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METEOROLOGICAL DATA REPORT

ATHENA V-123-D, FLIGHT 122
(11 July 1970)

BY

JOHN M. SHARPE

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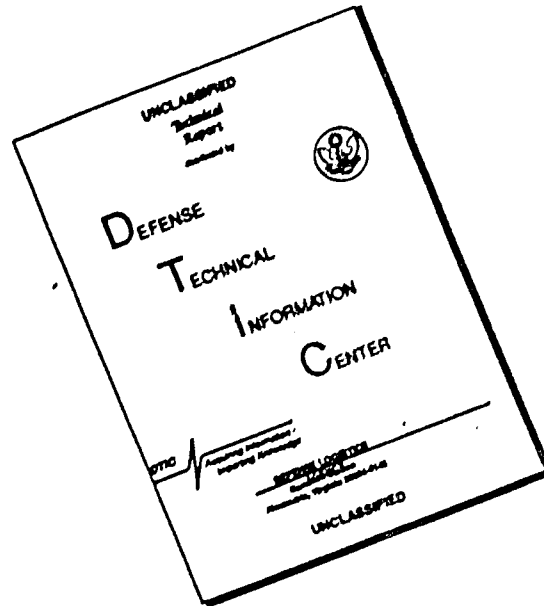
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METEOROLOGICAL DATA REPORT

ATHENA V-123-D, FLIGHT 122
(11 July 1970)

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John M. Sharpe

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July 1970.

DA Task 1T665702D127-02

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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ABSTRACT

Meteorological data gathered for the launching of Athena Flight 122, Vehicle V-123-D, are presented for the Air Force Space and Missile Systems Organization and for ballistic studies. The data are presented in tabular and figure form.

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INTRODUCTION

Athena Flight 122, Vehicle V-123-D (AS05), was fired from Green River, Utah, Launcher Number 417, at 0240 hours 00.295 seconds MDT, 11 July 1970, by the Atlantic Research Corporation for the Air Force Space and Missile Systems Organization.

Launcher settings, along with other desired trajectory information, were derived by the Meteorological Support Technical Area of the Atmospheric Sciences Laboratory (ASL) by using real-time meteorological data from the Green River, Utah, Complex and the 5-D trajectory simulation computer program developed by ASL, White Sands Missile Range (WSMR), New Mexico. Ballistics Meteorologists at Green River and at the WSMR computer monitored and verified the input and output data. Recommended launcher settings, trajectory data and other information were transmitted to the range and project personnel as required. The Ballistics Meteorologists for this firing were Gordon L. Dunaway at Green River and John M. Sharpe at WSMR.

DISCUSSION

The Real-Time Meteorological System (1, 2) developed by Atmospheric Sciences Laboratory for Athena impact predictions was used for this firing.

The real-time system as used on this firing consisted of the following components:

- a. A 500-foot meteorological tower with wind measuring instruments at six levels and 90-foot pole with instruments at two levels.
- b. Automatic pilot-balloon wind measuring systems (3, 4) utilizing a T-9 radar for measurement of the winds from 500 to 10,000 feet above the surface.
- c. The AN/GMD wind-measuring system (rawin), monitored by the MPQ/12 radar, for measuring the winds from 10,000 to 100,000 feet.
- d. The meteorological rocket for measuring winds above the rawin level.
- e. A high-speed digital computer.

All Green River wind data in this report are oriented with respect to the nominal 151.2° firing line to White Sands Missile Range. This presents a more accurate head, cross, or tail wind. Positive Range component values are oriented to 331.2° True North, and positive Cross component values are oriented to 61.2° True North. Wind direction and speeds for Green River have the same orientation, with 360° representing 331.2° True North.

All wind data not taken at Green River are referenced to True North (TN).

REFERENCES

1. Rachele, H., August 1962, "Prelaunch real-time rocket impact prediction system at White Sands Missile Range." U. S. Army Signal Missile Support Agency, White Sands Missile Range, N. Mex.
2. Duncan, L. D., July 1963, "Real-time meteorological system for unguided rocket impact prediction." U. S. Army Electronics Research and Development Activity, White Sands Missile Range, N. Mex.
3. Jacobs, W. N., May 1968, "Automatic pibal-tracking system." Rep. No ECOM-5196, U. S. Army Electronics Command, Atmospheric Sciences Laboratory, White Sands Missile Range, N. Mex. (AD674180)
4. Kubinski, S. F., April 1967, "A comparative evaluation of the automatic tracking pilot-balloon wind measuring system." Rep. No. ECOM-5121, U. S. Army Electronics Command, Atmospheric Sciences Laboratory, White Sands Missile Range, N. Mex. (AD654991)

SAMPLE FORM FOR DATA APPEARING IN TABLE I THROUGH VI

TABLE I

THEORETICAL ROCKET PERFORMANCE VALUES

ATHENA -D- CASE 32372 MAX RANGE MAY 1970

BALLISTIC FACTORS

VELOCITY VECTORS (GEODETIC)

(WITH SPIN EFFECT)

ALTITUDE	B.F.	ALTITUDE	B.F.	TIME	ALTITUDE	ALPHA	THETA
4460- 4515	.0248	11K-13K	.0322	.530	4492	152.200	72.000
- 4549	.0302	-15K	.0252	2.483	5089	151.947	70.177
- 4593	.0329	-17K	.0192	5.530	6713	151.542	66.603
- 4639	.0297	-19K	.0150	10.530	10838	151.354	62.384
- 4701	.0356	-21K	.0120	15.530	16619	151.409	59.034
- 4789	.0476	-23K	.0098	20.530	24208	151.462	56.328
- 4873	.0373	-25K	.0083	25.530	33955	151.514	54.146
- 4968	.0393	-30K	.0159	30.530	46226	151.565	52.376
- 5100	.0487	-35K	.0115	35.530	59334	151.618	50.698
- 5200	.0317	-45K	.0111	40.530	71850	151.669	48.918
- 5300	.0302	-55K	.0030	41.001	72984	151.674	48.742
- 5400	.0240	-65K	.0011	44.300	80694	151.706	47.474
- 5500	.0237	-75K	-.0005	45.530	83469	151.717	46.983
- 5750	.0483	-85K	-.0019	46.025	84570	151.720	46.782
- 6000	.0400	-95K	.0083	50.530	94993	151.739	45.024
- 6250	.0342	-105K	.0058	55.530	107893	151.755	43.277
- 6500	.0287	-115K	.0052	60.530	122492	151.766	41.742
- 7000	.0471	-135K	.0072	65.530	139065	151.768	40.403
- 7500	.0379	-155K	.0047	70.530	157754	151.768	39.227
- 8000	.0309	-175K	.0030	75.530	178712	151.769	38.192
- 9000	.0437	-195K	.0028	80.530	201862	151.792	37.268
-10000	.0312	-215K	.0002	81.015	204159	151.794	37.181
-11000	.0235	-235K	.0000				

UNIT WIND EFFECTS

NOMINAL IMPACT

RANGE = .53885 CROSS = 5.3911

FIRST STAGE

X = 122609 FT = 23.2221 MI

Y = -232893 FT = 44.1098 MI

RANGE = 263195 FT = 49.8476 MI

NOMINAL LAUNCHER SETTINGS

SECOND STAGE

X = 1054725 FT = 199.7585 MI

Y = -2101586 FT = -398.0277 MI

RANGE = 2351406 FT = 445.3420 MI

GEOCENTRIC

GEODETIC

ALPHA = 151.927

ALPHA = 152.200

THETA = 72.167

THETA = 72.000

TOWER TILT = 1.083 MI/DEG

SAMPLE FORMAT FOR DATA APPEARING IN TABLES III THROUGH XI

number		time of computation 5-D trajectory (Greenwich mean time)						
TRAJ.	0.0	TIME	00.0	00.0				
BALLISTIC DISPLACEMENTS					(STATUTE MILES)			
* RANGE	TOW	0.0	PIB	0.0	UP	0.0 TOTAL	0.0 1-BST	0.0
CROSS	TOW	0.0	PIB	0.0	UP	0.0 TOTAL	0.0 1-BST	0.0
LAUNCH ANGLES								
AZIMUTH	000.0DEGS	00.0MINS	00.0SEC.					
ELEVATION	00.0DEGS	00.0MINS	.0SEC.					
IMPACT CHARACTERISTICS (STATUTE MILES)								
	X	Y	DX	DY				
** 1ST	00.000	-00.000	0.000	0.000				
2ND	000.000	-000.000	-.000	-.000	CHANGE IN IMPACT FROM NOMINAL			
PIP	0.000	0.000						
					RANGE OR Y VALUES ARE NORTH, SOUTH. CROSS OR X VALUES ARE EAST, WEST. (NORTH OR EAST IS DESIGNATED BY A POSITIVE VALUE; SOUTH OR WEST BY A NEGATIVE VALUE).			
MARK II	PREDICTED	TRAJECTORY						
TIME	AZ	EL						
.5	000.000	00.000						
2.5	000.000	00.000						
5.5	000.000	00.000						
10.5	000.000	00.000						
15.5	000.000	00.000						
20.5	000.000	00.000						
25.5	000.000	00.000		VELOCITY VECTORS				
30.5	000.000	00.000						
35.5	000.000	00.000						
40.5	000.000	00.000						
41.0	000.000	00.000						
44.3	000.000	00.000						
45.5	000.000	00.000						
46.0	000.000	00.000						
50.5	000.000	00.000						
55.5	000.000	00.000						
60.5	000.000	00.000						
65.5	000.000	00.000						
70.5	000.000	00.000						
75.5	000.000	00.000						
80.5	000.000	00.000						
81.0	000.000	00.000						
110.0	000.000	00.000						
110.1	000.000	00.000						
238.6	000.000	00.000						
476.7	000.000	00.000						
542.7	000.000	00.000						
100.0	000.000	00.000						
298.0	000.000	00.000						
100.0	000.000	00.000						
298.0	000.000	00.000						

* TOW = TOWER
PIB = PIBAL
UP = UPPER
TOTAL
1-BST = 1st STAGE

** 1ST = 1ST STAGE
2ND = 2ND STAGE
PIP = PARACHUTE IMPACT

TABLE II. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA

SAMPLE FORMAT FOR DATA APPEARING IN TABLES

	MEAN (FT)	A(D)	S(K)	R	C	RANGE	CROSS
	4504.0	0.0	0.0	0.0	0.0	0.0	0.0
	4531.5	0.0	0.0	0.0	0.0	0.0	0.0
	4570.5		0.0	0.0	0.0	0.0	0.0
	4615.5	azimuth	0.0	0.0	0.0		
	4669.5	(degrees)	0.0	0.0	0.0		
	4744.5		0.0	0.0	0.0	range and cross	
	4830.5	0.0	0.0	0.0	0.0	displacements due	
	4920.5	0.0	0.0	0.0	0.0	to the wind in	
	5034.3	0.0	0.0	0.0	0.0	statute miles	
layer mid point (feet above sea level)	5130.0	0.0	0.0	0.0	0.0		
	5250.0	0.0	0.0	0.0	0.0	0.0	0.0
	5350.0	0.0	0.0	0.0	0.0	0.0	0.0
	5450.0	0.0	speed	0.0	0.0	0.0	0.0
	5625.0	0.0	(knots)	0.0	0.0	0.0	0.0
	5875.0	0.0	0.0	0.0	0.0	0.0	0.0
	6125.0	0.0	0.0	0.0	0.0	0.0	0.0
	6375.0	0.0	0.0	0.0	0.0	0.0	0.0
	6750.0	0.0	0.0	0.0	0.0	0.0	0.0
	7250.0	0.0	0.0	0.0	0.0	0.0	0.0
	7750.0	0.0	0.0	range	0.0	0.0	0.0
	8500.0	0.0	0.0	wind	0.0	0.0	0.0
	9500.0	0.0	0.0	(miles	0.0	0.0	0.0
	10500.0	0.0	0.0	per	0.0	0.0	0.0
	12000.0	0.0	0.0	hour)	0.0	0.0	0.0
	14000.0	0.0	0.0	0.0	0.0	0.0	0.0
	16000.0	0.0	0.0	0.0	0.0	0.0	0.0
	18000.0	0.0	0.0	0.0	0.0	0.0	0.0
	20000.0	0.0	0.0	0.0	cross	0.0	0.0
	22000.0	0.0	0.0	0.0	wind	0.0	0.0
	24000.0	0.0	0.0	0.0	(miles	0.0	0.0
	27500.0	0.0	0.0	0.0	per	0.0	0.0
	32500.0	0.0	0.0	0.0	hour)	0.0	0.0
	40000.0	0.0	0.0	0.0	0.0	0.0	0.0
	50000.0	0.0	0.0	0.0	0.0	0.0	0.0
	60000.0	0.0	0.0	0.0	0.0	0.0	0.0
	70000.0	0.0	0.0	0.0	0.0	0.0	0.0
	80000.0	0.0	0.0	0.0	0.0	0.0	0.0
	90000.0	0.0	0.0	0.0	0.0	0.0	0.0
	100000.0	0.0	0.0	0.0	0.0	0.0	0.0
	110000.0	0.0	0.0	0.0	0.0	0.0	0.0
	125000.0	0.0	0.0	0.0	0.0	0.0	0.0
	145000.0	0.0	0.0	0.0	0.0	0.0	0.0
	165000.0	0.0	0.0	0.0	0.0	0.0	0.0
	185000.0	0.0	0.0	0.0	0.0	0.0	0.0
	205000.0	0.0	0.0	0.0	0.0	0.0	0.0
	225000.0	0.0	0.0	0.0	0.0	0.0	0.0
	245000.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE II. WIND PROFILE AND IMPACT DISPLACEMENTS (CONT)

TABLE III. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA
ATHENA FLIGHT 122

LAUNCH ANGLES		AZIMUTH		ELEVATION		IMPACT CHARACTERISTICS (MILES)	
TRAJ. 1		TIME		7.0 33.9			
BALLISTIC DISPLACEMENTS (MILES)		RANGE		TOW 0.0		PIB -0.9	
CROSS		TOW		-1.1		PIB -26.0	
LAUNCH ANGLES		AZIMUTH		148.0DEGS		7.0MINS	
ELEVATION		72.0DEGS		43.0MINS		15.2SEC.	
IMPACT CHARACTERISTICS (MILES)		X		Y		DX	
1ST		21.529		-43.701		-1.643	
2ND		198.070		-396.796		-1.689	
PIP		0.000		0.000		0.000	
PREDICTED TRAJECTORY		TIME		AZ		EL	
.5		148.121		72.729			
2.5		147.976		71.035			
5.5		148.372		67.353			
10.5		150.164		63.196			
15.5		151.174		59.656			
20.5		151.968		56.719			
25.5		152.634		54.478			
30.5		153.006		52.598			
35.5		153.058		50.911			
40.5		153.112		49.134			
41.0		153.117		48.960			
44.3		153.155		47.695			
45.5		153.168		47.205			
46.0		153.171		47.005			
50.5		153.048		45.183			
55.5		152.880		43.331			
60.5		152.691		41.806			
65.5		152.481		40.401			
70.5		152.284		39.143			
75.5		152.075		38.074			
80.5		151.910		37.121			
81.0		151.912		37.034			
110.0		152.028		31.466			
110.1		152.018		31.445			
238.6		152.260		-1.073			
476.7		145.291		-80.271			
542.7		347.642		-82.456			
100.0		153.616		4.747			
298.0		24.763		-87.318			
100.0		153.234		4.764			
298.0		340.145		-89.248			

TABLE III. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATHENA FLIGHT 122

MEAN(FT)	A(D)	S(K)	TOA(M)	R(M)	U(C)	RANGE	CROS
4504.0	209.6	2.0	-2.0	-1.1	0.0	-.1	
4531.5	226.5	.5	-.4	-.4	0.0	-.1	
4570.5	244.7	.5	-.2	-.5	0.0	-.1	
4615.5	346.0	7.7	8.5	-2.1	.1	-.3	
4659.5	340.6	3.8	4.2	-1.5	.1	-.3	
4744.5	195.6	1.7	-1.9	-.5	0.0	-.1	
4830.5	196.6	1.6	-1.7	-.5	0.0	-.1	
4920.5	177.0	1.9	-2.2	.1	0.0	0.0	
5034.3	174.4	1.7	-1.9	.2	-.1	.1	
5150.0	192.3	1.4	-1.6	-.3	0.0	-.1	
5250.0	219.2	2.2	-2.0	-1.6	0.0	-.3	
5350.0	231.3	3.4	-2.4	-3.0	0.0	-.4	
5450.0	234.9	3.8	-2.5	-3.6	0.0	-.5	
5525.0	239.3	4.5	-2.6	-4.4	-.1	-1.1	
5875.0	251.5	6.1	-2.2	-6.7	0.0	-1.4	
6125.0	256.9	8.2	-2.1	-9.1	0.0	-1.7	
6375.0	260.1	9.3	-1.8	-10.5	0.0	-1.6	
6750.0	264.5	12.0	-1.3	-13.8	0.0	-3.5	
7250.0	264.2	14.5	-1.7	-16.6	0.0	-3.4	
7750.0	269.3	14.7	-.2	-17.0	0.0	-2.8	
8500.0	0.0	0.0	0.0	0.0	0.0	0.0	*
9500.0	251.2	15.8	-5.9	-17.2	-.1	-2.9	
10500.0	241.0	12.5	-7.0	-12.6	-.1	-1.6	
12000.0	232.3	13.7	-9.6	-12.5	-.2	-2.2	
14000.0	242.3	18.6	-9.9	-18.9	-.1	-2.6	
16000.0	230.0	21.0	-15.5	-18.5	-.2	-1.9	
18000.0	230.0	24.0	-17.8	-21.2	-.1	-1.7	
20000.0	230.0	25.0	-18.5	-22.1	-.1	-1.4	
22000.0	230.0	29.0	-21.5	-25.6	-.1	-1.4	
24000.0	260.0	23.0	-4.6	-26.1	0.0	-1.2	
27500.0	260.0	25.0	-5.0	-28.4	0.0	-2.4	
32500.0	250.0	31.0	-12.2	-33.5	-.1	-2.1	
40000.0	230.0	33.0	-24.4	-29.1	-.1	-1.7	
50000.0	170.0	12.0	-13.6	2.4	0.0	0.0	
60000.0	130.0	12.0	-8.9	10.6	0.0	.1	
70000.0	130.0	15.0	-11.1	13.2	0.0	0.0	
80000.0	130.0	22.0	-16.3	19.4	0.0	-.2	
90000.0	135.0	29.0	-23.6	23.6	-.1	1.1	
100000.0	125.0	33.0	-21.8	31.1	-.1	1.0	
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0	
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0	
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6	
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3	
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9	
205000.0	130.0	86.0	-63.7	75.9	0.0	.1	
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0	
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0	

* data missing due to operational technicality

TABLE IV. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA
ATHENA FLIGHT 122

TRAJ. 2	TIME	7.0	48.7				
BALLISTIC DISPLACEMENTS (MILES)							
RANGE	TOW	0.0	PIB	-0.9	UP	-1.7	TOTAL -2.6
CROSS	TOW	-2.7	PIB	-34.7	UP	-4.7	TOTAL -42.1
LAUNCH ANGLES							
AZIMUTH		146.0	DEGS	38.0	MIN	19.8	SEC.
ELEVATION		72.0	DEGS	49.0	MIN	16.5	SEC.
IMPACT CHARACTERISTICS (MILES)							
	X	Y		DX		DY	
1ST	21.636	-43.657		-1.536		.411	
2ND	198.988	-396.380		-.771		1.647	
PIP	0.000	0.000					
PREDICTED TRAJECTORY							
TIME	AZ	EL					
.5	146.639	72.821					
2.5	146.382	71.096					
5.5	147.405	67.570					
10.5	150.004	63.404					
15.5	150.967	59.866					
20.5	151.769	56.926					
25.5	152.465	54.504					
30.5	152.946	52.559					
35.5	153.029	50.868					
40.5	153.079	49.090					
41.0	153.085	48.915					
44.3	153.123	47.649					
45.5	153.135	47.159					
46.0	153.138	46.958					
50.5	153.006	45.147					
55.5	152.763	43.418					
60.5	152.576	41.842					
65.5	152.366	40.438					
70.5	152.168	39.181					
75.5	151.957	38.114					
80.5	151.793	37.161					
81.0	151.795	37.073					
110.0	151.912	31.510					
110.1	151.901	31.488					
233.6	152.144	-1.025					
476.7	138.139	-80.335					
544.7	349.985	-82.168					
100.0	153.614	4.741					
293.0	29.097	-86.865					
100.0	153.201	4.747					
298.0	340.106	-89.247					

TABLE IV. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATHENA FLIGHT 122

MEAN(F)	A(D)	S(K)	R	C	RANGE	CROS
4504.0	273.2	2.7	.2	-3.1	0.0	-.4
4531.5	340.1	2.1	2.3	-.8	0.0	-.1
4570.5	297.4	1.3	.7	-1.3	0.0	-.2
4615.5	298.1	1.4	.8	-1.5	0.0	-.2
4669.5	276.3	1.7	.2	-2.0	0.0	-.4
4744.5	258.4	2.4	-.6	-2.7	0.0	-.7
4830.5	232.8	1.5	-1.1	-1.4	0.0	-.3
4920.5	238.2	1.4	-.9	-1.4	0.0	-.3
5034.3	275.4	4.6	.5	-5.3	0.0	-1.4
5150.0	255.1	2.4	-.7	-2.7	0.0	-.5
5250.0	257.9	2.2	-.5	-2.5	0.0	-.4
5350.0	245.4	3.2	-1.5	-3.4	0.0	-.4
5450.0	252.4	4.0	-1.4	-4.3	0.0	-.6
5625.0	249.8	4.3	-1.7	-4.7	0.0	-1.2
5875.0	259.3	8.1	-1.7	-9.2	0.0	-2.0
6125.0	269.1	7.7	-.1	-8.8	0.0	-1.6
6375.0	269.1	11.2	-.2	-12.8	0.0	-2.0
6750.0	271.6	13.3	.4	-15.3	0.0	-3.9
7250.0	265.4	17.9	-1.6	-20.6	0.0	-4.2
7750.0	261.4	16.4	-2.8	-18.7	0.0	-3.1
8500.0	254.3	16.6	-5.2	-18.4	-.1	-4.3
9500.0	249.3	15.1	-6.2	-16.3	-.1	-2.7
10500.0	238.1	12.9	-7.8	-12.6	-.1	-1.6
12000.0	226.6	14.0	-11.1	-11.7	-.2	-2.0
14000.0	241.4	20.2	-11.1	-20.4	-.2	-2.8
16000.0	230.0	21.0	-15.5	-18.5	-.2	-1.9
18000.0	230.0	24.0	-17.8	-21.2	-.1	-1.7
20000.0	230.0	25.0	-18.5	-22.1	-.1	-1.4
22000.0	230.0	29.0	-21.5	-25.6	-.1	-1.4
24000.0	230.0	29.0	-21.5	-25.6	-.1	-1.1
27500.0	230.0	32.0	-23.7	-28.2	-.2	-2.4
32500.0	230.0	45.0	-33.3	-39.7	-.2	-2.5
40000.0	230.0	45.0	-33.3	-39.7	-.2	-2.4
50000.0	230.0	20.0	-14.8	-17.6	0.0	-.3
60000.0	120.0	12.0	-6.9	12.0	0.0	.1
70000.0	120.0	12.0	-6.9	12.0	0.0	0.0
80000.0	130.0	19.0	-14.1	16.8	0.0	-.2
90000.0	135.0	29.0	-23.6	23.6	-.1	1.1
100000.0	74.8	45.4	13.7	50.4	0.0	1.6
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE V. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA
ATHENA FLIGHT 122

TRAJ. 3	TIME	8.0	4.6						
BALLISTIC DISPLACEMENTS (MILES)									
RANGE	TOW	.2	PIB	-1.1	UP	-1.7	TOTAL	-2.6	1-BST -2.0
CROSS	TOW	-1.5	PIB	-35.5	UP	-6.6	TOTAL	-43.6	1-BST -53.6
LAUNCH ANGLES									
AZIMUTH		146.0DEGS	25.0MINS	50.1SEC.					
ELEVATION		72.0DEGS	49.0MINS	9.8SEC.					
IMPACT CHARACTERISTICS (MILES)									
	X	Y	DX	DY					
1ST	21.645	-43.479	-1.528	.589					
2ND	198.253	-396.336	-1.505	1.691					
PIP	0.000	0.000							
PREDICTED TRAJECTORY									
TIME	AZ	EL							
.5	146.431	72.819							
2.5	146.296	71.148							
5.5	146.943	67.542							
10.5	149.743	63.411							
15.5	150.808	59.837							
20.5	151.663	57.001							
25.5	152.470	54.599							
30.5	152.953	52.657							
35.5	153.036	50.969							
40.5	153.086	49.194							
41.0	153.093	49.019							
44.3	153.131	47.754							
45.5	153.143	47.265							
46.0	153.146	47.065							
50.5	153.024	45.244							
55.5	152.856	43.443							
60.5	152.666	41.869							
65.5	152.456	40.465							
70.5	152.258	39.207							
75.5	152.048	38.139							
80.5	151.884	37.186							
81.0	151.885	37.099							
110.0	152.002	31.534							
110.1	151.991	31.512							
238.6	152.235	-1.021							
476.7	133.102	-80.372							
544.7	351.387	-82.133							
100.0	153.588	4.821							
298.0	33.757	-86.782							
100.0	153.210	4.837							
297.0	340.124	-89.248							

TABLE V. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATHENA FLIGHT 122

MEAN(FT)	A(D)	S(K)	R	C	RANGE	CROS
4504.0	230.2	.2	-.1	-.1	0.0	0.0
4531.5	331.8	.5	.5	-.3	0.0	0.0
4570.5	322.3	.6	.5	-.4	0.0	-.1
4615.5	345.1	8.0	8.9	-2.4	.1	-.4
4659.5	337.9	4.6	4.9	-2.0	.1	-.4
4744.5	247.4	1.4	-.6	-1.5	0.0	-.4
4830.5	216.3	1.2	-1.1	-.8	0.0	-.2
4920.5	197.7	1.5	-1.6	-.5	0.0	-.1
5034.3	190.4	.8	-.9	-.2	0.0	0.0
5150.0	193.6	2.8	-3.1	-.8	-.1	-.1
5250.0	194.3	3.3	-3.7	-.9	-.1	-.2
5350.0	235.2	2.2	-1.4	-2.1	0.0	-.3
5450.0	252.3	2.9	-1.0	-3.2	0.0	-.4
5625.0	245.5	5.6	-2.5	-5.9	-.1	-1.5
5875.0	252.3	8.9	-3.1	-9.8	-.1	-2.1
6125.0	268.4	9.9	-.3	-11.4	0.0	-2.1
6375.0	278.2	12.6	2.1	-14.3	0.0	-2.2
6750.0	267.5	16.2	-.8	-18.6	0.0	-4.7
7250.0	257.9	17.1	-4.1	-19.2	-.1	-3.9
7750.0	260.2	18.3	-3.6	-20.8	-.1	-3.5
8500.0	256.2	15.6	-4.3	-17.5	-.1	-4.1
9500.0	255.2	17.5	-5.2	-19.5	-.1	-3.3
10500.0	244.9	13.4	-6.5	-14.0	-.1	-1.8
12000.0	226.6	16.4	-13.0	-13.7	-.2	-2.4
14000.0	243.6	20.1	-10.3	-20.7	-.1	-2.8
16000.0	240.0	20.0	-11.5	-19.9	-.1	-2.1
18000.0	240.0	23.0	-13.2	-22.9	-.1	-1.9
20000.0	240.0	24.0	-13.8	-23.9	-.1	-1.5
22000.0	230.0	28.0	-20.7	-24.7	-.1	-1.3
24000.0	240.0	31.0	-17.8	-30.9	-.1	-1.4
27500.0	240.0	37.0	-21.3	-36.9	-.2	-3.2
32500.0	230.0	45.0	-33.3	-39.7	-.2	-2.5
40000.0	230.0	45.0	-33.3	-39.7	-.2	-2.4
50000.0	230.0	20.0	-14.8	-17.6	0.0	-.3
60000.0	120.0	12.0	-6.9	12.0	0.0	.1
70000.0	120.0	12.0	-6.9	12.0	0.0	0.0
80000.0	130.0	19.0	-14.1	16.8	0.0	-.2
90000.0	135.0	29.0	-23.6	23.6	-.1	1.1
100000.0	125.0	33.0	-21.8	31.1	-.1	1.0
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE VI. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA (1900) V. 518347
ATHENA FLIGHT 122

TRAJ. 4	TIME	8.0	14.4				
BALLISTIC DISPLACEMENTS (MILES)							
RANGE	TOW	-.3	PIB	-.9	UP	-1.7	TOTAL -2.8 I-BST -2.3
CROSS	TOW	-.4	PIB	-34.7	UP	-6.6	TOTAL -41.7 I-BST -51.6
LAUNCH ANGLES							
AZIMUTH		146.0DEGS	41.0MINS	2.7SEC.			
ELEVATION		72.0DEGS	51.0MINS	42.0SEC.			
IMPACT CHARACTERISTICS (MILES)							
	X	Y	DX	DY			
1ST	21.744	-43.647	-1.428	.421			
2ND	198.649	-396.802	-1.109	1.225			
PIP	0.000	0.000					
PREDICTED TRAJECTORY							
TIME	AZ	EL					
.5	146.684	72.862					
2.5	146.358	71.098					
5.5	147.150	67.423					
10.5	149.710	63.340					
15.5	150.771	59.865					
20.5	151.647	56.952					
25.5	152.452	54.562					
30.5	152.934	52.621					
35.5	153.017	50.934					
40.5	153.067	49.160					
41.0	153.073	48.985					
44.3	153.111	47.721					
45.5	153.123	47.232					
46.0	153.126	47.032					
50.5	153.004	45.213					
55.5	152.837	43.414					
60.5	152.647	41.841					
65.5	152.436	40.437					
70.5	152.239	39.180					
75.5	152.029	38.112					
80.5	151.865	37.160					
81.0	151.866	37.073					
110.0	151.983	31.510					
110.1	151.972	31.489					
238.6	152.216	-1.015					
476.7	138.351	-80.266					
544.2	351.572	-82.222					
100.0	153.566	4.914					
298.0	31.382	-86.836					
100.0	153.190	4.933					
298.0	340.067	-89.245					

TABLE VI. (CONT) WIND PROFILE AND IMPACT DISPLACEMENT
ATHENA FLIGHT 122

MEAN(FT)	A(D)	S(K)	R	C	RANGE	CROS
4304.0	150.3	3.3	-3.3	1.9	0.0	.3
4531.5	160.3	2.8	-3.0	1.1	0.0	.2
4570.5	187.5	2.0	-2.3	-.3	0.0	-.1
4615.5	185.8	2.2	-2.6	-.3	0.0	0.0
4669.5	188.2	1.7	-2.0	-.3	0.0	-.1
4744.5	195.3	1.1	-1.2	-.3	0.0	-.1
4830.5	215.8	1.2	-1.1	-.8	0.0	-.2
4920.5	229.4	2.2	-1.7	-1.9	0.0	-.4
5034.3	190.4	.8	-.9	-.2	0.0	0.0
5150.0	193.6	2.8	-3.1	-.8	-.1	-.1
5250.0	194.3	3.3	-3.7	-.9	-.1	-.2
5350.0	236.2	2.2	-1.4	-2.1	0.0	-.3
5430.0	252.3	2.9	-1.0	-3.2	0.0	-.4
5625.0	246.5	5.6	-2.5	-5.9	-.1	-1.5
5875.0	252.3	8.9	-3.1	-9.8	-.1	-2.1
6125.0	268.4	9.9	-.3	-11.4	0.0	-2.1
6375.0	273.5	12.5	.9	-14.3	0.0	-2.2
6750.0	278.3	12.6	2.1	-14.4	.1	-3.6
7250.0	272.2	16.6	.7	-19.1	0.0	-3.9
7750.0	257.8	20.2	-4.9	-22.8	-.1	-3.8
8500.0	255.0	16.6	-4.9	-18.5	-.1	-4.3
9500.0	256.5	15.1	-4.1	-16.9	-.1	-2.8
10500.0	248.2	12.8	-5.5	-13.7	-.1	-1.7
12000.0	232.9	15.6	-10.9	-14.3	-.2	-2.5
14000.0	247.8	20.6	-9.0	-22.0	-.1	-3.0
16000.0	245.0	17.1	-8.3	-17.9	-.1	-1.9
18000.0	235.5	26.1	-17.0	-24.8	-.1	-2.0
20000.0	240.0	24.0	-13.8	-23.9	-.1	-1.5
22000.0	230.0	28.0	-20.7	-24.7	-.1	-1.3
24000.0	240.0	31.0	-17.8	-30.9	-.1	-1.4
27500.0	240.0	37.0	-21.3	-36.9	-.2	-3.2
32500.0	230.0	45.0	-33.3	-39.7	-.2	-2.5
40000.0	230.0	45.0	-33.3	-39.7	-.2	-2.4
50000.0	230.0	20.0	-14.8	-17.6	0.0	-.3
60000.0	120.0	12.0	-6.9	12.0	0.0	.1
70000.0	120.0	12.0	-6.9	12.0	0.0	0.0
80000.0	130.0	19.0	-14.1	16.8	0.0	-.2
90000.0	135.0	29.0	-23.6	23.6	-.1	1.1
100000.0	125.0	33.0	-21.8	31.1	-.1	1.0
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE VII. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA
ATHENA FLIGHT 122

TRAJ. 5	TIME	8.0	23.1				
BALLISTIC DISPLACEMENTS (MILES)							
RANGE	TOW	-0.5	PIB	-1.4	UP	-1.7	TOTAL -3.6 I-BST -3.0
CROSS	TOW	-2.2	PIB	-35.1	UP	-6.6	TOTAL -43.8 I-BST -53.8
LAUNCH ANGLES							
AZIMUTH		146.0DEGS	21.0MINS	39.0SEC.			
ELEVATION		73.0DEGS	6.0MINS	43.1SEC.			
IMPACT CHARACTERISTICS (MILES)							
	X	Y	DX	DY			
1ST	21.793	-43.544	-1.379	.524			
2ND	199.278	-396.356	-.480	1.672			
PIP	0.000	0.000					
PREDICTED TRAJECTORY							
TIME	AZ	EL					
.5	146.361	73.112					
2.5	146.053	71.373					
5.5	146.985	67.508					
10.5	149.608	63.293					
15.5	150.672	59.817					
20.5	151.548	56.911					
25.5	152.352	54.508					
30.5	152.834	52.565					
35.5	152.917	50.875					
40.5	152.967	49.098					
41.0	152.973	48.923					
44.3	153.011	47.658					
45.5	153.023	47.168					
46.0	153.026	46.968					
50.5	152.905	45.146					
55.5	152.738	43.344					
60.5	152.549	41.769					
65.5	152.339	40.364					
70.5	152.143	39.105					
75.5	151.933	38.036					
80.5	151.769	37.083					
81.0	151.770	36.995					
110.0	151.887	31.428					
110.1	151.876	31.407					
238.6	152.118	-1.094					
476.7	137.023	-80.704					
543.2	350.940	-81.984					
100.0	153.466	4.781					
298.0	25.986	-86.628					
100.0	153.089	4.800					
297.0	339.992	-89.247					

TABLE VII. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATHENA FLIGHT 122

MEAN(FT)	A(D)	S(K)	R	C	RANGE	CROS
4504.0	174.9	3.7	-4.3	.4	-.1	.1
4531.5	193.5	3.1	-3.5	-.8	-.1	-.1
4570.5	205.8	2.8	-2.9	-1.4	-.1	-.2
4615.5	204.5	2.9	-3.1	-1.4	0.0	-.2
4669.5	213.1	3.3	-3.2	-2.1	-.1	-.4
4744.5	213.3	3.3	-3.2	-2.1	-.1	-.5
4830.5	213.2	2.7	-2.6	-1.7	-.1	-.3
4920.5	203.5	3.2	-3.3	-1.5	-.1	-.3
5034.3	215.5	5.1	-4.8	-3.4	-.1	-.9
5150.0	200.8	3.9	-4.2	-1.6	-.1	-.3
5250.0	195.2	4.4	-4.9	-1.3	-.1	-.2
5350.0	191.1	5.4	-6.1	-1.2	-.1	-.2
5450.0	207.3	4.5	-4.6	-2.4	-.1	-.3
5625.0	245.8	7.0	-3.3	-7.3	-.1	-.9
5875.0	250.2	3.3	-3.2	-8.9	-.1	-.9
6125.0	261.2	7.0	-1.2	-7.9	0.0	-.5
6375.0	269.2	9.6	-.2	-11.1	0.0	-.7
6750.0	267.6	15.6	-.8	-17.9	0.0	-.6
7250.0	260.2	17.7	-3.5	-20.0	-.1	-.4
7750.0	251.7	17.1	-6.2	-18.7	-.1	-.3
8500.0	250.4	14.7	-5.7	-16.0	-.1	-.3
9500.0	251.6	17.8	-6.5	-19.4	-.1	-.3
10500.0	250.2	14.3	-5.6	-15.5	-.1	-.2
12000.0	234.2	15.4	-10.4	-14.4	-.2	-.5
14000.0	247.8	20.6	-9.0	-22.0	-.1	-.3
16000.0	245.0	17.1	-8.3	-17.9	-.1	-.9
18000.0	235.5	26.1	-17.0	-24.8	-.1	-.2
20000.0	240.0	24.0	-13.8	-23.9	-.1	-.5
22000.0	230.0	28.0	-20.7	-24.7	-.1	-.3
24000.0	240.0	31.0	-17.8	-30.9	-.1	-.4
27500.0	240.0	37.0	-21.3	-36.9	-.2	-.3
32500.0	230.0	45.0	-33.3	-39.7	-.2	-.5
40000.0	230.0	45.0	-33.3	-39.7	-.2	-.4
50000.0	230.0	20.0	-14.8	-17.6	0.0	-.3
60000.0	120.0	12.0	-6.9	12.0	0.0	.1
70000.0	120.0	12.0	-6.9	12.0	0.0	0.0
80000.0	130.0	19.0	-14.1	16.8	0.0	-.2
90000.0	135.0	29.0	-23.6	23.6	-.1	1.1
100000.0	125.0	33.0	-21.8	31.1	-.1	1.0
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE VII. (CONT.) WIND PROPERTIES AND IMPACT. 1961-1962

[illegible]

TABLE VIII. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATHENA FLIGHT 122

MEAN (FT)	A (D)	S (K)	R	C	RANGE	CROS
4504.0	180.2	3.2	-3.7	0.0	0.0	0.0
4531.5	191.4	2.9	-3.3	-.7	-.1	-.1
4570.5	211.3	2.9	-2.9	-1.8	-.1	-.3
4615.5	209.6	3.1	-3.1	-1.7	0.0	-.3
4569.5	219.6	3.4	-3.0	-2.5	-.1	-.5
4744.5	219.9	3.4	-3.0	-2.5	-.1	-.6
4830.5	215.6	2.7	-2.6	-1.8	-.1	-.4
4920.5	204.1	3.1	-3.2	-1.5	-.1	-.3
5034.3	217.3	3.9	-3.6	-2.7	-.1	-.7
5150.0	223.6	3.5	-2.9	-2.8	-.1	-.5
5250.0	223.6	3.8	-3.2	-3.0	-.1	-.5
5350.0	222.2	4.4	-3.8	-3.4	0.0	-.4
5450.0	236.8	5.0	-3.1	-4.8	0.0	-.6
5625.0	247.3	6.8	-3.0	-7.2	-.1	-1.9
5875.0	257.8	9.3	-2.3	-10.4	0.0	-2.2
6125.0	261.2	7.0	-1.2	-7.9	0.0	-1.5
6375.0	269.2	9.6	-.2	-11.1	0.0	-1.7
6750.0	267.6	15.6	-.8	-17.9	0.0	-4.6
7250.0	260.2	17.7	-3.5	-20.0	-.1	-4.1
7750.0	251.7	17.1	-6.2	-18.7	-.1	-3.1
8500.0	242.3	15.4	-8.2	-15.7	-.2	-3.7
9500.0	249.6	17.2	-6.9	-18.6	-.1	-3.1
10500.0	240.0	13.8	-8.0	-13.8	-.1	-1.7
12000.0	235.4	16.7	-10.9	-15.8	-.2	-2.7
14000.0	248.5	20.4	-8.6	-21.9	-.1	-3.0
16000.0	245.0	17.1	-8.3	-17.9	-.1	-1.9
18000.0	235.5	26.1	-17.0	-24.8	-.1	-2.0
20000.0	240.0	24.0	-13.8	-23.9	-.1	-1.5
22000.0	230.0	28.0	-20.7	-24.7	-.1	-1.3
24000.0	240.0	31.0	-17.8	-30.9	-.1	-1.4
27500.0	240.0	37.0	-21.3	-36.9	-.2	-3.2
32500.0	230.0	45.0	-33.3	-39.7	-.2	-2.5
40000.0	230.0	45.0	-33.3	-39.7	-.2	-2.4
50000.0	230.0	20.0	-14.8	-17.6	0.0	-.3
60000.0	120.0	12.0	-6.9	12.0	0.0	.1
70000.0	120.0	12.0	-6.9	12.0	0.0	0.0
80000.0	130.0	19.0	-14.1	16.8	0.0	-.2
90000.0	135.0	29.0	-23.6	23.6	-.1	1.1
100000.0	125.0	33.0	-21.8	31.1	-.1	1.0
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE IX. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA
ATHENA FLIGHT 122

TRAJ. 7	TIME	3.0	36.8						
BALLISTIC DISPLACEMENTS (MILES)									
RANGE	TOW	-.5	PIB	-1.2	UP	-1.6	TOTAL	-3.3	1-BST -2.7
CROSS	TOW	-2.2	PIB	-33.6	UP	-7.7	TOTAL	-43.5	1-BST -52.9
LAUNCH ANGLES									
AZIMUTH		146.0DEGS	25.0MINS		34.5SEC.				
ELEVATION		73.0DEGS	0.0MINS		6.5SEC.				
IMPACT CHARACTERISTICS(MILES)									
	X		Y		DX		DY		
1ST	21.891		-43.566		-1.281		.503		
2ND	199.276		-397.118		-.483		.910		
PIP	0.000		0.000						
PREDICTED TRAJECTORY									
TIME	AZ		EL						
.5	146.426		73.002						
2.5	146.101		71.234						
5.5	147.255		67.428						
10.5	149.466		63.199						
15.5	150.571		59.729						
20.5	151.443		56.818						
25.5	152.283		54.435						
30.5	152.818		52.526						
35.5	152.895		50.934						
40.5	152.946		49.056						
41.0	152.953		48.881						
44.3	152.989		47.614						
45.5	153.001		47.124						
46.0	153.005		46.923						
50.5	152.932		45.109						
55.5	152.783		43.320						
60.5	152.597		41.746						
65.5	152.388		40.342						
70.5	152.191		39.084						
75.5	151.980		38.016						
80.5	151.818		37.064						
81.0	151.819		36.976						
110.0	151.935		31.412						
110.1	151.925		31.391						
238.6	152.167		-1.078						
476.7	137.270		-80.227						
544.2	350.376		-82.043						
100.0	153.412		4.721						
298.7	26.233		-86.769						
100.0	153.067		4.737						
298.0	339.946		-89.247						

TABLE IX. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATHENA FLIGHT 122

MEAN(FT)	A(D)	S(K)	R	C	RANGE	CROS
4504.0	174.5	4.2	-4.8	.5	-.1	.1
4531.5	183.0	3.5	-4.1	-.2	-.1	0.0
4570.5	194.3	3.4	-3.8	-1.0	-.1	-.2
4615.5	193.8	3.6	-4.0	-1.0	-.1	-.2
4669.5	223.7	3.0	-2.5	-2.4	0.0	-.5
4744.5	223.5	3.0	-2.5	-2.4	-.1	-.6
4830.5	219.8	2.8	-2.5	-2.1	-.1	-.4
4920.5	212.9	3.0	-2.9	-1.9	-.1	-.4
5034.3	215.7	5.0	-4.6	-3.4	-.1	-.9
5150.0	216.5	3.5	-3.2	-2.4	-.1	-.4
5250.0	215.1	3.2	-3.0	-2.2	0.0	-.4
5350.0	211.3	4.0	-4.0	-2.4	-.1	-.3
5450.0	213.3	5.1	-4.9	-3.2	-.1	-.4
5625.0	244.7	6.0	-3.0	-6.3	-.1	-1.6
5875.0	257.2	8.1	-2.0	-9.0	0.0	-2.0
6125.0	267.0	9.7	-.6	-11.2	0.0	-2.1
6375.0	264.6	10.5	-1.1	-12.0	0.0	-1.9
6750.0	275.2	11.5	1.2	-13.1	0.0	-3.3
7250.0	269.3	14.7	-.2	-16.9	0.0	-3.4
7750.0	251.5	16.7	-6.1	-18.3	-.1	-3.0
8500.0	233.9	13.9	-9.4	-12.9	-.2	-3.0
9500.0	251.6	17.0	-6.2	-18.6	-.1	-3.1
10500.0	251.9	14.6	-5.2	-16.0	-.1	-2.0
12000.0	240.2	15.9	-9.7	-16.9	-.2	-2.9
14000.0	247.9	19.1	-8.3	-20.4	-.1	-2.8
16000.0	245.0	17.1	-8.3	-17.9	-.1	-1.9
18000.0	235.5	26.1	-17.0	-24.8	-.1	-2.0
20000.0	240.0	24.0	-13.8	-23.9	-.1	-1.5
22000.0	230.0	28.0	-20.7	-24.7	-.1	-1.3
24000.0	240.0	31.0	-17.8	-30.9	-.1	-1.4
27500.0	240.0	37.0	-21.3	-36.9	-.2	-3.2
32500.0	240.0	45.0	-25.9	-44.9	-.2	-2.8
40000.0	240.0	45.0	-25.9	-44.9	-.2	-2.7
50000.0	220.0	18.0	-15.9	-13.3	0.0	-.2
60000.0	130.0	15.0	-11.1	13.2	0.0	.1
70000.0	120.0	11.0	-6.3	11.0	0.0	0.0
80000.0	120.0	20.0	-11.5	19.9	0.0	-.2
90000.0	150.0	22.0	-21.9	12.7	-.1	.6
100000.0	120.0	28.0	-16.1	27.9	-.1	.9
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE X. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA
ATHENA FLIGHT 122

TRAJ. 8	TIME	8.0	43.1				
BALLISTIC DISPLACEMENTS (MILES)							
RANGE	TOW	-0.5	PIB	-1.3	UP	-1.6	TOTAL -3.4 1-BST -2.9
CROSS	TOW	-1.7	PIB	-31.6	UP	-7.9	TOTAL -41.3 1-BST -50.6
LAUNCH ANGLES							
AZIMUTH		146.0DEGS	43.0MINS	37.0SEC.			
ELEVATION		73.0DEGS	2.0MINS	46.1SEC.			
IMPACT CHARACTERISTICS (MILES)							
	X	Y	DX	DY			
1ST	21.869	-43.576	-1.303	.492			
2ND	199.041	-397.130	-0.717	.347			
PIP	0.000	0.000					
PREDICTED		TRAJECTORY					
TIME	AZ	EL					
.5	146.727	73.046					
2.5	146.421	71.283					
5.5	147.055	67.491					
10.5	149.457	63.204					
15.5	150.601	59.744					
20.5	151.473	56.833					
25.5	152.314	54.451					
30.5	152.849	52.542					
35.5	152.926	50.851					
40.5	152.977	49.073					
41.0	152.984	48.898					
44.3	153.021	47.632					
45.5	153.032	47.142					
46.0	153.036	46.942					
50.5	152.963	45.128					
55.5	152.814	43.339					
60.5	152.628	41.766					
65.5	152.419	40.362					
70.5	152.221	39.105					
75.5	152.010	38.037					
80.5	151.848	37.085					
81.0	151.849	36.997					
110.0	151.966	31.434					
110.1	151.955	31.412					
238.6	152.198	-1.061					
476.7	137.553	-80.146					
544.5	349.821	-81.986					
100.0	153.443	4.746					
298.0	24.286	-86.758					
100.0	153.099	4.762					
298.0	339.975	-89.247					

TABLE X. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATRENA FLIGHT 122

MEAN(FT)	A(D)	S(K)	R	C	RANGE	CROSS
4504.0	178.7	3.9	-4.5	.1	-.1	0.0
4531.5	185.2	3.9	-4.5	-.4	-.1	-.1
4570.5	194.3	3.1	-3.5	-.9	-.1	-.2
4615.5	193.0	3.6	-4.1	-.9	-.1	-.2
4669.5	206.2	2.6	-2.7	-1.3	-.1	-.3
4744.5	206.2	2.6	-2.7	-1.3	-.1	-.3
4830.5	221.8	2.5	-2.2	-1.9	0.0	-.4
4920.5	213.2	2.8	-2.7	-1.8	-.1	-.4
5034.3	198.3	3.8	-4.1	-1.4	-.1	-.4
5150.0	215.5	3.9	-3.7	-2.6	-.1	-.4
5250.0	204.4	3.8	-4.0	-1.8	-.1	-.3
5350.0	207.9	3.1	-3.1	-1.7	0.0	-.2
5450.0	213.6	3.8	-3.6	-2.4	0.0	-.3
5625.0	231.1	3.7	-2.6	-3.3	-.1	-.9
5875.0	244.5	6.1	-3.0	-6.4	-.1	-1.4
6125.0	262.1	7.6	-1.2	-8.7	0.0	-1.6
6375.0	276.9	9.2	1.3	-10.5	0.0	-1.6
6750.0	264.6	11.8	-1.3	-13.6	0.0	-3.4
7250.0	260.3	16.9	-3.3	-19.2	-.1	-3.9
7750.0	249.1	18.1	-7.4	-19.5	-.1	-3.2
8500.0	236.8	14.0	-8.9	-13.5	-.2	-3.2
9500.0	246.7	15.3	-7.0	-16.2	-.1	-2.7
10500.0	249.7	15.3	-6.1	-16.5	-.1	-2.1
12000.0	243.4	17.6	-9.1	-18.2	-.2	-3.2
14000.0	249.7	18.6	-7.4	-20.1	-.1	-2.7
16000.0	246.0	18.9	-8.8	-19.8	-.1	-2.1
18000.0	235.5	26.1	-17.0	-24.8	-.1	-2.0
20000.0	240.0	24.0	-13.8	-23.9	-.1	-1.5
22000.0	230.0	28.0	-20.7	-24.7	-.1	-1.3
24000.0	240.0	31.0	-17.8	-30.9	-.1	-1.4
27500.0	240.0	37.0	-21.3	-36.9	-.2	-3.2
32500.0	240.0	45.0	-25.9	-44.9	-.2	-2.8
40000.0	240.0	45.0	-25.9	-44.9	-.2	-2.7
50000.0	220.0	18.0	-15.9	-13.3	0.0	-.2
60000.0	130.0	15.0	-11.1	13.2	0.0	.1
70000.0	120.0	11.0	-6.3	11.0	0.0	0.0
80000.0	120.0	20.0	-11.5	19.9	0.0	-.2
90000.0	150.0	22.0	-21.9	12.7	-.1	.6
100000.0	120.0	28.0	-16.1	27.9	-.1	.9
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
125000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE XI. ACTUAL AND PREDICTED LAUNCH AND IMPACT DATA
ATHENA FLIGHT 122

POST SHOOT COMPOSITE										
BALLISTIC DISPLACEMENTS					(MILES)					
RANGE	TOWER	-0.5	PIBAL	-1.4	UPPERS	-1.5	TOTAL	-3.4	1-BST	-1.0
CROSS	TOWER	-2.1	PIBAL	-31.2	UPPERS	-8.2	TOTAL	-41.3	1-BST	-50.8
LAUNCH ANGLES										
AZIMUTH		146.0DEGS	25.0MINS		33.3SEC.					
ELEVATION		73.0DEGS	0.0MINS		6.5SEC.					
IMPACT CHARACTERISTICS (MILES)										
	X	Y	DX	DY						
1ST	22.174	-43.305	-0.998	0.763						
2ND	201.117	-396.048	1.359	1.980						
PIP	0.000	0.000								
PREDICTED TRAJECTORY										
TIME	AZ	EL								
.5	146.426	73.001								
2.5	146.134	71.232								
5.5	146.794	67.442								
10.5	149.145	63.150								
15.5	150.263	59.684								
20.5	151.212	56.772								
25.5	152.020	54.397								
30.5	152.527	52.498								
35.5	152.645	50.796								
40.5	152.696	49.016								
41.0	152.702	48.841								
44.3	152.736	47.574								
45.5	152.746	47.084								
46.0	152.751	46.883								
50.5	152.678	45.067								
55.5	152.530	43.276								
60.5	152.346	41.700								
65.5	152.137	40.295								
70.5	151.941	39.037								
75.5	151.730	37.967								
80.5	151.568	37.014								
81.0	151.569	36.926								

TABLE XI. (CONT) WIND PROFILE AND IMPACT DISPLACEMENTS
ATHENA FLIGHT 122

MEAN (FT)	A(D)	S(K)	R	C	RANGE	CROSS
4504.0	181.9	4.3	-4.9	-2	-.1	0.0
4531.5	184.2	3.8	-4.4	-3	-.1	-.1
4570.5	199.5	3.0	-3.3	-1.2	-.1	-.2
4615.5	195.8	3.6	-4.0	-1.1	-.1	-.2
4669.5	213.9	2.6	-2.5	-1.7	0.0	-.3
4744.5	213.7	2.6	-2.5	-1.7	-.1	-.4
4830.5	229.1	2.6	-2.0	-2.3	0.0	-.5
4920.5	217.7	2.8	-2.6	-2.0	-.1	-.4
5034.3	198.3	3.8	-4.2	-1.4	-.1	-.4
5150.0	215.5	3.9	-3.7	-2.6	-.1	-.4
5250.0	204.4	3.8	-4.0	-1.8	-.1	-.3
5350.0	207.9	3.1	-3.2	-1.7	0.0	-.2
5450.0	213.6	3.8	-3.6	-2.4	0.0	-.3
5625.0	231.1	3.7	-2.7	-3.3	-.1	-.9
5875.0	244.5	6.1	-3.0	-6.3	-.1	-1.4
6125.0	262.1	7.6	-1.2	-8.7	0.0	-1.6
6375.0	276.9	9.2	1.3	-10.5	0.0	-1.6
6750.0	264.6	11.8	-1.3	-13.5	0.0	-3.4
7250.0	260.3	16.9	-3.3	-19.2	-.1	-3.9
7750.0	251.5	16.7	-6.1	-18.2	-.1	-3.0
8500.0	233.9	13.9	-9.4	-12.9	-.2	-3.0
9500.0	242.4	15.4	-8.2	-15.7	-.1	-2.6
10500.0	250.8	15.4	-5.8	-16.7	-.1	-2.1
12000.0	243.4	17.6	-9.1	-18.1	-.2	-3.1
14000.0	247.9	19.1	-8.3	-20.4	-.1	-2.8
16000.0	245.0	17.1	-8.3	-17.8	-.1	-1.8
18000.0	235.5	26.1	-17.0	-24.8	-.1	-2.0
20000.0	240.0	26.0	-15.0	-25.9	-.1	-1.7
22000.0	240.0	33.0	-19.0	-32.9	-.1	-1.7
24000.0	240.0	31.0	-17.8	-30.9	-.1	-1.4
27500.0	240.0	35.0	-20.2	-34.9	-.2	-3.0
32500.0	240.0	43.0	-24.8	-42.9	-.2	-2.7
40000.0	240.0	39.0	-22.5	-38.9	-.1	-2.3
50000.0	235.0	43.0	-28.4	-40.6	0.0	-.7
60000.0	210.0	19.0	-18.9	-10.9	0.0	-.1
70000.0	205.0	16.0	-16.7	-7.8	0.0	0.0
80000.0	125.0	20.0	-13.2	18.9	0.0	-.2
90000.0	150.0	22.0	-21.9	12.7	-.1	.6
100000.0	120.0	28.0	-16.1	27.9	-.1	.9
110000.0	110.0	33.0	-13.0	35.7	0.0	1.0
120000.0	115.0	50.0	-24.3	52.2	-.1	2.0
145000.0	135.0	76.0	-61.9	61.9	-.2	1.6
165000.0	110.0	74.0	-29.1	80.1	0.0	1.3
185000.0	105.0	116.0	-34.6	129.0	-.1	1.9
205000.0	130.0	86.0	-63.7	75.9	0.0	.1
225000.0	130.0	80.0	-59.2	70.6	0.0	0.0
245000.0	130.0	80.0	-59.2	70.6	0.0	0.0

TABLE XII. SECOND-STAGE IMPACT DATA
ATHENA FLIGHT 122

SECOND-STAGE IMPACT DATA	LATITUDE (DEGREES)	LONGITUDE (DEGREES)
NOMINAL	33.1025 N	106.5931
RECOVERY SURVEY	33.3029 N	106.8250

TABLE XIII. GREEN RIVER COMPLEX SURFACE OBSERVATIONS MADE
AT 0240 MDT, ATHENA FLIGHT 122.

TEMPERATURE	63	DEGREES F.
DEW POINT	13	DEGREES F.
PRESSURE	25.770	INCHES MERCURY
VISIBILITY	15+	MILES
RELATIVE HUMIDITY	34	PERCENT

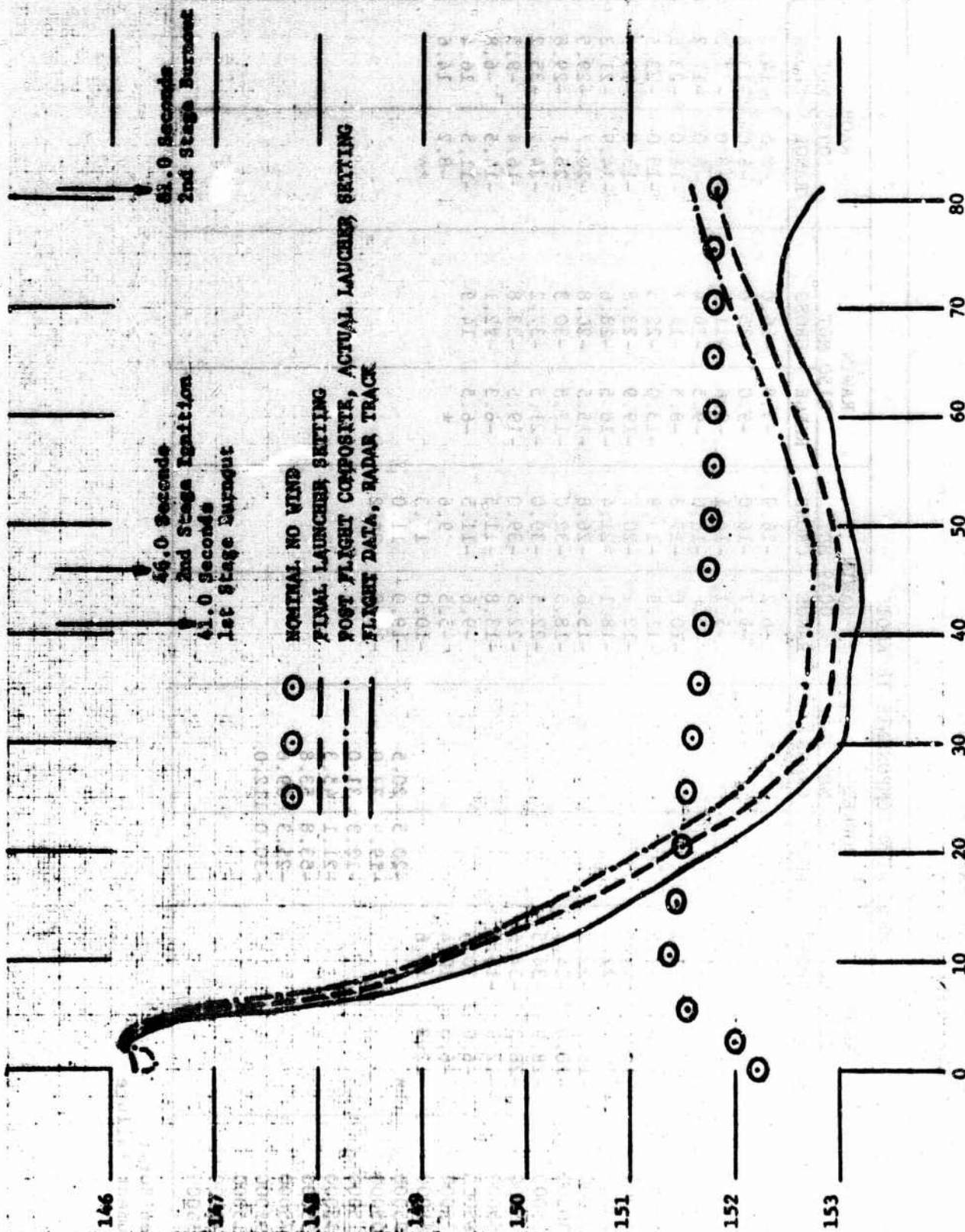


FIGURE 1 VELOCITY VECTOR DATA
ATHENA FLIGHT 122

VELOCITY VECTOR AZIMUTH (GEODETIC DEGREES)

TABLE XIV. ROCKET, RAOB, AND RAWIN WIND DATA
ATHENA FLIGHT 122

ALTITUDE LAYER (FT. MSL)	MEAN WIND COMPONENTS IN KNOTS											
	RAOB 2310 MDT		ROCKET 2355 MDT		RAWIN 0049 MDT		RAWIN 0150 MDT		RAOB 0255 MDT			
	RANGE	CROSS	RANGE	CROSS	RANGE	CROSS	RANGE	CROSS	RANGE	CROSS	RANGE	CROSS
9000-10000	-4.8	-13.1			-6.2	-16.9	-5.8	-16.0	-8.5	-14.7		
10000-11000	-4.8	-13.1			-5.7	-16.0	-9.0	-15.6	-8.0	-13.8		
11000-13000	-2.6	-14.8			-5.1	-14.1	-9.6	-11.5	-8.0	-17.2		
13000-15000	-7.5	-13.0			-5.6	-15.0	-9.5	-16.4	-8.0	-17.2		
15000-17000	-13.5	-16.1			-10.0	-17.3	-8.5	-14.7	-11.0	-23.5		
17000-19000	-15.5	-17.5			-11.5	-19.9	-13.0	-22.5	-13.0	-22.5		
19000-21000	-16.1	-19.2			-12.1	-20.7	-19.9	-23.8	-13.8	-19.6		
21000-23000	-18.7	-22.2			-18.1	-21.4	-16.5	-28.6	-14.9	-21.3		
23000-25000	-18.7	-22.2			-15.6	-26.8	-15.5	-26.8	-20.7	-29.5		
25000-30000	-20.6	-24.5			-18.5	-32.0	-17.5	-30.3	-25.1	-29.8		
30000-35000	-28.9	-34.5			-22.5	-39.0	-21.5	-37.2	-24.7	-35.2		
35000-45000	-28.3	-34.5			-22.5	-39.0	-19.5	-33.8	-16.4	-9.5		
45000-55000	-12.9	-15.3			-13.8	-11.5	-6.3	-22.1	-14.5	-6.8		
55000-65000	-6.0	10.4			-9.6	-11.5	-6.5	14.5	-11.5	16.4		
65000-75000	-6.0	10.4			-5.5	9.6	*		-8.2	14.6		
75000-85000	-12.2	14.6			-10.0	17.3			**			
85000-95000	*		-20.5	20.5	-19.0	11.0						
95000-105000			-19.9	27.0	-14.0	24.2						
105000-115000			-12.3	31.0								
115000-135000			-21.1	45.3								
135000-155000			-53.8	53.8								
155000-175000			-25.3	69.6								
175000-195000			-30.0	112.0								
195000-215000												
215000-235000												
235000-255000												

* Balloon Burst

** Instrument Failure

STATION ALTITUDE 4285.00 FEET MSL
10 JULY 70 2310 HRS MDT
ASCENSION NO. 132

SIGNIFICANT LEVEL DATA

1910080132
GREEN RIVER

TABLE XV

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM.	
				PERCENT	PERCENT
873.0	4285.0	20.8	5.2	36.0	
856.0	4844.4	22.2	5.2	33.0	
769.0	7877.2	18.0	-1.3	27.0	
721.0	9670.5	12.5	-1.1	39.0	
604.0	14462.5	2.6	-16.0	24.0	
570.0	15990.4	-1.8	-9.7	55.0	
537.0	17538.5	-6.4	-8.9	83.0	
518.0	18465.2	-6.6	-11.9	56.0	
500.0	19372.4	-7.9	-12.8	68.0	
469.0	20999.1	-11.2	-27.4	25.0	
449.0	22094.0	-13.8	-23.0	46.0	
410.0	24345.5	-18.2	-26.2	50.0	
395.0	25258.8	-20.4	-27.0	56.0	
389.0	25631.5	-20.7	-44.4	10.0	
360.0	27502.3	-24.5	-39.4	24.0	
343.0	28654.8	-27.5	-49.9	10.0	
237.0	37016.5	-49.5			
227.0	37946.8	-49.4			
157.0	45689.0	-61.6			
146.0	47170.2	-62.3			
134.0	48899.1	-66.5			
115.0	51950.1	-66.6			
100.0	54749.7	-65.0			
84.0	58255.0	-65.2			
70.0	61971.1	-59.4			
48.0	69824.3	-56.4			
37.0	75354.4	-50.8			
28.0	81365.5	-50.0			

WSTM SITE COORDINATES
-568858.00 FEET E
2592855.00 FEET N

UPPER AIR DATA
1910080132
GREEN RIVER

WSTM SITE COORDINATES
-568858.00 FEET E
2592855.00 FEET N

STATION ALTITUDE 4285.00 FEET MSL
10 JULY 70 2310 HRS MDT
ASCENSION NO. 132

TABLE XVI

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		DIR DEG W	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS		28.8 UF IN	SPEED KNOTS	
4285.0	873.0	20.8	5.2	36.0	1030.8	668.9	0.	0.	0.	0.	1.000268
4500.0	866.4	21.3	5.2	34.8	1021.1	669.5	349.7	349.7	0.9	0.9	1.000266
5000.0	851.3	22.0	4.9	32.7	1001.1	670.2	325.6	325.6	2.9	2.9	1.000261
5500.0	836.4	21.3	3.8	31.7	986.1	669.4	301.6	301.6	5.0	5.0	1.000255
6000.0	821.7	20.6	2.8	30.7	971.3	668.5	277.6	277.6	7.0	7.0	1.000249
6500.0	807.4	19.9	1.7	29.7	956.8	667.7	253.5	253.5	9.1	9.1	1.000244
7000.0	793.2	19.2	0.6	28.7	942.4	666.8	245.9	245.9	10.9	10.9	1.000238
7500.0	779.3	18.5	-0.4	27.7	928.3	666.0	244.8	244.8	12.6	12.6	1.000233
8000.0	765.6	17.6	-1.2	27.8	914.9	664.9	245.1	245.1	13.4	13.4	1.000229
8500.0	752.0	16.1	-1.0	31.2	903.2	663.2	245.8	245.8	14.0	14.0	1.000227
9000.0	738.6	14.6	-0.9	34.5	891.8	661.4	248.1	248.1	14.8	14.8	1.000225
9500.0	725.4	13.0	-1.0	37.9	880.6	659.7	250.7	250.7	15.4	15.4	1.000222
10000.0	712.3	11.8	-2.0	38.0	868.4	658.2	255.1	255.1	14.3	14.3	1.000218
10500.0	699.2	10.8	-3.5	36.4	855.8	657.0	259.7	259.7	13.6	13.6	1.000213
11000.0	686.4	9.8	-5.0	34.8	843.4	655.7	264.4	264.4	13.7	13.7	1.000208
11500.0	673.9	8.7	-6.6	33.3	831.2	654.4	265.9	265.9	13.5	13.5	1.000203
12000.0	661.5	7.7	-8.1	31.7	819.2	653.1	264.8	264.8	13.2	13.2	1.000198
12500.0	649.4	6.7	-9.7	30.1	807.3	651.9	260.2	260.2	13.8	13.8	1.000194
13000.0	637.5	5.6	-11.2	28.6	795.6	650.6	254.1	254.1	14.8	14.8	1.000190
13500.0	625.9	4.6	-12.8	27.0	784.1	649.4	248.2	248.2	15.5	15.5	1.000186
14000.0	614.4	3.6	-14.5	25.4	772.7	648.1	242.3	242.3	16.1	16.1	1.000182
14500.0	603.1	2.5	-15.7	24.8	761.5	646.8	240.9	240.9	16.1	16.1	1.000179
15000.0	591.8	1.1	-12.8	34.9	750.9	645.2	239.4	239.4	16.1	16.1	1.000179
15500.0	580.7	-0.4	-10.9	45.0	740.5	643.6	234.7	234.7	16.4	16.4	1.000179
16000.0	569.8	-1.8	-9.7	55.2	730.3	642.0	230.8	230.8	16.8	16.8	1.000178
16500.0	558.9	-3.3	-9.1	64.2	720.2	640.3	228.8	228.8	17.1	17.1	1.000176
17000.0	548.3	-4.8	-8.9	73.3	710.3	638.5	227.0	227.0	18.5	18.5	1.000175
17500.0	537.8	-6.3	-8.9	82.3	700.6	636.8	225.4	225.4	20.9	20.9	1.000173
18000.0	527.5	-6.5	-10.3	74.5	687.8	636.5	226.6	226.6	22.6	22.6	1.000168
18500.0	517.3	-6.6	-12.0	66.1	675.1	636.2	229.1	229.1	24.1	24.1	1.000163

STATION ALTITUDE 4285.00 FEET MSL
 10 JULY 70
 ASCENSION NO. 132

UPPER AIR DATA
 1910080132
 GREEN RIVER

MSIN SITE COORDINATES
 -560858.00 FEET E
 2592855.00 FEET N

TABLE XVI (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIR DEG M	WIND SPEED KNOTS	INDEX OF REFRACTION
19000.0	507.3	-7.4	-12.5	67.2	663.9	635.4	230.6	25.2	1.000161
19500.0	497.5	-8.2	-13.7	64.6	653.1	634.4	231.8	26.4	1.000157
20000.0	487.8	-9.2	-17.4	51.4	643.1	633.0	232.4	26.1	1.000152
20500.0	478.3	-10.2	-21.8	38.2	633.2	631.7	233.0	25.5	1.000147
21000.0	469.0	-11.2	-27.4	25.0	623.5	630.4	233.4	25.2	1.000142
21500.0	459.7	-12.4	-24.9	34.5	613.9	629.0	232.8	24.9	1.000141
22000.0	450.7	-13.6	-23.3	44.2	604.5	627.6	230.0	25.0	1.000140
22500.0	441.7	-14.6	-23.6	46.7	594.7	626.4	227.8	25.2	1.000138
23000.0	432.9	-15.6	-24.3	47.6	585.1	625.2	226.3	25.5	1.000135
23500.0	424.2	-16.5	-25.0	48.5	575.6	624.0	226.4	26.5	1.000133
24000.0	415.8	-17.5	-25.7	49.4	566.3	622.8	227.0	27.5	1.000131
24500.0	407.4	-18.6	-26.3	51.0	557.2	621.5	229.9	28.8	1.000128
25000.0	399.2	-19.8	-26.8	54.3	548.6	620.0	231.9	30.1	1.000126
25500.0	391.1	-20.6	-35.1	26.2	539.4	618.9	232.4	31.7	1.000122
26000.0	383.1	-21.4	-42.8	12.8	530.2	617.8	231.8	32.4	1.000119
26500.0	375.3	-22.5	-41.2	16.5	521.5	616.6	230.3	33.5	1.000117
27000.0	367.6	-23.5	-40.2	20.2	512.8	615.3	229.8	33.8	1.000115
27500.0	360.0	-24.5	-39.4	24.0	504.4	614.1	229.5	33.9	1.000114
28000.0	352.6	-25.8	-43.3	18.0	496.5	612.4	229.6	34.3	1.000111
28500.0	345.2	-27.1	-48.1	11.9	488.8	610.8	229.8	34.7	1.000109
29000.0	337.8	-28.4	-51.0	9.6**	480.9	609.2	230.8	35.4	1.000107
29500.0	330.4	-29.7	-52.5	9.0**	472.9	607.5	231.5	36.1	1.000106
30000.0	323.2	-31.0	-54.2	8.4**	465.1	605.9	230.6	37.6	1.000104
30500.0	316.1	-32.4	-55.8	7.8**	457.4	604.2	230.1	39.0	1.000102
31000.0	309.2	-33.7	-57.5	7.2**	449.9	602.6	231.3	40.2	1.000100
31500.0	302.5	-35.0	-59.2	6.6**	442.5	600.9	232.5	41.4	1.000099
32000.0	295.8	-36.3	-61.0	6.0**	435.2	599.3	233.5	42.8	1.000097
32500.0	289.4	-37.6	-62.8	5.4**	428.1	597.6	234.4	44.2	1.000095
33000.0	283.1	-38.9	-64.7	4.8**	421.1	595.9	235.0	45.9	1.000094
33500.0	276.9	-40.2	-66.6	4.2**	414.2	594.2	235.6	47.7	1.000092

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

UPPER AIR DATA

STATION ALTITUDE 4285.00 FEET MSL
10 JULY 70 2310 HRS MDT
ASCENSION NO. 132

WSIM SITE COORDINATES
-568858.00 FEET E
2592855.00 FEET N

TABLE XVI (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIR 28.8 DEG W OF IN	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
34000.0	270.8	-41.6	-68.7	3.6**	407.4	592.6	234.9	50.6	1.000091
34500.0	264.9	-42.9	-70.9	3.0**	400.8	590.9	234.2	53.5	1.000089
35000.0	259.1	-44.2	-73.4	2.4**	394.3	589.2	234.2	54.3	1.000088
35500.0	253.4	-45.5	-76.2	1.8**	387.9	587.5	234.2	55.1	1.000086
36000.0	247.9	-46.8	-79.6	1.2**	381.6	585.8	234.7	56.3	1.000085
36500.0	242.5	-48.1	-84.5	0.6**	375.5	584.1	235.1	57.5	1.000084
37000.0	237.2	-49.5	-102.7	0.0**	369.4	582.4	235.6	57.4	1.000082
37500.0	231.7	-49.4			360.9	582.4	236.3	56.4	1.000080
38000.0	226.4	-49.5			352.7	582.3	236.9	55.4	1.000079
38500.0	221.1	-50.3			345.6	581.3	236.8	53.0	1.000077
39000.0	215.9	-51.1			338.7	580.3	236.5	50.2	1.000075
39500.0	210.8	-51.8			331.9	579.2	236.1	47.3	1.000074
40000.0	205.9	-52.6			325.3	578.2	234.3	42.2	1.000072
40500.0	201.0	-53.4			318.7	577.2	232.1	38.1	1.000071
41000.0	196.3	-54.2			312.4	576.1	228.1	37.2	1.000070
41500.0	191.7	-55.0			306.1	575.1	229.6	40.3	1.000068
42000.0	187.2	-55.8			300.0	574.1	231.6	43.2	1.000067
42500.0	182.7	-56.6			294.0	573.0	234.7	44.1	1.000065
43000.0	178.4	-57.4			288.1	572.0	237.7	44.9	1.000064
43500.0	174.3	-58.2			282.4	570.9	240.7	42.7	1.000063
44000.0	170.2	-58.9			276.7	569.9	243.7	39.8	1.000062
44500.0	166.1	-59.7			271.2	568.8	246.2	36.2	1.000060
45000.0	162.2	-60.5			265.8	567.8	248.0	31.8	1.000059
45500.0	158.4	-61.3			260.5	566.7	248.6	27.3	1.000058
46000.0	154.6	-61.7			254.8	566.1	246.5	22.3	1.000057
46500.0	150.9	-62.0			248.9	565.8	244.1	17.5	1.000055
47000.0	147.2	-62.2			243.2	565.5	240.1	14.4	1.000054
47500.0	143.6	-63.1			238.2	564.3	236.1	11.3	1.000053
48000.0	140.1	-64.3			233.8	562.7	228.4	10.0	1.000052
48500.0	136.7	-65.5			229.4	561.1	219.8	9.0	1.000051

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

STATION ALTITUDE 4285.00 FEET MSL				UPPER AIR DATA				WSTM SITE COORDINATES			
10 JULY 70				1910080132				-568850.00 FEET E			
ASCENSION NO. 132				GREEN RIVER				2592855.00 FEET N			
				2310 HRS MDT							
				TABLE XVI (Cont)							
GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	REL. HUM.	DENSITY	SPEED OF	WIND DATA	INDEX				
MSL FEET	MILLIBARS	AIR DEGREES	PERCENT	GM/CUBIC	SOUND	DIR 28.8	OF 000013				
				METER	KNOTS	DEC W OF TN	REFRACTION				
49000.0	133.3	-66.5		224.8	559.7	216.0	1.000050	8.7	1.000050		
49500.0	130.0	-66.5		219.2	559.7	218.9	1.000049	9.3	1.000049		
50000.0	126.8	-66.5		213.8	559.7	221.8	1.000048	9.9	1.000048		
50500.0	123.7	-66.6		208.6	559.7	218.4	1.000046	10.7	1.000046		
51000.0	120.6	-66.6		203.4	559.7	213.9	1.000045	11.5	1.000045		
51500.0	117.6	-66.6		198.4	559.6	209.4	1.000044	12.3	1.000044		
52000.0	114.7	-66.6		193.5	559.6	209.6	1.000043	13.1	1.000043		
52500.0	111.9	-66.3		188.4	560.0	209.8	1.000042	14.0	1.000042		
53000.0	109.1	-66.0		183.5	560.4	210.9	1.000041	14.3	1.000041		
53500.0	106.4	-65.7		178.8	560.8	213.7	1.000040	13.6	1.000040		
54000.0	103.8	-65.4		174.1	561.2	216.5	1.000039	12.8	1.000039		
54500.0	101.3	-65.1		169.6	561.6	224.3	1.000038	11.2	1.000038		
55000.0	98.8	-65.0		165.3	561.8	233.5	1.000037	9.3	1.000037		
55500.0	96.3	-65.0		161.3	561.7	252.3	1.000036	7.3	1.000036		
56000.0	94.0	-65.1		157.3	561.7	297.1	1.000035	4.9	1.000035		
56500.0	91.7	-65.1		153.5	561.6	341.9	1.000034	2.5	1.000034		
57000.0	89.4	-65.1		149.8	561.6	27.1	1.000033	3.1	1.000033		
57500.0	87.2	-65.2		146.1	561.6	72.5	1.000033	4.8	1.000033		
58000.0	85.1	-65.2		142.5	561.5	112.7	1.000032	6.7	1.000032		
58500.0	83.0	-64.8		138.8	562.0	117.1	1.000031	9.0	1.000031		
59000.0	81.0	-64.0		134.9	563.1	121.6	1.000030	11.3	1.000030		
59500.0	79.0	-63.3		131.2	564.1	124.6	1.000029	13.3	1.000029		
60000.0	77.1	-62.5		127.5	565.2	126.1	1.000028	15.0	1.000028		
60500.0	75.2	-61.7		124.0	566.2	127.7	1.000027	16.7	1.000027		
61000.0	73.4	-60.9		120.5	567.3	128.4	1.000026	17.9	1.000026		
61500.0	71.6	-60.1		117.2	568.3	129.0	1.000025	19.1	1.000025		
62000.0	69.9	-59.4		113.9	569.3	130.1	1.000024	19.8	1.000024		
62500.0	68.2	-59.2		111.1	569.5	131.6	1.000023	20.0	1.000023		
63000.0	66.6	-59.0		108.4	569.8	133.4	1.000022	20.1	1.000022		
63500.0	65.0	-58.8		105.7	570.1	139.7	1.000021	18.5	1.000021		

STATION ALTITUDE 4285.00 FEET MSL
10 JULY 70
ASCENSION NO. 132

2310 HRS MDT

UPPER AIR DATA
1910080132
GREEN RIVER

WSM SITE COORDINATES
17568858.00 FEET E
2592855.00 FEET N

TABLE XVI (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIR 28.8 DEG W OF TN	SPEED KNOTS	
64000.0	63.5	-58.6			103.1	570.3	146.0	16.9	1.000023
64500.0	62.0	-58.4			100.6	570.6	147.9	15.5	1.000022
65000.0	60.5	-58.2			98.1	570.8	146.6	14.3	1.000022
65500.0	59.1	-58.1			95.7	571.1	145.3	13.1	1.000021
66000.0	57.7	-57.9			93.3	571.3	142.8	12.5	1.000021
66500.0	56.3	-57.7			91.1	571.6	140.2	11.9	1.000020
67000.0	55.0	-57.5			88.8	571.8	138.1	11.5	1.000020
67500.0	53.7	-57.3			86.6	572.1	137.3	11.5	1.000019
68000.0	52.4	-57.1			84.5	572.3	136.4	11.5	1.000019
68500.0	51.2	-56.9			82.4	572.6	136.2	11.2	1.000018
69000.0	49.9	-56.7			80.4	572.8	136.7	10.6	1.000018
69500.0	48.8	-56.5			78.4	573.1	137.1	10.1	1.000017
70000.0	47.6	-56.2			76.5	573.5	134.6	9.8	1.000017
70500.0	46.5	-55.7			74.5	574.2	131.2	9.5	1.000017
71000.0	45.4	-55.2			72.6	574.8	127.8	9.4	1.000016
71500.0	44.4	-54.7			70.8	575.5	121.5	11.7	1.000016
72000.0	43.3	-54.2			68.9	576.2	115.2	14.0	1.000015
72500.0	42.3	-53.7			67.2	576.8	112.1	15.6	1.000015
73000.0	41.3	-53.2			65.5	577.5	113.5	16.4	1.000015
73500.0	40.4	-52.7			63.8	578.2	114.9	17.2	1.000014
74000.0	39.4	-52.2			62.2	578.8	118.8	17.8	1.000014
74500.0	38.5	-51.7			60.6	579.5	122.9	18.3	1.000013
75000.0	37.6	-51.2			59.0	580.1	128.6	18.8	1.000013
75500.0	36.8	-50.8			57.6	580.6	136.1	19.3	1.000013
76000.0	35.9	-50.7			56.2	580.7	143.4	19.8	1.000013
76500.0	35.1	-50.6			54.9	580.8	144.6	19.9	1.000012
77000.0	34.3	-50.6			53.7	580.9	145.8	20.0	1.000012
77500.0	33.5	-50.5			52.4	581.0	144.9	19.9	1.000012
78000.0	32.7	-50.4			51.2	581.1	142.1	19.4	1.000011
78500.0	32.0	-50.4			50.0	581.2			1.000011

STATION ALTITUDE 4285.00 FEET MSL
 10 JULY 70 2310 HRS MDT
 ASCENSION NO. 132

UPPER AIR DATA
 1910080132
 GREEN RIVER

WSTM SITE COORDINATES
 -568858.00 FEET E
 2592855.00 FEET N

TABLE XVI (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIR 28.8 DEG W OF TN	SPEED KNOTS	
79000.0	31.2	-50.3		-25.2	48.9	581.3	110.5	11.4	1.000011
79500.0	30.5	-50.2		-25.1	47.7	581.3	110.0	10.3	1.000011
80000.0	29.8	-50.2		-25.0	46.6	581.4	110.5	10.0	1.000010
80500.0	29.1	-50.1		-25.4	45.5	581.5	110.0	10.8	1.000010
81000.0	28.5	-50.0		-25.0	44.5	581.6	110.5	10.3	1.000010

STATION ALTITUDE 4285.00 FEET MSL

10 JULY 70

ASCENSION NO. 132

MANDATORY LEVELS

191008J132

GREEN RIVER

WSM SITE COORDINATES

-568858.00 FEET E

2592855.00 FEET N

TABLE XVII

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIR 28.8 DEG W OF TN	SPEED KNOTS
850.0	5043.	21.9	4.8	33.		323.5	3.1
800.0	6762.	19.5	1.2	29.		246.4	10.1
750.0	8573.	15.9	-0.9	32.		246.1	14.1
700.0	10476.	10.8	-3.4	36.		259.5	13.6
650.0	12488.	5.7	-9.6	30.		260.3	13.8
600.0	14627.	2.1	-14.8	28.		240.6	16.1
550.0	16905.	-4.6	-8.9	72.		227.2	18.1
500.0	19352.	-7.9	-12.8	68.		231.4	26.1
450.0	22012.	-13.7	-23.2	45.		229.8	25.0
400.0	24918.	-19.7	-26.7	54.		231.9	29.9
350.0	28133.	-26.2	-44.8	16.		229.7	34.4
300.0	31722.	-35.5	-59.9	6.**		233.1	42.2
250.0	35791.	-46.3	-78.2	1.**		234.5	55.9
200.0	40571.	-53.6				230.9	37.8
175.0	43360.	-58.0				240.4	43.0
150.0	46512.	-62.0				243.2	16.8
125.0	50161.	-66.5				220.4	10.3
100.0	54601.	-65.0				228.8	10.3
80.0	59066.	-63.6				123.7	12.3
70.0	61781.	-59.4				130.0	19.8
60.0	64957.	-58.2				146.2	13.9
50.0	68736.	-56.7				136.6	10.7
40.0	73418.	-52.5				116.2	17.4
30.0	79565.	-50.2					

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

STATION ALTITUDE 4285.00 FEET MSL
11 JULY 70
ASCENSION NO. 135

0255 HRS MDT

SIGNIFICANT LEVEL DATA

1920080135

GREEN RIVER

TABLE XVII

PRESSURE GEOMETRIC		TEMPERATURE		REL. HUM.	
ALTITUDE		DEGREE		PERCENT	
MILLIBARS		CENTIGRADE			
873.0	4285.0	22.4	10.0	45.0	
863.0	4612.9	19.9	11.2	57.0	
848.0	5112.0	22.5	19.7	44.0	
661.0	12038.0	16.9	2.0	53.0	
624.0	13585.3	3.4	3.9	59.0	
575.0	15741.7	3.3	5.3	86.0	
557.0	16568.4	4.4	7.7	78.0	
526.0	18045.1	7.4	10.2	81.0	
498.0	19444.8	8.3	16.7	51.0	
474.0	20702.9	9.5	29.5	18.0	
412.0	24214.7	16.8	35.6	18.0	
383.0	26002.0	21.4	30.1	46.0	
376.0	26448.8	22.5	33.6	36.0	
363.0	27295.6	24.5	32.3	49.0	
309.0	31082.7	34.0	50.7	17.0	
256.0	35316.2	45.6			
235.0	37176.2	50.1			
216.0	38993.1	49.4			
183.0	42513.3	56.8			
145.0	47299.5	63.4			
138.0	48295.3	66.1			
115.0	51944.4	65.7			
89.0	57075.9	66.1			
85.0	58012.4	58.8			
81.0	59009.3	59.6			
61.0	64932.1	54.6			
40.0	73930.4	50.8			
30.0	80160.6	48.1			
25.0	84181.1	42.9			

WSTM SITE COORDINATES
-568650.00 FEET E
2592855.00 FEET N

UPPER AIR DATA
1920030135
GREEN RIVER

STATION ALTITUDE 4285.00 FEET MSL
11 JULY 70
ASCENSION NO. 135

0255 HRS MDT

TABLE XIX

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIR 28.8 DEG W OF TN	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS			
4285.0	873.0	22.4	10.0	45.0	1023.7	671.2	0.	0.	0.	1.000281
4500.0	866.4	20.8	10.9	52.9	1021.3	669.4	350.2	350.2	0.9	1.000284
5000.0	851.3	21.9	10.1	46.9	999.8	670.7	327.2	327.2	3.1	1.000277
5500.0	836.2	21.6	9.1	44.5	983.3	670.3	304.3	304.3	5.2	1.000269
6000.0	821.3	20.5	8.3	45.2	969.6	668.9	281.4	281.4	7.3	1.000264
6500.0	806.7	19.4	7.5	45.8	956.2	667.6	258.5	258.5	9.5	1.000259
7000.0	792.3	18.2	6.6	46.5	943.0	666.2	252.3	252.3	11.6	1.000254
7500.0	778.2	17.1	5.8	47.1	929.9	664.9	253.8	253.8	13.6	1.000249
8000.0	764.3	16.0	5.0	47.8	917.1	663.5	249.7	249.7	14.4	1.000244
8500.0	750.7	14.9	4.1	48.4	904.4	662.2	246.1	246.1	15.0	1.000239
9000.0	737.3	13.7	3.3	49.1	891.9	660.8	243.5	243.5	15.3	1.000234
9500.0	724.2	12.6	2.4	49.7	879.6	659.5	242.3	242.3	15.8	1.000230
10000.0	711.3	11.5	1.6	50.4	867.5	658.1	242.2	242.2	16.5	1.000225
10500.0	698.6	10.4	0.7	51.0	855.5	656.8	243.0	243.0	17.1	1.000221
11000.0	686.1	9.2	-0.2	51.7	843.8	655.4	244.1	244.1	17.6	1.000217
11500.0	673.9	8.1	-1.1	52.3	832.2	654.1	245.3	245.3	17.7	1.000212
12000.0	661.9	7.0	-1.9	53.0	820.7	652.7	246.3	246.3	17.8	1.000208
12500.0	649.7	5.9	-2.5	54.8	809.0	651.4	246.5	246.5	17.8	1.000205
13000.0	637.7	4.7	-3.1	56.7	797.3	650.0	245.7	245.7	18.1	1.000201
13500.0	626.0	3.6	-3.8	58.7	785.9	648.7	243.7	243.7	18.8	1.000198
14000.0	614.3	2.1	-4.0	64.2	775.3	646.9	242.7	242.7	19.4	1.000196
14500.0	602.7	0.6	-4.2	70.5	765.1	645.1	242.5	242.5	19.9	1.000193
15000.0	591.4	-1.0	-4.6	76.7	755.0	643.3	242.8	242.8	20.8	1.000190
15500.0	580.3	-2.5	-5.1	83.0	745.1	641.4	243.3	243.3	21.7	1.000188
16000.0	569.3	-3.6	-6.1	83.5	734.1	640.1	244.8	244.8	22.6	1.000184
16500.0	558.5	-4.3	-7.5	78.7	722.1	639.2	246.2	246.2	23.5	1.000179
17000.0	547.8	-5.3	-8.4	78.9	710.9	638.0	244.5	244.5	25.5	1.000176
17500.0	537.2	-6.3	-9.2	79.9	699.9	636.8	242.9	242.9	27.4	1.000172
18000.0	526.9	-7.3	-10.1	80.9	689.2	635.5	241.6	241.6	29.2	1.000169
18500.0	516.7	-7.7	-12.0	71.3	677.0	635.0	239.9	239.9	30.8	1.000164

STATION ALTITUDE 4285.00 FEET MSL
 11 JULY 70 0255 HRS MDT
 ASCENSION NO. 135

UPPER AIR DATA
 1920080135
 GREEN RIVER

WSTM SITE COORDINATES
 -568858.00 FEET E
 2592855.00 FEET N

TABLE XIX (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIR 28.8 DEG W OF TN	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
19000.0	506.7	-8.0	60.5	664.9	634.5	237.6	32.0	1.000159
19500.0	496.9	-8.4	49.6	653.0	634.0	235.9	32.1	1.000154
20000.0	487.3	-8.8	36.4	641.7	633.3	234.7	31.5	1.000149
20500.0	477.8	-9.3	23.3	630.6	632.7	233.1	30.7	1.000144
21000.0	468.4	-10.1	18.0	620.2	631.6	231.5	29.8	1.000141
21500.0	459.2	-11.2	18.0	610.4	630.4	229.8	28.7	1.000139
22000.0	450.1	-12.2	18.0	600.7	629.1	228.3	27.6	1.000136
22500.0	441.2	-13.2	18.0	591.2	627.9	228.7	27.5	1.000134
23000.0	432.5	-14.3	18.0	581.9	626.6	229.3	27.4	1.000132
23500.0	423.9	-15.3	18.0	572.7	625.3	230.3	27.2	1.000129
24000.0	415.5	-16.4	18.0	563.6	624.1	231.8	27.3	1.000127
24500.0	407.2	-17.5	22.5	554.9	622.6	234.1	27.9	1.000126
25000.0	399.0	-18.8	30.3	546.4	621.1	235.2	28.7	1.000124
25500.0	390.9	-20.1	38.1	538.0	619.5	235.3	29.7	1.000123
26000.0	383.0	-21.4	46.0	529.8	618.0	235.7	30.9	1.000121
26500.0	375.2	-22.6	36.8	521.6	616.4	236.2	32.1	1.000118
27000.0	367.5	-23.8	44.5	513.3	615.0	236.6	33.0	1.000117
27500.0	359.9	-25.0	47.3	505.1	613.5	236.9	33.7	1.000115
28000.0	352.3	-26.3	43.0	497.0	611.9	237.2	33.9	1.000113
28500.0	344.9	-27.5	38.8	489.1	610.3	237.7	33.8	1.000110
29000.0	337.6	-28.8	34.6	481.3	608.8	236.3	34.4	1.000108
29500.0	330.5	-30.0	30.4	473.6	607.2	234.9	35.0	1.000106
30000.0	323.6	-31.3	26.1	466.0	605.6	233.2	36.1	1.000105
30500.0	316.8	-32.5	21.9	458.6	604.0	231.7	37.0	1.000103
31000.0	310.1	-33.8	17.7	451.3	602.4	230.9	37.8	1.000101
31500.0	303.3	-35.1	15.3**	444.0	600.7	230.1	38.5	1.000099
32000.0	296.7	-36.5	13.3**	436.8	599.0	229.5	39.1	1.000097
32500.0	290.1	-37.9	11.3**	429.7	597.3	228.8	39.8	1.000096
33000.0	283.8	-39.3	9.3**	422.7	595.5	228.3	41.0	1.000094
33500.0	277.5	-40.6	7.3**	415.8	593.8	228.0	42.0	1.000093

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

UPPER AIR DATA
1920080135
GREEN RIVER

WSTM SITE COORDINATES
-568858.00 FEET E
2592855.00 FEET N

STATION ALTITUDE 4285.00 FEET MSL.
11 JULY 70 0255 HRS MDT
ASCENSION NO. 135

TABLE XIX (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIR 28.8 DEG W OF TN	SPEED KNOTS	
34000.0	271.4	-42.0	-66.3	5.3**	409.1	592.0	228.1	42.7	1.000091
34500.0	265.5	-43.4	-70.7	3.3**	402.5	590.2	228.5	43.9	1.000090
35000.0	259.6	-44.7	-77.9	1.3**	396.0	588.5	229.4	45.9	1.000088
35500.0	253.8	-46.0			389.4	586.8	230.6	46.8	1.000087
36000.0	248.1	-47.3			382.6	585.2	232.1	46.9	1.000085
36500.0	242.4	-48.5			375.9	583.7	234.0	47.4	1.000084
37000.0	236.9	-49.7			369.4	582.1	236.1	47.9	1.000082
37500.0	231.5	-50.0			361.4	581.7	237.6	45.6	1.000080
38000.0	226.2	-49.8			352.8	581.9	238.6	42.8	1.000079
38500.0	221.0	-49.6			344.4	582.2	237.3	40.0	1.000077
39000.0	215.9	-49.4			336.3	582.4	235.4	37.5	1.000075
39500.0	210.9	-50.5			330.0	581.1	232.1	35.6	1.000073
40000.0	206.0	-51.5			323.8	579.7	229.6	34.9	1.000072
40500.0	201.2	-52.6			317.8	578.3	228.0	35.8	1.000071
41000.0	196.5	-53.6			311.9	576.9	227.5	36.9	1.000069
41500.0	191.9	-54.7			306.1	575.5	228.1	38.3	1.000068
42000.0	187.5	-55.7			300.4	574.2	230.5	39.4	1.000067
42500.0	183.1	-56.8			294.9	572.8	234.0	40.2	1.000066
43000.0	178.7	-57.5			288.7	571.8	236.4	39.7	1.000064
43500.0	174.4	-58.2			282.7	570.9	238.0	38.3	1.000063
44000.0	170.2	-58.9			276.8	570.0	239.8	35.0	1.000062
44500.0	166.1	-59.5			271.0	569.1	241.7	30.9	1.000060
45000.0	162.2	-60.2			265.3	568.2	238.1	27.1	1.000059
45500.0	158.3	-60.9			259.8	567.3	232.6	23.5	1.000058
46000.0	154.5	-61.6			254.4	566.3	224.9	21.4	1.000057
46500.0	150.7	-62.3			249.1	565.4	216.6	19.7	1.000055
47000.0	147.1	-63.0			243.9	564.5	213.2	19.9	1.000054
47500.0	143.6	-63.9			239.1	563.2	211.9	20.7	1.000053
48000.0	140.0	-65.3			234.7	561.4	212.6	21.4	1.000052
48500.0	136.6	-66.1			229.8	560.3	215.8	22.0	1.000051

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

STATION ALTITUDE 4285.00 FEET MSL
 11 JULY 70 0255 HRS MDT
 ASCENSION NO. 135

UPPER AIR DATA
 1920080135
 GREEN RIVER

WSTM SITE COORDINATES
 -568858.00 FEET E
 2592855.00 FEET N

TABLE XIX (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIR DEG W OF TN	WIND DATA 28.8 SPEED KNOTS	INDEX OF REFRACTION
49000.0	133.2	-66.0			224.1	560.4	219.0	22.4	1.000050
49500.0	129.9	-66.0			218.5	560.5	221.8	21.4	1.000049
50000.0	126.7	-65.9			213.1	560.5	224.7	20.4	1.000047
50500.0	123.6	-65.9			207.8	560.6	221.7	20.1	1.000046
51000.0	120.6	-65.8			202.6	560.7	217.5	20.0	1.000045
51500.0	117.6	-65.7			197.5	560.8	213.8	19.8	1.000044
52000.0	114.7	-65.7			192.6	560.8	211.0	19.4	1.000043
52500.0	111.9	-65.7			187.9	560.8	208.5	19.0	1.000042
53000.0	109.1	-65.8			183.3	560.7	212.1	17.8	1.000041
53500.0	106.4	-65.8			178.8	560.7	215.6	16.7	1.000040
54000.0	103.8	-65.9			174.4	560.6	224.4	14.3	1.000039
54500.0	101.2	-65.9			170.2	560.6	234.4	11.7	1.000038
55000.0	98.7	-65.9			166.0	560.5	269.3	8.4	1.000037
55500.0	96.3	-66.0			161.9	560.5	317.9	4.6	1.000036
56000.0	93.9	-66.0			158.0	560.4	3.8	3.3	1.000035
56500.0	91.6	-66.1			154.1	560.3	53.1	4.8	1.000034
57000.0	89.3	-66.1			150.3	560.3	86.5	6.6	1.000033
57500.0	87.2	-62.8			144.4	564.7	101.3	8.9	1.000032
58000.0	85.1	-58.9			138.3	569.9	117.3	10.9	1.000031
58500.0	83.0	-59.2			135.2	569.6	134.4	12.6	1.000030
59000.0	81.0	-59.6			132.2	569.0	143.3	14.5	1.000029
59500.0	79.1	-59.2			128.8	569.6	145.4	16.6	1.000029
60000.0	77.2	-58.8			125.5	570.1	150.9	17.9	1.000028
60500.0	75.4	-58.3			122.3	570.7	159.0	18.6	1.000027
61000.0	73.6	-57.9			119.2	571.2	167.3	18.9	1.000027
61500.0	71.9	-57.5			116.2	571.8	176.2	18.8	1.000026
62000.0	70.2	-57.1			113.2	572.4	165.0	18.6	1.000025
62500.0	68.5	-56.7			110.3	572.9	193.1	18.7	1.000025
63000.0	66.9	-56.2			107.5	573.5	200.8	19.0	1.000024
63500.0	65.3	-55.8			104.7	574.0	208.5	19.3	1.000023

STATION ALTITUDE 4285.00 FEET MSL
11 JULY 70 0255 HRS MDT
ASCENSION NO. 135

*STM SITE COORDINATES
-568858.00 FEET E
2592855.00 FEET N

TABLE XIX (Cont)

GEOMETRIC ALTITUDE MMSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS		WIND DATA		SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			DIR 28.8 DEG M OF TN	SPEED KNOTS				
6400.0	63.8	-55.4			102.1	574.6	214.1	18.4	1.000023		
6450.0	62.3	-55.0			99.4	575.2	216.9	16.4	1.000022		
6500.0	60.8	-54.6			96.9	575.7	219.7	13.6	1.000022		
6550.0	59.4	-54.4			94.6	576.0	219.7	11.4	1.000021		
6600.0	58.0	-54.1			92.3	576.2	207.6	10.0	1.000021		
6650.0	56.7	-53.9			90.1	576.5	195.4	8.5	1.000020		
6700.0	55.4	-53.7			87.9	576.8	183.3	7.1	1.000020		
6750.0	54.1	-53.5			85.8	577.1	168.1	7.3	1.000019		
6800.0	52.8	-53.3			83.7	577.3	152.8	7.6	1.000019		
6850.0	51.6	-53.1			81.7	577.6	138.8	7.9	1.000018		
6900.0	50.4	-52.9			79.7	577.9	137.9	8.9	1.000018		
6950.0	49.2	-52.7			77.8	578.2	137.0	9.8	1.000017		
7000.0	48.1	-52.5			75.9	578.4	134.4	11.5	1.000017		
7050.0	47.0	-52.2			74.1	578.7	129.6	14.0	1.000016		
7100.0	45.9	-52.0			72.3	579.0	124.9	16.5	1.000016		
7150.0	44.8	-51.8			70.6	579.3	124.3	19.0	1.000016		
7200.0	43.8	-51.6			68.9	579.6	124.8	21.7	1.000015		
7250.0	42.8	-51.4			67.2	579.8	125.3	24.3	1.000015		
7300.0	41.8	-51.2			65.6	580.1	126.2	26.8	1.000015		
7350.0	40.8	-51.0			64.0	580.4	127.0	29.3	1.000014		
7400.0	39.9	-50.8			62.5	580.7	129.2	29.9	1.000014		
7450.0	39.0	-50.6			61.0	580.9	132.6	28.8	1.000014		
7500.0	38.1	-50.3			59.5	581.2	136.1	27.6	1.000013		
7550.0	37.2	-50.1			58.1	581.5	138.1	25.0	1.000013		
7600.0	36.4	-49.9			56.7	581.8	139.9	22.2	1.000013		
7650.0	35.5	-49.7			55.4	582.1	141.7	19.5	1.000012		
7700.0	34.7	-49.5			54.1	582.4	143.2	17.5	1.000012		
7750.0	33.9	-49.3			52.8	582.6	144.7	15.5	1.000012		
7800.0	33.1	-49.0			51.5	582.9	144.3	14.1	1.000011		
7850.0	32.4	-48.8			50.3	583.2	142.9	13.0	1.000011		

STATION ALTITUDE 4285.00 FEET MSL
 11 JULY 70 0255 HRS MDT
 ASCENSION NO. 135
 UPPER AIR DATA
 1920090135
 GREEN RIVER
 WSTN SITE COORDINATES
 -568058.00 FEET E
 2592855.00 FEET N

TABLE XIX (Cont)

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
						DIR 28.8 DEG W OF TN	SPEED KNOTS	
79000.0	31.7	-48.6		49.1	583.5	140.7	12.2	1.000011
79500.0	30.9	-48.4		47.9	583.8	135.3	12.5	1.000011
80000.0	30.2	-48.2		46.8	584.0	129.9	12.9	1.000010
80500.0	29.5	-47.7		45.6	584.7	126.0	13.6	1.000010
81000.0	28.9	-47.0		44.5	585.5	122.4	14.4	1.000010
81500.0	28.2	-46.4		43.4	586.4			1.000010
82000.0	27.6	-45.7		42.3	587.2			1.000009
82500.0	27.0	-45.1		41.2	588.0			1.000009
83000.0	26.4	-44.4		40.2	588.9			1.000009
83500.0	25.8	-43.8		39.2	589.7			1.000009
84000.0	25.2	-43.1		38.2	590.5			1.000008

STATION ALTITUDE 4285.00 FEET MSL
11 JULY 70
ASCENSION NJ. 135 0255 HRS MDT

MANDATORY LEVELS
1920080135
GREEN RIVER

WSIM SITE COORDINATES
-568858.00 FEET E
2592855.00 FEET N

TABLE XX

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA		
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIR 28.8 DEG W OF TN	SPEED KNOTS	
850.0	5043.	22.2	10.0	46.		325.2	3.2	
800.0	6704.	18.9	7.1	46.		251.5	10.6	
750.0	8571.	14.8	4.1	48.		245.7	15.1	
700.0	10473.	10.5	0.8	51.		243.0	17.0	
650.0	12485.	5.9	-2.5	55.		240.5	17.8	
600.0	14015.	0.2	-4.3	72.		242.4	20.1	
550.0	16881.	-5.1	-8.2	79.		244.8	25.1	
500.0	19523.	-8.2	-16.1	53.		236.3	32.4	
450.0	21991.	-12.2	-31.8	18.		228.3	27.6	
400.0	24910.	-18.7	-32.3	29.		235.2	28.6	
350.0	28125.	-26.7	-35.9	42.		237.4	33.9	
300.0	31709.	-35.8	-53.7	14.**		229.8	38.8	
250.0	35770.	-45.8				231.6	46.9	
200.0	40556.	-52.8				227.5	36.0	
175.0	43348.	-58.1				237.8	38.5	
150.0	46502.	-62.4				214.8	19.4	
125.0	50147.	-65.9				223.7	20.2	
100.0	54594.	-65.9				243.7	10.3	
80.0	59091.	-59.4				144.4	15.6	
70.0	61849.	-57.0				185.5	18.6	
60.0	65070.	-54.5				221.3	12.3	
50.0	68917.	-52.8				137.6	9.1	
40.0	73663.	-50.8				128.7	30.1	
30.0	79848.	-48.1				128.4	13.0	
25.0	83836.	-42.9						

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

STATION ALTITUDE 4051.00 FEET MSL
11 JULY 70
ASCENSION NO. 361

SIGNIFICANT LEVEL DATA
1920030361
JALLEN

STATION ALTITUDE 4051.00 FEET MSL
11 JULY 70
ASCENSION NO. 361

WSTN SITE COORDINATES
451560.00 FEET E
465177.00 FEET N

TABLE XXI

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
877.0	22.7	4.7	31.0
867.0	26.5	7.6	30.0
807.0	23.0	4.1	28.0
700.0	13.8	-3.3	30.0
672.0	10.6	-1.1	44.0
611.0	4.5	-5.9	47.0
540.0	-2.8	-12.9	46.0
521.0	-5.0	-21.2	27.0
449.0	-13.0	-30.4	23.0
422.0	-15.0	-25.7	42.0
424.0	-14.8	-35.8	15.0
400.0	-17.8	-36.5	18.0
383.0	-19.5	-37.4	19.0
345.0	-26.0	-35.3	44.0
331.0	-28.7	-43.9	24.0
297.0	-34.8	-50.0	20.0
252.0	-43.8		
204.0	-55.5		
169.0	-62.9		
151.0	-65.2		
143.0	-68.0		
124.0	-70.9		
100.0	-59.4		
83.0	-64.7		
69.0	-64.2		
58.0	-57.1		
35.0	-52.9		
23.0	-44.9		
10.0	-42.9		

UPPER AIR DATA
1920030361
JALLEN

STATION ALTITUDE 4051.00 FEET MSL
11 JULY 70 0240 HRS MDT
ASCENSION NJ. 361

WSTN SITE COORDINATES
451500.00 FEET E
465177.00 FEET N

TABLE XXII

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUMID. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE					DIRECTION DEGREES(TN)	SPEED KNOTS	
4051.0	677.0	22.7	4.7	31.0	1029.0	671.0	0.	0.	0.	1.000266
4500.0	663.4	26.3	7.4	29.9	1030.0	675.4	354.6	354.6	0.6XX	1.000266
5000.0	648.6	25.6	6.5	29.4	985.3	674.5	348.7	348.7	1.3XX	1.000261
5500.0	635.9	24.9	5.7	28.9	970.8	673.7	342.7	342.7	1.9XX	1.000255
6000.0	619.6	24.2	4.8	28.4	956.5	672.8	336.7	336.7	2.6XX	1.000250
6500.0	605.5	23.5	4.0	28.1	942.5	671.9	330.8	330.8	3.2XX	1.000245
7000.0	791.3	22.2	3.5	29.4	929.6	670.5	322.0	322.0	3.5	1.000241
7500.0	777.4	21.0	3.1	30.6	917.3	669.1	305.7	305.7	2.7	1.000236
8000.0	763.7	19.8	2.6	31.9	903.0	667.7	291.0	291.0	2.7	1.000234
8500.0	750.3	18.6	2.1	33.1	892.8	666.2	277.4	277.4	3.2	1.000231
9000.0	737.1	17.4	1.5	34.4	880.9	664.8	278.3	278.3	4.2	1.000227
9500.0	724.1	16.1	0.9	35.5	869.1	663.4	281.2	281.2	5.3	1.000223
10000.0	711.4	14.9	0.3	36.9	857.5	662.0	280.6	280.6	6.6	1.000220
10500.0	698.8	13.7	-0.3	38.2	845.2	660.5	288.0	288.0	7.8	1.000216
11000.0	686.2	12.2	-0.6	40.9	835.1	658.9	282.6	282.6	9.1	1.000213
11500.0	673.9	10.8	-1.1	43.5	824.2	657.2	273.3	273.3	9.9	1.000210
12000.0	661.6	9.6	-1.9	44.5	812.8	655.7	261.8	261.8	10.4	1.000206
12500.0	649.5	8.4	-2.6	45.1	801.4	654.3	248.3	248.3	11.2	1.000202
13000.0	637.6	7.2	-3.7	45.7	790.2	652.9	235.2	235.2	11.7	1.000198
13500.0	626.0	6.1	-4.6	46.2	779.1	651.5	223.1	223.1	11.6	1.000195
14000.0	614.5	4.9	-5.6	46.8	768.2	650.1	213.6	213.6	12.3	1.000191
14500.0	603.1	3.7	-6.6	46.9	757.1	648.7	206.6	206.6	13.3	1.000187
15000.0	591.8	2.6	-7.7	46.7	745.1	647.3	201.3	201.3	13.7	1.000183
15500.0	580.7	1.5	-8.7	46.3	733.2	646.0	196.7	196.7	13.9	1.000180
16000.0	569.8	0.4	-9.8	46.4	724.4	644.6	195.3	195.3	13.5	1.000176
16500.0	559.1	-0.7	-10.9	46.3	713.9	643.2	194.2	194.2	13.0	1.000173
17000.0	548.7	-1.9	-12.0	46.1	703.4	641.9	192.2	192.2	11.9	1.000169
17500.0	538.3	-3.0	-13.5	44.4	693.2	640.5	190.1	190.1	10.8	1.000166
18000.0	528.1	-4.2	-17.7	34.2	683.3	639.0	187.0	187.0	10.5	1.000160
18500.0	517.9	-5.3	-21.5	26.3	673.3	637.5	183.8	183.8	10.4	1.000156

XX WIND DATA MAY BE INVALID DUE TO MISSING RAW ALTIMETER AND ELEVATION ANGLES.

STATION ALTITUDE 4051.00 FEET MSL
11 JULY 70
ASCENSION NO. 361

0240 HRS MDT

UPPER AIR DATA

192033J361

JALLEN

TABLE XXII (Cont)

MSIN SITE COORDINATES
451560.00 FEET E
465177.00 FEET N

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
19000.0	507.8	-0.5	26.3	663.0	536.1	180.6	10.5	1.000153
19500.0	498.0	-7.6	25.8	652.9	534.7	178.5	11.1	1.000150
20000.0	488.3	-0.8	25.3	643.0	533.3	177.3	12.2	1.000148
20500.0	478.8	-9.9	24.7	633.3	532.0	179.9	11.8	1.000145
21000.0	469.4	-11.0	24.2	623.6	530.6	183.3	11.1	1.000142
21500.0	460.3	-12.2	23.7	614.2	529.2	186.8	11.5	1.000140
22000.0	451.3	-13.3	23.1	604.9	527.8	191.3	12.0	1.000138
22500.0	442.4	-14.4	30.3	595.3	526.5	198.5	13.0	1.000136
23000.0	433.6	-15.4	40.2	585.8	525.3	201.8	14.3	1.000135
23500.0	425.0	-14.9	18.4	573.2	525.8	200.6	16.1	1.000130
24000.0	416.5	-15.7	15.9	563.5	524.8	197.7	17.8	1.000127
24500.0	408.2	-16.8	17.0	554.5	523.6	194.0	19.5	1.000125
25000.0	400.0	-17.8	18.0	545.5	522.3	187.7	21.0	1.000123
25500.0	391.9	-18.0	18.5	535.5	521.3	182.1	22.5	1.000121
26000.0	384.0	-19.4	18.9	527.1	520.3	179.9	24.1	1.000119
26500.0	376.2	-20.7	23.3	519.1	518.7	179.9	24.9	1.000117
27000.0	368.4	-22.1	28.3	511.2	517.0	182.6	25.2	1.000116
27500.0	360.9	-23.5	33.2	503.6	515.3	186.1	25.1	1.000114
28000.0	353.5	-25.0	38.2	495.0	513.5	188.9	24.4	1.000112
28500.0	346.2	-26.4	43.2	488.0	511.8	191.7	24.3	1.000111
29000.0	339.0	-27.5	34.7	480.7	510.4	194.9	24.7	1.000108
29500.0	331.9	-28.0	23.5	472.7	509.0	196.7	25.2	1.000106
30000.0	324.9	-29.8	21.7	465.0	507.5	197.4	25.7	1.000104
30500.0	318.0	-31.0	21.3	457.4	506.0	197.8	26.7	1.000102
31000.0	311.2	-32.2	20.9	449.9	504.5	198.1	27.8	1.000101
31500.0	304.6	-33.4	20.5	442.5	503.0	198.0	29.5	1.000099
32000.0	298.1	-34.6	20.1	435.4	501.4	197.8	31.3	1.000097
32500.0	291.6	-35.8	17.8**	428.1	500.0	197.5	31.3	1.000096
33000.0	285.2	-37.0	15.1**	420.8	500.0	197.4	30.9	1.000094
33500.0	279.0	-38.2	12.4**	413.7	500.0	196.0	31.0	1.000092

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

STATION ALTITUDE 4051.00 FEET MSL
11 JULY 70 0240 HRS MDT
ASCENSION NO. 361

UPPER AIR DATA
1920J3J361
JALLEN

451 SITE COORDINATES
451200.00 FEET E
465177.00 FEET N

TABLE XXII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNUTS	WIND DATA		INDEX JF REFRACTION
						DIRECTION DEGREES (TN)	SPEED KNUTS	
34000.0	272.8	-39.4	9.7**	405.8	595.3	194.4	31.2	1.000091
34500.0	266.9	-40.7	7.0**	399.9	593.7	192.5	31.0	1.000089
35000.0	261.0	-41.9	4.3**	393.2	592.2	190.5	30.8	1.000088
35500.0	255.3	-43.1	1.5**	386.6	590.6	189.2	33.4	1.000086
36000.0	249.6	-44.3		380.0	589.0	187.8	35.9	1.000085
36500.0	243.9	-45.6		373.4	587.3	188.0	36.7	1.000083
37000.0	238.3	-46.9		365.9	585.7	188.1	37.5	1.000082
37500.0	232.8	-48.2		358.6	584.0	188.4	37.5	1.000080
38000.0	227.5	-49.5		354.3	582.4	188.8	37.5	1.000079
38500.0	222.3	-50.8		348.2	580.7	189.9	36.0	1.000078
39000.0	217.2	-52.0		342.2	579.0	191.0	34.5	1.000076
39500.0	212.2	-53.3		336.3	577.3	193.5	32.7	1.000075
40000.0	207.3	-54.6		330.5	575.6	196.0	31.0	1.000074
40500.0	202.5	-55.8		324.6	574.1	197.9	28.7	1.000072
41000.0	197.7	-56.7		318.2	572.8	199.7	26.4	1.000071
41500.0	192.9	-57.7		312.0	571.5	200.8	23.4	1.000069
42000.0	188.3	-58.6		305.9	570.3	201.8	20.4	1.000068
42500.0	183.8	-59.6		299.9	569.0	199.8	17.1	1.000067
43000.0	179.4	-60.6		294.0	567.7	196.4	13.8	1.000065
43500.0	175.1	-61.5		288.3	566.5	187.5	9.6	1.000064
44000.0	170.9	-62.5		282.5	565.2	176.4	5.2	1.000063
44500.0	166.6	-63.2		276.8	564.2	140.6	4.8	1.000062
45000.0	162.7	-63.8		270.7	563.4	98.0	5.6	1.000060
45500.0	158.7	-64.3		264.8	562.7	99.3	7.6	1.000059
46000.0	154.8	-64.9		259.1	561.9	106.4	9.8	1.000058
46500.0	151.0	-65.5		253.4	561.1	115.5	11.4	1.000056
47000.0	147.3	-66.0		248.5	559.6	125.0	12.9	1.000055
47500.0	143.7	-67.8		243.7	558.0	133.3	13.7	1.000054
48000.0	140.1	-68.4		238.4	557.1	140.5	14.0	1.000053
48500.0	136.5	-68.9		233.0	556.4	146.3	14.0	1.000052

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

STATION ALTITUDE 4051.00 FEET MSL
 11 JULY 70
 ASCENSION NJ. 361

UPPER AIR DATA
 1920030361
 JALLEN

0240 HRS MDT

TABLE XXII (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 DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION	MSM SITE COORDINATES 451560.00 FEET E 465177.00 FEET N
49000.0	133.1	-69.5		227.7	555.7	147.8	13.1	1.000051	
49500.0	129.8	-70.0		222.5	555.0	150.3	12.1	1.000050	
50000.0	126.5	-70.5		217.5	554.3	159.3	8.9	1.000048	
50500.0	123.3	-70.9		212.4	553.8	188.2	5.6	1.000047	
51000.0	120.2	-70.7		205.9	554.0	202.8	4.4	1.000046	
51500.0	117.2	-70.5		201.5	554.3	217.1	3.2	1.000045	
52000.0	114.3	-70.3		196.3	554.5	212.7	2.8	1.000044	
52500.0	111.4	-70.2		191.2	554.8	201.1	2.6	1.000043	
53000.0	108.0	-70.0		185.2	555.0	185.1	3.6	1.000041	
53500.0	105.6	-69.8		181.3	555.3	159.3	7.5	1.000040	
54000.0	103.2	-69.0		175.6	555.5	133.5	11.4	1.000039	
54500.0	100.6	-69.4		172.0	555.7	127.6	13.7	1.000038	
55000.0	98.1	-68.9		167.3	556.5	128.0	15.6	1.000037	
55500.0	95.0	-68.3		162.7	557.3	125.3	16.2	1.000036	
56000.0	93.3	-67.6		158.1	558.2	114.8	13.6	1.000035	
56500.0	91.0	-67.0		153.7	559.1	104.2	11.0	1.000034	
57000.0	88.7	-66.4		149.5	559.9	93.8	10.7	1.000033	
57500.0	86.5	-65.7		145.3	560.8	83.4	10.7	1.000032	
58000.0	84.4	-65.1		141.3	561.6	75.9	11.0	1.000031	
58500.0	82.3	-64.7		137.5	562.2	71.1	11.7	1.000031	
59000.0	80.3	-64.6		134.1	562.3	68.0	12.6	1.000030	
59500.0	78.3	-64.5		130.3	562.4	71.9	14.3	1.000029	
60000.0	76.4	-64.5		127.5	562.5	75.8	16.1	1.000028	
60500.0	74.5	-64.4		124.4	562.6	79.5	16.8	1.000028	
61000.0	72.7	-64.3		121.3	562.7	83.2	17.4	1.000027	
61500.0	70.9	-64.3		118.3	562.8	84.5	19.0	1.000026	
62000.0	69.2	-64.2		115.3	562.8	84.2	21.2	1.000026	
62500.0	67.5	-63.3		112.1	564.1	85.5	23.2	1.000025	
63000.0	65.9	-62.3		108.9	565.4	93.0	24.7	1.000024	
63500.0	64.3	-61.3		105.8	566.7	100.5	26.1	1.000024	

STATION ALTITUDE 4051.00 FEET MSL

11 JULY 70

ASCENSION NJ. 301

UPPER AIR DATA

1920030301

JALLEN

WSTM SITE COORDINATES

451560.00 FEET E

465177.00 FEET N

TABLE XXII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/SEC	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
64000.0	62.8	-60.3		1.02.7	568.1	102.3	26.7	1.000023
64500.0	61.2	-59.3		1.02.8	569.4	100.5	26.6	1.000022
65000.0	59.8	-58.3		1.02.9	570.7	98.6	26.5	1.000022
65500.0	58.3	-57.3		1.03.2	572.0	99.0	27.1	1.000021
66000.0	57.0	-56.9		1.03.8	572.5	99.7	27.7	1.000020
66500.0	55.6	-56.8		1.04.6	572.8	99.8	28.4	1.000020
67000.0	54.3	-56.6		1.05.4	573.1	96.5	29.9	1.000019
67500.0	53.1	-56.4		1.06.3	573.3	93.3	31.3	1.000019
68000.0	51.8	-56.2		1.07.2	573.6	92.4	32.8	1.000019
68500.0	50.6	-56.0		1.08.1	573.8	94.2	34.3	1.000018
69000.0	49.4	-55.8		1.09.2	574.1	96.1	35.7	1.000018
69500.0	48.3	-55.6		1.10.3	574.4	97.5	34.3	1.000017
70000.0	47.1	-55.4		1.11.4	574.6	98.9	32.1	1.000017
70500.0	46.0	-55.2		1.12.6	574.9	100.0	29.8	1.000016
71000.0	44.9	-55.0		1.13.8	575.1	99.9	27.5	1.000016
71500.0	43.9	-54.8		1.15.0	575.4	99.8	24.7	1.000016
72000.0	42.9	-54.6		1.16.3	575.7	96.3	22.8	1.000015
72500.0	41.9	-54.4		1.17.7	575.9	89.2	21.5	1.000015
73000.0	40.9	-54.2		1.19.1	576.2	82.1	20.2	1.000014
73500.0	39.9	-54.0		1.20.5	576.4	76.7	21.5	1.000014
74000.0	39.0	-53.8		1.22.0	576.7	76.1	23.3	1.000014
74500.0	38.1	-53.6		1.23.6	577.0	74.3	25.0	1.000013
75000.0	37.2	-53.4		1.25.3	577.2	70.7	26.7	1.000013
75500.0	36.3	-53.2		1.27.1	577.5	79.0	28.3	1.000013
76000.0	35.5	-53.0		1.29.0	577.7	82.0	29.5	1.000012
76500.0	34.6	-52.7		1.31.0	578.1	85.7	30.4	1.000012
77000.0	33.9	-52.3		1.33.1	578.7	89.5	31.2	1.000012
77500.0	33.1	-51.8		1.35.3	579.3	91.0	31.8	1.000012
78000.0	32.3	-51.4		1.37.6	579.8	91.4	32.2	1.000011
78500.0	31.6	-51.0		1.40.0	580.4	91.9	32.7	1.000011

STATION ALTITUDE 4051.00 FEET MSL
 11 JULY 70 0240 HRS MDT
 ASCENSION NO. 361
 UPPER AIR DATA
 192033J361
 JALLEN
 WSTM SITE COORDINATES
 451560.00 FEET E
 465177.00 FEET N

TABLE XXII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
79000.0	30.9	-50.5	-22.3	48.3	581.0	91.6	32.2	1.000011
79500.0	30.2	-50.1	-22.3	47.1	581.6	91.2	31.5	1.000010
80000.0	29.5	-49.6	-22.3	46.0	582.1	90.6	31.0	1.000010
80500.0	28.8	-49.2	-22.3	44.8	582.7	87.4	32.9	1.000010
81000.0	28.2	-48.8	-22.3	43.7	583.3	84.2	34.8	1.000010
81500.0	27.5	-48.3	-22.3	42.6	583.9	82.4	36.3	1.000009
82000.0	26.9	-47.9	-22.3	41.5	584.4	84.9	37.0	1.000009
82500.0	26.3	-47.4	-22.3	40.5	585.0	87.3	37.6	1.000009
83000.0	25.7	-47.0	-22.3	39.6	585.6	88.6	38.8	1.000009
83500.0	25.1	-46.6	-22.3	38.6	586.1	88.3	40.8	1.000009
84000.0	24.5	-46.1	-22.3	37.6	586.7	88.1	42.8	1.000008
84500.0	24.0	-45.7	-22.3	36.7	587.3	89.0	43.1	1.000008
85000.0	23.4	-45.2	-22.3	35.8	587.8	90.6	42.2	1.000008
85500.0	22.9	-44.9	-22.3	34.9	588.3	92.3	41.3	1.000008
86000.0	22.4	-44.7	-22.3	34.1	588.5	92.7	41.2	1.000008
86500.0	21.9	-44.6	-22.3	33.4	588.6	92.5	41.4	1.000007
87000.0	21.4	-44.5	-22.3	32.6	588.8	92.4	41.7	1.000007
87500.0	20.9	-44.4	-22.3	31.9	588.9	92.3	41.1	1.000007
88000.0	20.5	-44.3	-22.3	31.1	589.1	92.3	40.1	1.000007
88500.0	20.0	-44.1	-22.3	30.4	589.3	92.3	39.0	1.000007
89000.0	19.6	-44.0	-22.3	29.7	589.4	93.0	38.6	1.000007
89500.0	19.1	-43.9	-22.3	29.1	589.6	94.2	38.5	1.000006
90000.0	18.7	-43.8	-22.3	28.4	589.7	95.5	38.5	1.000006
90500.0	18.3	-43.6	-22.3	27.7	589.9			1.000006
91000.0	17.9	-43.5	-22.3	27.1	590.1			1.000006
91500.0	17.5	-43.4	-22.3	26.5	590.2			1.000006
92000.0	17.1	-43.3	-22.3	25.9	590.4			1.000006
92500.0	16.7	-43.1	-22.3	25.3	590.5			1.000006
93000.0	16.3	-43.0	-22.3	24.7	590.7			1.000005

STATION ALTITUDE 4051.00 FEET MSL

11 JULY 70

ASCENSION NO. 361

0240 HRS MDT

MANDATORY LEVELS

1920330361

JALLEN

WSTM SITE COORDINATES

451500.00 FEET E

465177.00 FEET N

TABLE XXIII

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4952.	25.7	6.6	29.	349.2	1.2XX
800.0	6093.	23.0	3.9	29.	328.4	3.5XX
750.0	8522.	18.6	2.1	33.	276.7	3.3
700.0	10447.	13.8	-0.3	36.	288.5	7.7
650.0	12477.	8.5	-2.8	45.	248.8	11.1
600.0	14629.	3.4	-6.9	47.	204.6	13.6
550.0	16925.	-1.7	-11.5	46.	192.4	12.0
500.0	19388.	-7.4	-23.7	26.	178.7	10.9
450.0	22049.	-13.5	-30.3	23.	192.3	12.1
400.0	24988.	-17.8	-36.5	18.	187.7	21.0
350.0	28199.	-25.6	-35.3	41.	190.3	24.1
300.0	31805.	-34.2	-49.4	20.	197.7	30.7
250.0	35901.	-44.2			187.9	35.7
200.0	40676.	-56.3			198.8	27.5
175.0	43427.	-61.5			187.1	9.5
150.0	46528.	-65.8			118.0	11.8
125.0	50110.	-70.7			178.0	7.4
100.0	54402.	-69.4			127.7	14.1
80.0	58890.	-64.8			68.4	12.8
70.0	61569.	-64.2			84.4	20.1
60.0	64702.	-58.5			99.0	26.6
50.0	68494.	-55.9			95.0	34.9
40.0	73174.	-54.0			79.1	21.3
30.0	79277.	-50.0			91.1	31.4
25.0	83218.	-46.5			88.3	41.0
20.0	88112.	-44.1			92.3	39.1

XX WIND DATA MAY BE INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

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DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Electronics Command Ft. Monmouth, New Jersey		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE Athena V-123-D, Flight 122		
4. DESCRIPTIVE NOTES (Type of report and inclusion dates)		
5. AUTHOR(S) (First name, middle initial, last name) John M. Sharpe		
6. REPORT DATE August 1970	7. TOTAL NO. OF PAGES 63	7b. NO. OF REFS 4
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) DR-540	
a. PROJECT NO.		
c. DA Task 1T665702D127-02	8b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
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11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY U. S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico	
13. ABSTRACT Meteorological data gathered for the launching of Athena Flight 122, Vehicle V-123-D, are presented for the Air Force Space and Missile Systems Organization and for ballistic studies. The data are presented in tabular and figure form.		

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14.	KEY WORDS	LINK A		LINK B		LINK C	
		ROLE	WT	ROLE	WT	ROLE	WT
	1. Ballistics						
	2. Meteorology						
	3. Wind						

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