

AD-A080 880 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/8 4/2
19702A, 6SR5, MISSILE NUMBER BR-1, ROUND NUMBER B-34, 31 AUGUST--ETC(U)
AUG 79

UNCLASSIFIED ERADCOM/ASL-DR-1040

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1. Ballistics 2. Meteorology 3. Wind		
21. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
Meteorological data gather for the launching of 19702A GSRS, Missile Number BR-1, Round Number B-34, are presented in tabular form.		

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INTRODUCTION

19702A GSRS, Missile Number BR-1, Round Number B-34, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0900 MDT, 31 August 1979. The scheduled launch time was 0900 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

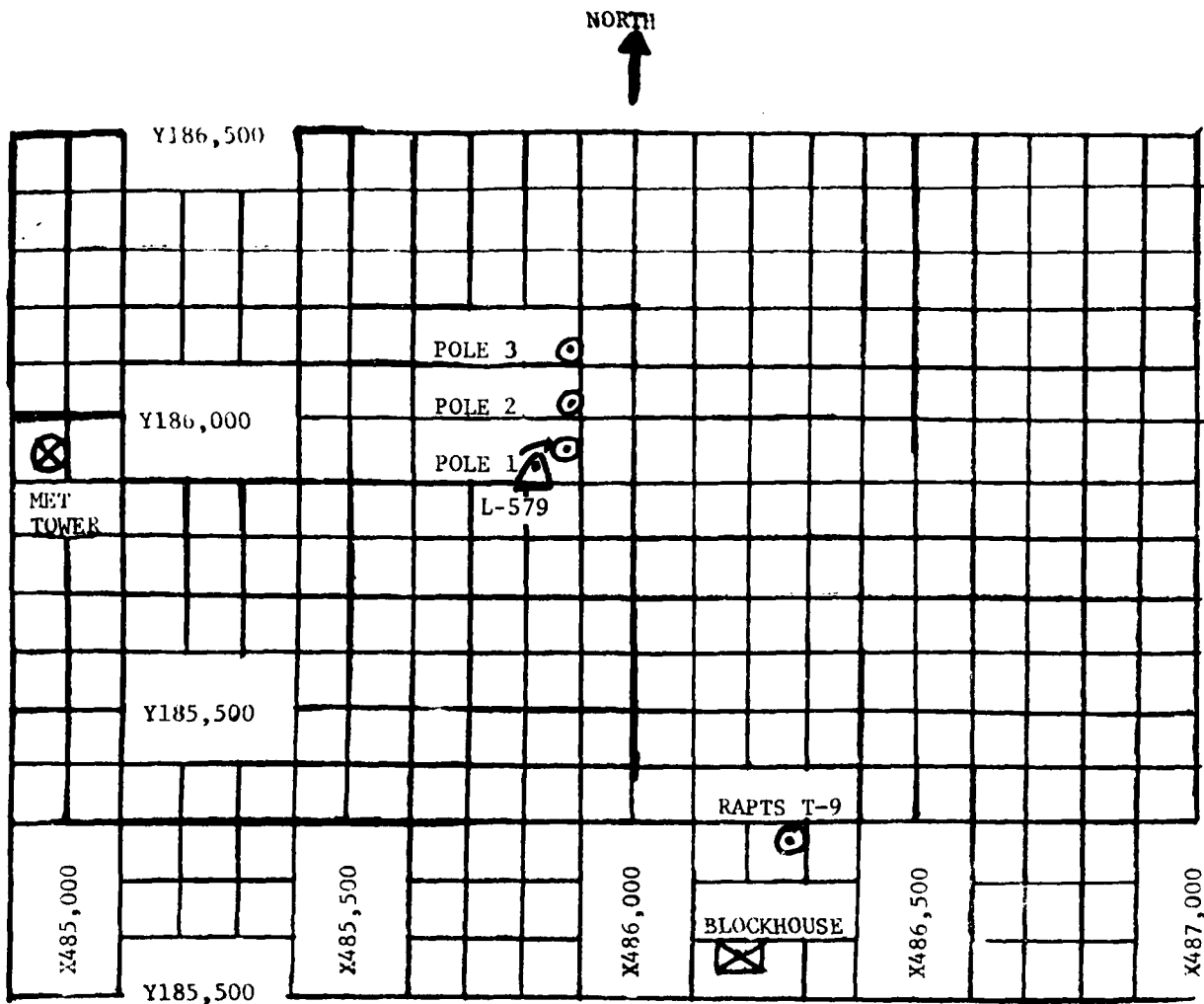
LC-33 1680 and 2040 Meters
NICK 2040 Meters

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 88,500 feet in 500-foot increments.

SITE AND TIME

SMR 0838 MST

Accession For	
NTIS GR&I	<input checked="" type="checkbox"/>
DDC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Available for special
A	230



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. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

TABLE 1. Surface Observations Taken at 0900 MDT
 31 August 1979, at LC-33, 19702A GSRS,
 Missile Number BR-1, Round Number B-34

ELEVATION	3,977.30	FT/MSL
PRESSURE	880.1	MBS
TEMPERATURE	24.0	°C
RELATIVE HUMIDITY	66	%
DEW POINT	17.2	°C
DENSITY	1,023	GM/M ³
WIND SPEED	03	MPH
WIND DIRECTION	220	DEGREES
CLOUD COVER	1	Cu
CLOUD COVER	1	Cs

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

*PEN DID NOT INK 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	*M	4.0	-30	122	4.0	-30	127	2.0
-20	M	2.0	-20	130	3.0	-20	127	2.0
-10	M	2.0	-10	132	4.0	-10	CALM	CALM
0.0	M	2.0	0.0	132	2.0	0.0	127	1.0
+10	M	2.0	+10	137	3.0	+10	CALM	CALM

Type 19702A GSRS, Missile No. BR-1, Round No. B-34 launched
from LC-33 on 31 August 1979 at 0900 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 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	CALM	CALM	-30	155	2.0
-20	CALM	CALM	-20	154	2.0
-10	CALM	CALM	-10	150	1.0
0.0	CALM	CALM	0.0	150	1.0
+10	CALM	CALM	+10	150	1.0
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	CALM	CALM	-30	138	2.0
-20	CALM	CALM	-20	138	2.0
-10	CALM	CALM	-10	138	2.0
0.0	CALM	CALM	0.0	138	2.0
+10	CALM	CALM	+10	138	2.0

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

Type 19702A GSRS, Missile No. BR-1, Round No. B-34 launched
from LC-33 on 31 August 1979 at 0900 MDT.

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC-33 DATE 31 August 1979 TIME 0848 MDT

RELEASE POINT COORDINATES (WSTM) X=486,037.24 Y=182,350.16 Z=3,977.30

MISSILE TYPE 19702A GSRS MISSILE NO. BR-1 BOUND NO. B-34

MISSILE LAUNCHED FROM LC-33 DATE 31 August 1979 TIME 0900 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT - METERS AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC		CALM
60	143	02.1
120	143	02.2
180	138	02.7
240	141	02.1
300	179	03.9
360	173	05.3
420	150	06.2
480	160	08.5
540	159	10.5
600	168	11.7
660	178	10.2
720	184	09.5
780	182	07.1
840	179	07.5
900	196	09.1
960	209	11.5
1020	207	12.5
1080	210	10.9

HEIGHTS AGL	DIRECTION DEGREES	SPEED KTS
1140	205	10.3
1200	201	10.8
1260	186	11.0
1320	188	08.1
1380	191	08.3
1440	210	05.5
1500	244	05.0
1560	207	03.5
1620	234	03.6
1680	232	03.7
1740		
1800		
1860		
1920		
1980		
2040		
2100		
2160		
2220		

PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM LC-33 DATE 31 August 1979 TIME 0900 MDT
 RELEASE POINT COORDINATES (W.LTM) 486,037.24 182,350.16 3,977.30
 MISSILE TYPE 19702A GSRS MISSILE NO. BR-1 BALLOON NO. B-34
 MISSILE LAUNCHED FROM LC-33 DATE 31 August 1979 TIME 0900 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH

HEIGHT - METERS AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS	HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC	220	03.0	1140	210	09.0
60	239	00.0	1200	195	09.5
120	090	03.6	1260	194	09.5
180	133	05.4	1320	192	07.6
240	102	04.6	1380	195	05.9
300	143	04.9	1440	213	04.2
360	186	04.9	1500	211	04.4
420	180	06.3	1560	226	03.1
480	198	05.7	1620	232	02.9
540	203	07.5	1680	210	02.7
600	204	10.0	1740	203	01.9
660	190	12.0	1800	226	01.1
720	183	10.9	1860	050	00.8
780	192	09.0	1920	022	02.2
840	186	07.9	1980	001	03.6
900	186	07.9	2040	007	03.2
960	201	09.7	2100		
1020	210	09.8	2160		
1080	211	09.0	2220		

PILOT BALLOON MEASURED WIND DATA

TABLE 6

RELEASED FROM NICK DATE 31 August 1979 TIME 0851 MDT
 RELEASE POINT COORDINATES (WSIM) X=470,734.56 Y=255,775.64 Z=4126.57
 MISSILE TYPE 19702A GSRS MISSILE NO. BR-1 BUOY NO. B-34
 MISSILE LAUNCHED FROM LC-33 DATE 31 August 1979 TIME 0900 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT - METERS AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC	140	04.0
60	130	05.0
120	121	06.0
180	159	05.0
240	162	04.5
300	159	05.0
360	169	06.0
420	176	07.5
480	181	07.5
540	172	07.0
600	183	05.0
660	149	02.5
720	107	01.5
780	007	01.0
840	300	01.5
900	265	03.5
960	268	05.5
1020	242	05.0
1080	262	04.5

HEIGHTS AGL	DIRECTION DEGREES	SPEED KTS
1140	266	04.0
1200	280	01.5
1260	308	01.5
1320	259	00.5
1380	196	00.5
1440	225	02.0
1500	225	00.5
1560	214	00.5
1620	270	00.5
1680	188	00.5
1740	223	01.5
1800	234	02.5
1860	256	00.5
1920	254	01.5
1980	275	02.0
2040	270	01.5
2100		
2160		
2220		

PILOT BALLOON MEASURED WIND DATA

TABLE 7

RELEASED FROM NICK DATE 31 August 1979 TIME 0900 MDTRELEASE POINT COORDINATES (WSTM) X=470,734.56 Y=255,775.64 H=4126.57MISSILE TYPE 19702A GSRS MISSILE NO. BR-1 ROUND NO. B-34MISSILE LAUNCHED FROM LC-33 DATE 31 August 1979 TIME 0900 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT - METERS AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC	120	02.0
60	233	00.5
120	152	04.0
180	146	04.5
240	151	04.5
300	174	04.5
360	169	04.0
420	181	04.5
480	179	07.5
540	178	07.0
600	193	04.5
660	187	03.5
720	131	03.0
780	105	01.5
840	112	00.5
900	280	01.5
960	261	05.0
1020	245	06.0
1080	237	05.0

HEIGHTS AGL	DIRECTION DEGREES	SPEED KTS
1140	241	03.0
1200	248	02.5
1260	273	02.0
1320	270	01.0
1380	252	01.5
1440	182	02.5
1500	096	01.0
1560	252	01.5
1620	201	02.0
1680	163	01.5
1740	214	01.0
1800	238	02.5
1860	277	01.5
1920	273	02.0
1980	292	01.5
2040	292	01.5
2100		
2160		
2220		

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

SIGNIFICANT LEVEL DATA
 2430000280
 S M R

STATION ALTITUDE 3697.30 FEET MSL
 31 AUG. 79 0638 HRS MST
 ASCENSION 10. 206

TABLE 8

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM.
MILLIBARS	MSL FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT
879.2	3997.3	26.2	18.0	54.0
873.2	4195.3	23.7	15.7	61.0
850.0	4967.4	21.5	15.0	69.0
820.8	5961.5	18.8	14.7	77.0
795.8	6837.8	19.5	13.2	87.0
721.0	9507.6	14.7	5.0	82.0
700.0	10430.0	12.6	2.7	51.0
657.6	12141.7	8.0	2.5	68.0
640.2	12367.8	6.2	-1.7	57.0
597.2	14727.1	1.4	-4.9	63.0
572.4	15845.3	-1.3	-12.2	43.0
555.6	16615.4	-2.1	-22.0	19.0
547.6	17004.1	-1.4	-24.6	15.0
500.0	19366.6	-5.7	-28.9	14.0
484.8	20160.9	-6.6	-30.4	13.0
440.4	22601.0	-12.5	-34.4	14.0
426.0	23434.9	-13.3	-35.0	14.0
400.0	24998.9	-17.7	-38.0	14.0
364.8	27244.3	-22.9	-42.3	15.0
332.8	29438.7	-27.6	-46.2	15.0
314.4	30763.0	-28.5	-46.9	15.0
300.0	31883.8	-30.9	-48.9	15.0
284.8	33092.7	-33.3	-48.9	15.0
250.0	35061.5	-40.7		
236.4	37308.0	-43.7		
221.6	38733.2	-45.7		
200.0	40955.8	-51.5		
184.8	42629.9	-56.0		
160.8	45111.4	-56.4		
150.0	46923.5	-64.6		
141.0	48100.3	-67.6		
116.8	51855.7	-72.1		
113.4	52433.3	-69.8		
100.0	54924.0	-65.7		
89.4	57134.1	-71.5		
83.8	59400.0	-70.0		
76.4	59733.5	-62.2		
70.0	62042.2	-62.8		
65.2	63497.1	-60.0		
60.2	65133.9	-62.2		

STATION ALTITUDE 3937.30 FEET MSL
 31 AUG. 79
 ASCENSION NO. 406

SIGNIFICANT LEVEL DATA
 24300.0000
 S M R

GEODETIC COORDINATES
 52.46034 LAT DEG
 106.42307 LONG DEG

TABLE 8 (Cont)

GEOMETRIC ALTITUDE MILLIBARS MSL FEET	PRESSURE MILLIBARS	TEMPERATURE A.I.R. DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
57.0 65970.1		-59.2		
52.0 67636.3		-60.8		
50.0 68900.0		-59.3		
42.0 72204.9		-55.8		
30.0 79727.9		-53.3		
22.6 85852.0		-46.8		
20.0 88547.7		-44.5		

STATION ALTITUDE 3997.50 FEET MSL
 31 AUG. 79 0838 HRS MST
 ASCENDING 10.0 200

UPPER AIR DATA
 2430000200
 S M R
 TABLE 9

GEODETTIC COORDINATES
 32.48034 LAT DEG
 106.42307 LONG 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	WIND DIRECTION DEGREES(T)				SPEED KNOTS		
3997.3	879.2	26.2	18.8	64.0	1013.6	677.2	0	0	1.000318
4000.0	879.1	26.2	18.8	64.0	1013.6	677.2	0	0	1.000318
4500.0	864.0	22.8	15.7	64.2	1008.9	672.9	0.7	0.7	1.000302
5000.0	849.0	21.4	15.5	69.3	993.2	671.3	1.5	1.5	1.000299
5500.0	834.2	20.1	15.1	73.3	983.4	669.7	2.2	2.2	1.000295
6000.0	819.7	18.8	14.6	76.6	970.5	668.3	2.9	2.9	1.000290
6500.0	805.3	18.2	13.8	70.9	952.4	666.0	2.4	2.4	1.000282
7000.0	791.2	19.2	12.7	66.1	933.1	663.3	2.2	2.2	1.000274
7500.0	777.3	18.3	11.3	63.4	922.9	661.3	2.1	2.1	1.000255
8000.0	763.6	17.5	9.8	60.7	909.8	660.1	2.0	2.0	1.000257
8500.0	750.1	16.6	8.3	57.9	896.3	658.0	1.7	1.7	1.000249
9000.0	736.9	15.7	6.8	55.2	884.1	656.8	1.2	1.2	1.000242
9500.0	723.9	14.9	5.2	52.5	871.5	654.7	0.6	0.6	1.000235
10000.0	710.9	13.7	3.9	51.5	859.8	651.2	0.3	0.3	1.000229
10500.0	698.2	12.4	2.8	51.7	848.3	659.7	0.8	0.8	1.000224
11000.0	685.6	11.1	2.8	56.7	836.9	658.1	0.6	0.6	1.000222
11500.0	673.2	9.7	2.7	61.6	825.0	656.0	0.4	0.4	1.000219
12000.0	661.0	8.4	2.5	66.6	814.5	653.0	1.9	1.9	1.000217
12500.0	649.0	7.1	0.5	62.6	803.7	653.4	3.5	3.5	1.000210
13000.0	637.0	5.9	-1.9	57.4	792.9	651.8	4.6	4.6	1.000203
13500.0	625.2	4.9	-2.7	59.0	781.9	650.2	6.1	6.1	1.000199
14000.0	613.7	3.3	-3.0	60.7	771.1	648.7	7.5	7.5	1.000195
14500.0	602.3	2.0	-4.5	62.3	760.5	647.1	8.9	8.9	1.000191
15000.0	591.1	0.7	-6.5	58.1	750.0	645.3	10.3	10.3	1.000188
15500.0	579.9	-0.5	-9.8	49.2	739.5	643.9	9.0	9.0	1.000180
16000.0	569.0	-1.5	-13.8	48.2	728.6	642.0	7.7	7.7	1.000173
16500.0	558.3	-2.0	-20.5	42.6	718.6	641.6	5.8	5.8	1.000160
17000.0	547.7	-1.4	-24.6	15.0	701.7	642.4	5.5	5.5	1.000161
17500.0	537.2	-2.3	-25.5	14.8	690.0	641.3	4.9	4.9	1.000158
18000.0	527.0	-3.2	-26.4	14.0	679.0	640.2	4.7	4.7	1.000155
18500.0	517.0	-4.1	-27.3	14.4	669.1	639.1	4.0	4.0	1.000152
19000.0	507.1	-5.0	-28.2	14.2	658.6	638.0	4.0	4.0	1.000150
19500.0	497.4	-5.9	-29.1	13.8	648.0	637.1	4.7	4.7	1.000147
20000.0	487.8	-6.4	-30.1	13.2	638.9	636.4	4.3	4.3	1.000145
20500.0	478.4	-7.4	-30.9	13.1	628.9	635.2	4.4	4.4	1.000142
21000.0	469.0	-8.0	-31.7	13.3	619.5	633.7	4.9	4.9	1.000140
21500.0	459.9	-9.6	-32.0	13.5	609.3	632.3	5.7	5.7	1.000138
22000.0	450.9	-11.0	-33.4	13.8	599.2	630.8	6.9	6.9	1.000135
22500.0	442.2	-12.3	-34.2	14.0	589.2	629.3	7.5	7.5	1.000133
23000.0	433.5	-12.9	-34.7	14.0	580.0	628.0	7.7	7.7	1.000131

STATION ALTITUDE 3977.30 FEET MSL
 31 AUG 79 0636 HRS MST
 ASCENSION NO. 266

UPPLR AIR DATA
 2430000200
 S N R

GEODETTIC COORDINATES
 32.42034 LAT DEG
 100.42307 LON DEG

TABLE 9 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (T.)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	ULWPOINT						
4350.0	424.9	-13.5	-35.2	14.0	569.9	627.9	347.7	6.0	1.000129
4400.0	416.4	-14.9	-36.3	14.0	561.6	626.1	334.0	8.4	1.000127
4450.0	408.1	-16.3	-37.5	14.0	553.4	624.4	325.2	7.5	1.000125
4500.0	400.0	-17.7	-38.6	14.0	545.4	622.7	317.0	6.1	1.000123
4550.0	391.9	-18.9	-39.4	14.2	536.7	621.3	309.2	5.6	1.000121
4600.0	383.9	-20.0	-40.2	14.4	528.2	619.9	303.4	5.6	1.000119
4650.0	376.1	-21.2	-41.0	14.7	519.9	618.5	303.6	7.7	1.000117
4700.0	368.5	-22.3	-41.9	14.9	511.7	617.0	300.6	9.8	1.000115
4750.0	360.9	-23.4	-42.7	15.0	503.5	615.7	4.0	2.8	1.000113
4800.0	353.4	-24.5	-43.6	15.0	495.2	614.3	0.0	6.5	1.000111
4850.0	346.1	-25.6	-44.5	15.0	487.0	613.0	200.2	15.6	1.000109
4900.0	339.0	-26.7	-45.4	15.0	479.0	611.7	270.2	35.0	1.000107
4950.0	331.9	-27.6	-46.2	15.0	471.0	610.5	274.3	52.4	1.000105
5000.0	325.0	-28.0	-46.5	15.0	461.7	610.0	271.3	51.3	1.000103
5050.0	318.2	-28.3	-46.7	15.0	452.7	609.6	265.3	37.5	1.000101
5100.0	311.5	-29.0	-47.3	15.0	444.4	609.0	267.6	35.3	1.000100
5150.0	304.9	-30.1	-48.2	15.0	437.0	607.4	272.7	36.7	1.000098
5200.0	298.5	-31.1	-50.0	13.6**	429.0	606.1	279.2	39.9	1.000096
5250.0	292.2	-32.1	-50.8	7.4**	422.2	604.8	284.2	43.4	1.000094
5300.0	285.9	-33.1	-70.3	1.2**	415.0	603.6	284.6	45.6	1.000092
5350.0	279.6	-34.3			407.0	602.1	283.2	47.4	1.000091
5400.0	273.7	-35.6			401.3	600.5	280.1	46.5	1.000089
5450.0	267.7	-36.8			394.6	598.9	275.9	46.0	1.000088
5500.0	261.9	-38.1			389.1	597.3	273.6	47.1	1.000086
5550.0	256.2	-39.3			381.7	595.7	270.6	46.1	1.000085
5600.0	250.7	-40.5			373.4	594.2	269.1	48.4	1.000084
5650.0	245.1	-41.8			369.0	592.6	267.3	46.8	1.000082
5700.0	239.7	-43.0			362.7	591.1	267.7	49.2	1.000081
5750.0	234.3	-44.0			352.2	589.6	267.6	51.2	1.000079
5800.0	229.1	-44.7			349.3	588.9	267.4	56.6	1.000078
5850.0	224.0	-45.4			342.5	588.0	267.6	60.2	1.000076
5900.0	218.9	-46.4			335.0	586.0	269.4	63.0	1.000075
5950.0	213.9	-47.7			330.3	583.0	263.3	64.0	1.000074
6000.0	209.0	-49.0			324.9	580.3	264.2	62.0	1.000072
6050.0	204.3	-50.3			319.3	577.6	262.3	60.4	1.000071
6100.0	199.6	-51.0			313.9	575.0	261.6	59.4	1.000070
6150.0	194.9	-52.0			308.4	573.1	261.6	55.6	1.000069
6200.0	190.4	-54.3			303.1	570.3	263.7	59.0	1.000068
6250.0	185.9	-55.7			297.6	574.3	263.3	59.0	1.000066
6300.0	181.0	-56.3			292.7	573.7	267.3	56.6	1.000065

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

UPPER AIR DATA
 243000Z
 5 M K
 TABLE 9 (Cont)

STATION ALTITUDE 3997.00 FEET MSL
 31 AUG 79
 0300 HRS MST
 ASCENDING 100. 200

GEODETIC COORDINATES
 J2.48034 LAT DEG
 100.42307 LONG DEG

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND M/SEC	WIND DATA DIRECTION, SPEED KNOTS	INDEX OF REFRACT. N.
43500.0	177.2	-57.2		283.9	572.4	207.0	1.000004
44000.0	173.0	-58.3		280.4	571.0	207.2	1.000002
44500.0	168.8	-59.4		273.1	569.0	200.9	1.000001
45000.0	164.7	-60.5		267.8	568.2	200.0	1.000000
45500.0	160.8	-61.5		264.7	568.7	200.0	1.000000
46000.0	156.9	-62.6		259.0	568.0	207.0	1.000000
46500.0	153.1	-63.7		254.7	565.0	207.4	1.000007
47000.0	149.4	-64.8		249.0	562.5	208.0	1.000000
47500.0	145.7	-65.1		243.2	560.0	209.4	1.000000
48000.0	142.1	-67.4		240.0	560.0	270.9	1.000004
48500.0	138.6	-68.2		235.5	557.7	272.2	1.000000
49000.0	135.1	-68.8		230.3	556.9	272.0	1.000001
49500.0	131.7	-69.4		225.1	556.1	272.9	1.000000
50000.0	128.4	-69.9		220.1	555.4	275.2	1.000000
50500.0	125.2	-70.5		213.2	554.0	277.7	1.000000
51000.0	122.0	-71.1		210.4	553.0	280.0	1.000000
51500.0	118.9	-71.7		203.7	553.0	282.0	1.000000
52000.0	115.9	-71.5		200.3	553.2	283.4	1.000000
52500.0	113.0	-69.7		193.5	553.7	289.0	1.000000
53000.0	110.2	-69.1		182.1	550.5	294.0	1.000000
53500.0	107.5	-68.5		182.9	557.4	297.2	1.000000
54000.0	104.8	-67.9		177.8	550.2	290.4	1.000000
54500.0	102.2	-67.2		172.8	559.0	288.0	1.000000
55000.0	99.6	-66.9		168.2	559.0	242.4	1.000000
55500.0	97.1	-66.0		164.9	556.1	223.9	1.000000
56000.0	94.7	-63.0		154.0	560.0	244.0	1.000000
56500.0	92.3	-70.1		150.4	553.1	211.1	1.000000
57000.0	90.0	-71.2		150.3	551.0	210.4	1.000000
57500.0	87.7	-71.1		151.5	551.0	210.1	1.000000
58000.0	85.5	-70.5		147.0	554.0	222.0	1.000000
58500.0	83.4	-69.4		142.0	550.1	219.0	1.000000
59000.0	81.3	-68.5		137.1	560.0	240.4	1.000000
59500.0	79.3	-63.6		131.8	564.0	231.0	1.000000
60000.0	77.4	-62.3		127.0	569.7	40.0	1.000000
60500.0	75.5	-62.4		124.8	560.0	30.1	1.000000
61000.0	73.7	-62.5		121.9	563.4	74.1	1.000000
61500.0	71.9	-62.7		119.0	563.2	60.4	1.000000
62000.0	70.1	-62.8		116.2	563.0	39.1	1.000000
62500.0	68.5	-61.9		112.9	560.2	27.0	1.000000
63000.0	66.8	-61.0		109.7	567.0	33.7	1.000000
63500.0	65.0	-61.0		107.0	567.0	33.7	1.000000

STATION ALTITUDE 3997.30 FEET MSL
 31 AUG. 79 0836 HRS MST
 ASCENSION NO. 286

UPPER AIR DATA
 2430000286
 5 M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LONG DEG

TABLE 9 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION OF WIND DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	65.2	-60.0		100.5	500.8		89.4	1.000024
64000.0	63.6	-60.7		104.3	567.9		87.9	1.000023
64500.0	62.1	-61.3		102.1	567.0		88.9	1.000023
65000.0	60.6	-62.0		100.0	568.1		88.0	1.000022
65500.0	59.1	-60.9		97.1	567.8		89.3	1.000022
66000.0	57.7	-59.2		94.0	569.8		91.2	1.000021
66500.0	56.3	-59.7		91.9	569.2		90.3	1.000020
67000.0	55.0	-60.1		89.9	569.7		101.5	1.000020
67500.0	53.7	-60.5		87.9	568.1		102.3	1.000020
68000.0	52.4	-60.6		85.8	568.0		100.0	1.000019
68500.0	51.1	-59.9		83.5	568.9		96.9	1.000019
69000.0	49.9	-59.3		81.3	569.3		87.3	1.000018
69500.0	48.7	-58.7		79.2	570.5		77.2	1.000018
70000.0	47.6	-58.2		77.1	571.2		70.8	1.000017
70500.0	46.4	-57.6		75.1	571.9		70.5	1.000017
71000.0	45.3	-57.1		73.1	572.6		70.2	1.000016
71500.0	44.3	-56.6		71.2	573.3		74.6	1.000016
72000.0	43.2	-56.0		69.3	574.1		79.8	1.000015
72500.0	42.2	-55.7		67.6	574.5		84.2	1.000015
73000.0	41.2	-55.5		66.0	574.7		87.8	1.000015
73500.0	40.3	-55.4		64.4	574.9		91.0	1.000014
74000.0	39.3	-55.2		62.8	575.1		93.2	1.000014
74500.0	38.4	-55.0		61.3	575.4		94.2	1.000014
75000.0	37.5	-54.9		59.9	575.8		95.2	1.000013
75500.0	36.6	-54.7		58.4	575.8		95.2	1.000013
76000.0	35.8	-54.5		57.0	576.0		97.1	1.000013
76500.0	34.9	-54.4		55.8	576.2		98.0	1.000012
77000.0	34.1	-54.2		54.3	576.4		98.0	1.000012
77500.0	33.3	-54.0		52.8	576.9		98.9	1.000012
78000.0	32.6	-53.9		51.7	576.9		99.2	1.000012
78500.0	31.8	-53.7		50.5	577.1		99.8	1.000011
79000.0	31.0	-53.5		49.3	577.3		100.3	1.000011
79500.0	30.3	-53.4		48.1	577.5		101.2	1.000011
80000.0	29.6	-53.0		46.9	578.0		99.3	1.000010
80500.0	28.9	-52.5		45.7	578.7		97.4	1.000010
81000.0	28.3	-51.9		44.5	579.4		95.4	1.000010
81500.0	27.6	-51.4		43.4	580.1		92.0	1.000010
82000.0	27.0	-50.9		42.3	580.9		88.0	1.000009
82500.0	26.4	-50.4		41.3	581.5		83.3	1.000009
83000.0	25.8	-49.8		40.2	582.2		83.4	1.000009

UPPER AIR DATA
 243000Z
 5 M R

STATION ALTITUDE 397.30 FEET MSL
 31 AUG 79 0000 HRS MST
 ASEC 39.00 110. 250

GEODETIC COORDINATES
 32.48034 LAT LEG
 100.42307 LONG LEG

TABLE 9 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND METERS PER SECOND	WIND DATA DIRECTION SPEED KNOTS	INDEX OF REFRACTION
03500.0	65.2	-49.3		35.2	362.9	01.0	1.000009
04000.0	24.6	-48.8		35.2	363.0	00.0	1.000009
04500.0	24.1	-48.2		37.3	364.3	03.0	1.000008
05000.0	23.5	-47.7		35.3	364.9	00.0	1.000008
05500.0	23.0	-47.2		35.4	365.9	00.1	1.000008
06000.0	22.4	-46.7		34.9	365.3	09.9	1.000008
06500.0	21.9	-46.2		33.7	366.8	91.3	1.000007
07000.0	21.5	-45.8		32.9	367.4	92.7	1.000007
07500.0	21.0	-45.4		32.1	367.9		1.000007
08000.0	20.5	-45.0		31.3	368.5		1.000007
08500.0	20.0	-44.5		30.5	369.0		1.000007

STATION ALTITUDE 3997.30 FEET MSL
 31 AUG. 79
 ASCENSION NO. 286

MANDATORY LEVELS
 2430000200
 S M K

GEODEIC COORDINATES
 2.40034 LAT DEG
 106.42307 LON DEG

TABLE 10

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES (IN)	SPEED KNOTS	
850.0	4964.	21.5	15.6	69.	193.1	1.4	
800.0	6083.	19.4	13.9	69.	184.0	2.2	
750.0	8502.	16.6	8.3	58.	151.2	1.7	
700.0	10420.	12.6	2.7	51.	307.9	1.6	
650.0	12444.	7.2	.7	63.	134.0	3.4	
600.0	14580.	1.7	-4.3	63.	129.0	9.1	
550.0	16868.	-1.6	-24.0	16.	211.0	5.6	
500.0	19339.	-5.7	-28.9	14.	304.8	4.7	
450.0	22024.	-11.2	-33.5	14.	334.8	7.0	
400.0	24957.	-17.7	-38.6	14.	347.1	6.2	
350.0	28187.	-25.0	-44.0	13.	296.8	3.8	
300.0	31620.	-30.9	-46.9	13.	277.6	39.0	
250.0	35982.	-40.7			208.9	40.4	
200.0	40850.	-51.5			201.9	59.6	
175.0	43655.	-57.8			267.3	59.5	
150.0	46795.	-64.6			200.1	59.2	
125.0	50387.	-70.6			277.8	37.1	
100.0	54753.	-66.7			247.2	10.0	
80.0	59120.	-64.6			272.8	1.7	
70.0	61829.	-62.8			85.2	14.6	
60.0	64567.	-62.0			88.4	20.0	
50.0	66699.	-59.3			80.3	13.5	
40.0	73335.	-55.3			91.5	23.8	
30.0	79385.	-53.3			100.9	23.6	
25.0	83274.	-49.1			81.1	3.9	
20.0	88130.	-44.5					