

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

DR 1051
AUGUST 1979

AD

LEVEL 1

12
D.S.

ADA 080879

9 METEOROLOGICAL DATA REPORT

6 19782D GSRS
Missile No. 003
Round No. B-29
9 August 1979

Number

DTIC
ELECTE
FEB 21 1980

White Sands Meteorological Team

16 LP665702D127

11 Aug 79

17 02

12 25

14 ERADCOM/ASLI-DR-1051

DDC FILE COPY

✓ ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

THIS DOCUMENT IS BEST QUALITY PRACTICABLE
THE COPY FURNISHED TO DDC CONTAINED A
SIGNIFICANT NUMBER OF PAGES WHICH DO NOT
REPRODUCE LEGIBLY.

ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

410 663 80 2 20 020 JOE

DISPOSITION INSTRUCTIONS

Destroy this report when it is no longer needed. Do not return to the originator.

DISCLAIMER

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

The citation of trade names and names of manufacturers in this report is not to be construed as official Government indorsement or approval of commercial products or services referenced herein.

DISCLAIMER NOTICE

**THIS DOCUMENT IS BEST QUALITY
PRACTICABLE. THE COPY FURNISHED
TO DDC CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO NOT
REPRODUCE LEGIBLY.**

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR 1051	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 19702 D GSRS Missile Number 003 Round Number B-29		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s) White Sands Meteorological Team		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS		8. CONTRACT OR GRANT NUMBER(s) DA Task 1P665702D127-02
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Comd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) US Army Electronics Research & Development Comd Adelphi, MD		12. REPORT DATE August 1979
		13. NUMBER OF PAGES 25
		15. SECURITY CLASS (of this report) UNCLASSIFIED
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release, distribution unlimited.		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) 1. Ballistics 2. Meteorology 3. Winds		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19702 D GSRS, Missile Nr. 003, Round Number B-29, are presented in tabular form.		

DD FORM 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

CONTENTS

	PAGE
INTRODUCTION-----	1
DISCUSSION-----	1
MAP-----	2
TABLES	
1. Surface Observation Taken at 1310 MDT at LC-33-----	3
2. Anemometer-Measured Wind Speed and Direction, LC-33 Fixed Pole, Taken at 1310 MDT-----	4
3. Anemometer-Measured Wind Speed and Direction, Tower Levels 1, 2, 3, and 4, taken at 1310 MDT-----	5
4. LC-33 Pilot Balloon Measured Wind Data at 1300 MDT-----	6
5. LC-33 Pilot Balloon Measured Wind Data at 1310 MDT-----	8
6. Nick Site Pilot Balloon Measured Wind Data at 1300 MDT-----	10
7. Nick Site Pilot Balloon Measured Wind Data at 1310 MDT-----	12
8. SMR Significant Level Data at 1200 MST-----	14
9. SMR Upper Air Data at 1200 MST-----	15
10. SMR Mandatory Level at 1200 MST-----	21

INTRODUCTION

19702D GSRS, Missile Number 003, Round Number B-29, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1310 MDT, 9 August 1979. The scheduled launch time was 1145 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.

1. Upper Air

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

SITE AND ALTITUDE

LC-33 1020 Meters
NICK 1080 Meters

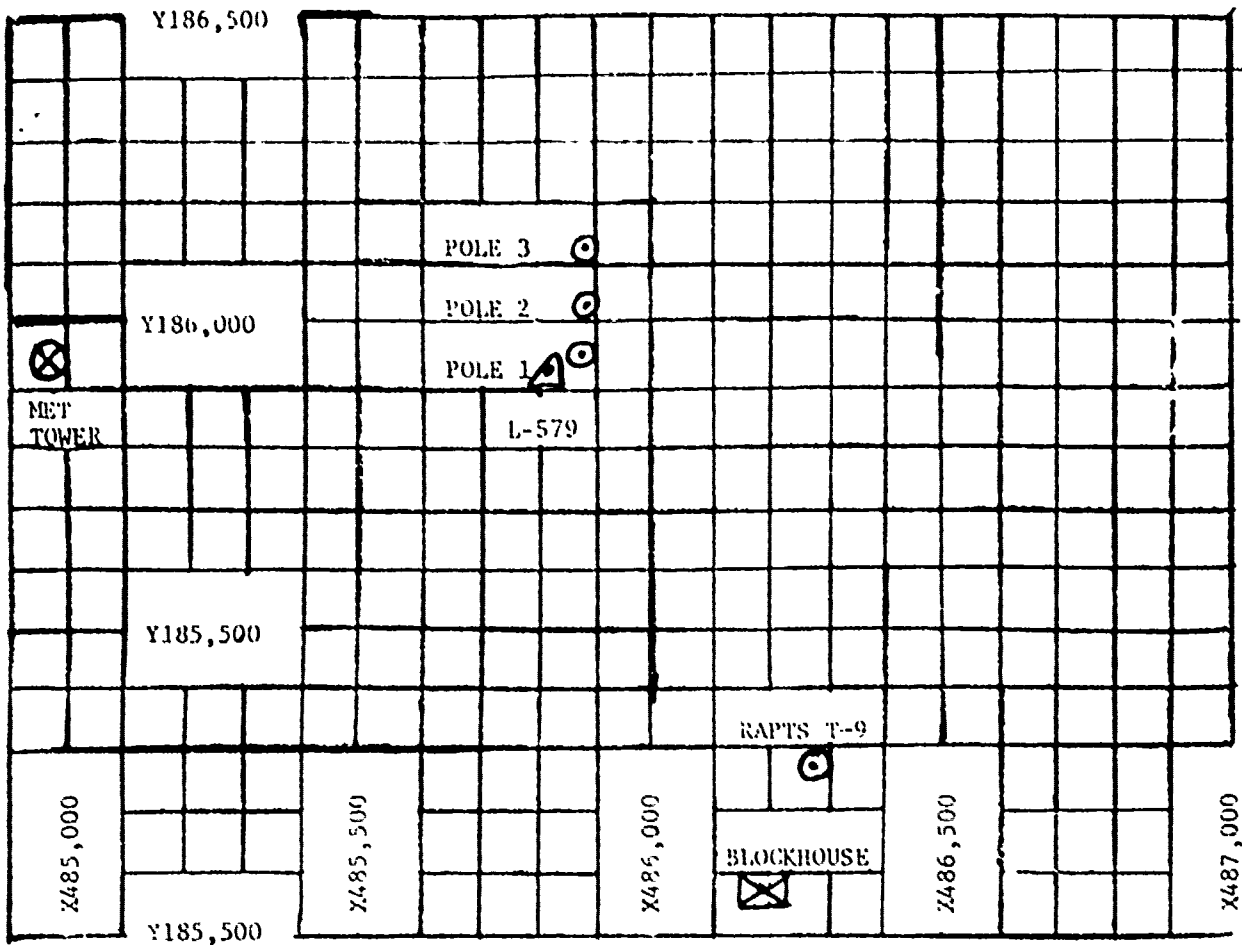
(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 105,000 feet in 500-foot increments.

SITE AND TIME

SMR 1200 MST

Dist	By	Availability	Accession For
<i>R</i>		Special	DTIS GML
			DDC TAB
			Unannounced
			Justification:

NORTH



1. NET TOWER - 4 Bendix Model T-20 Anemometers at 1' ft, 6' 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 1310 MDT,
 9 August 1979, at LC-33, 19702D GSKS,
 Missile Number 003, Round Number B-29.

ELEVATION	3977.30	FT/MSL
PRESSURE	881.8	MBS
TEMPERATURE	34.2	°C
RELATIVE HUMIDITY	29	%
DEW POINT	13.5	°C
DENSITY	992	GM/M ³
WIND SPEED	07	MPH
WIND DIRECTION	220	DEGREES
CLOUD COVER	3	Cb

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	138	08	-30	169	09	-30	116	11
-20	138	08	-20	144	08	-20	110	11
-10	152	07	-10	165	06	-10	087	11
0.0	147	07	0.0	150	07	0.0	105	10
+10	123	10	+10	127	07	+10	105	11

Type 19702 D GSRS, Missile No. 003, Round No. B-29 launched
 from LC-33 on 9 August 1979 at 1310 MDT.

POLE #1 = X485,874.29 Y185,959.90 H4018.74 36.7 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	144	08	-30	141	11
-20	151	09	-20	141	11
-10	145	10	-10	126	10
0.0	161	09	0.0	129	09
+10	160	08	+10	125	08
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	150	10	-30	140	10
-20	152	12	-20	140	10
-10	136	11	-10	144	11
0.0	142	10	0.0	137	10
+10	131	08	+10	141	12

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

Type 19702 D GSRS, Missile No. 003, Round No. B-29 launched
 from LC-33 on 09 August 1979 at 1310 MDT

NOTE: Wind directions are referenced True North.

PILOT BALLOON MEASURED WIND DATA*
(30 meter increments)

TABLE 4

RELEASED FROM LC-33 DATE 9 August 1979 TIME 1300 MDT

RELEASE POINT COORDINATES (WSTM) X=486,037.24 Y=182,350.16 H=3977.30

MISSILE TYPE 19702D GSRS MISSILE NO. 003 ROUND NO. B-29

MISSILE LAUNCHED FROM LC-33 DATE 9 August 1979 TIME 1310 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	180	03.0
30	185	03.0
60	189	02.5
90	192	02.5
120	195	02.5
150	183	04.0
180	170	05.5
210	167	05.5
240	163	05.0
270	163	06.5
300	163	08.0
330	171	09.5
360	179	10.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	165	11.0
420	151	11.0
450	158	11.5
480	164	12.0
510	171	11.5
540	177	11.0
570	168	11.5
600	159	11.5
630	170	11.0
660	180	10.0
690	167	09.0
720	153	08.0
750	153	08.5

m

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	152	08.5
810	153	07.5
840	154	06.0
870	157	07.5
900	159	09.0
930	161	08.5
960	163	07.5
990	164	08.0
1020	165	08.5
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs 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		

PILOT BALLOON MEASURED WIND DATA*
(30 meter increments)

TABLE 5

RELEASED FROM LC-33 DATE 9 August 1979 TIME 1310 MDT
 RELEASE POINT COORDINATES (WSTM) X= 486,037.24 Y= 182,350.16 H= 3,977.30
 MISSILE TYPE 19702 D GSRS MISSILE NO. 003 ROUND NO. B-29
 MISSILE LAUNCHED FROM LC-33 DATE 9 August 1979 TIME 1310 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	220	07.0
30	210	06.0
60	200	05.0
90	190	04.0
120	180	02.5
150	184	09.0
180	188	15.0
210	196	14.5
240	204	13.5
270	191	12.0
300	177	10.0
330	171	10.5
360	165	10.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	161	11.0
420	156	11.5
450	156	11.5
480	155	11.0
510	160	11.5
540	164	11.5
570	167	11.5
600	170	11.0
630	172	11.5
660	173	12.0
690	177	11.0
720	180	09.5
750	176	08.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	171	07.5
810	161	09.0
840	151	10.0
870	163	09.0
900	174	07.5
930	179	08.0
960	184	08.5
990	187	08.5
1020	189	08.0
1050		
1080		
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs 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		

PILOT BALLOON MEASURED WIND DATA*
(30 meter increments)

TABLE 6

RELEASED FROM NICK DATE 9 August 1979 TIME 1300 MDT
 RELEASE POINT COORDINATES (WSTM) X= 470,734.56 Y= 255,775.64 H= 4,126.57
 MISSILE TYPE 19702D GSRS MISSILE NO. 003 ROUND NO. B-29
 MISSILE LAUNCHED FROM LC-33 DATE 9 August 1979 TIME 1310 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	135	03.0
30	136	04.0
60	136	04.5
90	149	03.5
120	162	02.5
150	123	02.0
180	083	01.5
210	091	02.5
240	099	03.0
270	106	03.5
300	113	04.0
330	139	02.5
360	165	01.0

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	161	02.5
420	157	04.0
450	147	04.0
480	136	04.0
510	144	04.0
540	151	04.0
570	154	03.5
600	156	02.5
630	164	03.5
660	172	04.5
690	168	04.0
720	163	03.0
750	176	03.0

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	188	03.0
810	201	03.5
840	214	03.5
870	211	04.0
900	208	04.5
930	204	05.0
960	195	05.0
990	204	05.0
1020	209	05.0
1050	211	05.0
1080	213	04.5
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs 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		

PILOT BALLOON MEASURED WIND DATA*
(30 meter increments)

TABLE 7

RELEASED FROM NICK DATE 9 August 1979 TIME 1310 MDT
 RELEASE POINT COORDINATES (WSTM) X= 470,734.56 Y= 255,755.64 H= 4,126.57
 MISSILE TYPE 19702D GSRS MISSILE NO. 00? ROUND NO. B-29
 MISSILE LAUNCHED FROM LC-33 DATE 9 August 1979 TIME 1310 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
SFC	140	04.0
30	138	04.5
60	136	04.5
90	130	03.5
120	124	02.0
150	145	02.5
180	165	02.5
210	148	03.5
240	131	04.0
270	127	03.5
300	122	02.5
330	113	08.5
360	104	14.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
390	110	09.5
420	116	04.5
450	126	04.0
480	135	03.5
510	136	04.0
540	136	04.0
570	150	04.5
600	163	05.0
630	154	04.0
660	145	02.5
690	159	03.5
720	172	04.5
750	171	04.5

HEIGHT mtrs AGL	DIRECTION DEGREES	SPEED MPH
780	170	04.0
810	155	04.5
840	139	05.0
870	142	04.5
900	145	04.0
930	135	04.5
960	124	04.5
990	138	03.5
1020	151	02.5
1050	160	04.0
1080	168	05.0
1110		
1140		
1170		
1200		
1230		
1260		
1290		
1320		
1350		
1380		
1410		

HEIGHT mtrs 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 3997.30 FEET MSL
 9 AUG. 79
 ASCENSION NO. 265

SIGNIFICANT LEVEL DATA
 2410060260
 S P R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 8

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	
				TEMPERATURE DEGPOINT PERCENT
681.2	3997.3	33.3	13.9	11.0
550.0	5050.8	27.7	-0.4	24.0
779.0	7504.8	20.4	9.0	48.0
751.2	8390.4	18.6	7.0	55.0
700.0	10569.0	16.0	0.9	77.0
679.6	11369.1	9.9	2.0	58.0
616.8	13592.9	3.5	-2.0	65.0
593.0	14909.2	.5	-3.6	74.0
561.0	16422.9	-1.5	-22.1	19.0
545.0	17238.9	-2.9	-17.7	39.0
513.6	18765.5	-6.4	-24.2	23.0
500.0	19805.4	-5.4	-29.4	14.0
440.0	22355.3	-11.0	-30.2	14.0
400.0	25171.0	-16.2	-35.1	13.0
314.0	30950.5	-23.2	-45.7	15.0
300.0	32029.7	-31.0	-42.0	
250.0	36196.0	-41.3		
227.0	38531.0	-45.9		
200.0	41999.8	-51.2		
190.0	47043.3	-54.6		
151.0	49704.9	-63.0		
100.0	55120.2	-67.0		
81.0	59128.4	-65.0		
70.0	62233.3	-64.2		
63.2	65354.4	-61.2		
50.0	69212.6	-55.0		
33.0	75310.9	-34.5		
30.4	77731.6	-50.7		
30.0	80956.6	-39.5		
20.0	68355.0	-36.0		
15.0	50239.4	-43.6		
12.4	39405.5	-43.0		
10.0	104309.9	-36.0		
9.5	105294.9	-35.3		

GEODETIC COORDINATES
 52.46034 LAT DEG
 106.42307 LON DEG

UPPER AIR DATA
 221000Z0269
 S M R

STATION ALTITUDE 3997.30 FEET MSL
 9 AUG. 79 1200 HRS MST
 ASCENSION NO. 206

TABLE 9

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION, SPEED KNOTS	INDEX OF REFRACTION
3997.5	831.2	33.3	31.0	297.9	534.3	150.0	1.000286
4000.0	801.1	33.3	31.0	297.9	534.3	150.0	1.000286
4500.0	866.3	33.6	32.4	297.2	661.2	163.9	1.000279
5000.0	851.0	29.0	33.8	273.0	673.0	174.2	1.000272
5500.0	827.0	29.4	36.5	267.8	675.2	181.7	1.000269
6000.0	822.6	29.0	39.5	259.0	674.0	187.3	1.000266
6500.0	809.4	29.3	42.1	249.9	672.9	191.3	1.000263
7000.0	794.5	22.0	44.8	232.2	671.2	194.8	1.000260
7500.0	739.3	25.8	47.6	220.5	669.6	197.3	1.000256
8000.0	707.1	19.3	51.2	210.3	667.3	200.0	1.000252
8500.0	753.6	19.9	55.3	202.2	666.3	203.3	1.000249
9000.0	740.2	19.4	50.4	202.8	663.5	203.0	1.000246
9500.0	727.0	13.9	55.6	277.4	661.3	200.8	1.000244
10000.0	714.0	12.4	71.1	263.2	661.1	204.9	1.000241
10500.0	701.2	19.9	76.5	253.2	658.4	193.6	1.000238
11000.0	688.6	10.3	56.4	242.4	657.4	182.3	1.000227
11500.0	675.1	9.5	58.4	229.9	656.3	177.3	1.000218
12000.0	663.7	8.2	59.6	216.0	654.7	174.0	1.000214
12500.0	651.5	6.9	61.2	207.3	653.3	170.0	1.000209
13000.0	639.6	5.6	62.3	193.3	651.3	170.1	1.000205
13500.0	627.9	4.3	63.0	173.7	650.0	148.8	1.000201
14000.0	615.3	3.0	65.3	173.0	649.4	141.7	1.000198
14500.0	604.9	1.7	70.0	175.4	648.9	72.3	1.000195
15000.0	593.5	.5	73.6	173.4	643.4	48.0	1.000191
15500.0	582.4	-.2	55.2	174.6	644.3	39.8	1.000182
16000.0	571.4	-.6	56.3	173.0	643.3	32.3	1.000173
16500.0	560.6	-1.3	19.3	170.3	642.3	32.8	1.000155
17000.0	550.0	-2.3	25.5	153.2	641.3	31.1	1.000154
17500.0	539.5	-3.2	28.0	153.7	640.3	29.8	1.000152
18000.0	529.2	-4.5	26.5	153.7	639.3	23.3	1.000159
18500.0	519.1	-5.7	24.2	153.0	637.3	20.3	1.000156
19000.0	509.1	-6.5	14.0	152.0	636.3	17.3	1.000152
19500.0	499.3	-7.3	14.0	151.2	635.3	3.8	1.000148
20000.0	489.6	-8.0	14.0	150.7	634.4	3.3	1.000145
20500.0	480.1	-9.0	14.0	150.3	634.4	9.0	1.000143
21000.0	470.6	-9.8	14.0	150.3	633.5	10.5	1.000141
21500.0	461.5	-10.4	14.0	150.1	632.5	16.4	1.000138
22000.0	452.7	-11.3	13.9	150.1	631.3	17.0	1.000136
22500.0	443.8	-11.3	13.9	150.2	630.3	15.7	1.000133
23000.0	435.0	-12.2	13.9	150.7	629.4	14.6	1.000131

STATION ALTITUDE 3497.30 FEET MSL
 9 AUG. 79 1200 HRS MST
 ASCENSION NO. 206

UPPER AIR DATA
 221000Z63
 S M H

GEODETIC COORDINATES
 32.46034 LAT DEG
 106.42307 LONG DEG

TABLE 9 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED SOUND KNOTS	WIND DIRECTION DEGREES (T)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
43500.0	426.4	-13.2	13.6	571.3	588.2	31.0	15.4	1.000129
44000.0	418.0	-14.1	13.4	562.0	627.1	31.5	16.2	1.000127
44500.0	409.7	-15.1	13.2	552.9	623.9	30.0	16.7	1.000125
45000.0	401.6	-17.0	13.0	544.0	624.6	30.4	17.4	1.000122
45500.0	393.5	-17.0	13.1	535.0	625.3	31.7	18.1	1.000120
46000.0	385.4	-18.0	13.3	525.2	625.3	32.0	18.8	1.000118
46500.0	377.5	-19.1	13.5	517.5	621.0	31.5	19.6	1.000116
47000.0	369.8	-20.1	13.6	507.0	619.0	29.1	20.5	1.000114
47500.0	362.2	-21.1	13.8	500.6	618.0	29.4	21.5	1.000112
48000.0	354.8	-22.1	14.0	492.4	617.3	28.7	22.4	1.000111
48500.0	347.6	-23.2	14.2	484.3	616.0	27.4	23.1	1.000109
49000.0	340.5	-24.2	14.3	475.3	614.7	32.0	23.8	1.000107
49500.0	333.5	-25.2	14.5	465.5	613.5	35.2	23.7	1.000105
50000.0	326.7	-26.2	14.7	459.9	612.2	38.1	23.7	1.000103
50500.0	320.0	-27.3	14.8	453.3	610.9	38.5	23.1	1.000102
51000.0	313.4	-28.3	15.0	443.9	609.0	41.2	22.4	1.000100
51500.0	306.6	-29.5	15.0	438.9	608.0	45.4	21.0	1.000098
52000.0	300.4	-30.9	15.0	432.0	606.4	49.0	21.0	1.000097
52500.0	293.9	-32.2	13.5**	424.8	604.8	52.0	20.8	1.000095
53000.0	287.5	-33.4	11.5**	417.0	603.2	50.8	20.9	1.000093
53500.0	281.3	-34.6	9.7**	410.9	601.7	50.9	20.9	1.000092
54000.0	275.2	-35.9	7.9**	404.1	600.4	48.0	21.2	1.000090
54500.0	269.3	-37.1	6.1**	397.4	598.5	45.7	21.4	1.000089
55000.0	263.4	-38.3	4.3**	390.6	597.0	43.0	21.5	1.000087
55500.0	257.2	-39.6	2.5**	383.4	595.4	44.3	20.7	1.000086
56000.0	252.2	-40.8	.7**	375.1	593.8	45.0	19.9	1.000084
56500.0	246.6	-42.1		371.0	592.2	47.3	19.6	1.000083
57000.0	241.1	-43.4		363.6	590.0	49.0	19.3	1.000081
57500.0	235.7	-44.7		353.4	588.0	52.2	21.2	1.000080
58000.0	230.4	-46.0		351.4	587.1	54.7	22.6	1.000079
58500.0	225.2	-47.2		347.2	585.0	59.1	22.3	1.000077
59000.0	220.1	-48.7		340.0	583.0	65.9	21.7	1.000076
59500.0	215.1	-49.9		333.0	581.0	69.0	19.5	1.000074
60000.0	210.1	-49.9		327.4	581.0	67.5	17.4	1.000073
60500.0	205.3	-50.3		321.0	581.0	68.1	16.0	1.000071
61000.0	200.6	-51.1		314.8	580.0	67.0	16.3	1.000070
61500.0	195.9	-52.2		308.8	579.4	75.0	15.1	1.000069
62000.0	191.2	-53.3		303.0	577.7	61.0	16.0	1.000067
62500.0	186.7	-54.4		297.3	575.6	62.7	14.0	1.000066
63000.0	182.3	-55.5		291.6	574.7	64.1	12.7	1.000065

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

STATION ALTITUDE 3997.30 FEET MSL
 9 AUG. 79 1200 HRS MST
 ASCENSION NO. 206

UPPER AIR DATA
 241000Z00
 S A R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

TABLE 9 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CELSIUS	REL. HUM. PERCENT	WIND DIRECTION (DEGREES TRUE)	WIND SPEED KNOTS	INDEX OF REFRACTION
4550.0	177.9	-55.6		71.2	11.3	1.000064
4460.0	175.7	-57.3		53.5	10.7	1.000062
4370.0	173.6	-53.9		43.7	11.5	1.000061
4280.0	171.5	-50.0		37.4	13.1	1.000060
4190.0	161.6	-51.1		35.0	14.3	1.000059
4100.0	157.0	-52.2		42.0	14.1	1.000058
4010.0	154.0	-53.4		50.2	13.9	1.000057
3920.0	146.7	-54.5		58.4	14.3	1.000055
3830.0	143.0	-55.8		70.9	14.7	1.000054
3740.0	137.5	-56.4		64.0	15.4	1.000052
3650.0	130.7	-57.1		91.9	15.6	1.000051
3560.0	122.7	-57.7		90.9	15.3	1.000050
3470.0	119.4	-58.0		103.2	15.4	1.000049
3380.0	110.2	-57.3		106.3	14.7	1.000048
3290.0	103.0	-57.8		111.7	14.1	1.000046
3200.0	120.0	-57.7		112.2	14.2	1.000045
3110.0	117.0	-57.5		112.2	14.4	1.000044
3020.0	114.1	-57.5		111.0	14.6	1.000043
2930.0	111.3	-57.5		103.0	15.4	1.000042
2840.0	108.5	-57.3		107.0	15.3	1.000041
2750.0	105.6	-57.2		105.1	15.4	1.000040
2660.0	103.2	-57.0		107.0	15.1	1.000039
2570.0	99.1	-57.0		114.0	14.9	1.000038
2480.0	95.7	-56.0		114.1	15.0	1.000037
2390.0	93.3	-56.9		110.3	15.0	1.000036
2300.0	91.0	-56.8		110.3	15.0	1.000035
2210.0	88.8	-56.8		120.7	16.0	1.000034
2120.0	86.6	-56.7		123.4	16.0	1.000033
2030.0	84.4	-55.7		124.0	16.0	1.000032
1940.0	82.3	-55.6		124.0	16.0	1.000031
1850.0	80.3	-55.3		123.0	16.0	1.000030
1760.0	78.3	-55.3		123.0	16.0	1.000029
1670.0	76.4	-55.5		123.0	16.0	1.000028
1580.0	74.5	-55.2		123.0	16.0	1.000027
1490.0	72.7	-54.6		123.0	16.0	1.000026
1400.0	70.9	-54.4		123.0	16.0	1.000025
1310.0	69.2	-53.6		123.0	16.0	1.000024
1220.0	67.5	-53.2		123.0	16.0	1.000023
1130.0	65.8	-52.2		123.0	16.0	1.000022
1040.0	64.1	-51.2		123.0	16.0	1.000021
950.0	62.4	-50.2		123.0	16.0	1.000020
860.0	60.7	-49.2		123.0	16.0	1.000019
770.0	59.0	-48.2		123.0	16.0	1.000018
680.0	57.3	-47.2		123.0	16.0	1.000017
590.0	55.6	-46.2		123.0	16.0	1.000016
500.0	53.9	-45.2		123.0	16.0	1.000015
410.0	52.2	-44.2		123.0	16.0	1.000014
320.0	50.5	-43.2		123.0	16.0	1.000013
230.0	48.8	-42.2		123.0	16.0	1.000012
140.0	47.1	-41.2		123.0	16.0	1.000011
50.0	45.4	-40.2		123.0	16.0	1.000010

STATION ALTITUDE 3937.30 FEET MSL
 9 AUG 79
 ASCENSION NO. 205

UPPER AIR DATA
 221000Z
 S M R

GEOMETRIC ALTITUDE 3937.30 FEET MSL
 9 AUG 79
 ASCENSION NO. 205

UPPER AIR DATA
 221000Z
 S M R

TABLE 9 (Cont)

GEODETIC COORDINATES
 52.46034 LAT DEG
 105.42307 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CELSIUS	REL. HUM. PERCENT	DENSITY CORRECTED METER	SPEED OF SOUND M/S	WIND DIRECTION (true)	WIND SPEED KNOTS	INDEX OF REFRACTION
6350.0	65.9	-61.1		105.2	567.3	71.0	24.6	1.000024
6400.0	64.3	-60.7		105.4	567.3	70.2	25.9	1.000023
6450.0	62.5	-60.3		104.7	563.3	69.0	27.2	1.000023
6500.0	61.3	-59.9		103.1	560.0	68.1	27.7	1.000022
6550.0	59.5	-59.5		97.0	553.4	59.4	25.3	1.000022
6600.0	58.4	-59.1		95.0	549.3	112.4	24.2	1.000021
6650.0	57.0	-58.7		92.0	546.4	122.4	22.8	1.000021
6700.0	55.6	-58.3		89.2	541.8	129.0	19.9	1.000020
6750.0	54.3	-58.0		87.9	541.0	130.8	17.4	1.000020
6800.0	53.0	-57.6		86.7	542.0	132.5	15.2	1.000019
6850.0	51.7	-57.2		85.5	542.9	119.3	13.6	1.000019
6900.0	50.5	-56.8		84.0	543.1	109.0	12.0	1.000018
6950.0	49.3	-56.5		79.0	543.4	99.0	13.4	1.000017
7000.0	48.2	-56.4		77.4	543.6	62.0	14.3	1.000017
7050.0	47.0	-56.2		75.5	543.0	62.0	15.5	1.000017
7100.0	45.9	-56.1		73.7	544.0	62.9	16.9	1.000016
7150.0	44.9	-55.9		71.9	544.2	62.2	18.2	1.000016
7200.0	43.8	-55.0		70.2	544.0	62.0	20.1	1.000015
7250.0	42.8	-55.6		69.0	544.0	63.5	22.4	1.000015
7300.0	41.8	-55.5		67.9	544.0	64.2	24.8	1.000015
7350.0	40.8	-55.2		66.0	543.0	64.0	26.3	1.000015
7400.0	39.8	-55.2		64.7	543.1	63.0	27.4	1.000014
7450.0	38.9	-55.0		62.1	543.1	63.2	28.6	1.000014
7500.0	38.0	-54.9		60.5	543.1	64.4	29.3	1.000014
7550.0	37.1	-54.8		59.2	543.7	65.4	29.7	1.000013
7600.0	36.2	-54.6		57.0	543.9	65.4	30.2	1.000013
7650.0	35.4	-54.4		55.5	543.5	66.4	30.8	1.000013
7700.0	34.6	-54.7		54.6	543.1	64.1	31.7	1.000012
7750.0	33.8	-54.3		53.0	540.2	67.1	32.6	1.000012
7800.0	33.0	-54.4		51.6	541.4	100.0	33.4	1.000011
7850.0	32.2	-54.0		50.3	542.0	102.4	34.1	1.000011
7900.0	31.5	-49.5		47.1	542.0	105.0	34.8	1.000011
7950.0	30.8	-49.0		47.3	543.2	103.4	35.1	1.000011
8000.0	30.1	-48.6		46.7	543.2	111.0	32.9	1.000010
8050.0	29.4	-48.5		45.0	543.9	114.5	30.8	1.000010
8100.0	28.7	-48.4		44.5	544.0	113.0	26.6	1.000010
8150.0	28.1	-48.4		43.5	544.0	117.0	27.1	1.000010
8200.0	27.4	-48.4		42.0	544.1	114.0	25.5	1.000009
8250.0	26.8	-48.4		41.0	544.1	112.4	24.0	1.000009
8300.0	26.2	-48.3		40.0	544.1	107.6	23.3	1.000009

GEODETIC COORDINATES
32.48034 LAT DEG
100.42307 LONG DEG

UPPER AIR DATA
2210000200
S M R

TABLE 9 (Cont)

STATION ALTITUDE 397.00 FEET MSL
9 AUG. 79
ASCENSION NO. 206

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREE CENTIGRADE	REL. HUM. PERCENT	WIND DIRECTION DEGREES (T)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
6350.0	25.6	-43.3		101.0	23.5	1.000009
6400.0	25.0	-42.3		95.0	24.0	1.000009
6450.0	24.5	-40.2		90.0	25.1	1.000008
6500.0	23.9	-40.2		87.4	27.5	1.000008
6550.0	23.4	-40.2		84.9	29.9	1.000008
6600.0	22.8	-40.2		82.9	32.4	1.000008
6650.0	22.3	-40.1		82.0	33.3	1.000008
6700.0	21.6	-40.1		82.8	34.5	1.000007
6750.0	21.3	-40.1		80.1	34.6	1.000007
6800.0	20.8	-40.1		80.4	34.0	1.000007
6850.0	20.4	-40.0		80.6	33.5	1.000007
6900.0	19.9	-40.0		80.1	33.3	1.000007
6950.0	19.5	-40.0		80.1	35.2	1.000007
7000.0	19.0	-40.0		80.0	37.0	1.000006
7050.0	18.6	-40.0		80.0	38.9	1.000006
7100.0	18.2	-40.0		80.0	38.9	1.000006
7150.0	17.8	-40.0		80.0	39.2	1.000006
7200.0	17.4	-40.0		80.0	39.1	1.000006
7250.0	17.0	-40.0		80.0	38.9	1.000006
7300.0	16.6	-40.0		80.0	38.0	1.000006
7350.0	16.2	-40.0		80.0	39.0	1.000006
7400.0	15.9	-40.0		80.0	40.7	1.000005
7450.0	15.5	-40.0		80.0	41.6	1.000005
7500.0	15.2	-40.0		80.0	42.7	1.000005
7550.0	14.8	-40.0		80.0	44.3	1.000005
7600.0	14.5	-40.0		80.0	45.8	1.000005
7650.0	14.2	-40.0		80.0	47.4	1.000005
7700.0	13.9	-40.0		80.0	48.5	1.000005
7750.0	13.6	-40.0		80.0	49.5	1.000005
7800.0	13.3	-40.0		80.0	50.4	1.000004
7850.0	13.0	-40.0		80.0	51.4	1.000004
7900.0	12.7	-40.0		80.0	52.4	1.000004
7950.0	12.4	-40.0		80.0	53.3	1.000004
8000.0	12.1	-40.0		80.0	54.2	1.000004
8050.0	11.9	-40.0		80.0	55.1	1.000004
8100.0	11.6	-40.0		80.0	56.4	1.000004
8150.0	11.3	-40.0		80.0	57.8	1.000004
8200.0	11.1	-40.0		80.0	58.4	1.000004
8250.0	10.9	-40.0		80.0	58.4	1.000004
8300.0	10.6	-40.0		80.0	58.4	1.000004

STATION ALTITUDE 3997.30 FEET MSL
 9 AUG. 79
 ASCENSION NO. 266

UPFLR AIR DATA
 2210000200
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LO: DEG

TABLE 9 (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (T)	INDEX OF REFRACTION
103500.0	10.4	-37.9		15.4	567.5		1.000003
104000.0	10.2	-37.3		15.0	590.0		1.000003
104500.0	9.9	-36.7		14.6	599.0		1.000003
105000.0	9.7	-36.5		14.3	599.4		1.000003

STATION ALTITUDE 3997.30 FEET MSL
 9 AUG. 79
 ASCENSION NO. 206

MANDATORY LEVELS
 2210000200
 S M P

GEODETTIC COORDINATES
 32.48034 LAT DEG
 108.42307 LONG DEG

TABLE 10

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DATA	
				DIRECTION DEGREES (IN)	SPEED KNOTS
850.0	9054.	27.7	34.	175.1	5.5
800.0	8891.	22.6	44.	153.0	9.0
750.0	8627.	18.5	50.	204.0	7.5
700.0	8354.	10.8	77.	192.7	4.2
650.0	8237.	6.8	51.	177.0	3.0
600.0	8130.	1.2	74.	50.0	4.0
550.0	8073.	-2.3	27.	31.1	12.1
500.0	8012.	-6.4	14.	10.2	15.9
450.0	7910.	-10.7	14.	24.7	10.6
400.0	7859.	-15.2	13.	30.7	17.5
350.0	7814.	-22.8	14.	20.0	22.9
300.0	7765.	-31.0	13.	49.7	24.0
250.0	7716.	-41.3		46.2	19.7
200.0	7674.	-51.2		70.2	10.3
175.0	7677.	-57.4		39.4	10.7
150.0	76920.	-64.6		59.3	10.9
125.0	76337.	-67.8		109.4	14.5
100.0	76543.	-67.0		106.3	15.1
80.0	76374.	-65.3		116.0	0.0
70.0	76042.	-64.2		94.2	17.1
50.0	75162.	-59.0		95.4	23.7
50.0	75950.	-50.6		104.7	13.0
40.0	75002.	-50.2		63.7	27.1
30.0	79711.	-48.5		111.4	24.6
25.0	83659.	-46.3		95.7	24.0
20.0	86474.	-42.0		33.7	33.6
15.0	94730.	-43.6		64.9	43.3
10.0	103700.	-35.2			

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