000.0	80.6	-66.6			136.0	560.0	270.7	70.8	1.000030
58500.0	78.6	-66.3			132.5	560.2	272.1	69.7	1.000029
59000.0	76.7	-66.1			129.0	560.5			1.000029
59500.0	74.8	-65.9			125.7	560.8			1.000028
60000.0	72.9	-65.7			122.5	561.1			1.000027

STATION ALTITUDE 4010.40 FEET MSL
 7 JAN. 60
 ASCENSION NO. 2

MANDATORY LEVELS
 0070220002
 NW 30

GEODETIC COORDINATES
 32.88497 LAT DEG
 106.49714 LON DEG

TABLE 7

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4684.	14.8	2.4	43.	262.9	17.8
800.0	6353.	10.2	-5	47.	255.0	24.0
750.0	8100.	5.3	-3.8	52.	263.4	23.7
700.0	9932.	.1	-6.9	59.	278.6	22.6
650.0	11864.	-4.8	-8.3	76.	279.9	27.7
600.0	13914.	-9.2	-11.7	62.	268.9	41.5
550.0	16111.	-11.3	-20.0	49.	259.8	45.4
500.0	18493.	-16.1	-24.1	50.	263.1	51.2
450.0	21061.	-23.2	-25.1	84.	259.7	58.1
400.0	23853.	-29.6	-29.7	99.	255.8	66.3
350.0	26938.	-36.1	-36.2	98.	254.0	71.5
300.0	30393.	-44.2	-46.1	81.	248.5	83.5
250.0	34320.	-51.6			246.6	78.9
200.0	39046.	-49.9			252.7	90.2
175.0	41909.	-50.8			258.1	88.7
150.0	45181.	-53.3			256.8	68.4
125.0	48989.	-58.3			251.2	80.7
100.0	53529.	-64.5			258.0	75.8
80.0	57962.	-66.5			271.0	70.5