US ARMY ELECTRONICS RESEARCH & DEVELOPMENT ACTIVITY

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METEOROLOGICAL DATA REPORT

AEROBEE NASA 4.63 GS (S/N NASA 133)
(17 March 1965)

BY

MARJORIE McLARDIE HOIDALE

ERDA-295

APRIL 1965

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WHITE SANDS MISSILE RANGE NEW MEXICO

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DA Task 1-V-6-50212-D-127-02

METEOROLOGICAL SUPPORT DIVISION
ENVIRONMENTAL SCIENCES DIRECTORATE
U. S. ARMY ELECTRONICS RESEARCH AND DEVELOPMENT ACTIVITY
WHITE SANDS MISSILE RANGE
NEW MEXICO

ABSTRACT

2311

Meteorological data gathered for the launching of Aerobee NASA 4.63 GS (S/N NASA 133) are presented for the National Aeronautics and Space Administration and for ballistic studies. The data appear, along with calculated ballistic data, in Appendixes A, B, C and D.

Author

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INTRODUCTION

Aerobee NASA 4.63 GS (S/N NASA 133) was launched by Naval Ordnance Missile Test Facility personnel, White Sands Missile Range, New Mexico, at 0810 hours MST, 17 March 1965.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, U. S. Army Electronics Research and Development Activity, White Sands Missile Range, New Mexico. The impact predictors for this firing were Gordon L. Dunaway and Marjorie M. Hoidale.

DISCUSSION

Wind data for the first 4,000 feet above the surface were obtained from a Double-Theodolite Wind Velocity Computer System [1]. Balloons released at the launch site were observed and tracked from a 2,000-foot baseline. Continuous angular data were transmitted from two electrically instrumented theodolites to a computer where the data were reduced to obtain a velocity-vs-height relationship. The computer output drives two recorders which trace north-south and east-west components on a specially designed wind velocity computer ballistic chart. It is possible to read directly from the chart both the mean wind component values and the mean ballistic wind components in the various ballistic layers.

Temperature, pressure and humidity data, along with upper wind data from 4,000 to approximately 75,000 feet above the surface, were obtained from standard rawinsonde operations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Data appearing in Appendix D are based on the E. L. Walter [2] theory. The "Predicted Impact" includes, where applicable, an adjustment of impact based on the experience of the impact predictor and the forecast of firing time wind conditions.

---

[1]. "Double-Theodolite Wind Velocity Computer," UNCLASSIFIED, U. S. Army Signal Research and Development Laboratory, Fort Monmouth, New Jersey, July 1959.

[2]. Walter, E. L., "Six-Variable Ballistic Model for a Rocket," Missile Meteorology Division, U. S. Army Signal Missile Support Agency, White Sands Missile Range, New Mexico, June 1962.

APPENDIX A

CALCULATED ROCKET PERFORMANCE VALUES

AND

TABLE OF BALLISTIC FACTORS

AEROBEE NASA 4.63 GS (S/N NASA 133)

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APPENDIX A

TABLE A-I

CALCULATED ROCKET PERFORMANCE VALUES

AEROBEE NASA 4.63 GS (S/N NASA 133)

PAYLOAD 337.3 Pounds*

UNIT WIND EFFECT	Surface to 2,000 FT	2.31 Miles/MPH (3)
	2,000 to 100,000 FT	4.16 Miles/MPH
TOWER TILT EFFECT		16.81 Miles/Degree
BURNOUT:		
	Velocity	5,290 Feet/Second
	Altitude	120,437 Feet MSL
	Time	51.8 Seconds
PEAK:		
	Altitude	106.7 Miles MSL
	Time	219 Seconds
TOTAL TIME OF FLIGHT		442 Seconds
CORIOLIS EFFECT (West)		4.82 Miles

*Includes Nosecone Weight

(3) An empirical correction has been made to the unit wind effect from 143 to 2,000 feet. This correction was determined from statistical studies.

Dunaway, G. L., "An Empirical Technique for Improving Aerobee-Hi Impact Predictions," Meteorological Support Division, U. S. Army Electronics Research and Development Activity, White Sands Missile Range, New Mexico, May 1964.

APPENDIX A

TABLE A-II

TABLE OF BALLISTIC FACTORS

AEROBEE NASA 4.63 GS (S/N NASA 133)

HEIGHT INTERVAL FEET	BALLISTIC FACTOR	HEIGHT INTERVAL FEET	BALLISTIC FACTOR
143 - 200	.100	5,000 - 10,000	.078
200 - 300	.130	10,000 - 15,000	.042
300 - 400	.102	15,000 - 20,000	.030
400 - 600	.150	20,000 - 25,000	.020
600 - 800	.078	25,000 - 30,000	.017
800 - 1,000	.012	30,000 - 35,000	.010
1,000 - 1,200	.018	35,000 - 40,000	.010
1,200 - 1,400	.013	40,000 - 45,000	.006
1,400 - 1,600	.012	45,000 - 50,000	.009
1,600 - 1,800	.011	50,000 - 60,000	.010
1,800 - 2,000	.010	60,000 - 70,000	.007
2,000 - 3,000	.052	70,000 - 80,000	.006
3,000 - 4,000	.040	80,000 - 90,000	.003
4,000 - 5,000	.022	90,000 - 100,000	.002

APPENDIX B

ANEMOMETER RECORDINGS OF WIND SPEED AND DIRECTION

AND

PILOT-BALLOON-MEASURED WIND DATA FROM 143 to 4,000 FEET

AEROBEE NASA 4.63 GS (S/N NASA 133)

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APPENDIX B

TABLE B-I

ANEMOMETER RECORDINGS OF WIND SPEED AND DIRECTION

AEROBEE NASA 4.63 GS (S/N NASA 133)

TIME (MINUTES)	WIND SPEED (KNOTS)	DIRECTION (DEGREES)
T - 15	2.5	250
T - 10	0.5	266
T - 5	2.0	220
T - Time	2.0	235
T + 5	1.5	238
T + 10	1.5	310
T + 15	1.0	312

NOTE: Wind speeds and directions are 5-minute averages centered at indicated times.

TABLE B-II

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.63 GS (S/N NASA 133)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	1		2		3		4	
RELEASE TIME (MST)	0400		0430		0500		0530	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	0.5S	4.0W	0.0	0.0	1.0N	17.0W	0.0	16.5W
250 - 400	0.5	4.0	0.0	1.0E	4.0	22.0	1.0N	21.0
400 - 600	0.5	8.0	0.0	2.0	3.0	25.0	1.5	28.0
600 - 800	0.5	8.0	1.0N	14.0W	3.5	28.0	2.0	32.0
800 - 1,200	0.0	15.0	6.0	24.0	3.5	28.0	1.0	35.0
1,200 - 1,600	0.0	30.0	13.5	15.0	10.5	19.0	8.0	33.0
1,600 - 2,000	0.5S	30.0	10.0	18.0	9.5	18.0	15.0	30.0
2,000 - 2,500	0.5N	32.0	11.5	16.0	12.5	17.0	20.0	27.0
2,500 - 3,000	2.0	32.0	18.0	13.0	15.0	26.0	20.0	32.0
3,000 - 3,500	1.5	40.0	19.0	14.0	17.0	32.0	25.0	36.5
3,500 - 4,000	1.5	44.0	22.0	32.0	18.0	35.0	24.0	36.0

TABLE B-II (Cont)

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.63 GS (S/N NASA 133)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	5		6		7		8	
RELEASE TIME (MST)	0545		0608		0630		0654	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	12.0N	15.0W	0.0	7.0W	0.5S	4.5E	3.0S	6.0W
250 - 400	10.0	16.0	0.0	10.0	3.0	1.5	2.5	5.5
400 - 600	8.5	16.0	0.0	14.0	3.5	6.0W	1.0	8.0
600 - 800	9.0	17.0	1.0S	23.0	0.5	13.5	1.0N	12.5
800 - 1,200	10.0	18.0	1.0	29.0	2.0N	22.5	3.5	17.5
1,200 - 1,600	13.5	24.0	0.0	34.0	0.5	30.0	5.5	19.5
1,600 - 2,000	17.0	28.0	1.0S	46.0	0.5S	45.0	8.5	21.0
2,000 - 2,500	18.5	27.0	*M	M	M	M	11.0	21.0
2,500 - 3,000	18.0	23.0	M	M	M	M	12.0	18.0
3,000 - 3,500	18.0	21.0	M	M	M	M	11.5	14.0
3,500 - 4,000	18.0	20.0	M	M	M	M	10.5	13.5

*M = Missing

TABLE B-II (Cont)

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.63 GS (S/N NASA 133)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	9		10		11		12	
RELEASE TIME (MST)	0715		0730		0740		0750	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	0.0	6.0W	0.0	6.0W	0.0	7.5W	0.0	9.0W
250 - 400	0.0	7.5	0.5S	7.5	0.0	9.0	0.0	9.0
400 - 600	0.5N	11.5	0.5	9.0	2.0N	10.5	0.0	10.5
600 - 800	1.0	13.5	0.5	13.5	4.5	16.5	0.0	13.5
800 - 1,200	4.0	18.0	0.0	18.0	3.5	19.5	1.0N	19.5
1,200 - 1,600	8.0	19.0	1.0N	24.0	2.5	22.5	4.5	27.0
1,600 - 2,000	12.5	21.0	4.5	24.0	7.5	21.0	6.5	22.5
2,000 - 2,500	12.5	21.0	9.0	33.0	7.5	21.0	8.3	16.5
2,500 - 3,000	14.5	15.0	13.0	21.0	9.5	21.0	6.2	19.5
3,000 - 3,500	15.0	25.5	15.5	9.0	10.0	15.0	7.5	15.0
3,500 - 4,000	* M	M	14.0	9.0	7.0	13.5	5.5	9.0

*M = Missing

TABLE B-II (Cont)

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.63 GS (S/N NASA 133)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	13		14					
RELEASE TIME (MST)	0803		0812					
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	0.0	4.5W	0.5S	3.0E				
250 - 400	0.5S	3.0	1.5	3.0W				
400 - 600	0.5	6.5	0.0	7.5				
600 - 800	0.5	12.0	1.0N	10.5				
800 - 1,200	0.5	18.0	0.5S	19.0				
1,200 - 1,600	2.0N	24.0	1.0N	24.0				
1,600 - 2,000	5.0	22.5	6.5	25.5				
2,000 - 2,500	5.5	19.5	10.5	19.0				
2,500 - 3,000	7.5	18.0	7.5	15.0				
3,000 - 3,500	7.5	7.5	8.0	12.0				
3,500 - 4,000	7.0	10.5	9.0	15.0				

APPENDIX C

TABLES OF UPPER AIR DATA

AEROBEE NASA 4.63 GS (S/N NASA 133)

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APPENDIX C

TABLE C-I

UPPER AIR DATA

AEROBEE NASA 4.63 GS (S/N NASA 133)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN KNOTS

RELEASE NO.	1	
RELEASE TIME (MST)	0700	
LAYERS IN FEET	N-S	E-W
4,000 - 5,000	13.0N	11.0W
5,000 - 10,000	18.5	22.0
10,000 - 15,000	13.0	22.5
15,000 - 20,000	13.0	22.5

APPENDIX C

TABLE C-II

UPPER AIR DATA

AEROBEE NASA 4.63 GS (S/N NASA 133)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN KNOTS

RELEASE NO.	1		2		3	
RELEASE TIME (MST)	0200		0430		0810	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W
4,000 - 5,000	11.5N	20.0W	18.0N	21.5W	14.0N	14.0W
5,000 - 10,000	16.5	20.0	24.0	28.5	19.0	24.0
10,000 - 15,000	15.0	26.0	13.5	23.5	12.5	24.5
15,000 - 20,000	19.0	11.0	13.5	16.0	10.5	22.5
20,000 - 25,000	20.5	3.5	14.5	8.5	6.0	10.5
25,000 - 30,000	15.0	26.0	14.5	17.5	8.0	15.0
30,000 - 35,000	0.0	61.0	8.0	46.5	0.5S	39.0
35,000 - 40,000	23.5S	65.0	13.0	74.0	13.0	70.0
40,000 - 45,000	12.0	71.0	24.0	66.5	13.0	67.5
45,000 - 50,000	10.0	56.0	9.5	55.0	13.0	47.0
50,000 - 60,000	14.5	40.5	7.0	39.5	11.0	41.5
60,000 - 70,000	0.0	21.0	0.0	21.0	4.5	23.5
70,000 - 80,000	4.5S	12.0	2.5S	13.0	4.5	21.5
80,000 - 90,000	5.5N	30.5	4.0N	21.5	3.5	19.0
90,000 - 100,000	5.5S	30.5	6.5S	36.5	2.0	34.5

TABLE C-III
UPPER AIR DATA
3907601
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0200 HRS MST
ASCENSION NO. 216

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	876.7	6.4	-1.5	57.0	1090.1	651.8	330.0	12.0	1.000269
5000.0	844.6	8.1	-5.9	36.7	1044.5	653.6	315.1	14.8	1.000252
5500.0	829.1	7.2	-7.3	34.9	1028.6	652.5	307.7	16.2	1.000246
6000.0	813.9	6.4	-8.7	33.1	1013.0	651.5	302.5	17.3	1.000241
6500.0	798.9	5.5	-10.2	31.4	997.5	650.4	305.3	17.4	1.000236
7000.0	784.1	4.6	-11.7	29.6	982.3	649.4	306.8	18.2	1.000231
7500.0	769.6	3.8	-13.2	27.8	967.2	648.3	306.9	19.8	1.000226
8000.0	755.3	2.9	-14.8	26.0	952.3	647.3	307.8	21.7	1.000222
8500.0	741.2	2.0	-16.4	24.2	937.6	646.2	309.4	23.9	1.000217
9000.0	727.3	1.2	-18.1	22.3	923.0	645.2	310.6	25.8	1.000213
9500.0	713.6	0.3	-19.8	20.5	908.7	644.1	311.4	27.4	1.000209
10000.0	700.2	-0.6	-21.6	18.7	894.5	643.0	312.2	29.0	1.000205
10500.0	686.9	-1.5	-23.4	17.0	880.6	641.9	312.7	29.6	1.000201
11000.0	673.9	-2.7	-24.3	17.1	867.6	640.6	313.2	30.3	1.000198
11500.0	661.0	-3.8	-25.2	17.2	854.7	639.2	312.1	29.7	1.000195
12000.0	648.4	-5.0	-26.1	17.4	842.0	637.8	310.5	28.6	1.000191
12500.0	635.9	-6.2	-27.0	17.5	829.5	636.4	308.9	27.9	1.000188
13000.0	623.6	-7.3	-27.9	17.6	817.1	635.0	307.5	27.4	1.000185
13500.0	611.6	-8.5	-28.8	17.7	804.9	633.5	305.4	26.1	1.000182
14000.0	599.6	-9.7	-29.8	17.8	792.8	632.1	303.1	25.2	1.000179
14500.0	587.9	-10.9	-30.7	17.9	780.8	630.7	300.2	26.2	1.000177
15000.0	576.3	-11.9	-31.6	17.8	768.3	629.5	297.3	27.2	1.000174
15500.0	565.0	-12.5	-32.5	17.2	755.1	628.7	294.4	28.1	1.000170
16000.0	553.8	-13.2	-33.4	16.7	742.2	627.9	293.8	30.0	1.000167
16500.0	542.9	-13.9	-34.3	16.1	729.4	627.0	294.0	31.7	1.000164
17000.0	532.1	-15.0	-35.3	16.1	718.0	625.7	295.4	32.2	1.000162
17500.0	521.5	-16.3	-36.3	16.1	707.1	624.2	297.6	31.8	1.000159
18000.0	511.0	-17.5	-37.3	16.2	696.3	622.6	300.3	30.9	1.000157
18500.0	500.7	-18.7	-38.3	16.3	685.6	621.1	303.6	29.4	1.000154
19000.0	490.6	-20.0	-39.3	16.3	675.1	619.6	307.0	27.7	1.000152
19500.0	480.6	-21.3	-40.3	16.4	664.6	618.0	312.5	25.5	1.000149
20000.0	470.8	-22.5	-41.3	16.5	654.3	616.5	318.0	23.4	1.000147
20500.0	461.1	-23.8	-42.3	16.5	644.2	614.9	324.0	21.8	1.000144

TABLE C-III (Cont)
UPPER AIR DATA
3907601
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0200 HRS MST
ASCENSION NO. 216

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
21000.0	451.6	-25.1	-43.4	16.6	634.1	613.3	328.4	20.8	1.000142
21500.0	442.2	-26.4	-44.4	16.7	624.2	611.7	331.6	20.3	1.000140
22000.0	433.0	-27.6	-45.5	16.7	614.4	610.1	333.5	20.1	1.000137
22500.0	423.9	-28.9	-46.5	16.8	604.7	608.5	335.0	19.9	1.000135
23000.0	414.9	-30.3	-47.6	16.9	595.2	606.9	336.9	20.5	1.000133
23500.0	406.1	-31.6	-48.7	16.9	585.7	605.2	339.2	21.0	1.000131
24000.0	397.5	-32.9	-49.9	16.7**	576.3	603.6	343.6	21.2	1.000129
24500.0	388.9	-34.1	-51.6	15.6**	567.0	602.0	348.0	21.2	1.000127
25000.0	380.6	-35.4	-53.3	14.4**	557.7	600.4	352.6	20.8	1.000125
25500.0	372.3	-36.7	-55.0	13.3**	548.6	598.7	355.8	20.0	1.000122
26000.0	364.2	-38.0	-56.8	12.2**	539.6	597.1	358.2	19.0	1.000120
26500.0	356.3	-39.3	-58.6	11.1**	530.8	595.4	357.4	18.6	1.000118
27000.0	348.4	-40.6	-60.5	9.9**	522.0	593.8	355.8	18.3	1.000116
27500.0	340.7	-41.9	-62.5	8.8**	513.4	592.1	350.9	18.9	1.000114
28000.0	333.1	-43.2	-64.6	7.6**	504.8	590.4	345.8	19.5	1.000113
28500.0	325.7	-44.6	-66.9	6.5**	496.4	588.7	340.4	20.6	1.000111
29000.0	318.3	-45.9	-69.3	5.3**	488.1	587.0	334.7	21.5	1.000109
29500.0	311.1	-47.3	-72.1	4.1**	479.9	585.2	327.2	21.1	1.000107
30000.0	304.1	-48.6	-75.3	3.0**	471.8	583.5	319.1	20.9	1.000105
30500.0	297.1	-50.0	-79.5	1.8**	463.8	581.7	308.4	22.0	1.000103
31000.0	290.2	-51.3	-87.0	0.6**	455.9	579.9	299.2	23.9	1.000102
31500.0	283.5	-52.3	0.0	0.0**	447.3	578.6	293.4	27.8	1.000100
32000.0	276.9	-52.9	0.0	0.0**	438.0	577.9	290.3	32.8	1.000098
32500.0	270.4	-53.5	0.0	0.0**	429.0	577.1	289.1	38.5	1.000096
33000.0	264.1	-54.1	0.0	0.0**	420.1	576.3	289.1	42.7	1.000094
33500.0	257.9	-54.7	0.0	0.0**	411.4	575.5	287.9	45.9	1.000092
34000.0	251.9	-55.3	0.0	0.0**	402.9	574.7	284.0	47.3	1.000090
34500.0	245.9	-55.6	0.0	0.0**	394.0	574.3	279.3	48.9	1.000088
35000.0	240.2	-55.5	0.0	0.0**	384.5	574.4	274.5	50.7	1.000086
35500.0	234.5	-55.4	0.0	0.0**	375.2	574.6	272.0	54.5	1.000084
36000.0	229.0	-55.2	0.0	0.0**	366.1	574.8	269.9	58.5	1.000082
36500.0	223.6	-55.1	0.0	0.0**	357.3	575.0	268.7	62.8	1.000080
37000.0	218.4	-54.9	0.0	0.0**	348.6	575.2	267.7	67.0	1.000078

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

TABLE C-III (Cont)
UPPER AIR DATA
3907601
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0200 HRS MST
ASCENSION NO. 216

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
37500.0	213.2	-54.7	0.0	0.0**	340.1	575.5	267.0	71.1	1.000076
38000.0	208.2	-53.9	0.0	0.0**	330.9	576.6	265.3	72.7	1.000074
38500.0	203.4	-53.1	0.0	0.0**	322.0	577.6	262.4	71.0	1.000072
39000.0	198.7	-52.3	0.0	0.0**	313.4	578.7	259.9	69.2	1.000070
39500.0	194.1	-51.5	0.0	0.0**	305.0	579.7	257.4	67.3	1.000068
40000.0	189.6	-51.7	0.0	0.0**	298.3	579.4	255.0	65.0	1.000066
40500.0	185.2	-52.3	0.0	0.0**	292.2	578.6	252.9	64.4	1.000065
41000.0	180.9	-52.9	0.0	0.0**	286.2	577.8	251.3	65.3	1.000064
41500.0	176.7	-53.5	0.0	0.0**	280.3	577.1	251.0	67.6	1.000062
42000.0	172.6	-53.8	0.0	0.0**	274.1	576.7	251.0	70.2	1.000061
42500.0	168.5	-53.6	0.0	0.0**	267.4	577.0	250.9	71.6	1.000060
43000.0	164.6	-53.5	0.0	0.0**	261.0	577.1	251.0	72.5	1.000058
43500.0	160.8	-54.0	0.0	0.0**	255.6	576.4	252.2	71.8	1.000057
44000.0	157.0	-54.5	0.0	0.0**	250.2	575.7	253.2	71.5	1.000056
44500.0	153.3	-55.1	0.0	0.0**	245.0	575.0	254.1	71.8	1.000055
45000.0	149.7	-55.6	0.0	0.0**	239.8	574.3	254.7	71.0	1.000053
45500.0	146.2	-56.2	0.0	0.0**	234.8	573.5	255.4	70.4	1.000052
46000.0	142.7	-56.7	0.0	0.0**	229.8	572.8	257.3	73.9	1.000051
46500.0	139.4	-57.3	0.0	0.0**	224.9	572.1	258.1	74.7	1.000050
47000.0	136.0	-57.8	0.0	0.0**	220.2	571.3	257.1	70.4	1.000049
47500.0	132.8	-58.4	0.0	0.0**	215.5	570.6	256.6	68.0	1.000048
48000.0	129.6	-59.0	0.0	0.0**	210.9	569.9	256.6	66.9	1.000047
48500.0	126.5	-59.5	0.0	0.0**	206.4	569.1	255.7	64.5	1.000046
49000.0	123.5	-60.1	0.0	0.0**	202.0	568.4	254.5	61.4	1.000045
49500.0	120.5	-60.6	0.0	0.0**	197.6	567.6	256.2	62.2	1.000044
50000.0	117.6	-61.2	0.0	0.0**	193.4	566.9	258.7	63.9	1.000043
50500.0	114.8	-61.8	0.0	0.0**	189.2	566.1	259.8	62.5	1.000042
51000.0	112.0	-62.3	0.0	0.0**	185.1	565.4	260.5	60.5	1.000041
51500.0	109.3	-62.9	0.0	0.0**	181.1	564.6	260.6	58.2	1.000040
52000.0	106.6	-63.5	0.0	0.0**	177.2	563.8	260.4	55.8	1.000039
52500.0	104.0	-63.9	0.0	0.0**	173.2	563.2	256.6	52.8	1.000039
53000.0	101.5	-64.4	0.0	0.0**	169.3	562.6	251.9	49.8	1.000038
53500.0	99.0	-64.5	0.0	0.0**	165.3	562.5	248.4	52.7	1.000037

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

TABLE C-III (Cont)

UPPER AIR DATA

3907601

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0200 HRS MST
ASCENSION NO. 216

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
54000.0	96.6	-64.2	0.0	0.0**	161.0	562.9	245.0	57.0	1.000036
54500.0	94.2	-63.9	0.0	0.0**	156.9	563.2	241.3	56.6	1.000035
55000.0	91.9	-63.6	0.0	0.0**	152.8	563.6	237.6	55.4	1.000034
55500.0	89.7	-63.3	0.0	0.0**	148.9	564.0	239.2	53.4	1.000033
56000.0	87.5	-63.1	0.0	0.0**	145.1	564.4	241.6	51.4	1.000032
56500.0	85.3	-62.8	0.0	0.0**	141.4	564.8	245.2	45.5	1.000031
57000.0	83.3	-62.5	0.0	0.0**	137.7	565.1	249.0	39.2	1.000031
57500.0	81.3	-62.2	0.0	0.0**	134.2	565.5	251.4	37.9	1.000030
58000.0	79.3	-61.9	0.0	0.0**	130.8	565.9	253.7	37.4	1.000029
58500.0	77.4	-61.7	0.0	0.0**	127.5	566.3	254.7	37.6	1.000028
59000.0	75.5	-61.4	0.0	0.0**	124.2	566.6	255.6	37.9	1.000028
59500.0	73.7	-61.1	0.0	0.0**	121.1	567.0	254.7	38.4	1.000027
60000.0	71.9	-60.8	0.0	0.0**	118.0	567.4	253.6	38.8	1.000026
60500.0	70.2	-60.5	0.0	0.0**	115.0	567.8	254.6	40.0	1.000026
61000.0	68.5	-61.0	0.0	0.0**	112.5	567.2	255.8	41.3	1.000025
61500.0	66.8	-61.6	0.0	0.0**	110.0	566.4	251.3	38.6	1.000025
62000.0	65.2	-62.1	0.0	0.0**	107.7	565.7	245.8	35.2	1.000024
62500.0	63.6	-62.7	0.0	0.0**	105.3	564.9	241.6	32.1	1.000023
63000.0	62.1	-63.2	0.0	0.0**	103.1	564.2	237.8	29.0	1.000023
63500.0	60.6	-63.8	0.0	0.0**	100.8	563.4	237.3	27.1	1.000022
64000.0	59.1	-63.9	0.0	0.0**	98.4	563.3	238.1	25.6	1.000022
64500.0	57.7	-63.6	0.0	0.0**	95.9	563.6	242.2	23.3	1.000021
65000.0	56.3	-63.4	0.0	0.0**	93.4	564.0	248.0	20.6	1.000021
65500.0	54.9	-63.1	0.0	0.0**	91.1	564.3	253.9	19.1	1.000020
66000.0	53.6	-62.9	0.0	0.0**	88.7	564.6	259.7	18.6	1.000020
66500.0	52.3	-62.7	0.0	0.0**	86.5	564.9	268.1	16.7	1.000019
67000.0	51.0	-62.4	0.0	0.0**	84.3	565.2	279.2	13.5	1.000019
67500.0	49.8	-62.2	0.0	0.0**	82.2	565.5	285.1	13.1	1.000018
68000.0	48.5	-62.0	0.0	0.0**	80.1	565.9	285.1	16.0	1.000018
68500.0	47.4	-61.7	0.0	0.0**	78.1	566.2	285.5	18.5	1.000017
69000.0	46.2	-61.5	0.0	0.0**	76.1	566.5	286.4	20.1	1.000017
69500.0	45.1	-61.3	0.0	0.0**	74.2	566.8	284.8	21.2	1.000017
70000.0	44.0	-61.0	0.0	0.0**	72.3	567.1	279.1	21.4	1.000016

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

TABLE C-III (Cont)
UPPER AIR DATA
3907601
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0200 HRS MST
ASCENSION NO. 216

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
70500.0	43.0	-60.8	0.0	0.0**	70.5	567.4	273.5	21.7	1.000016
71000.0	41.9	-60.1	0.0	0.0**	68.6	568.3	268.1	22.4	1.000015
71500.0	40.9	-59.5	0.0	0.0**	66.8	569.1	263.3	22.3	1.000015
72000.0	40.0	-58.9	0.0	0.0**	65.0	570.0	260.1	19.9	1.000014
72500.0	39.0	-58.2	0.0	0.0**	63.2	570.8	257.9	17.4	1.000014
73000.0	38.1	-57.6	0.0	0.0**	61.6	571.7	260.7	13.9	1.000014
73500.0	37.2	-57.0	0.0	0.0**	59.9	572.5	263.5	10.5	1.000013
74000.0	36.3	-56.3	0.0	0.0**	58.3	573.4	262.4	9.5	1.000013
74500.0	35.5	-56.4	0.0	0.0**	57.0	573.2	261.3	8.6	1.000013
75000.0	34.6	-57.0	0.0	0.0**	55.8	572.5	254.9	10.4	1.000012
75500.0	33.8	-57.5	0.0	0.0**	54.6	571.8	247.5	12.7	1.000012
76000.0	33.0	-58.0	0.0	0.0**	53.4	571.1	245.0	16.6	1.000012
76500.0	32.2	-57.2	0.0	0.0**	52.0	572.2	245.1	21.3	1.000012
77000.0	31.5	-56.5	0.0	0.0**	50.6	573.2	247.5	22.6	1.000011
77500.0	30.7	-55.7	0.0	0.0**	49.2	574.2	252.7	19.9	1.000011
78000.0	30.0	-54.9	0.0	0.0**	47.9	575.2	259.0	17.4	1.000011
78500.0	29.3	-54.2	0.0	0.0**	46.6	576.2	268.4	15.5	1.000010
79000.0	28.6	-53.4	0.0	0.0**	45.4	577.2	277.5	13.8	1.000010
79500.0	28.0	-52.7	0.0	0.0**	44.2	578.1	282.5	14.5	1.000010
80000.0	27.3	-53.1	0.0	0.0**	43.2	577.6	287.5	15.2	1.000010
80500.0	26.7	-53.5	0.0	0.0**	42.3	577.1	276.2	14.3	1.000009
81000.0	26.0	-53.8	0.0	0.0**	41.4	576.6	262.1	13.2	1.000009
81500.0	25.4	-54.2	0.0	0.0**	40.5	576.2	251.0	13.0	1.000009
82000.0	24.9	-54.6	0.0	0.0**	39.6	575.7	241.6	13.2	1.000009
82500.0	24.3	-55.0	0.0	0.0**	38.8	575.2	234.2	13.6	1.000009
83000.0	23.7	-55.3	0.0	0.0**	37.9	574.7	230.0	14.3	1.000008
83500.0	23.1	-55.7	0.0	0.0**	37.1	574.2	225.7	15.0	1.000008
84000.0	22.6	-56.1	0.0	0.0**	36.3	573.7	232.1	17.8	1.000008
84500.0	22.1	-56.4	0.0	0.0**	35.5	573.2	240.0	21.0	1.000008
85000.0	21.6	-55.7	0.0	0.0**	34.5	574.2	247.8	24.1	1.000008
85500.0	21.0	-54.8	0.0	0.0**	33.6	575.3	252.1	27.9	1.000007
86000.0	20.6	-53.9	0.0	0.0**	32.7	576.5	256.5	31.6	1.000007
86500.0	20.1	-53.0	0.0	0.0**	31.8	577.7	260.5	34.9	1.000007

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

TABLE C-III (Cont)
UPPER AIR DATA
3907601
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0200 HRS MST
ASCENSION NO. 216

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
87000.0	19.6	-52.2	0.0	0.0**	30.9	578.8	263.4	36.9	1.000007
87500.0	19.2	-51.3	0.0	0.0**	30.1	580.0	266.3	38.8	1.000007
88000.0	18.7	-50.4	0.0	0.0**	29.3	581.1	269.5	40.4	1.000007
88500.0	18.3	-49.5	0.0	0.0**	28.5	582.3	273.4	41.4	1.000006
89000.0	17.9	-48.8	0.0	0.0**	27.8	583.2	277.2	42.4	1.000006
89500.0	17.5	-48.5	0.0	0.0**	27.1	583.7	279.9	42.6	1.000006
90000.0	17.1	-48.1	0.0	0.0**	26.4	584.1	281.7	42.0	1.000006
90500.0	16.7	-47.8	0.0	0.0**	25.8	584.5	283.5	41.5	1.000006
91000.0	16.3	-47.5	0.0	0.0**	25.2	584.9	285.0	40.7	1.000006
91500.0	15.9	-47.3	0.0	0.0**	24.6	585.2	286.3	39.9	1.000005
92000.0	15.6	-47.8	0.0	0.0**	24.1	584.6	287.6	39.0	1.000005
92500.0	15.2	-48.3	0.0	0.0**	23.6	583.9	287.5	34.8	1.000005
93000.0	14.9	-48.8	0.0	0.0**	23.1	583.3	287.1	29.7	1.000005
93500.0	14.5	-49.3	0.0	0.0**	22.6	582.6	286.7	24.7	1.000005
94000.0	14.2	-49.8	0.0	0.0**	22.2	582.0	289.1	20.5	1.000005
94500.0	13.9	-50.3	0.0	0.0**	21.7	581.3	291.9	16.4	1.000005
95000.0	13.6	-50.8	0.0	0.0**	21.3	580.7	294.0	12.5	1.000005
95500.0	13.3	-51.3	0.0	0.0**	20.8	580.0	285.9	11.0	1.000005
96000.0	13.0	-51.6	0.0	0.0**	20.4	579.6	277.7	9.5	1.000005
96500.0	12.7	-50.9	0.0	0.0**	19.8	580.5	270.3	9.0	1.000004
97000.0	12.4	-50.1	0.0	0.0**	19.3	581.5	266.8	12.8	1.000004
97500.0	12.1	-49.4	0.0	0.0**	18.8	582.4	263.3	16.6	1.000004
98000.0	11.8	-48.7	0.0	0.0**	18.3	583.3	260.3	20.8	1.000004
98500.0	11.5	-48.0	0.0	0.0**	17.9	584.3	258.7	25.9	1.000004
99000.0	11.3	-47.3	0.0	0.0**	17.4	585.2	257.2	31.0	1.000004
99500.0	11.0	-46.6	0.0	0.0**	17.0	586.1	256.3	35.3	1.000004
100000.0	10.8	-45.9	0.0	0.0**	16.5	587.0	256.3	38.0	1.000004
100500.0	10.5	-45.1	0.0	0.0**	16.1	588.0	256.3	40.7	1.000004
101000.0	10.3	-44.4	0.0	0.0**	15.7	588.9	256.4	42.6	1.000003
101500.0	10.1	-43.7	0.0	0.0**	15.3	589.8	256.6	43.7	1.000003
102000.0	9.9	-43.2	0.0	0.0**	14.9	590.4	256.8	44.8	1.000003
102500.0	9.6	-42.9	0.0	0.0**	14.6	590.9	257.3	45.3	1.000003
103000.0	9.4	-42.5	0.0	0.0**	14.2	591.4	258.0	45.3	1.000003

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

TABLE C-III (Cont)

UPPER AIR DATA

3907601

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0200 HRS MST
ASCENSION NO. 216

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
103500.0	9.2	-42.1	0.0	0.0**	13.9	591.9	258.6	45.3	1.000003
104000.0	9.0	-41.7	0.0	0.0**	13.6	592.4	258.4	45.2	1.000003
104500.0	8.8	-41.3	0.0	0.0**	13.2	592.9	257.4	45.2	1.000003
105000.0	8.6	-40.9	0.0	0.0**	12.9	593.4	256.5	45.1	1.000003
105500.0	8.4	-40.5	0.0	0.0**	12.6	593.9	255.6	45.2	1.000003
106000.0	8.2	-40.1	0.0	0.0**	12.3	594.4	254.6	45.4	1.000003
106500.0	8.1	-39.7	0.0	0.0**	12.0	594.9	253.7	45.5	1.000003
107000.0	7.9	-39.5	0.0	0.0**	11.8	595.2	253.8	45.4	1.000003
107500.0	7.7	-39.4	0.0	0.0**	11.5	595.3	254.4	45.0	1.000003
108000.0	7.6	-39.3	0.0	0.0**	11.2	595.5	255.0	44.6	1.000003
108500.0	7.4	-39.2	0.0	0.0**	11.0	595.6	257.3	44.4	1.000002
109000.0	7.2	-39.0	0.0	0.0**	10.8	595.8	260.4	44.1	1.000002
109500.0	7.1	-38.9	0.0	0.0**	10.5	595.9	263.6	43.9	1.000002
110000.0	6.9	-38.8	0.0	0.0**	10.3	596.1	266.3	43.8	1.000002
110500.0	6.8	-38.7	0.0	0.0**	10.1	596.2	268.8	43.7	1.000002
111000.0	6.6	-38.6	0.0	0.0**	9.8	596.4	271.2	43.7	1.000002
111500.0	6.5	-38.4	0.0	0.0**	9.6	596.6	270.8	43.8	1.000002
112000.0	6.3	-38.3	0.0	0.0**	9.4	596.7	269.0	44.0	1.000002
112500.0	6.2	-38.2	0.0	0.0**	9.2	596.9	267.3	44.2	1.000002
113000.0	6.1	-38.1	0.0	0.0**	9.0	597.0	264.4	46.8	1.000002
113500.0	5.9	-37.9	0.0	0.0**	8.8	597.2	261.0	50.4	1.000002
114000.0	5.8	-37.8	0.0	0.0**	8.6	597.3	257.7	53.9	1.000002
114500.0	5.7	-37.7	0.0	0.0**	8.4	597.5			1.000002
115000.0	5.6	-37.6	0.0	0.0**	8.2	597.6			1.000002
115500.0	5.4	-37.5	0.0	0.0**	8.0	597.8			1.000002
116000.0	5.3	-37.3	0.0	0.0**	7.9	597.9			1.000002
116500.0	5.2	-37.2	0.0	0.0**	7.7	598.1			1.000002
117000.0	5.1	-37.1	0.0	0.0**	7.5	598.2			1.000002

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

TABLE C-IV
UPPER AIR DATA
3907602
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0430 HRS MST
ASCENSION NO. 217

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	875.9	5.6	-1.8	59.0	1092.3	650.9	340.0	9.9	1.000270
5000.0	843.8	7.3	-5.5	39.8	1046.5	652.6	325.4	13.4	1.000253
5500.0	828.3	6.2	-6.9	38.7	1031.4	651.3	318.1	15.1	1.000248
6000.0	813.0	5.1	-8.3	37.5	1016.5	650.0	311.2	16.9	1.000243
6500.0	797.9	4.0	-9.7	36.3	1001.8	648.7	312.8	19.2	1.000238
7000.0	783.1	2.9	-11.1	35.0	987.2	647.3	313.9	21.7	1.000233
7500.0	768.5	1.8	-12.5	33.8	972.7	646.0	313.1	24.7	1.000228
8000.0	754.1	0.7	-13.9	32.6	958.5	644.7	312.7	27.7	1.000224
8500.0	739.9	-0.4	-15.4	31.4	944.4	643.3	314.2	30.7	1.000220
9000.0	725.9	-1.5	-16.9	30.2	930.4	642.0	315.4	33.5	1.000216
9500.0	712.1	-0.9	-18.6	24.8	910.7	642.7	316.1	35.7	1.000210
10000.0	698.7	-0.9	-20.4	21.3	893.7	642.6	315.5	37.3	1.000205
10500.0	685.5	-1.8	-21.8	20.1	879.5	641.6	314.2	38.2	1.000201
11000.0	672.5	-2.6	-23.2	18.8	865.5	640.6	310.3	36.3	1.000198
11500.0	659.7	-3.4	-24.7	17.6	851.7	639.6	306.5	34.3	1.000194
12000.0	647.0	-4.4	-25.8	17.0	838.5	638.5	302.9	32.2	1.000191
12500.0	634.6	-5.5	-26.7	17.1	825.7	637.2	301.1	30.7	1.000188
13000.0	622.4	-6.5	-27.5	17.1	813.1	635.9	300.0	29.4	1.000185
13500.0	610.4	-7.6	-28.4	17.2	800.6	634.6	300.3	29.1	1.000182
14000.0	598.6	-8.7	-29.3	17.3	788.3	633.3	300.9	28.6	1.000179
14500.0	586.9	-9.8	-30.1	17.3	776.2	632.0	302.5	27.9	1.000176
15000.0	575.4	-10.9	-31.0	17.4	764.2	630.7	303.6	27.5	1.000173
15500.0	564.1	-12.0	-31.9	17.4	752.3	629.4	304.0	27.5	1.000170
16000.0	553.0	-13.1	-32.8	17.5	740.6	628.0	303.8	27.8	1.000167
16500.0	542.0	-14.2	-33.7	17.5	729.1	626.7	302.8	28.3	1.000164
17000.0	531.2	-15.3	-34.6	17.6	717.7	625.3	300.6	29.0	1.000162
17500.0	520.6	-16.4	-35.5	17.7	706.4	624.0	297.8	29.8	1.000159
18000.0	510.2	-17.5	-36.4	17.7	695.3	622.6	296.6	29.3	1.000156
18500.0	499.9	-18.7	-37.3	17.8	684.3	621.2	295.9	28.5	1.000154
19000.0	489.8	-19.8	-38.2	17.8	673.4	619.8	296.5	26.9	1.000151
19500.0	479.8	-20.9	-39.2	17.9	662.7	618.4	299.0	26.0	1.000149
20000.0	470.0	-22.1	-40.1	18.0	652.2	617.0	302.4	25.3	1.000146
20500.0	460.3	-23.3	-41.1	18.0	641.8	615.5	305.1	23.1	1.000144

TABLE C-IV (Cont)
UPPER AIR DATA
3907602
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0430 HRS MST
ASCENSION NO. 217

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
21000.0	450.8	-24.7	-42.3	18.2	632.3	613.7	308.1	20.9	1.000142
21500.0	441.5	-26.2	-43.4	18.3	622.8	611.9	313.4	19.1	1.000140
22000.0	432.3	-27.6	-44.6	18.4	613.4	610.1	318.5	17.4	1.000137
22500.0	423.2	-29.1	-45.8	18.5	604.2	608.3	322.7	16.0	1.000135
23000.0	414.3	-30.6	-47.0	18.6	595.0	606.5	325.5	15.4	1.000133
23500.0	405.5	-32.1	-48.2	18.8	586.0	604.6	326.3	15.7	1.000131
24000.0	396.8	-33.5	-49.4	18.9	577.0	602.7	326.8	16.4	1.000129
24500.0	388.3	-35.0	-50.6	19.0	568.2	600.9	327.1	17.3	1.000127
25000.0	379.9	-36.2	-52.1	17.9**	558.7	599.4	327.5	17.0	1.000125
25500.0	371.6	-37.4	-53.7	16.8**	549.2	597.9	327.9	16.9	1.000123
26000.0	363.5	-38.6	-55.2	15.7**	540.0	596.4	328.4	17.7	1.000120
26500.0	355.6	-39.8	-56.8	14.6**	530.8	594.9	329.4	18.3	1.000118
27000.0	347.7	-41.0	-58.5	13.4**	521.8	593.3	330.4	18.5	1.000116
27500.0	340.0	-42.2	-60.2	12.3**	512.9	591.8	331.1	17.0	1.000114
28000.0	332.5	-43.4	-61.9	11.1**	504.1	590.2	329.6	16.2	1.000112
28500.0	325.0	-44.6	-63.7	10.0**	495.4	588.7	326.4	16.0	1.000110
29000.0	317.7	-45.8	-65.6	8.8**	486.9	587.1	317.0	16.3	1.000108
29500.0	310.5	-47.0	-67.6	7.7**	478.4	585.5	310.5	17.6	1.000107
30000.0	303.5	-48.3	-69.7	6.5**	470.1	583.9	307.8	20.3	1.000105
30500.0	296.5	-49.5	-72.1	5.3**	461.9	582.3	306.2	22.1	1.000103
31000.0	289.7	-50.7	-74.7	4.1**	453.8	580.7	305.2	23.3	1.000101
31500.0	283.0	-52.0	-77.8	3.0**	445.8	579.1	305.4	24.5	1.000099
32000.0	276.4	-53.2	-81.8	1.8**	438.0	577.4	306.0	25.6	1.000098
32500.0	270.0	-54.5	-89.2	0.6**	430.2	575.8	304.3	26.7	1.000096
33000.0	263.6	-55.4	0.0	0.0**	421.8	574.6	302.0	27.9	1.000094
33500.0	257.4	-55.9	0.0	0.0**	412.8	573.9	296.9	28.9	1.000092
34000.0	251.3	-56.5	0.0	0.0**	404.1	573.2	290.6	30.0	1.000090
34500.0	245.4	-57.0	0.0	0.0**	395.5	572.4	283.7	33.4	1.000088
35000.0	239.5	-57.6	0.0	0.0**	387.1	571.7	276.7	37.9	1.000086
35500.0	233.8	-58.1	0.0	0.0**	378.9	571.0	272.9	42.8	1.000084
36000.0	228.3	-58.1	0.0	0.0**	369.7	571.1	269.9	47.6	1.000082
36500.0	222.8	-57.7	0.0	0.0**	360.3	571.6	269.0	51.7	1.000080
37000.0	217.5	-57.3	0.0	0.0**	351.2	572.0	267.5	54.6	1.000078

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

TABLE C-IV (Cont)
UPPER AIR DATA
3907602
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0430 HRS MST
ASCENSION NO. 217

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
37500.0	212.4	-57.0	0.0	0.0**	342.3	572.5	265.3	55.6	1.000076
38000.0	207.4	-56.6	0.0	0.0**	333.6	573.0	263.3	57.6	1.000074
38500.0	202.5	-56.2	0.0	0.0**	325.2	573.5	261.5	60.3	1.000072
39000.0	197.7	-55.9	0.0	0.0**	317.0	574.0	259.7	63.9	1.000071
39500.0	193.0	-55.5	0.0	0.0**	309.0	574.4	257.9	68.0	1.000069
40000.0	188.5	-55.2	0.0	0.0**	301.2	574.9	258.0	71.9	1.000067
40500.0	184.1	-54.8	0.0	0.0**	293.7	575.4	258.4	75.7	1.000065
41000.0	179.7	-54.4	0.0	0.0**	286.3	575.9	257.7	75.4	1.000064
41500.0	175.5	-54.3	0.0	0.0**	279.5	576.0	257.1	75.0	1.000062
42000.0	171.4	-54.7	0.0	0.0**	273.4	575.5	257.7	74.5	1.000061
42500.0	167.4	-55.0	0.0	0.0**	267.4	575.1	257.6	74.0	1.000060
43000.0	163.5	-55.4	0.0	0.0**	261.5	574.6	255.9	73.7	1.000058
43500.0	159.6	-55.7	0.0	0.0**	255.8	574.1	254.3	72.4	1.000057
44000.0	155.9	-56.1	0.0	0.0**	250.2	573.7	252.7	70.7	1.000056
44500.0	152.2	-56.5	0.0	0.0**	244.7	573.2	252.3	71.0	1.000054
45000.0	148.6	-56.8	0.0	0.0**	239.3	572.7	252.1	71.6	1.000053
45500.0	145.1	-57.2	0.0	0.0**	234.0	572.2	253.5	71.8	1.000052
46000.0	141.6	-57.5	0.0	0.0**	228.9	571.8	254.8	71.8	1.000051
46500.0	138.3	-57.9	0.0	0.0**	223.8	571.3	255.7	71.1	1.000050
47000.0	135.0	-58.2	0.0	0.0**	218.8	570.8	256.7	70.2	1.000049
47500.0	131.8	-58.6	0.0	0.0**	214.0	570.3	258.0	68.8	1.000048
48000.0	128.6	-59.0	0.0	0.0**	209.2	569.9	259.1	66.8	1.000047
48500.0	125.5	-59.3	0.0	0.0**	204.6	569.4	260.0	62.9	1.000046
49000.0	122.5	-59.7	0.0	0.0**	200.0	568.9	260.9	59.6	1.000045
49500.0	119.6	-60.1	0.0	0.0**	195.5	568.4	262.2	59.6	1.000044
50000.0	116.7	-60.6	0.0	0.0**	191.3	567.7	263.3	59.3	1.000043
50500.0	113.9	-61.1	0.0	0.0**	187.2	566.9	262.3	55.1	1.000042
51000.0	111.1	-61.7	0.0	0.0**	183.1	566.2	261.3	50.8	1.000041
51500.0	108.5	-62.2	0.0	0.0**	179.1	565.5	260.0	50.1	1.000040
52000.0	105.8	-62.8	0.0	0.0**	175.2	564.8	258.7	49.5	1.000039
52500.0	103.2	-63.3	0.0	0.0**	171.4	564.1	256.3	49.4	1.000038
53000.0	100.7	-63.8	0.0	0.0**	167.7	563.3	253.4	49.6	1.000037
53500.0	98.3	-64.4	0.0	0.0**	164.0	562.6	250.9	50.2	1.000037

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

TABLE C-IV (Cont)
UPPER AIR DATA
3907602
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0430 HRS MST
ASCENSION NO. 217

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
54000.0	95.9	-64.9	0.0	0.0**	160.4	561.9	248.8	51.6	1.000036
54500.0	93.5	-64.6	0.0	0.0**	156.2	562.3	246.7	52.9	1.000035
55000.0	91.2	-64.4	0.0	0.0**	152.2	562.6	248.4	51.9	1.000034
55500.0	89.0	-64.1	0.0	0.0**	148.3	562.9	250.2	50.7	1.000033
56000.0	86.8	-63.9	0.0	0.0**	144.5	563.3	252.8	49.6	1.000032
56500.0	84.7	-63.6	0.0	0.0**	140.8	563.6	255.9	48.5	1.000031
57000.0	82.6	-63.4	0.0	0.0**	137.2	564.0	259.0	47.4	1.000031
57500.0	80.6	-63.1	0.0	0.0**	133.7	564.3	262.0	46.5	1.000030
58000.0	78.7	-62.9	0.0	0.0**	130.3	564.6	265.0	45.6	1.000029
58500.0	76.7	-62.4	0.0	0.0**	126.9	565.3	264.3	43.3	1.000028
59000.0	74.9	-61.7	0.0	0.0**	123.4	566.1	261.7	40.3	1.000027
59500.0	73.1	-61.1	0.0	0.0**	120.1	567.0	259.3	37.7	1.000027
60000.0	71.3	-60.5	0.0	0.0**	116.8	567.8	257.1	35.9	1.000026
60500.0	69.6	-60.1	0.0	0.0**	113.8	568.4	255.0	34.1	1.000025
61000.0	67.9	-60.3	0.0	0.0**	111.2	568.0	253.1	31.0	1.000025
61500.0	66.3	-60.6	0.0	0.0**	108.7	567.7	251.2	27.7	1.000024
62000.0	64.7	-60.8	0.0	0.0**	106.2	567.3	251.6	25.2	1.000024
62500.0	63.2	-61.1	0.0	0.0**	103.8	567.0	254.0	23.4	1.000023
63000.0	61.6	-61.4	0.0	0.0**	101.4	566.6	257.7	22.0	1.000023
63500.0	60.1	-61.6	0.0	0.0**	99.1	566.3	265.2	21.4	1.000022
64000.0	58.7	-61.9	0.0	0.0**	96.8	565.9	272.1	21.0	1.000022
64500.0	57.3	-62.2	0.0	0.0**	94.6	565.6	273.7	22.6	1.000021
65000.0	55.9	-62.4	0.0	0.0**	92.4	565.2	275.2	24.3	1.000021
65500.0	54.5	-62.7	0.0	0.0**	90.3	564.9	276.6	24.5	1.000020
66000.0	53.2	-62.3	0.0	0.0**	87.9	565.4	278.0	24.6	1.000020
66500.0	51.9	-61.6	0.0	0.0**	85.5	566.4	275.8	22.1	1.000019
67000.0	50.7	-60.8	0.0	0.0**	83.1	567.4	272.4	18.9	1.000019
67500.0	49.4	-60.1	0.0	0.0**	80.9	568.4	273.6	17.2	1.000018
68000.0	48.3	-60.2	0.0	0.0**	79.0	568.2	277.7	16.5	1.000018
68500.0	47.1	-60.8	0.0	0.0**	77.3	567.4	278.5	16.6	1.000017
69000.0	46.0	-61.4	0.0	0.0**	75.6	566.7	274.5	18.1	1.000017
69500.0	44.9	-60.0	0.0	0.0**	73.3	568.5	270.4	19.0	1.000016
70000.0	43.8	-58.6	0.0	0.0**	71.1	570.3	265.6	17.6	1.000016

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

TABLE C-IV (Cont)
UPPER AIR DATA
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STATION ALTITUDE 3989.0 FEET MSL
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WSTM SITE COORDINATES
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GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
70500.0	42.8	-57.9	0.0	0.0**	69.2	571.3	260.8	16.1	1.000015
71000.0	41.7	-59.1	0.0	0.0**	67.9	569.7	259.6	17.2	1.000015
71500.0	40.7	-59.9	0.0	0.0**	66.6	568.6	258.4	18.2	1.000015
72000.0	39.8	-59.5	0.0	0.0**	64.9	569.1	256.2	17.0	1.000014
72500.0	38.8	-59.2	0.0	0.0**	63.2	569.6	253.7	15.1	1.000014
73000.0	37.9	-58.8	0.0	0.0**	61.6	570.1	254.4	14.8	1.000014
73500.0	37.0	-58.5	0.0	0.0**	60.0	570.5	258.0	16.0	1.000013
74000.0	36.1	-58.1	0.0	0.0**	58.5	571.0	259.9	16.6	1.000013
74500.0	35.3	-57.7	0.0	0.0**	57.0	571.5	254.7	14.7	1.000013
75000.0	34.4	-57.4	0.0	0.0**	55.6	572.0	249.4	12.8	1.000012
75500.0	33.6	-57.0	0.0	0.0**	54.2	572.5	255.8	12.8	1.000012
76000.0	32.8	-56.6	0.0	0.0**	52.8	572.9	264.4	13.2	1.000012
76500.0	32.0	-56.3	0.0	0.0**	51.5	573.4	271.0	14.2	1.000011
77000.0	31.3	-55.9	0.0	0.0**	50.2	573.9	275.5	15.8	1.000011
77500.0	30.6	-55.6	0.0	0.0**	48.9	574.3	279.2	16.9	1.000011
78000.0	29.8	-55.3	0.0	0.0**	47.7	574.7	277.2	14.5	1.000011
78500.0	29.1	-55.4	0.0	0.0**	46.6	574.6	275.1	12.1	1.000010
79000.0	28.5	-55.5	0.0	0.0**	45.6	574.4	264.5	11.2	1.000010
79500.0	27.8	-55.6	0.0	0.0**	44.5	574.3	250.8	10.7	1.000010
80000.0	27.1	-55.7	0.0	0.0**	43.5	574.2	241.3	11.0	1.000010
80500.0	26.5	-55.8	0.0	0.0**	42.5	574.0	239.7	12.5	1.000009
81000.0	25.9	-55.8	0.0	0.0**	41.5	574.0	238.0	14.1	1.000009
81500.0	25.3	-55.4	0.0	0.0**	40.4	574.6	245.7	16.9	1.000009
82000.0	24.7	-54.9	0.0	0.0**	39.4	575.2	254.2	19.7	1.000009
82500.0	24.1	-54.5	0.0	0.0**	38.4	575.8	261.1	22.3	1.000009
83000.0	23.5	-54.0	0.0	0.0**	37.4	576.4	266.1	24.7	1.000008
83500.0	23.0	-53.6	0.0	0.0**	36.5	576.9	271.1	27.1	1.000008
84000.0	22.5	-53.2	0.0	0.0**	35.6	577.5	277.1	27.4	1.000008
84500.0	21.9	-52.7	0.0	0.0**	34.7	578.1	283.2	27.5	1.000008
85000.0	21.4	-52.3	0.0	0.0**	33.8	578.7	288.6	27.3	1.000008
85500.0	20.9	-51.9	0.0	0.0**	33.0	579.2	293.1	26.6	1.000007
86000.0	20.5	-51.4	0.0	0.0**	32.1	579.8	297.6	25.9	1.000007
86500.0	20.0	-51.0	0.0	0.0**	31.3	580.3	297.1	25.3	1.000007

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

TABLE C-IV (Cont)
UPPER AIR DATA
3907602
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0430 HRS MST
ASCENSION NO. 217

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
87000.0	19.5	-51.5	0.0	0.0**	30.7	579.7	296.4	24.7	1.000007
87500.0	19.1	-51.9	0.0	0.0**	30.0	579.1	295.2	23.8	1.000007
88000.0	18.6	-52.4	0.0	0.0**	29.4	578.5	293.3	22.4	1.000007
88500.0	18.2	-52.9	0.0	0.0**	28.8	577.9	291.5	21.1	1.000006
89000.0	17.8	-52.8	0.0	0.0**	28.1	578.0	282.0	20.2	1.000006
89500.0	17.4	-52.3	0.0	0.0**	27.4	578.7	271.9	19.3	1.000006
90000.0	17.0	-51.7	0.0	0.0**	26.7	579.4	262.7	18.3	1.000006
90500.0	16.6	-51.2	0.0	0.0**	26.0	580.2	255.0	17.1	1.000006
91000.0	16.2	-50.6	0.0	0.0**	25.4	580.9	247.3	15.9	1.000006
91500.0	15.8	-50.1	0.0	0.0**	24.7	581.6	241.1	17.8	1.000006
92000.0	15.5	-49.5	0.0	0.0**	24.1	582.3	235.2	20.3	1.000005
92500.0	15.1	-49.0	0.0	0.0**	23.5	583.0	232.1	22.8	1.000005
93000.0	14.8	-48.4	0.0	0.0**	22.9	583.7	236.3	25.4	1.000005
93500.0	14.4	-47.9	0.0	0.0**	22.3	584.4	240.6	28.0	1.000005
94000.0	14.1	-47.3	0.0	0.0**	21.8	585.1	244.4	30.8	1.000005
94500.0	13.8	-46.8	0.0	0.0**	21.2	585.8	248.1	33.6	1.000005
95000.0	13.5	-46.3	0.0	0.0**	20.7	586.5	251.8	36.5	1.000005
95500.0	13.2	-45.7	0.0	0.0**	20.2	587.2	255.4	39.0	1.000004
96000.0	12.9	-45.2	0.0	0.0**	19.7	587.9	259.0	41.5	1.000004
96500.0	12.6	-44.5	0.0	0.0**	19.2	588.7	262.6	42.9	1.000004
97000.0	12.3	-43.9	0.0	0.0**	18.7	589.5	266.1	42.7	1.000004
97500.0	12.0	-43.3	0.0	0.0**	18.3	590.3	269.7	42.6	1.000004
98000.0	11.8	-42.7	0.0	0.0**	17.8	591.1	271.8	43.4	1.000004
98500.0	11.5	-42.1	0.0	0.0**	17.4	591.9	272.5	45.3	1.000004
99000.0	11.3	-41.5	0.0	0.0**	16.9	592.7	273.1	47.1	1.000004
99500.0	11.0	-40.8	0.0	0.0**	16.5	593.5	273.5	46.5	1.000004
100000.0	10.8	-40.6	0.0	0.0**	16.1	593.8	273.5	43.3	1.000004
100500.0	10.5	-40.4	0.0	0.0**	15.8	594.1	273.4	40.1	1.000004
101000.0	10.3	-40.2	0.0	0.0**	15.4	594.3	272.8	39.3	1.000003
101500.0	10.1	-40.0	0.0	0.0**	15.1	594.6	271.5	41.9	1.000003
102000.0	9.9	-39.7	0.0	0.0**	14.7	594.9	270.2	44.4	1.000003
102500.0	9.6	-39.5	0.0	0.0**	14.4	595.2	269.4	46.7	1.000003
103000.0	9.4	-39.3	0.0	0.0**	14.1	595.4	269.4	48.4	1.000003

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

TABLE C-IV (Cont)
UPPER AIR DATA
3907602
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0430 HRS MST
ASCENSION NO. 217

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
103500.0	9.2	-39.1	0.0	0.0**	13.7	595.7	269.5	50.1	1.000003
104000.0	9.0	-38.9	0.0	0.0**	13.4	596.0	269.2	51.2	1.000003
104500.0	8.8	-38.7	0.0	0.0**	13.1	596.2	267.8	50.7	1.000003
105000.0	8.6	-38.5	0.0	0.0**	12.8	596.5	266.4	50.1	1.000003
105500.0	8.5	-38.2	0.0	0.0**	12.5	596.8	263.4	49.1	1.000003
106000.0	8.3	-38.0	0.0	0.0**	12.3	597.1	254.0	46.4	1.000003
106500.0	8.1	-37.8	0.0	0.0**	12.0	597.3	244.7	43.7	1.000003
107000.0	7.9	-37.6	0.0	0.0**	11.7	597.6	237.2	42.2	1.000003
107500.0	7.7	-37.4	0.0	0.0**	11.4	597.9	241.5	48.5	1.000003
108000.0	7.6	-37.2	0.0	0.0**	11.2	598.1	245.9	54.8	1.000002
108500.0	7.4	-37.0	0.0	0.0**	10.9	598.4	250.1	61.1	1.000002
109000.0	7.3	-36.8	0.0	0.0**	10.7	598.7	252.0	66.4	1.000002
109500.0	7.1	-36.5	0.0	0.0**	10.5	598.9	253.9	71.8	1.000002
110000.0	6.9	-36.3	0.0	0.0**	10.2	599.2	255.9	77.1	1.000002
110500.0	6.8	-36.1	0.0	0.0**	10.0	599.5	262.4	95.0	1.000002
111000.0	6.7	-35.9	0.0	0.0**	9.8	599.8	269.1	113.2	1.000002
111500.0	6.5	-35.7	0.0	0.0**	9.6	600.0	275.7	131.4	1.000002
112000.0	6.4	-35.5	0.0	0.0**	9.3	600.3	271.9	126.3	1.000002
112500.0	6.2	-35.3	0.0	0.0**	9.1	600.5	267.0	118.9	1.000002
113000.0	6.1	-35.1	0.0	0.0**	8.9	600.8	262.2	111.5	1.000002
113500.0	6.0	-34.8	0.0	0.0**	8.7	601.2	263.4	92.8	1.000002
114000.0	5.8	-34.2	0.0	0.0**	8.5	601.9	266.0	71.7	1.000002
114500.0	5.7	-33.7	0.0	0.0**	8.3	602.5	268.5	50.5	1.000002
115000.0	5.6	-33.2	0.0	0.0**	8.1	603.2			1.000002
115500.0	5.5	-32.6	0.0	0.0**	7.9	603.9			1.000002
116000.0	5.4	-32.1	0.0	0.0**	7.7	604.5			1.000002
116500.0	5.2	-31.6	0.0	0.0**	7.6	605.2			1.000002
117000.0	5.1	-31.1	0.0	0.0**	7.4	605.8			1.000002
117500.0	5.0	-30.5	0.0	0.0**	7.2	606.5			1.000002

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

TABLE C-V

UPPER AIR DATA

3907603

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0810 HRS MST
ASCENSION NO. 219

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	876.5	11.0	-2.4	39.0	1072.4	657.1	310.0	7.0	1.000263
5000.0	844.5	8.0	-10.2	26.4	1045.3	653.3	309.0	9.4	1.000246
5500.0	829.0	7.4	-11.9	24.0	1028.3	652.6	308.5	10.6	1.000241
6000.0	813.8	6.2	-12.8	24.3	1013.9	651.1	308.0	11.7	1.000237
6500.0	798.8	5.0	-13.7	24.5	999.6	649.7	307.5	12.9	1.000233
7000.0	784.0	3.7	-14.6	24.8	985.5	648.2	307.0	14.1	1.000229
7500.0	769.4	2.7	-15.8	24.3	970.9	647.0	309.1	15.4	1.000225
8000.0	755.0	2.0	-17.4	22.2	955.2	646.2	312.0	16.8	1.000221
8500.0	740.9	1.4	-19.1	20.1	939.6	645.4	314.9	19.3	1.000216
9000.0	727.0	0.7	-21.0	18.0	924.3	644.6	317.8	22.3	1.000212
9500.0	713.3	0.1	-23.0	15.8	909.2	643.8	317.5	25.7	1.000207
10000.0	699.8	0.8	-23.8	13.9	889.7	644.6	316.7	29.0	1.000203
10500.0	686.7	1.1	-24.3	13.1	872.1	645.0	314.3	30.7	1.000199
11000.0	673.8	-0.0	-25.0	13.3	859.2	643.7	311.8	32.1	1.000195
11500.0	661.1	-1.1	-25.7	13.5	846.4	642.3	308.8	32.2	1.000192
12000.0	648.6	-2.2	-26.5	13.6	833.7	641.0	306.4	32.0	1.000189
12500.0	636.2	-3.3	-27.2	13.8	821.3	639.7	304.6	31.5	1.000186
13000.0	624.1	-4.5	-28.0	14.0	808.9	638.4	301.9	30.8	1.000183
13500.0	612.1	-5.6	-28.8	14.2	796.8	637.1	298.9	30.0	1.000180
14000.0	600.3	-6.7	-29.5	14.4	784.7	635.7	298.0	29.6	1.000178
14500.0	588.7	-7.8	-30.3	14.6	772.8	634.4	297.3	29.2	1.000175
15000.0	577.3	-9.0	-31.1	14.8	761.1	633.0	297.2	29.0	1.000172
15500.0	566.0	-10.1	-31.9	15.0	749.5	631.6	297.6	28.9	1.000169
16000.0	554.9	-11.6	-33.1	15.0	738.9	629.9	298.7	28.8	1.000167
16500.0	544.0	-13.1	-34.4	15.0	728.6	628.0	298.5	28.3	1.000164
17000.0	533.2	-14.5	-35.6	14.9	718.0	626.3	297.3	27.6	1.000162
17500.0	522.6	-14.5	-36.2	14.0	703.8	626.3	296.6	26.8	1.000158
18000.0	512.2	-15.7	-37.1	14.1	693.0	624.8	296.1	26.1	1.000156
18500.0	501.9	-17.0	-38.1	14.3	682.6	623.2	295.6	25.8	1.000153
19000.0	491.8	-18.3	-39.0	14.4	672.3	621.7	295.0	25.6	1.000151
19500.0	481.9	-19.6	-40.0	14.6	662.1	620.1	296.6	25.5	1.000149
20000.0	472.1	-20.9	-41.0	14.8	652.0	618.4	299.4	25.3	1.000146
20500.0	462.5	-22.2	-42.0	14.9	642.1	616.8	298.9	25.4	1.000144

TABLE C-V (Cont)
UPPER AIR DATA
3907603
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0810 HRS MST
ASCENSION NO. 219

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
21000.0	453.0	-23.6	-43.0	15.1	632.2	615.2	295.9	25.7	1.000142
21500.0	443.6	-24.9	-44.0	15.2	622.5	613.5	294.0	25.6	1.000139
22000.0	434.4	-26.2	-45.0	15.4	612.9	611.9	293.9	24.8	1.000137
22500.0	425.4	-27.6	-46.1	15.5	603.4	610.2	293.5	23.9	1.000135
23000.0	416.4	-28.9	-47.1	15.7	594.1	608.5	292.1	22.9	1.000133
23500.0	407.7	-30.3	-48.2	15.9	584.8	606.8	291.0	21.9	1.000131
24000.0	399.0	-31.6	-49.3	15.8**	575.6	605.1	293.7	19.6	1.000129
24500.0	390.5	-32.9	-51.2	14.4**	566.2	603.6	296.1	17.4	1.000126
25000.0	382.1	-34.1	-53.1	13.0**	557.0	602.0	294.2	15.1	1.000124
25500.0	373.9	-35.4	-55.1	11.5**	547.9	600.4	292.6	13.0	1.000122
26000.0	365.8	-36.7	-57.2	10.1**	538.9	598.8	291.5	11.6	1.000120
26500.0	357.8	-37.9	-59.5	8.6**	530.1	597.2	292.6	10.6	1.000118
27000.0	350.0	-39.2	-61.9	7.2**	521.3	595.5	296.2	9.9	1.000116
27500.0	342.3	-40.5	-64.6	5.7**	512.7	593.9	304.3	9.7	1.000114
28000.0	334.7	-41.8	-67.8	4.2**	504.1	592.3	312.4	9.7	1.000112
28500.0	327.3	-43.1	-71.7	2.7**	495.7	590.6	312.2	11.0	1.000110
29000.0	320.0	-44.4	-77.8	1.2**	487.4	588.9	310.6	11.9	1.000109
29500.0	312.8	-45.7	0.	-0. **	479.1	587.2	306.8	12.2	1.000107
30000.0	305.7	-46.9	0.	-0. **	470.7	585.7	301.1	13.0	1.000105
30500.0	298.7	-48.1	0.	-0. **	462.5	584.1	294.4	14.1	1.000103
31000.0	291.9	-49.3	0.	-0. **	454.4	582.6	293.4	14.9	1.000101
31500.0	285.2	-50.5	0.	-0. **	446.3	581.0	293.4	15.9	1.000099
32000.0	278.6	-51.7	0.	-0. **	438.4	579.4	297.1	18.0	1.000098
32500.0	272.2	-52.9	0.	-0. **	430.5	577.9	300.0	19.8	1.000096
33000.0	265.8	-53.8	0.	-0. **	422.1	576.8	301.0	20.1	1.000094
33500.0	259.6	-54.7	0.	-0. **	414.0	575.6	299.0	20.0	1.000092
34000.0	253.5	-55.6	0.	-0. **	405.9	574.4	293.0	19.5	1.000090
34500.0	247.5	-56.5	0.	-0. **	398.0	573.2	284.3	20.0	1.000089
35000.0	241.7	-57.4	0.	-0. **	390.2	572.0	274.2	21.2	1.000087
35500.0	235.9	-58.3	0.	-0. **	382.5	570.8	270.2	27.0	1.000085
36000.0	230.3	-58.8	0.	-0. **	374.2	570.1	267.3	33.4	1.000083
36500.0	224.8	-59.0	0.	-0. **	365.7	569.8	266.7	39.0	1.000081
37000.0	219.4	-59.3	0.	-0. **	357.4	569.5	266.1	44.2	1.000080

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

TABLE C-V (Cont)
UPPER AIR DATA
3907603
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0810 HRS MST
ASCENSION NO. 219

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
37500.0	214.1	-59.5	0.	-0. **	349.2	569.1	265.7	47.2	1.000078
38000.0	209.0	-59.1	0.	-0. **	340.3	569.6	265.2	50.1	1.000076
38500.0	204.0	-58.4	0.	-0. **	331.0	570.6	263.8	52.8	1.000074
39000.0	199.2	-57.6	0.	-0. **	321.9	571.6	262.4	55.4	1.000072
39500.0	194.4	-56.9	0.	-0. **	313.2	572.6	260.0	58.3	1.000070
40000.0	189.8	-56.1	0.	-0. **	304.7	573.6	257.7	61.7	1.000068
40500.0	185.4	-55.4	0.	-0. **	296.5	574.6	257.0	68.1	1.000066
41000.0	181.0	-54.6	0.	-0. **	288.6	575.6	256.5	72.9	1.000064
41500.0	176.8	-55.3	0.	-0. **	282.7	574.7	256.5	74.0	1.000063
42000.0	172.6	-56.0	0.	-0. **	276.9	573.8	256.9	74.9	1.000062
42500.0	168.5	-56.6	0.	-0. **	271.2	572.9	258.4	75.1	1.000060
43000.0	164.5	-56.8	0.	-0. **	265.0	572.7	259.9	75.2	1.000059
43500.0	160.6	-56.8	0.	-0. **	258.7	572.8	261.1	74.7	1.000058
44000.0	156.8	-56.7	0.	-0. **	252.5	572.9	262.2	74.2	1.000056
44500.0	153.1	-56.6	0.	-0. **	246.4	573.0	261.5	72.5	1.000055
45000.0	149.5	-56.5	0.	-0. **	240.5	573.1	260.7	71.0	1.000054
45500.0	146.0	-56.4	0.	-0. **	234.7	573.2	259.2	71.0	1.000052
46000.0	142.5	-57.0	0.	-0. **	229.7	572.5	257.7	70.9	1.000051
46500.0	139.2	-57.8	0.	-0. **	225.1	571.5	257.2	70.1	1.000050
47000.0	135.8	-58.5	0.	-0. **	220.6	570.4	257.0	69.3	1.000049
47500.0	132.6	-59.0	0.	-0. **	215.8	569.8	258.3	68.5	1.000048
48000.0	129.4	-59.1	0.	-0. **	210.7	569.6	259.5	67.3	1.000047
48500.0	126.3	-59.2	0.	-0. **	205.8	569.5	260.1	64.5	1.000046
49000.0	123.3	-59.3	0.	-0. **	200.9	569.4	260.4	61.5	1.000045
49500.0	120.4	-59.4	0.	-0. **	196.2	569.3	259.8	57.4	1.000044
50000.0	117.5	-59.5	0.	-0. **	191.6	569.1	258.5	53.7	1.000043
50500.0	114.7	-59.6	0.	-0. **	187.1	568.9	255.6	50.5	1.000042
51000.0	111.9	-60.1	0.	-0. **	183.0	568.4	252.9	47.6	1.000041
51500.0	109.2	-60.5	0.	-0. **	179.0	567.8	252.7	47.3	1.000040
52000.0	106.6	-60.9	0.	-0. **	175.0	567.3	252.5	47.1	1.000039
52500.0	104.0	-61.3	0.	-0. **	171.1	566.7	251.6	45.5	1.000038
53000.0	101.5	-61.7	0.	-0. **	167.3	566.2	250.2	43.2	1.000037
53500.0	99.1	-62.1	0.	-0. **	163.5	565.7	249.9	42.6	1.000036

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

TABLE C-V(Cont)
UPPER AIR DATA
3907603
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0810 HRS MST
ASCENSION NO. 219

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
54000.0	96.7	-62.4	0.	-0. **	159.8	565.3	253.1	48.3	1.000036
54500.0	94.3	-62.7	0.	-0. **	156.1	564.9	256.4	54.0	1.000035
55000.0	92.0	-63.0	0.	-0. **	152.6	564.5	257.4	53.7	1.000034
55500.0	89.8	-63.3	0.	-0. **	149.0	564.1	258.3	53.1	1.000033
56000.0	87.6	-63.6	0.	-0. **	145.6	563.7	258.4	53.7	1.000032
56500.0	85.5	-63.9	0.	-0. **	142.3	563.3	258.4	54.7	1.000032
57000.0	83.4	-64.1	0.	-0. **	139.0	562.9	258.8	53.3	1.000031
57500.0	81.3	-64.4	0.	-0. **	135.8	562.5	259.7	50.0	1.000030
58000.0	79.3	-64.7	0.	-0. **	132.6	562.1	259.9	47.5	1.000030
58500.0	77.4	-65.0	0.	-0. **	129.6	561.7	259.2	46.1	1.000029
59000.0	75.5	-65.3	0.	-0. **	126.6	561.3	260.0	45.5	1.000028
59500.0	73.6	-61.3	0.	-0. **	121.1	566.8	263.2	46.2	1.000027
60000.0	71.9	-60.6	0.	-0. **	117.8	567.7	265.0	45.7	1.000026
60500.0	70.1	-60.0	0.	-0. **	114.6	568.5	262.4	41.7	1.000026
61000.0	68.5	-59.3	0.	-0. **	111.6	569.4	259.7	37.9	1.000025
61500.0	66.8	-58.7	0.	-0. **	108.6	570.3	255.9	35.8	1.000024
62000.0	65.2	-58.0	0.	-0. **	105.7	571.1	252.0	33.6	1.000024
62500.0	63.7	-57.7	0.	-0. **	103.0	571.6	244.5	30.7	1.000023
63000.0	62.2	-58.4	0.	-0. **	100.9	570.5	236.3	27.6	1.000022
63500.0	60.7	-59.2	0.	-0. **	98.9	569.5	235.7	26.5	1.000022
64000.0	59.3	-60.0	0.	-0. **	96.9	568.4	241.1	26.9	1.000022
64500.0	57.8	-60.8	0.	-0. **	94.9	567.4	246.8	27.6	1.000021
65000.0	56.4	-61.7	0.	-0. **	93.0	566.3	253.0	29.1	1.000021
65500.0	55.1	-62.5	0.	-0. **	91.1	565.2	259.2	30.6	1.000020
66000.0	53.7	-61.9	0.	-0. **	88.6	566.0	265.7	32.7	1.000020
66500.0	52.4	-61.2	0.	-0. **	86.2	566.9	272.2	34.9	1.000019
67000.0	51.2	-60.5	0.	-0. **	83.8	567.8	276.1	35.1	1.000019
67500.0	50.0	-59.8	0.	-0. **	81.6	568.7	278.1	33.7	1.000018
68000.0	48.8	-59.1	0.	-0. **	79.4	569.6	280.1	32.3	1.000018
68500.0	47.6	-58.5	0.	-0. **	77.2	570.5	282.3	29.4	1.000017
69000.0	46.5	-57.8	0.	-0. **	75.2	571.4	284.5	26.6	1.000017
69500.0	45.4	-57.1	0.	-0. **	73.2	572.3	280.9	23.1	1.000016
70000.0	44.3	-56.5	0.	-0. **	71.2	573.2	273.3	19.0	1.000016

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

TABLE C-V (Cont)

UPPER AIR DATA

3907603

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0810 HRS MST
ASCENSION NO. 219

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
70500.0	43.3	-55.8	0.	-0. **	69.3	574.0	265.5	15.3	1.000015
71000.0	42.2	-55.2	0.	-0. **	67.5	574.9	254.2	14.8	1.000015
71500.0	41.2	-55.8	0.	-0. **	66.1	574.0	242.8	14.3	1.000015
72000.0	40.3	-56.9	0.	-0. **	64.9	572.6	235.5	14.7	1.000014
72500.0	39.3	-58.0	0.	-0. **	63.7	571.1	231.6	15.8	1.000014
73000.0	38.4	-59.1	0.	-0. **	62.5	569.6	227.7	17.0	1.000014
73500.0	37.5	-59.3	0.	-0. **	61.1	569.4	234.8	18.9	1.000014
74000.0	36.6	-58.9	0.	-0. **	59.5	570.0	242.0	20.7	1.000013
74500.0	35.7	-58.4	0.	-0. **	57.9	570.6	248.4	22.0	1.000013
75000.0	34.9	-58.0	0.	-0. **	56.4	571.2	254.1	22.7	1.000013
75500.0	34.0	-57.5	0.	-0. **	55.0	571.8	259.7	23.4	1.000012
76000.0	33.2	-57.0	0.	-0. **	53.6	572.4	262.6	23.5	1.000012
76500.0	32.4	-56.6	0.	-0. **	52.2	573.0	264.7	23.5	1.000012
77000.0	31.7	-56.1	0.	-0. **	50.9	573.6	266.8	23.4	1.000011
77500.0	30.9	-55.7	0.	-0. **	49.6	574.2	269.3	21.6	1.000011
78000.0	30.2	-55.2	0.	-0. **	48.3	574.8	271.9	19.6	1.000011
78500.0	29.5	-54.8	0.	-0. **	47.1	575.4	274.4	17.5	1.000010
79000.0	28.8	-54.3	0.	-0. **	45.9	576.0	270.1	17.5	1.000010
79500.0	28.1	-53.9	0.	-0. **	44.7	576.6	264.4	17.9	1.000010
80000.0	27.5	-53.4	0.	-0. **	43.6	577.2	258.8	18.3	1.000010
80500.0	26.8	-53.1	0.	-0. **	42.5	577.7	256.3	19.6	1.000009
81000.0	26.2	-52.8	0.	-0. **	41.5	577.9	254.8	21.0	1.000009
81500.0	25.6	-52.6	0.	-0. **	40.5	578.2	253.3	22.5	1.000009
82000.0	25.0	-52.4	0.	-0. **	39.5	578.5	250.8	24.0	1.000009
82500.0	24.4	-52.2	0.	-0. **	38.6	578.8	247.7	25.4	1.000009
83000.0	23.9	-52.0	0.	-0. **	37.6	579.0	244.7	26.8	1.000008
83500.0	23.3	-51.8	0.	-0. **	36.7	579.3	244.3	27.5	1.000008
84000.0	22.8	-51.6	0.	-0. **	35.9	579.6	246.1	27.5	1.000008
84500.0	22.3	-51.4	0.	-0. **	35.0	579.8	248.0	27.6	1.000008
85000.0	21.8	-51.2	0.	-0. **	34.2	580.1	249.9	26.9	1.000008
85500.0	21.3	-51.0	0.	-0. **	33.3	580.4	251.7	25.1	1.000007
86000.0	20.8	-50.8	0.	-0. **	32.5	580.7	253.5	23.3	1.000007
86500.0	20.3	-50.6	0.	-0. **	31.8	580.9	255.8	22.0	1.000007

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

TABLE C-V (Cont)
UPPER AIR DATA
3907603
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0810 HRS MST
ASCENSION NO. 219

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
87000.0	19.8	-50.4	0.	-0. **	31.0	581.2	259.3	22.1	1.000007
87500.0	19.4	-50.2	0.	-0. **	30.3	581.5	262.7	22.2	1.000007
88000.0	18.9	-50.0	0.	-0. **	29.6	581.7	266.1	22.0	1.000007
88500.0	18.5	-49.7	0.	-0. **	28.9	582.0	268.8	20.4	1.000006
89000.0	18.1	-49.5	0.	-0. **	28.2	582.3	271.5	18.8	1.000006
89500.0	17.7	-49.3	0.	-0. **	27.5	582.5	274.2	17.2	1.000006
90000.0	17.3	-49.1	0.	-0. **	26.9	582.8	270.7	16.0	1.000006
90500.0	16.9	-48.9	0.	-0. **	26.2	583.1	267.2	14.8	1.000006
91000.0	16.5	-48.7	0.	-0. **	25.6	583.3	263.7	13.6	1.000006
91500.0	16.1	-48.5	0.	-0. **	25.0	583.6	262.0	14.1	1.000006
92000.0	15.8	-48.3	0.	-0. **	24.4	583.9	260.6	14.9	1.000005
92500.0	15.4	-48.1	0.	-0. **	23.8	584.1	259.3	15.8	1.000005
93000.0	15.0	-47.9	0.	-0. **	23.3	584.4	253.7	16.2	1.000005
93500.0	14.7	-47.7	0.	-0. **	22.7	584.6	246.8	16.5	1.000005
94000.0	14.4	-47.5	0.	-0. **	22.2	584.9	239.8	16.9	1.000005
94500.0	14.0	-47.3	0.	-0. **	21.7	585.2	245.0	20.4	1.000005
95000.0	13.7	-47.1	0.	-0. **	21.2	585.4	253.8	24.8	1.000005
95500.0	13.4	-46.9	0.	-0. **	20.7	585.7	262.7	29.3	1.000005
96000.0	13.1	-46.7	0.	-0. **	20.2	586.0	264.5	31.0	1.000004
96500.0	12.8	-46.5	0.	-0. **	19.7	586.2	265.6	32.4	1.000004
97000.0	12.5	-46.3	0.	-0. **	19.3	586.5	266.7	33.9	1.000004
97500.0	12.3	-46.1	0.	-0. **	18.8	586.7	269.0	36.7	1.000004
98000.0	12.0	-45.8	0.	-0. **	18.4	587.1	271.2	39.5	1.000004
98500.0	11.7	-45.3	0.	-0. **	17.9	587.8	273.0	41.6	1.000004
99000.0	11.4	-44.7	0.	-0. **	17.5	588.5	272.5	39.8	1.000004
99500.0	11.2	-44.1	0.	-0. **	17.0	589.3	272.0	38.0	1.000004
100000.0	10.9	-43.6	0.	-0. **	16.6	590.0	271.4	36.7	1.000004
100500.0	10.7	-43.0	0.	-0. **	16.2	590.7	270.5	37.2	1.000004
101000.0	10.5	-42.4	0.	-0. **	15.8	591.4	269.7	37.8	1.000004
101500.0	10.2	-41.9	0.	-0. **	15.4	592.2	268.9	37.7	1.000003
102000.0	10.0	-41.3	0.	-0. **	15.0	592.9	267.9	36.2	1.000003
102500.0	9.8	-41.0	0.	-0. **	14.7	593.3	267.0	34.6	1.000003
103000.0	9.6	-40.7	0.	-0. **	14.3	593.6	266.1	33.5	1.000003

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

TABLE C-V (Cont)
UPPER AIR DATA
3907603
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
17 MAR. 65 0810 HRS MST
ASCENSION NO. 219

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
103500.0	9.4	-40.4	0.	-0. **	14.0	594.0	265.2	33.3	1.000003
104000.0	9.2	-40.1	0.	-0. **	13.7	594.4	264.2	33.2	1.000003
104500.0	9.0	-39.8	0.	-0. **	13.4	594.8			1.000003
105000.0	8.8	-39.5	0.	-0. **	13.1	595.1			1.000003
105500.0	8.6	-39.3	0.	-0. **	12.8	595.5			1.000003
106000.0	8.4	-39.0	0.	-0. **	12.5	595.9			1.000003
106500.0	8.2	-38.7	0.	-0. **	12.2	596.2			1.000003
107000.0	8.0	-38.4	0.	-0. **	11.9	596.6			1.000003
107500.0	7.8	-38.1	0.	-0. **	11.6	597.0			1.000003

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

APPENDIX D

AEROBEE NASA 4.63 GS (S/N NASA 133)

IMPACT PREDICTION DATA

TABLE		PAGE
D-I.	Impact Prediction Data - - - - - - - - - - - - - - - - - -	38

APPENDIX D

TABLE D-I

IMPACT PREDICTION DATA

TIME: 0810 MST
DATE: 17 March 1965

MISSILE: AEROBEE NASA 4.63 GS (S/N NASA 133)

RELEASE TIME (MST)		DISPLACEMENT OF IMPACT DUE TO WIND IN MILES				THEORETICAL IMPACT IN MILES	
RAWIN-SONDE	TIBAL	143 TO 2,000 FT	2,000 TO 20,000 FT	20,000 TO 100,000 FT	TOTAL	N-S of LAUNCHER	E-W of LAUNCHER
R_1 0200 R 0200	P 0400	0.7S 10.9W	13.6N 14.1W	0.6N 16.3W	13.5N 41.3W	46.8N	11.6E
R_1 0200 R 0200	P 0430	2.0N 3.6W	19.7N 23.2W	0.6N 16.3W	22.3N 43.1W	55.6N	9.8E
R_1 0200 R 0200	P 0500	4.6N 32.2W	19.0N 26.4W	0.6N 16.3W	24.2N 74.9W	57.5N	22.0W
R_1 0430 R 0200	P 0530	2.3N 35.3W	23.9N 32.4W	0.6N 16.3W	26.8N 84.0W	60.1N	31.1W
R_1 0430 R 0200	P 0545	15.3N 24.1W	22.5N 28.8W	0.6N 16.3W	38.4N 69.2W	71.7N	16.3W
R_1 0430 R 0200	P 0608	0.6S 21.3W	22.5N 28.8W	0.6N 16.3W	22.5N 66.4W	55.8N	13.5W
R_1 0430 R 0430	P 0630	2.5S 7.9W	22.5N 28.8W	0.8N 15.5W	20.8N 52.2W	54.1N	0.7E
R_1 0430 R 0430	P 0654	1.5S 12.6W	19.9N 26.4W	0.8N 15.5W	19.2N 54.5W	52.5N	1.6W
R_1 0430 R 0430	P 0715	1.6N 12.1W	21.2N 27.0W	0.8N 15.5W	23.6N 54.6W	56.9N	1.7W
R_2 0700 R 0430	P 0730	0.1S 13.7W	17.8N 24.5W	0.8N 15.5W	18.5N 53.7W	51.8N	0.8W
R_2 0700 R 0430	P 0740	2.1N 15.6W	16.1N 24.1W	0.8N 15.5W	19.0N 55.2W	52.3N	2.3W
R_2 0700 R 0430	P 0750	0.3N 16.7W	15.5N 22.8W	0.8N 15.5W	16.6N 55.0W	49.9N	2.1W
R_2 0700 R 0430	P 0803	0.0 11.2W	15.5N 22.5W	0.8N 15.5W	16.3N 49.2W	49.6N	3.7E
*R_1 0810 *R 0810	*P 0812	0.2N 7.3W	16.3N 24.7W	1.2S 15.5W	15.3N 47.5W	48.6N	5.4E

P = Double Theodolite Winds (143-4,000 Ft)
R = Rawinsonde Winds (Above 20,000 Ft)
R_1 = Rawinsonde Winds (4,000-20,000 Ft)
R_2 = Rawin Winds (4,000-20,000 Ft)

*Post-Shoot Data

TABLE D-I (Cont)

IMPACT PREDICTION DATA

AEROBEE NASA 4.63 GS SERIAL NO. NASA 133

JACK SETTINGS

West leg 36 inches East leg 0 inches

LAUNCHER SETTING

Tilt 3.96 degrees Azimuth 060.0 degrees

COMPONENTS OF TILT

1.98 degrees north 3.43 degrees east

NO WIND IMPACT

33.3 miles north of Navy Blockhouse 52.9 miles east of Navy Blockhouse

PREDICTED IMPACT

52 miles north of Navy Blockhouse 3 miles east of Navy Blockhouse

PREDICTED BOOSTER IMPACT

Azimuth 073 degrees Distance 1,515 feet

Recommendation Fire

With 85 % confidence of impacting on range, based upon:

wind correction 57 miles

one hour wind variability 5.5 miles

Date/Time 17 Mar 1965/0745 MST

Actual Impact (From Launcher) 51.5 miles north, 5.3 miles east (Radar)

Actual Booster Impact (From Launcher) N/A

U. S. ARMY ELECTRONICS RESEARCH AND DEVELOPMENT ACTIVITY
WHITE SANDS MISSILE RANGE
NEW MEXICO

FRANCISCO MEJIA-FLORES
LT COLONEL, SIGNAL CORPS
COMMANDING

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Major, Signal Corps
Director
Environmental Sciences Directorate

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HEADQUARTERS
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NEW MEXICO

April 1965

1. Data Report ERDA-295 has been prepared under the supervision of the Meteorological Support Division and is published for the information and guidance of all concerned.

2. Suggestions or criticisms relative to the form, contents, purpose, or use of this publication should be referred to the Commanding Officer, U. S. Army Electronics Research and Development Activity, ATTN: SELWS-E, White Sands Missile Range, New Mexico.

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