US ARMY ELECTRONICS RESEARCH & DEVELOPMENT ACTIVITY

METEOROLOGICAL DATA REPORT

AEROBEE NASA 4.57 GG (S/N NASA 143)
(18 March 1965)

BY

MARJORIE McLARDIE HOIDALE

ERDA-297

APRIL 1965

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

ABSTRACT

Meteorological data gathered for the launching of Aerobee NASA 4.57 GG (S/N NASA 143) 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.

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INTRODUCTION

Aerobee NASA 4.57 GG (S/N NASA 143) was launched by Naval Ordnance Missile Test Facility personnel, White Sands Missile Range, New Mexico, at 2000 hours MST, 18 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.

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[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 4.57 GG (S/N NASA 143)

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APPENDIX A

TABLE A-I

CALCULATED ROCKET PERFORMANCE VALUES

AEROBEE NASA 4.57 GG (S/N NASA 143)

PAYLOAD 320.0 Pounds*

UNIT WIND EFFECT	Surface to 2,000 FT	2.38 Miles/MPH (3)
	2,000 to 100,000 FT	4.28 Miles/MPH
TOWER TILT EFFECT		17.33 Miles/Degree
BURNOUT:		
Velocity		5,405 Feet/Second
Altitude		122,285 Feet MSL
Time		51 Seconds
PEAK:		
Altitude		110.9 Miles MSL
Time		220 Seconds
TOTAL TIME OF FLIGHT		425 Seconds
CORIOLIS EFFECT (West)		5.05 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.

TABLE A-II

TABLE OF BALLISTIC FACTORS

AEROBEE NASA 4.57 GG (S/N NASA 143)

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 4.57 GG (S/N NASA 143)

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APPENDIX B

TABLE B-I

ANEMOMETER RECORDINGS OF WIND SPEED AND DIRECTION

AEROBEE NASA 4.57 GG (S/N NASA 143)

TIME (MINUTES)	WIND SPEED (KNOTS)	DIRECTION (DEGREES)
T - 15	11.0	165
T - 10	8.5	176
T - 5	7.5	172
T - Time	9.0	167
T + 5	11.0	157
T + 10	11.0	158
T + 15	12.5	141

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

TABLE B-II

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.57 GG (S/N NASA 143)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	1		2		3		4	
RELEASE TIME (MST)	1540		1600		1630		1700	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	12.0S	4.0W	7.5S	0.5W	12.0S	4.5W	14.5S	4.0W
250 - 400	10.5	6.5	11.5	2.0	13.5	6.5	18.0	6.5
400 - 600	9.5	6.0	10.5	0.5	13.0	5.5	19.0	7.0
600 - 800	9.5	8.5	13.0	4.5	17.0	6.5	20.0	4.5
800 - 1,200	12.0	7.0	13.5	3.0	17.5	5.5	19.5	2.5
1,200 - 1,600	9.5	5.5	15.0	0.5	14.0	4.5	20.0	0.5
1,600 - 2,000	11.0	9.5	16.0	1.0	15.0	8.0	20.5	3.0
2,000 - 2,500	12.0	8.0	16.0	0.5	13.5	6.0	19.5	3.5
2,500 - 3,000	10.0	9.0	11.0	2.5	17.5	11.0	15.0	5.0
3,000 - 3,500	9.5	11.0	12.5	6.0	14.5	13.0	19.5	8.0
3,500 - 4,000	7.5	10.5	12.0	7.0	14.5	12.5	17.5	9.5

APPENDIX B

TABLE B-II (Cont)

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.57 GG (S/N NASA 143)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	5		6		7		8	
RELEASE TIME (MST)	1730		1800		1830		1900	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	11.0S	18.0E	17.0S	19.0E	11.0S	17.0E	19.0S	18.5E
250 - 400	16.0	21.0	16.5	21.0	16.0	20.0	16.5	20.5
400 - 600	17.0	22.0	16.0	21.0	18.0	21.5	15.5	22.0
600 - 800	18.0	16.0	16.0	20.0	19.0	22.0	17.0	23.0
800 - 1,200	20.0	10.0	18.5	17.5	17.0	20.5	20.5	23.0
1,200 - 1,600	16.0	2.0	24.0	9.5	20.0	18.0	22.0	19.0
1,600 - 2,000	18.0	0.0	21.0	1.0W	19.0	10.0	21.5	13.0
2,000 - 2,500	12.0	8.0W	14.0	12.0	20.0	8.0W	18.5	7.5
2,500 - 3,000	*M	M	8.0	19.0	13.0	16.0	16.0	7.5W
3,000 - 3,500	M	M	8.0	19.5	M	M	14.5	20.5
3,500 - 4,000	M	M	4.0	24.0	M	M	6.0	20.5

*M = Missing

TABLE B-II (Cont)

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.57 GG (S/N NASA 143)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	9		10		11		12	
RELEASE TIME (MST)	1915		1930		1940		1950	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	8.0S	9.0E	6.0S	5.5E	1.0N	1.0W	6.0S	5.0E
250 - 400	9.5	12.5	9.5	7.5	8.0S	1.5E	8.0	5.0
400 - 600	9.5	14.0	14.5	14.0	19.0	9.0	9.0	7.0
600 - 800	13.0	14.5	10.0	14.0	17.0	11.0	8.5	8.5
800 - 1,200	15.5	21.0	11.0	17.0	17.0	20.5	10.5	13.0
1,200 - 1,600	21.0	17.5	14.0	20.5	20.0	18.0	18.0	19.0
1,600 - 2,000	21.0	5.0	19.5	12.0	18.0	11.0	21.5	16.0
2,000 - 2,500	17.5	0.0	18.5	6.5	11.5	9.0W	16.0	0.5
2,500 - 3,000	*M	M	11.5	7.5W	21.0	3.0	15.0	5.5W
3,000 - 3,500	M	M	11.5	9.5	7.5	12.0	7.5	10.0
3,500 - 4,000	M	M	1.0	18.0	M	M	1.5	19.0

*M = Missing

TABLE B-II (Cont)

PILOT-BALLOON-MEASURED WIND DATA

AEROBEE NASA 4.57 GG (S/N NASA 143)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN MILES PER HOUR

DOUBLE-THEODOLITE METHOD

RELEASE NO.	13							
RELEASE TIME (MST)	2002							
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
143 - 250	8.5S	4.5E						
250 - 400	13.0	8.0						
400 - 600	13.0	9.0						
600 - 800	14.0	12.0						
800 - 1,200	15.0	14.5						
1,200 - 1,600	20.0	20.0						
1,600 - 2,000	18.0	10.0						
2,000 - 2,500	19.0	1.0						
2,500 - 3,000	13.5	4.0W						
3,000 - 3,500	9.0	8.0						
3,500 - 4,000	*M	M						

*M = Missing

APPENDIX C

TABLES OF UPPER AIR DATA

AEROBEE NASA 4.57 GG (S/N NASA 143)

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APPENDIX C

TABLE C-I

UPPER AIR DATA

AEROBEE NASA 4.57 GG (S/N NASA 143)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN KNOTS

RELEASE NO.	1	
RELEASE TIME (MST)	1900	
LAYERS IN FEET	N-S	E-W
4,000 - 5,000	11.0S	19.0W
5,000 - 10,000	4.5	25.5
10,000 - 15,000	0.0	39.0
15,000 - 20,000	7.5S	41.5

APPENDIX C

TABLE C-II

UPPER AIR DATA

AEROBEE NASA 4.57 GG (S/N NASA 143)

MEAN WIND COMPONENTS FOR BALLISTIC ZONES IN KNOTS

RELEASE NO.	1		2		3	
RELEASE TIME (MST)	1400		1630		2000	
LAYERS IN FEET	N-S	E-W	N-S	E-W	N-S	E-W
4,000 - 5,000	8.0S	4.5W	13.0S	11.0W	7.0S	15.5W
5,000 - 10,000	8.5	10.0	5.5	15.0	7.0	31.0
10,000 - 15,000	7.5N	43.5	7.0N	40.5	6.0	36.5
15,000 - 20,000	0.0	59.0	0.0	48.0	13.5	39.0
20,000 - 25,000	14.5S	81.0	0.0	46.0	10.0	44.0
25,000 - 30,000	14.5	82.0	7.5S	43.5	6.0	45.0
30,000 - 35,000	17.5	99.5	0.0	72.0	11.0	68.0
35,000 - 40,000	14.5	81.5	0.0	86.0	6.0	69.0
40,000 - 45,000	0.0	68.0	0.0	54.0	3.0	62.0
45,000 - 50,000	0.0	53.0	0.0	63.0	4.5	68.0
50,000 - 60,000	0.0	51.0	0.0	55.0	7.5	54.5
60,000 - 70,000	6.5S	36.5	7.0S	40.5	3.5	34.0
70,000 - 80,000	18.0	31.0	15.5	42.5	17.0	50.0
80,000 - 90,000	0.0	20.0	14.5	40.5	20.0	41.5
90,000 - 100,000	0.0	25.0	9.0	25.0	33.5	48.5

TABLE C-III
UPPER AIR DATA
3907708
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1400 HRS MST
ASCENSION NO. 224

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	874.4	17.8	-3.6	23.0	1045.0	664.8	230.0	9.9	1.000254
5000.0	843.1	13.2	-7.2	23.5	1024.4	659.4	221.4	10.7	1.000245
5500.0	827.9	11.5	-8.1	24.6	1011.9	657.4	217.2	11.1	1.000241
6000.0	812.9	9.8	-8.9	25.8	999.5	655.5	213.0	11.5	1.000237
6500.0	798.1	8.1	-9.8	26.9	987.2	653.5	209.9	11.7	1.000234
7000.0	783.5	6.4	-10.7	28.1	975.0	651.5	212.5	11.1	1.000230
7500.0	769.0	5.1	-11.0	30.3	961.8	649.9	215.1	10.5	1.000227
8000.0	754.8	3.7	-11.3	32.6	948.7	648.3	216.7	9.9	1.000224
8500.0	740.7	2.2	-11.5	35.4	936.0	646.6	216.6	9.8	1.000221
9000.0	726.8	0.8	-11.9	38.2	923.3	644.9	216.4	10.1	1.000218
9500.0	713.2	-0.7	-12.3	41.0	910.8	643.1	216.6	10.5	1.000215
10000.0	699.7	-2.1	-12.9	43.8	898.4	641.4	220.4	11.2	1.000212
10500.0	686.4	-3.6	-13.4	46.7	886.2	639.6	224.1	11.9	1.000209
11000.0	673.2	-5.1	-14.1	49.5	874.1	637.9	235.5	12.9	1.000206
11500.0	660.3	-6.3	-16.4	44.8	861.2	636.4	247.1	14.0	1.000201
12000.0	647.6	-6.6	-22.4	27.5	846.0	635.9	260.4	18.1	1.000194
12500.0	635.0	-7.6	-22.9	28.1	832.6	634.8	271.8	22.2	1.000191
13000.0	622.7	-8.5	-23.5	28.8	819.4	633.6	277.0	26.3	1.000188
13500.0	610.6	-9.4	-24.1	29.5	806.3	632.5	280.2	29.8	1.000184
14000.0	598.7	-10.4	-24.6	30.2	793.4	631.4	281.7	32.9	1.000181
14500.0	586.9	-11.3	-25.2	30.9	780.7	630.2	282.3	34.3	1.000178
15000.0	575.4	-12.3	-25.8	31.6	768.1	629.1	283.1	36.1	1.000175
15500.0	564.0	-13.2	-26.4	32.3	755.7	627.9	284.4	38.7	1.000172
16000.0	552.9	-14.2	-27.0	33.0	743.5	626.7	284.4	41.7	1.000169
16500.0	541.9	-15.2	-27.7	33.7	731.5	625.6	284.0	44.9	1.000167
17000.0	531.0	-16.0	-29.6	30.2	719.3	624.5	281.6	46.7	1.000163
17500.0	520.4	-16.8	-32.6	24.3	707.2	623.5	278.8	48.4	1.000160
18000.0	510.0	-18.1	-33.3	25.1	696.3	622.0	274.8	50.1	1.000157
18500.0	499.7	-19.4	-33.5	27.9	686.0	620.3	270.8	51.6	1.000155
19000.0	489.5	-20.8	-33.7	30.6	675.7	618.6	268.4	51.2	1.000153
19500.0	479.5	-22.2	-34.1	33.4	665.6	616.9	266.4	51.3	1.000150
20000.0	469.7	-23.6	-34.6	36.2	655.6	615.2	265.8	53.1	1.000148
20500.0	460.0	-25.0	-35.1	39.0	645.7	613.4	266.0	52.8	1.000146

TABLE C-III (Cont)

UPPER AIR DATA

3907708

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1400 HRS MST
ASCENSION NO. 224

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
21000.0	450.4	-26.4	-35.7	41.8	635.9	611.7	266.8	51.3	1.000143
21500.0	441.0	-27.8	-36.3	44.7	626.3	609.9	267.5	51.7	1.000141
22000.0	431.8	-28.8	-37.9	42.1	615.6	608.7	267.2	50.2	1.000139
22500.0	422.7	-29.8	-39.5	38.7	605.0	607.5	266.3	48.4	1.000136
23000.0	413.7	-30.8	-41.2	35.4	594.6	606.3	264.9	48.1	1.000133
23500.0	405.0	-31.7	-43.0	32.1	584.3	605.1	263.3	48.1	1.000131
24000.0	396.3	-32.7	-44.8	29.1	574.2	603.8	261.6	48.2	1.000129
24500.0	387.8	-34.1	-45.9	29.7	565.2	602.1	260.2	47.5	1.000127
25000.0	379.5	-35.5	-46.9	30.4	556.2	600.3	259.2	46.9	1.000124
25500.0	371.3	-36.8	-47.9	31.1	547.4	598.6	259.5	47.7	1.000122
26000.0	363.2	-38.2	-49.0	31.7	538.6	596.8	259.4	48.1	1.000120
26500.0	355.2	-39.5	-50.6	30.1*	529.8	595.2	258.7	48.0	1.000118
27000.0	347.4	-40.8	-52.7	27.0**	520.8	593.6	258.6	48.4	1.000116
27500.0	339.7	-42.0	-54.8	23.8**	512.0	592.0	258.9	49.3	1.000114
28000.0	332.2	-43.2	-57.0	20.6**	503.3	590.4	258.2	48.9	1.000112
28500.0	324.7	-44.5	-59.4	17.4**	494.8	588.8	257.0	48.0	1.000110
29000.0	317.4	-45.7	-62.1	14.2**	486.3	587.2	257.0	48.2	1.000108
29500.0	310.2	-47.0	-65.0	11.0**	478.0	585.6	257.0	48.4	1.000107
30000.0	303.2	-48.3	-68.5	7.8**	469.7	583.9	257.0	48.0	1.000105
30500.0	296.3	-49.5	-73.3	4.5**	461.6	582.3	257.1	47.7	1.000103
31000.0	289.4	-50.8	-82.4	1.2**	453.6	580.6	258.4	49.4	1.000101
31500.0	282.7	-51.8	0.0	0.0**	445.1	579.3	259.7	51.1	1.000099
32000.0	276.2	-52.7	0.0	0.0**	436.4	578.2	260.3	51.7	1.000097
32500.0	269.8	-53.5	0.0	0.0**	427.9	577.1	260.8	52.3	1.000095
33000.0	263.4	-54.4	0.0	0.0**	419.5	576.0	261.8	55.3	1.000093
33500.0	257.3	-55.2	0.0	0.0**	411.3	574.8	262.8	58.7	1.000092
34000.0	251.2	-56.1	0.0	0.0**	403.2	573.7	263.0	63.0	1.000090
34500.0	245.3	-56.9	0.0	0.0**	395.2	572.6	263.0	67.5	1.000088
35000.0	239.4	-57.2	0.0	0.0**	386.4	572.2	262.7	69.6	1.000086
35500.0	233.8	-57.4	0.0	0.0**	377.5	571.9	262.3	71.2	1.000084
36000.0	228.2	-57.6	0.0	0.0**	368.8	571.7	262.0	75.0	1.000082
36500.0	222.8	-57.2	0.0	0.0**	359.4	572.3	261.8	79.3	1.000080
37000.0	217.5	-56.6	0.0	0.0**	349.9	573.0	261.4	78.7	1.000078

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

TABLE C-III (Cont)
UPPER AIR DATA
3907708
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1400 HRS MST
ASCENSION NO. 224

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
37000.0	212.4	-56.0	0.0	0.0**	340.8	573.8	261.0	77.5	1.000076
38000.0	207.4	-55.5	0.0	0.0**	331.9	574.5	262.0	80.7	1.000074
38500.0	202.5	-56.2	0.0	0.0**	325.2	573.5	263.2	84.6	1.000072
39000.0	197.7	-57.0	0.0	0.0**	318.7	572.5	264.1	83.4	1.000071
39500.0	193.0	-57.2	0.0	0.0**	311.4	572.2	264.8	81.1	1.000069
40000.0	188.4	-57.4	0.0	0.0**	304.3	571.9	265.3	80.6	1.000068
40500.0	184.0	-57.6	0.0	0.0**	297.4	571.6	265.8	80.6	1.000066
41000.0	179.6	-57.8	0.0	0.0**	290.6	571.4	265.6	79.8	1.000065
41500.0	175.3	-58.0	0.0	0.0**	284.0	571.1	264.9	78.5	1.000063
42000.0	171.1	-58.2	0.0	0.0**	277.5	570.8	264.2	77.4	1.000062
42500.0	167.1	-58.5	0.0	0.0**	271.1	570.5	263.4	76.3	1.000060
43000.0	163.1	-58.7	0.0	0.0**	264.9	570.3	262.9	75.4	1.000059
43500.0	159.2	-58.9	0.0	0.0**	258.8	570.0	263.2	74.8	1.000058
44000.0	155.4	-59.1	0.0	0.0**	252.9	569.7	263.5	74.1	1.000056
44500.0	151.7	-59.3	0.0	0.0**	247.1	569.4	264.2	73.3	1.000055
45000.0	148.0	-59.5	0.0	0.0**	241.4	569.1	264.9	72.4	1.000054
45500.0	144.5	-59.7	0.0	0.0**	235.9	568.9	265.3	70.2	1.000053
46000.0	141.0	-59.9	0.0	0.0**	230.4	568.6	265.8	68.0	1.000051
46500.0	137.6	-60.1	0.0	0.0**	225.1	568.3	266.2	64.6	1.000050
47000.0	134.3	-60.3	0.0	0.0**	219.9	568.1	266.6	61.2	1.000049
47500.0	131.1	-60.5	0.0	0.0**	214.8	567.8	267.1	58.8	1.000048
48000.0	127.9	-60.7	0.0	0.0**	209.8	567.5	267.6	56.5	1.000047
48500.0	124.9	-60.9	0.0	0.0**	204.9	567.3	268.2	56.1	1.000046
49000.0	121.8	-61.1	0.0	0.0**	200.2	567.0	268.7	56.5	1.000045
49500.0	118.9	-61.3	0.0	0.0**	195.5	566.8	268.9	56.9	1.000044
50000.0	116.0	-61.5	0.0	0.0**	191.0	566.5	268.7	57.4	1.000043
50500.0	113.2	-61.7	0.0	0.0**	186.6	566.2	268.5	57.5	1.000042
51000.0	110.5	-61.9	0.0	0.0**	182.2	566.0	268.2	56.7	1.000041
51500.0	107.8	-62.1	0.0	0.0**	178.0	565.7	267.9	56.0	1.000040
52000.0	105.2	-62.3	0.0	0.0**	173.8	565.4	268.4	54.5	1.000039
52500.0	102.6	-62.5	0.0	0.0**	169.8	565.2	268.9	52.9	1.000038
53000.0	100.2	-62.7	0.0	0.0**	165.8	564.9	269.8	52.6	1.000037
53500.0	97.7	-62.9	0.0	0.0**	161.9	564.6	270.7	52.4	1.000036

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

TABLE C-III (Cont)

UPPER AIR DATA
3907708
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1400 HRS MST
ASCENSION NO. 224

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	95.3	-63.1	0.0	0.0**	158.1	564.4	271.0	53.4	1.000035
54500.0	93.0	-63.3	0.0	0.0**	154.4	564.1	270.9	55.1	1.000034
55000.0	90.8	-63.5	0.0	0.0**	150.8	563.8	270.6	57.2	1.000034
55500.0	88.5	-63.7	0.0	0.0**	147.3	563.6	269.5	60.4	1.000033
56000.0	86.4	-63.9	0.0	0.0**	143.8	563.3	268.5	63.4	1.000032
56500.0	84.3	-64.1	0.0	0.0**	140.4	563.0	266.7	63.7	1.000031
57000.0	82.2	-64.3	0.0	0.0**	137.1	562.7	264.8	64.0	1.000031
57500.0	80.2	-64.3	0.0	0.0**	133.8	562.7	262.8	62.1	1.000030
58000.0	78.2	-64.1	0.0	0.0**	130.4	563.0	260.8	59.3	1.000029
58500.0	76.3	-63.9	0.0	0.0**	127.1	563.2	258.9	56.8	1.000028
59000.0	74.4	-63.7	0.0	0.0**	123.9	563.5	257.4	54.6	1.000028
59500.0	72.6	-63.5	0.0	0.0**	120.7	563.7	255.9	52.6	1.000027
60000.0	70.9	-63.3	0.0	0.0**	117.7	564.0	256.2	53.0	1.000026
60500.0	69.1	-63.2	0.0	0.0**	114.7	564.3	256.5	53.5	1.000026
61000.0	67.5	-63.0	0.0	0.0**	111.8	564.5	257.6	54.9	1.000025
61500.0	65.8	-62.8	0.0	0.0**	109.0	564.8	259.0	56.7	1.000024
62000.0	64.2	-62.6	0.0	0.0**	106.2	565.0	260.1	58.3	1.000024
62500.0	62.7	-62.4	0.0	0.0**	103.6	565.3	260.7	59.3	1.000023
63000.0	61.1	-62.2	0.0	0.0**	101.0	565.6	261.3	60.3	1.000022
63500.0	59.7	-62.0	0.0	0.0**	98.4	565.8	261.7	59.3	1.000022
64000.0	58.2	-61.1	0.0	0.0**	95.7	567.0	262.1	57.7	1.000021
64500.0	56.8	-59.7	0.0	0.0**	92.7	568.9	262.4	55.3	1.000021
65000.0	55.5	-58.3	0.0	0.0**	89.9	570.8	262.7	49.5	1.000020
65500.0	54.1	-56.9	0.0	0.0**	87.2	572.6	263.0	43.6	1.000019
66000.0	52.9	-55.5	0.0	0.0**	84.6	574.4	263.5	37.6	1.000019
66500.0	51.6	-54.1	0.0	0.0**	82.1	576.3	264.1	31.5	1.000018
67000.0	50.4	-53.8	0.0	0.0**	80.1	576.7	264.7	25.3	1.000018
67500.0	49.3	-54.7	0.0	0.0**	78.6	575.5	265.8	23.5	1.000017
68000.0	48.1	-55.6	0.0	0.0**	77.0	574.3	266.8	22.0	1.000017
68500.0	47.0	-56.5	0.0	0.0**	75.5	573.1	267.4	22.2	1.000017
69000.0	45.9	-57.4	0.0	0.0**	74.1	571.9	267.2	26.3	1.000016
69500.0	44.8	-58.3	0.0	0.0**	72.6	570.7	266.9	30.3	1.000016
70000.0	43.7	-58.8	0.0	0.0**	71.1	570.0	266.0	34.8	1.000016

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

TABLE C-III (Cont)

UPPER AIR DATA

3907708

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1400 HRS MST
ASCENSION NO. 224

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
70500.0	42.7	-58.3	0.0	0.0**	69.2	570.8	264.8	39.5	1.000015
71000.0	41.7	-57.7	0.0	0.0**	67.4	571.5	263.6	43.8	1.000015
71500.0	40.7	-57.2	0.0	0.0**	65.6	572.2	261.3	43.5	1.000015
72000.0	39.7	-56.6	0.0	0.0**	63.9	573.0	259.1	43.3	1.000014
72500.0	38.8	-56.1	0.0	0.0**	62.2	573.7	256.4	42.2	1.000014
73000.0	37.9	-55.5	0.0	0.0**	60.6	574.4	253.2	40.3	1.000014
73500.0	37.0	-55.0	0.0	0.0**	59.1	575.1	250.0	38.3	1.000013
74000.0	36.1	-55.4	0.0	0.0**	57.8	574.5	247.6	36.7	1.000013
74500.0	35.3	-55.8	0.0	0.0**	56.5	574.0	245.1	35.1	1.000013
75000.0	34.4	-56.3	0.0	0.0**	55.3	573.4	245.0	35.5	1.000012
75500.0	33.6	-56.7	0.0	0.0**	54.1	572.9	245.9	36.9	1.000012
76000.0	32.8	-56.8	0.0	0.0**	52.9	572.8	247.0	38.1	1.000012
76500.0	32.1	-55.7	0.0	0.0**	51.4	574.2	248.2	39.0	1.000011
77000.0	31.3	-54.6	0.0	0.0**	49.9	575.6	249.3	39.8	1.000011
77500.0	30.6	-53.6	0.0	0.0**	48.5	577.0	248.5	37.4	1.000011
78000.0	29.9	-52.5	0.0	0.0**	47.2	578.4	247.7	35.0	1.000011
78500.0	29.2	-51.5	0.0	0.0**	45.9	579.8	245.3	32.1	1.000010
79000.0	28.5	-50.4	0.0	0.0**	44.6	581.1	242.2	29.0	1.000010
79500.0	27.9	-49.7	0.0	0.0**	43.4	582.0	239.5	27.0	1.000010
80000.0	27.2	-50.3	0.0	0.0**	42.6	581.3	237.7	27.1	1.000009
80500.0	26.6	-50.9	0.0	0.0**	41.7	580.5	235.8	27.2	1.000009
81000.0	26.0	-51.5	0.0	0.0**	40.8	579.8	236.5	30.3	1.000009
81500.0	25.4	-52.0	0.0	0.0**	40.0	579.0	237.3	33.6	1.000009
82000.0	24.8	-52.6	0.0	0.0**	39.2	578.2	238.3	37.2	1.000009
82500.0	24.2	-53.2	0.0	0.0**	38.4	577.5	240.1	42.3	1.000009
83000.0	23.7	-53.8	0.0	0.0**	37.6	576.7	241.8	47.4	1.000008
83500.0	23.1	-54.4	0.0	0.0**	36.8	575.9	243.4	52.2	1.000008
84000.0	22.6	-55.0	0.0	0.0**	36.0	575.2	244.4	55.3	1.000008
84500.0	22.0	-55.6	0.0	0.0**	35.3	574.4	245.3	58.3	1.000008
85000.0	21.5	-53.1	0.0	0.0**	34.1	577.6	246.2	61.3	1.000008
85500.0	21.0	-50.5	0.0	0.0**	32.9	581.0	248.4	59.4	1.000007
86000.0	20.6	-50.4	0.0	0.0**	32.1	581.1	250.7	57.5	1.000007
86500.0	20.1	-50.5	0.0	0.0**	31.4	581.0	252.9	55.6	1.000007

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

TABLE C-III (Cont)

UPPER AIR DATA
3907708
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1400 HRS MST
ASCENSION NO. 224

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
87000.0	19.6	-50.7	0.0	0.0**	30.7	580.8	254.9	55.0	1.000007
87500.0	19.2	-50.8	0.0	0.0**	30.0	580.7	257.0	54.5	1.000007
88000.0	18.7	-50.9	0.0	0.0**	29.4	580.5	259.0	53.9	1.000007
88500.0	18.3	-51.0	0.0	0.0**	28.7	580.3	260.5	55.4	1.000006
89000.0	17.9	-51.1	0.0	0.0**	28.1	580.2	261.9	57.2	1.000006
89500.0	17.5	-51.3	0.0	0.0**	27.4	580.0	263.2	59.1	1.000006
90000.0	17.1	-51.4	0.0	0.0**	26.8	579.9	262.8	62.0	1.000006
90500.0	16.7	-51.1	0.0	0.0**	26.2	580.3	261.5	65.4	1.000006
91000.0	16.3	-50.7	0.0	0.0**	25.5	580.8	260.3	68.8	1.000006
91500.0	15.9	-50.3	0.0	0.0**	24.9	581.3	259.2	67.7	1.000006
92000.0	15.6	-49.9	0.0	0.0**	24.3	581.8	258.3	63.2	1.000005
92500.0	15.2	-49.5	0.0	0.0**	23.7	582.3	257.4	58.7	1.000005
93000.0	14.9	-49.1	0.0	0.0**	23.1	582.8	257.0	52.7	1.000005
93500.0	14.5	-48.7	0.0	0.0**	22.5	583.3	257.1	44.6	1.000005
94000.0	14.2	-48.3	0.0	0.0**	22.0	583.8	257.3	36.6	1.000005
94500.0	13.9	-48.0	0.0	0.0**	21.5	584.2			1.000005
95000.0	13.6	-47.8	0.0	0.0**	21.0	584.5			1.000005
95500.0	13.2	-47.6	0.0	0.0**	20.5	584.7			1.000005
96000.0	12.9	-47.4	0.0	0.0**	20.0	585.0			1.000004
96500.0	12.7	-47.2	0.0	0.0**	19.5	585.2			1.000004
97000.0	12.4	-47.1	0.0	0.0**	19.1	585.5			1.000004
97500.0	12.1	-46.9	0.0	0.0**	18.6	585.7			1.000004

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

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1630 HRS MST
ASCENSION NO. 225

TABLE C-IV
UPPER AIR DATA
3907709
WHITE SANDS SITE

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	873.0	18.3	-8.0	16.0	1042.1	665.2	210.0	8.0	1.000247
5000.0	842.0	15.3	-8.5	18.6	1015.5	661.8	211.9	11.5	1.000241
5500.0	826.9	13.8	-8.9	19.9	1002.6	660.1	212.8	13.3	1.000238
6000.0	812.0	12.3	-9.3	21.1	989.8	658.3	213.7	15.0	1.000235
6500.0	797.4	10.8	-9.9	22.4	977.1	656.6	215.1	14.2	1.000231
7000.0	782.9	9.3	-10.4	23.7	964.6	654.8	217.1	14.6	1.000228
7500.0	768.6	7.7	-11.1	25.1	952.1	653.0	218.8	15.8	1.000225
8000.0	754.5	6.2	-11.7	26.4	939.9	651.2	218.2	16.2	1.000221
8500.0	740.5	4.6	-12.5	27.7	927.7	649.4	221.6	15.9	1.000218
9000.0	726.8	3.1	-13.3	29.0	915.6	647.5	226.5	15.3	1.000215
9500.0	713.2	1.5	-14.1	30.4	903.7	645.7	229.8	14.5	1.000212
10000.0	699.8	0.1	-14.8	31.8	891.5	643.9	233.0	13.8	1.000208
10500.0	686.6	-1.3	-15.4	33.4	879.1	642.3	236.0	13.6	1.000205
11000.0	673.6	-2.7	-16.1	34.9	866.9	640.7	238.8	13.5	1.000202
11500.0	660.7	-4.1	-16.9	36.4	854.8	639.0	240.6	14.6	1.000199
12000.0	648.1	-5.5	-17.6	38.0	842.9	637.3	242.4	15.7	1.000196
12500.0	635.6	-7.1	-17.5	43.4	831.7	635.4	247.9	17.4	1.000194
13000.0	623.3	-8.8	-17.6	48.9	820.7	633.4	253.9	19.3	1.000191
13500.0	611.1	-10.4	-17.9	54.5	809.7	631.4	261.6	21.5	1.000189
14000.0	599.1	-11.6	-18.8	55.6	797.4	630.0	269.1	23.6	1.000185
14500.0	587.3	-12.7	-19.7	56.3	785.1	628.6	276.4	25.6	1.000182
15000.0	575.7	-13.8	-20.6	57.0	773.0	627.3	280.9	28.5	1.000179
15500.0	564.3	-15.0	-21.5	57.7	760.9	625.9	284.6	31.6	1.000176
16000.0	553.0	-15.7	-23.4	52.2	748.0	624.9	284.6	35.3	1.000172
16500.0	542.0	-16.3	-26.1	42.9	734.7	624.2	283.2	38.8	1.000168
17000.0	531.1	-16.8	-29.2	33.6	721.6	623.6	280.0	41.6	1.000164
17500.0	520.5	-17.7	-31.1	30.3	709.5	622.5	277.1	44.9	1.000161
18000.0	510.0	-18.7	-31.8	30.7	698.1	621.2	274.3	47.4	1.000158
18500.0	499.7	-19.8	-32.6	31.2	686.9	619.9	271.7	48.9	1.000155
19000.0	489.5	-20.9	-33.4	31.7	675.8	618.6	270.0	51.6	1.000153
19500.0	479.5	-21.9	-34.3	32.1	664.9	617.2	268.3	51.7	1.000150
20000.0	469.7	-23.0	-35.1	32.6	654.1	615.9	266.5	50.3	1.000148
20500.0	460.0	-24.1	-35.7	33.8	643.4	614.5	264.8	48.4	1.000145

TABLE C-IV (Cont)

UPPER AIR DATA

3907709

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1630 HRS MST
ASCENSION NO. 225

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	450.5	-25.3	-34.8	41.2	633.0	613.1	263.4	45.5	1.000143
21500.0	441.1	-26.4	-34.3	47.7	622.7	611.7	262.2	42.9	1.000141
22000.0	431.9	-27.5	-36.0	44.8	612.5	610.4	261.7	42.7	1.000138
22500.0	422.9	-28.6	-37.7	41.8	602.4	609.0	261.4	42.5	1.000136
23000.0	414.0	-29.7	-39.4	38.8	592.4	607.6	261.2	42.6	1.000133
23500.0	405.2	-30.8	-41.2	35.8	582.5	606.2	261.6	44.7	1.000131
24000.0	396.6	-31.9	-42.8	33.7	572.7	604.8	261.7	45.0	1.000128
24500.0	388.2	-33.0	-44.2	31.8	563.0	603.5	261.5	43.8	1.000126
25000.0	379.9	-34.0	-45.7	30.0	553.5	602.1	262.2	46.5	1.000124
25500.0	371.7	-35.1	-47.3	28.2	544.0	600.8	262.6	47.1	1.000122
26000.0	363.7	-36.2	-48.8	26.3	534.7	599.4	262.4	45.2	1.000120
26500.0	355.8	-37.4	-50.5	24.5**	525.7	597.9	262.4	47.1	1.000117
27000.0	348.0	-38.7	-52.3	22.6**	517.0	596.3	262.4	48.9	1.000115
27500.0	340.4	-40.0	-54.1	20.7**	508.5	594.6	262.2	47.6	1.000114
28000.0	332.9	-41.3	-56.0	18.9**	500.1	592.9	262.1	46.7	1.000112
28500.0	325.5	-42.6	-58.0	17.0**	491.8	591.3	262.2	46.2	1.000110
29000.0	318.2	-43.9	-60.1	15.1**	483.6	589.6	262.0	46.6	1.000108
29500.0	311.1	-45.2	-62.2	13.2**	475.5	587.8	261.7	48.0	1.000106
30000.0	304.1	-46.6	-64.5	11.3**	467.5	586.1	261.2	49.7	1.000104
30500.0	297.2	-47.9	-67.0	9.3**	459.7	584.4	260.5	51.8	1.000102
31000.0	290.4	-49.3	-69.7	7.4**	451.9	582.6	260.5	53.2	1.000101
31500.0	283.7	-50.6	-72.8	5.4**	444.2	580.8	261.2	53.9	1.000099
32000.0	277.1	-52.0	-76.8	3.5**	436.6	579.1	262.1	52.1	1.000097
32500.0	270.7	-53.4	-83.0	1.5**	429.1	577.2	263.1	47.0	1.000096
33000.0	264.3	-54.6	0.0	0.0**	421.5	575.6	264.0	44.2	1.000094
33500.0	258.1	-55.5	0.0	0.0**	413.3	574.4	265.0	45.0	1.000092
34000.0	252.0	-56.4	0.0	0.0**	405.2	573.2	265.2	48.2	1.000090
34500.0	246.1	-57.3	0.0	0.0**	397.2	572.1	264.5	54.7	1.000088
35000.0	240.2	-58.2	0.0	0.0**	389.4	570.9	263.4	60.3	1.000087
35500.0	234.5	-58.4	0.0	0.0**	380.5	570.6	261.9	64.6	1.000085
36000.0	228.9	-58.5	0.0	0.0**	371.5	570.5	261.1	69.7	1.000083
36500.0	223.4	-58.6	0.0	0.0**	362.8	570.4	260.8	75.3	1.000081
37000.0	218.1	-58.6	0.0	0.0**	354.2	570.3	260.5	76.9	1.000079

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

TABLE C-IV (Cont)

UPPER AIR DATA

3907709

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1630 HRS MST
ASCENSION NO. 225

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
37500.0	212.9	-58.7	0.0	0.0**	345.8	570.3	260.1	75.6	1.000077
38000.0	207.8	-58.7	0.0	0.0**	337.7	570.2	260.3	78.1	1.000075
38500.0	202.9	-58.8	0.0	0.0**	329.7	570.1	260.8	83.0	1.000073
39000.0	198.0	-58.8	0.0	0.0**	321.9	570.0	261.0	83.6	1.000072
39500.0	193.3	-58.9	0.0	0.0**	314.3	570.0	261.1	82.1	1.000070
40000.0	188.7	-58.6	0.0	0.0**	306.3	570.4	261.4	84.0	1.000068
40500.0	184.2	-58.1	0.0	0.0**	298.4	571.0	261.8	86.2	1.000066
41000.0	179.8	-57.7	0.0	0.0**	290.7	571.5	263.0	84.8	1.000065
41500.0	175.5	-57.3	0.0	0.0**	283.2	572.1	264.3	82.8	1.000063
42000.0	171.3	-57.1	0.0	0.0**	276.3	572.3	265.5	80.2	1.000062
42500.0	167.3	-57.4	0.0	0.0**	270.1	572.0	266.3	77.4	1.000060
43000.0	163.3	-57.6	0.0	0.0**	264.0	571.6	267.1	74.6	1.000059
43500.0	159.4	-57.9	0.0	0.0**	258.0	571.3	267.6	72.3	1.000057
44000.0	155.6	-58.1	0.0	0.0**	252.2	571.0	267.9	70.1	1.000056
44500.0	151.9	-58.4	0.0	0.0**	246.5	570.6	268.4	67.8	1.000055
45000.0	148.3	-58.7	0.0	0.0**	240.9	570.3	269.0	65.1	1.000054
45500.0	144.8	-58.9	0.0	0.0**	235.4	569.9	269.7	62.3	1.000052
46000.0	141.3	-59.2	0.0	0.0**	230.1	569.6	270.1	58.7	1.000051
46500.0	137.9	-59.4	0.0	0.0**	224.9	569.2	270.4	55.0	1.000050
47000.0	134.6	-59.7	0.0	0.0**	219.7	568.9	269.1	54.0	1.000049
47500.0	131.4	-60.0	0.0	0.0**	214.7	568.5	267.9	53.2	1.000048
48000.0	128.2	-60.2	0.0	0.0**	209.8	568.2	267.1	53.8	1.000047
48500.0	125.2	-60.5	0.0	0.0**	205.1	567.8	266.3	54.5	1.000046
49000.0	122.1	-60.7	0.0	0.0**	200.4	567.5	266.8	56.4	1.000045
49500.0	119.2	-61.0	0.0	0.0**	195.8	567.1	267.2	58.2	1.000044
50000.0	116.3	-61.3	0.0	0.0**	191.3	566.8	268.0	58.0	1.000043
50500.0	113.5	-62.0	0.0	0.0**	187.3	565.8	269.0	56.7	1.000042
51000.0	110.7	-62.9	0.0	0.0**	183.5	564.6	269.7	55.5	1.000041
51500.0	108.0	-63.7	0.0	0.0**	179.7	563.5	269.7	55.0	1.000040
52000.0	105.4	-64.6	0.0	0.0**	176.1	562.4	269.8	54.3	1.000039
52500.0	102.8	-65.4	0.0	0.0**	172.4	561.2	269.7	53.2	1.000038
53000.0	100.3	-65.8	0.0	0.0**	168.5	560.7	270.3	52.7	1.000038
53500.0	97.8	-64.9	0.0	0.0**	163.7	561.9	270.9	52.2	1.000036

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

TABLE C-IV (Cont)
UPPER AIR DATA
3907709
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1630 HRS MST
ASCENSION NO. 225

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	95.4	-64.1	0.0	0.0**	159.0	563.0	271.0	51.6	1.000035
54500.0	93.1	-63.2	0.0	0.0**	154.5	564.1	269.9	52.7	1.000034
55000.0	90.8	-62.4	0.0	0.0**	150.2	565.3	268.6	54.2	1.000033
55500.0	88.6	-62.2	0.0	0.0**	146.4	565.5	267.6	57.1	1.000033
56000.0	86.5	-62.5	0.0	0.0**	143.0	565.2	266.5	60.0	1.000032
56500.0	84.4	-62.7	0.0	0.0**	139.7	564.9	265.8	61.9	1.000031
57000.0	82.3	-62.9	0.0	0.0**	136.4	564.6	265.4	63.2	1.000030
57500.0	80.3	-63.1	0.0	0.0**	133.3	564.3	264.9	64.4	1.000030
58000.0	78.4	-63.4	0.0	0.0**	130.2	564.0	264.6	64.7	1.000029
58500.0	76.5	-63.6	0.0	0.0**	127.1	563.7	264.2	65.1	1.000028
59000.0	74.6	-63.8	0.0	0.0**	124.2	563.3	263.7	65.0	1.000028
59500.0	72.8	-64.1	0.0	0.0**	121.3	563.0	263.0	64.6	1.000027
60000.0	71.0	-64.3	0.0	0.0**	118.4	562.7	262.3	64.2	1.000026
60500.0	69.3	-64.5	0.0	0.0**	115.7	562.4	261.5	62.7	1.000026
61000.0	67.6	-64.7	0.0	0.0**	113.0	562.1	260.8	61.3	1.000025
61500.0	65.9	-65.0	0.0	0.0**	110.3	561.8	260.3	59.7	1.000025
62000.0	64.3	-64.5	0.0	0.0**	107.3	562.5	260.2	58.1	1.000024
62500.0	62.7	-63.1	0.0	0.0**	104.0	564.4	260.0	56.5	1.000023
63000.0	61.2	-61.7	0.0	0.0**	100.8	566.3	260.9	55.3	1.000022
63500.0	59.7	-60.3	0.0	0.0**	97.7	568.1	261.8	54.2	1.000022
64000.0	58.3	-58.9	0.0	0.0**	94.8	570.0	262.8	52.1	1.000021
64500.0	56.9	-57.5	0.0	0.0**	92.0	571.8	263.7	49.0	1.000020
65000.0	55.6	-56.7	0.0	0.0**	89.5	572.8	264.5	45.7	1.000020
65500.0	54.3	-57.1	0.0	0.0**	87.5	572.3	264.2	40.7	1.000019
66000.0	53.0	-57.5	0.0	0.0**	85.6	571.7	264.0	35.6	1.000019
66500.0	51.7	-58.0	0.0	0.0**	83.7	571.2	262.6	31.5	1.000019
67000.0	50.5	-58.4	0.0	0.0**	81.9	570.7	260.7	27.7	1.000018
67500.0	49.3	-58.8	0.0	0.0**	80.1	570.1	259.3	25.2	1.000018
68000.0	48.1	-59.2	0.0	0.0**	78.3	569.6	258.6	25.4	1.000017
68500.0	47.0	-59.6	0.0	0.0**	76.6	569.0	258.0	25.6	1.000017
69000.0	45.8	-60.0	0.0	0.0**	74.9	568.5	258.6	27.4	1.000017
69500.0	44.7	-60.4	0.0	0.0**	73.3	567.9	259.2	29.4	1.000016
70000.0	43.7	-60.8	0.0	0.0**	71.6	567.4	259.4	31.2	1.000016

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

TABLE C-IV (Cont)

UPPER AIR DATA
3907709
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1630 HRS MST
ASCENSION NO. 225

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	42.6	-60.9	0.0	0.0**	69.9	567.3	259.3	33.0	1.000016
71000.0	41.6	-60.4	0.0	0.0**	68.1	568.0	259.1	34.8	1.000015
71500.0	40.6	-59.9	0.0	0.0**	66.3	568.7	258.5	37.9	1.000015
72000.0	39.6	-59.4	0.0	0.0**	64.6	569.3	257.8	41.2	1.000014
72500.0	38.7	-58.8	0.0	0.0**	62.9	570.0	257.1	44.7	1.000014
73000.0	37.8	-58.3	0.0	0.0**	61.2	570.7	256.8	49.2	1.000014
73500.0	36.9	-57.8	0.0	0.0**	59.6	571.4	256.5	53.8	1.000013
74000.0	36.0	-57.3	0.0	0.0**	58.1	572.1	256.4	57.7	1.000013
74500.0	35.1	-56.8	0.0	0.0**	56.6	572.7	256.6	60.5	1.000013
75000.0	34.3	-56.3	0.0	0.0**	55.1	573.4	256.8	63.3	1.000012
75500.0	33.5	-55.8	0.0	0.0**	53.7	574.1	257.1	63.5	1.000012
76000.0	32.7	-55.3	0.0	0.0**	52.3	574.7	257.3	62.0	1.000012
76500.0	31.9	-54.8	0.0	0.0**	51.0	575.4	257.5	60.5	1.000011
77000.0	31.2	-54.3	0.0	0.0**	49.7	576.1	257.4	57.7	1.000011
77500.0	30.5	-53.8	0.0	0.0**	48.4	576.7	257.2	54.7	1.000011
78000.0	29.8	-53.3	0.0	0.0**	47.2	577.4	256.8	51.7	1.000011
78500.0	29.1	-52.8	0.0	0.0**	46.0	578.0	255.5	49.1	1.000010
79000.0	28.4	-52.3	0.0	0.0**	44.8	578.7	254.2	46.4	1.000010
79500.0	27.8	-51.8	0.0	0.0**	43.7	579.3	252.8	44.0	1.000010
80000.0	27.1	-51.3	0.0	0.0**	42.6	580.0	251.0	42.5	1.000009
80500.0	26.5	-50.8	0.0	0.0**	41.5	580.6	249.3	41.0	1.000009
81000.0	25.9	-50.3	0.0	0.0**	40.5	581.3	247.4	39.4	1.000009
81500.0	25.3	-49.8	0.0	0.0**	39.5	581.9	245.4	37.3	1.000009
82000.0	24.7	-49.3	0.0	0.0**	38.5	582.5	243.3	35.2	1.000009
82500.0	24.2	-48.8	0.0	0.0**	37.5	583.2	241.2	33.1	1.000008
83000.0	23.6	-49.3	0.0	0.0**	36.7	582.6	238.5	31.2	1.000008
83500.0	23.1	-50.0	0.0	0.0**	36.0	581.6	235.9	29.3	1.000008
84000.0	22.5	-50.8	0.0	0.0**	35.3	580.6	233.4	27.5	1.000008
84500.0	22.0	-51.6	0.0	0.0**	34.6	579.6	233.5	27.6	1.000008
85000.0	21.5	-52.4	0.0	0.0**	33.9	578.6	233.7	27.6	1.000008
85500.0	21.0	-53.2	0.0	0.0**	33.3	577.5	233.9	27.7	1.000007
86000.0	20.5	-53.9	0.0	0.0**	32.6	576.5	237.1	29.7	1.000007
86500.0	20.0	-54.7	0.0	0.0**	32.0	575.5	240.6	31.7	1.000007

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

TABLE C-IV (Cont)

UPPER AIR DATA

3907709

WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1630 HRS MST
ASCENSION NO. 225

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	19.6	-54.9	0.0	0.0**	31.2	575.2	244.0	33.8	1.000007
87500.0	19.1	-55.0	0.0	0.0**	30.5	575.1	247.1	36.3	1.000007
88000.0	18.7	-55.1	0.0	0.0**	29.8	574.9	250.2	38.9	1.000007
88500.0	18.2	-55.3	0.0	0.0**	29.1	574.8	253.3	41.5	1.000006
89000.0	17.8	-55.4	0.0	0.0**	28.5	574.6	256.0	44.8	1.000006
89500.0	17.4	-55.5	0.0	0.0**	27.8	574.5	258.7	48.2	1.000006
90000.0	17.0	-55.6	0.0	0.0**	27.2	574.4	261.4	51.6	1.000006
90500.0	16.6	-54.9	0.0	0.0**	26.5	575.3	262.4	53.7	1.000006
91000.0	16.2	-54.2	0.0	0.0**	25.8	576.2	262.8	55.3	1.000006
91500.0	15.8	-53.5	0.0	0.0**	25.1	577.1	263.2	56.9	1.000006
92000.0	15.5	-52.8	0.0	0.0**	24.4	577.9	262.6	60.2	1.000005
92500.0	15.1	-52.2	0.0	0.0**	23.8	578.8	261.4	64.1	1.000005
93000.0	14.7	-51.5	0.0	0.0**	23.2	579.7	260.2	68.1	1.000005
93500.0	14.4	-50.8	0.0	0.0**	22.6	580.6	259.5	70.7	1.000005
94000.0	14.1	-50.2	0.0	0.0**	22.0	581.5	259.0	72.6	1.000005
94500.0	13.8	-49.0	0.0	0.0**	21.4	582.9	258.6	74.4	1.000005
95000.0	13.4	-47.7	0.0	0.0**	20.8	584.6	258.2	75.9	1.000005
95500.0	13.1	-46.4	0.0	0.0**	20.2	586.3	258.1	75.0	1.000004
96000.0	12.8	-45.2	0.0	0.0**	19.6	587.9	258.1	74.1	1.000004
96500.0	12.6	-43.9	0.0	0.0**	19.1	589.6	258.0	73.3	1.000004
97000.0	12.3	-42.6	0.0	0.0**	18.6	591.2	258.1	71.7	1.000004
97500.0	12.0	-41.4	0.0	0.0**	18.1	592.8	259.0	66.6	1.000004
98000.0	11.7	-41.6	0.0	0.0**	17.7	592.5	259.9	61.5	1.000004
98500.0	11.5	-42.0	0.0	0.0**	17.3	592.0	260.8	56.5	1.000004
99000.0	11.2	-42.3	0.0	0.0**	17.0	591.6	261.4	51.6	1.000004
99500.0	11.0	-42.7	0.0	0.0**	16.6	591.1	260.4	47.4	1.000004
100000.0	10.7	-43.0	0.0	0.0**	16.3	590.7	259.5	43.3	1.000004
100500.0	10.5	-43.4	0.0	0.0**	15.9	590.2	258.5	39.1	1.000004
101000.0	10.3	-43.7	0.0	0.0**	15.6	589.8	257.4	35.5	1.000003
101500.0	10.0	-44.1	0.0	0.0**	15.3	589.3	256.2	34.5	1.000003
102000.0	9.8	-44.4	0.0	0.0**	15.0	588.9	254.9	33.5	1.000003
102500.0	9.6	-44.8	0.0	0.0**	14.7	588.4	253.7	32.6	1.000003
103000.0	9.4	-45.1	0.0	0.0**	14.3	588.0			1.000003

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

TABLE C-IV (Cont)
UPPER AIR DATA
3907709
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 1630 HRS MST
ASCENSION NO. 225

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
103500.0	9.2	-45.5	0.0	0.0**	14.0	587.5			1.000003
104000.0	9.0	-45.7	0.0	0.0**	13.7	587.2			1.000003
104500.0	8.8	-44.9	0.0	0.0**	13.4	588.2			1.000003
105000.0	8.6	-44.2	0.0	0.0**	13.0	589.2			1.000003
105500.0	8.4	-43.4	0.0	0.0**	12.7	590.2			1.000003
106000.0	8.2	-42.6	0.0	0.0**	12.4	591.2			1.000003
106500.0	8.0	-41.9	0.0	0.0**	12.1	592.1			1.000003

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

TABLE C-V

UPPER AIR DATA
3907710
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 2000 HRS MST
ASCENSION NO. 227

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	875.8	7.0	-6.4	38.0	1087.4	652.3	140.0	6.0	1.000261
5000.0	843.5	4.5	-9.6	35.0	1056.9	649.3	147.2	11.1	1.000250
5500.0	827.8	4.4	-10.4	33.3	1037.8	649.1	150.8	13.6	1.000245
6000.0	812.5	5.1	-9.9	32.9	1015.9	650.0	154.4	16.1	1.000240
6500.0	797.5	4.1	-10.1	35.0	1000.9	648.7	171.5	14.7	1.000237
7000.0	782.6	3.0	-10.3	37.1	986.1	647.5	192.2	13.2	1.000234
7500.0	768.0	1.9	-10.6	39.2	971.6	646.2	217.3	13.0	1.000230
8000.0	753.6	1.3	-10.9	40.0	955.6	645.4	235.5	14.4	1.000226
8500.0	739.6	2.8	-11.7	33.6	932.6	647.2	249.0	16.9	1.000220
9000.0	725.8	2.3	-12.7	32.2	916.9	646.6	253.6	20.5	1.000216
9500.0	712.2	1.1	-13.7	32.4	903.9	645.2	256.1	24.0	1.000212
10000.0	698.8	-0.2	-14.7	32.6	890.9	643.7	254.7	26.5	1.000208
10500.0	685.6	-1.4	-15.7	32.8	878.1	642.2	253.7	29.4	1.000205
11000.0	672.6	-2.6	-16.7	33.0	865.5	640.7	253.0	32.5	1.000201
11500.0	659.8	-3.9	-17.8	33.3	853.0	639.2	253.4	34.4	1.000198
12000.0	647.2	-5.1	-18.8	33.5	840.6	637.7	254.2	35.9	1.000195
12500.0	634.7	-6.4	-19.8	33.7	828.4	636.2	256.0	36.2	1.000191
13000.0	622.5	-7.6	-20.9	33.9	816.3	634.7	258.8	35.6	1.000188
13500.0	610.4	-8.9	-21.4	35.7	804.1	633.2	262.6	33.9	1.000185
14000.0	598.5	-10.1	-21.7	38.1	792.0	631.8	265.4	33.5	1.000182
14500.0	586.8	-11.3	-22.2	40.4	780.1	630.3	267.3	33.3	1.000180
15000.0	575.2	-12.5	-22.6	42.8	768.4	628.9	266.8	33.0	1.000177
15500.0	563.8	-13.7	-23.1	45.2	756.7	627.4	265.5	33.4	1.000174
16000.0	552.7	-14.9	-23.7	47.7	745.3	625.9	262.7	35.2	1.000171
16500.0	541.6	-16.2	-24.3	50.1	733.9	624.4	260.4	36.6	1.000168
17000.0	530.8	-17.4	-24.9	52.5	722.7	622.9	258.7	37.8	1.000166
17500.0	520.1	-18.7	-25.6	55.0	711.6	621.3	257.5	38.8	1.000163
18000.0	509.6	-19.9	-26.3	57.4	700.7	619.8	257.0	39.7	1.000160
18500.0	499.2	-21.2	-27.1	59.5	689.9	618.3	256.3	40.2	1.000158
19000.0	489.0	-22.4	-28.0	60.8	679.2	616.7	255.3	39.9	1.000155
19500.0	478.9	-23.7	-29.0	62.2	668.6	615.1	254.3	39.7	1.000152
20000.0	469.0	-25.0	-30.0	63.5	658.2	613.6	253.6	39.9	1.000150
20500.0	459.3	-26.2	-31.0	64.9	647.9	612.0	252.9	40.0	1.000147

TABLE C-V (Cont)

UPPER AIR DATA
3907710
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 2000 HRS MST
ASCENSION NO. 227

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	449.7	-27.5	-32.0	66.2	637.7	610.4	251.8	40.7	1.000145
21500.0	440.3	-28.8	-33.1	67.6	627.6	608.8	250.7	41.5	1.000142
22000.0	431.0	-30.1	-34.1	69.0	617.7	607.1	250.5	42.0	1.000140
22500.0	421.9	-31.3	-35.5	67.7	607.7	605.6	250.6	42.4	1.000137
23000.0	412.9	-32.6	-36.9	66.4	597.9	604.0	250.2	41.9	1.000135
23500.0	404.1	-33.8	-38.3	65.2	588.2	602.4	249.6	40.9	1.000132
24000.0	395.4	-34.7	-42.2	47.3	577.7	601.3	250.6	40.0	1.000130
24500.0	386.9	-35.5	-48.0	27.1	567.2	600.3	252.2	39.2	1.000127
25000.0	378.5	-36.6	-60.9	6.3**	557.6	598.8	253.1	39.8	1.000124
25500.0	370.3	-37.8	0.0	0.0**	548.2	597.3	254.7	40.8	1.000122
26000.0	362.2	-39.1	0.0	0.0**	539.0	595.8	257.2	42.4	1.000120
26500.0	354.2	-40.3	0.0	0.0**	529.9	594.2	257.6	44.4	1.000118
27000.0	346.4	-41.5	0.0	0.0**	521.0	592.6	257.7	46.5	1.000116
27500.0	338.7	-42.7	0.0	0.0**	512.1	591.1	259.2	48.3	1.000114
28000.0	331.1	-44.0	0.0	0.0**	503.4	589.5	260.2	49.2	1.000112
28500.0	323.7	-45.2	0.0	0.0**	494.8	587.9	260.5	48.9	1.000110
29000.0	316.4	-46.5	0.0	0.0**	486.3	586.3	261.5	47.2	1.000108
29500.0	309.2	-47.7	0.0	0.0**	477.9	584.6	262.9	44.7	1.000106
30000.0	302.2	-49.0	0.0	0.0**	469.7	583.0	263.8	43.0	1.000105
30500.0	295.2	-50.3	0.0	0.0**	461.5	581.3	264.5	41.6	1.000103
31000.0	288.4	-51.5	0.0	0.0**	453.5	579.7	264.1	42.5	1.000101
31500.0	281.7	-52.8	0.0	0.0**	445.5	578.0	263.4	43.8	1.000099
32000.0	275.2	-54.1	0.0	0.0**	437.7	576.3	262.4	44.9	1.000097
32500.0	268.7	-55.4	0.0	0.0**	430.0	574.6	261.4	46.0	1.000096
33000.0	262.3	-56.6	0.0	0.0**	422.2	572.9	261.1	46.2	1.000094
33500.0	256.1	-57.1	0.0	0.0**	413.0	572.3	260.7	46.7	1.000092
34000.0	250.0	-57.5	0.0	0.0**	404.0	571.8	260.4	48.1	1.000090
34500.0	244.1	-58.0	0.0	0.0**	395.2	571.2	260.2	50.0	1.000088
35000.0	238.3	-58.4	0.0	0.0**	386.6	570.6	260.1	53.2	1.000086
35500.0	232.6	-58.9	0.0	0.0**	378.2	570.0	259.9	58.3	1.000084
36000.0	227.0	-59.3	0.0	0.0**	369.9	569.4	259.6	66.0	1.000082
36500.0	221.6	-59.2	0.0	0.0**	360.9	569.5	259.9	72.1	1.000080
37000.0	216.3	-59.0	0.0	0.0**	351.9	569.8	261.0	75.8	1.000078

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

TABLE C-V (Cont)
UPPER AIR DATA
3907710
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 2000 HRS MST
ASCENSION NO. 227

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
37500.0	211.1	-58.8	0.0	0.0**	343.2	570.0	261.9	78.6	1.000076
38000.0	206.1	-58.6	0.0	0.0**	334.7	570.3	262.5	78.5	1.000075
38500.0	201.2	-58.4	0.0	0.0**	326.4	570.6	263.0	78.2	1.000073
39000.0	196.4	-58.2	0.0	0.0**	318.3	570.8	263.6	77.2	1.000071
39500.0	191.7	-58.0	0.0	0.0**	310.5	571.1	263.9	74.8	1.000069
40000.0	187.1	-57.8	0.0	0.0**	302.8	571.3	263.4	68.2	1.000067
40500.0	182.7	-57.6	0.0	0.0**	295.3	571.6	263.1	70.7	1.000066
41000.0	178.3	-57.4	0.0	0.0**	288.1	571.9	262.9	81.6	1.000064
41500.0	174.1	-57.2	0.0	0.0**	281.0	572.1	263.4	78.2	1.000063
42000.0	170.0	-57.1	0.0	0.0**	274.1	572.3	264.2	69.4	1.000061
42500.0	165.9	-57.2	0.0	0.0**	267.7	572.2	265.2	68.5	1.000060
43000.0	162.0	-57.2	0.0	0.0**	261.4	572.1	266.4	68.6	1.000058
43500.0	158.2	-57.3	0.0	0.0**	255.3	572.1	268.4	60.4	1.000057
44000.0	154.4	-57.4	0.0	0.0**	249.3	572.0	270.4	52.1	1.000056
44500.0	150.8	-57.4	0.0	0.0**	243.5	571.9	269.5	54.8	1.000054
45000.0	147.2	-57.5	0.0	0.0**	237.8	571.8	268.7	57.5	1.000053
45500.0	143.7	-57.6	0.0	0.0**	232.2	571.7	267.7	58.9	1.000052
46000.0	140.3	-57.6	0.0	0.0**	226.8	571.6	266.8	60.2	1.000051
46500.0	136.9	-57.7	0.0	0.0**	221.5	571.5	266.3	61.3	1.000049
47000.0	133.7	-57.8	0.0	0.0**	216.3	571.5	266.0	62.4	1.000048
47500.0	130.5	-58.3	0.0	0.0**	211.7	570.7	266.2	63.7	1.000047
48000.0	127.4	-59.5	0.0	0.0**	207.7	569.2	267.0	65.6	1.000046
48500.0	124.3	-60.6	0.0	0.0**	203.8	567.7	267.8	67.5	1.000045
49000.0	121.3	-61.4	0.0	0.0**	199.7	566.6	268.2	69.4	1.000044
49500.0	118.4	-62.0	0.0	0.0**	195.4	565.8	268.5	71.2	1.000044
50000.0	115.5	-62.6	0.0	0.0**	191.2	564.9	268.7	72.2	1.000043
50500.0	112.7	-63.2	0.0	0.0**	187.1	564.1	268.7	71.5	1.000042
51000.0	110.0	-63.9	0.0	0.0**	183.1	563.3	268.6	70.7	1.000041
51500.0	107.3	-64.5	0.0	0.0**	179.1	562.5	267.6	69.4	1.000040
52000.0	104.6	-65.1	0.0	0.0**	175.2	561.7	266.5	68.1	1.000039
52500.0	102.1	-65.7	0.0	0.0**	171.4	560.8	265.0	66.8	1.000038
53000.0	99.5	-65.4	0.0	0.0**	167.0	561.2	263.2	65.5	1.000037
53500.0	97.1	-65.1	0.0	0.0**	162.6	561.6	261.4	64.3	1.000036

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

TABLE C-V (Cont)

UPPER AIR DATA
3907710
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 2000 HRS MST
ASCENSION NO. 227

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	94.7	-64.8	0.0	0.0**	158.4	562.1	260.2	62.6	1.000035
54500.0	92.4	-64.5	0.0	0.0**	154.3	562.5	259.0	60.8	1.000034
55000.0	90.1	-64.2	0.0	0.0**	150.3	562.9	258.6	59.5	1.000033
55500.0	87.9	-63.9	0.0	0.0**	146.4	563.3	258.6	58.4	1.000033
56000.0	85.8	-63.7	0.0	0.0**	142.7	563.6	258.9	57.2	1.000032
56500.0	83.7	-64.3	0.0	0.0**	139.6	562.7	259.7	56.0	1.000031
57000.0	81.6	-65.0	0.0	0.0**	136.6	561.8	260.5	54.9	1.000030
57500.0	79.6	-65.5	0.0	0.0**	133.6	561.1	261.1	54.1	1.000030
58000.0	77.7	-65.3	0.0	0.0**	130.2	561.3	261.4	53.6	1.000029
58500.0	75.8	-65.2	0.0	0.0**	126.9	561.5	261.1	53.6	1.000028
59000.0	73.9	-65.0	0.0	0.0**	123.7	561.7	261.0	53.8	1.000028
59500.0	72.1	-64.9	0.0	0.0**	120.6	561.9	261.2	54.0	1.000027
60000.0	70.3	-64.3	0.0	0.0**	117.3	562.7	261.4	54.3	1.000026
60500.0	68.6	-63.1	0.0	0.0**	113.8	564.3	262.0	54.3	1.000025
61000.0	66.9	-61.9	0.0	0.0**	110.4	565.9	262.5	54.4	1.000025
61500.0	65.3	-60.7	0.0	0.0**	107.1	567.5	263.3	54.2	1.000024
62000.0	63.8	-59.7	0.0	0.0**	104.1	568.9	264.2	53.9	1.000023
62500.0	62.2	-59.7	0.0	0.0**	101.6	568.9	265.1	53.5	1.000023
63000.0	60.7	-59.7	0.0	0.0**	99.1	568.9	266.0	52.8	1.000022
63500.0	59.3	-59.6	0.0	0.0**	96.8	569.0	266.8	52.1	1.000022
64000.0	57.9	-59.6	0.0	0.0**	94.4	569.0	267.4	51.1	1.000021
64500.0	56.5	-59.6	0.0	0.0**	92.2	569.0	267.7	49.8	1.000021
65000.0	55.1	-59.6	0.0	0.0**	89.9	569.1	268.0	48.6	1.000020
65500.0	53.8	-59.5	0.0	0.0**	87.8	569.1	268.0	45.8	1.000020
66000.0	52.5	-59.5	0.0	0.0**	85.7	569.1	268.0	43.0	1.000019
66500.0	51.3	-59.5	0.0	0.0**	83.6	569.1	268.0	38.9	1.000019
67000.0	50.1	-59.5	0.0	0.0**	81.6	569.2	268.1	34.0	1.000018
67500.0	48.9	-59.5	0.0	0.0**	79.7	569.2	268.2	30.0	1.000018
68000.0	47.7	-59.4	0.0	0.0**	77.7	569.2	268.6	27.4	1.000017
68500.0	46.6	-59.4	0.0	0.0**	75.9	569.3	268.9	25.3	1.000017
69000.0	45.4	-59.4	0.0	0.0**	74.1	569.3	268.9	25.0	1.000016
69500.0	44.4	-59.4	0.0	0.0**	72.3	569.3	268.8	24.7	1.000016
70000.0	43.3	-59.3	0.0	0.0**	70.6	569.3	268.1	25.9	1.000016

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

TABLE C-V (Cont)
UPPER AIR DATA
3907710
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL
18 MAR. 65 2000 HRS MST
ASCENSION NO. 227

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
70500.0	42.3	-59.3	0.0	0.0**	68.9	569.4	267.3	27.1	1.000015
71000.0	41.3	-59.3	0.0	0.0**	67.2	569.4	265.9	28.5	1.000015
71500.0	40.3	-59.0	0.0	0.0**	65.5	569.9	264.4	30.0	1.000015
72000.0	39.3	-58.5	0.0	0.0**	63.8	570.4	261.5	30.9	1.000014
72500.0	38.4	-58.1	0.0	0.0**	62.2	571.0	257.7	31.5	1.000014
73000.0	37.5	-57.6	0.0	0.0**	60.6	571.6	254.0	32.8	1.000013
73500.0	36.6	-57.2	0.0	0.0**	59.0	572.2	250.6	35.7	1.000013
74000.0	35.7	-56.8	0.0	0.0**	57.5	572.8	247.2	38.6	1.000013
74500.0	34.9	-56.5	0.0	0.0**	56.1	573.1	247.8	41.9	1.000012
75000.0	34.0	-57.1	0.0	0.0**	54.9	572.3	248.7	45.2	1.000012
75500.0	33.2	-57.7	0.0	0.0**	53.8	571.5	249.4	48.3	1.000012
76000.0	32.5	-58.3	0.0	0.0**	52.6	570.7	249.9	51.1	1.000012
76500.0	31.7	-58.9	0.0	0.0**	51.5	569.9	250.3	53.9	1.000011
77000.0	30.9	-59.4	0.0	0.0**	50.4	569.2	250.4	55.2	1.000011
77500.0	30.2	-58.7	0.0	0.0**	49.0	570.2	250.4	56.1	1.000011
78000.0	29.5	-58.0	0.0	0.0**	47.7	571.2	250.0	56.8	1.000011
78500.0	28.8	-57.2	0.0	0.0**	46.4	572.2	248.2	56.3	1.000010
79000.0	28.1	-56.5	0.0	0.0**	45.2	573.1	246.5	55.9	1.000010
79500.0	27.4	-55.8	0.0	0.0**	44.0	574.1	246.3	55.8	1.000010
80000.0	26.8	-54.6	0.0	0.0**	42.7	575.6	247.0	55.8	1.000010
80500.0	26.2	-52.6	0.0	0.0**	41.3	578.2	247.7	55.8	1.000009
81000.0	25.6	-50.7	0.0	0.0**	40.0	580.8	249.8	55.0	1.000009
81500.0	25.0	-48.7	0.0	0.0**	38.8	583.4	251.9	54.1	1.000009
82000.0	24.4	-46.8	0.0	0.0**	37.6	585.9	253.8	53.3	1.000008
82500.0	23.9	-45.4	0.0	0.0**	36.5	587.6	255.3	52.4	1.000008
83000.0	23.3	-46.0	0.0	0.0**	35.8	586.8	256.8	51.6	1.000008
83500.0	22.8	-46.6	0.0	0.0**	35.1	586.1	258.5	50.8	1.000008
84000.0	22.3	-47.2	0.0	0.0**	34.4	585.3	260.2	50.0	1.000008
84500.0	21.8	-47.8	0.0	0.0**	33.7	584.6	261.8	49.3	1.000008
85000.0	21.3	-48.3	0.0	0.0**	33.0	583.8	260.8	48.5	1.000007
85500.0	20.8	-48.9	0.0	0.0**	32.3	583.1	259.9	47.6	1.000007
86000.0	20.3	-49.5	0.0	0.0**	31.7	582.3	256.3	43.6	1.000007
86500.0	19.9	-50.1	0.0	0.0**	31.0	581.5	248.7	35.1	1.000007

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87000.0	19.4	-50.7	0.0	0.0**	30.4	580.8	241.2	26.5	1.000007
87500.0	19.0	-51.3	0.0	0.0**	29.8	580.0	236.7	24.9	1.000007
88000.0	18.5	-51.9	0.0	0.0**	29.2	579.2	233.2	25.6	1.000006
88500.0	18.1	-52.5	0.0	0.0**	28.6	578.5	228.6	25.6	1.000006
89000.0	17.7	-53.1	0.0	0.0**	28.0	577.7	217.6	22.3	1.000006
89500.0	17.3	-53.6	0.0	0.0**	27.4	576.9	206.5	19.0	1.000006
90000.0	16.9	-54.2	0.0	0.0**	26.9	576.1	214.1	23.7	1.000006
90500.0	16.5	-54.8	0.0	0.0**	26.3	575.3	232.1	32.9	1.000006
91000.0	16.1	-55.4	0.0	0.0**	25.8	574.5	247.0	42.0	1.000006
91500.0	15.7	-54.9	0.0	0.0**	25.1	575.2	249.5	50.8	1.000006
92000.0	15.4	-54.0	0.0	0.0**	24.4	576.4	252.0	59.6	1.000005
92500.0	15.0	-53.1	0.0	0.0**	23.7	577.6	254.5	70.8	1.000005
93000.0	14.7	-52.2	0.0	0.0**	23.1	578.7	257.0	82.9	1.000005
93500.0	14.3	-51.3	0.0	0.0**	22.5	579.9	258.7	90.8	1.000005
94000.0	14.0	-50.5	0.0	0.0**	21.9	581.1	258.6	88.7	1.000005
94500.0	13.7	-49.6	0.0	0.0**	21.3	582.2	258.6	86.6	1.000005
95000.0	13.4	-48.7	0.0	0.0**	20.7	583.4	258.0	82.1	1.000005
95500.0	13.1	-47.8	0.0	0.0**	20.2	584.5	257.2	77.0	1.000004
96000.0	12.8	-47.0	0.0	0.0**	19.7	585.6	256.4	72.1	1.000004
96500.0	12.5	-46.1	0.0	0.0**	19.1	586.7	255.4	67.4	1.000004
97000.0	12.2	-45.2	0.0	0.0**	18.6	587.9	254.4	62.7	1.000004
97500.0	11.9	-44.4	0.0	0.0**	18.2	589.0	255.1	63.7	1.000004
98000.0	11.7	-43.5	0.0	0.0**	17.7	590.1	256.0	65.1	1.000004
98500.0	11.4	-42.6	0.0	0.0**	17.2	591.2	256.9	64.1	1.000004
99000.0	11.1	-41.8	0.0	0.0**	16.8	592.3	257.7	60.1	1.000004
99500.0	10.9	-41.3	0.0	0.0**	16.4	592.9	258.5	56.1	1.000004
100000.0	10.7	-41.3	0.0	0.0**	16.0	592.9	257.3	52.5	1.000004
100500.0	10.4	-41.3	0.0	0.0**	15.7	592.9	256.1	48.9	1.000003
101000.0	10.2	-41.3	0.0	0.0**	15.3	592.9	250.5	41.1	1.000003
101500.0	10.0	-41.3	0.0	0.0**	15.0	592.9	239.4	28.2	1.000003
102000.0	9.8	-41.3	0.0	0.0**	14.7	592.9	228.4	15.4	1.000003
102500.0	9.5	-41.3	0.0	0.0**	14.3	592.9	184.7	16.1	1.000003
103000.0	9.3	-41.3	0.0	0.0**	14.0	592.9	137.9	18.1	1.000003

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TABLE C-V (Cont)

UPPER AIR DATA

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103500.0	9.1	-41.3	0.0	0.0**	13.7	592.9	107.3	19.5	1.000003
104000.0	8.9	-41.3	0.0	0.0**	13.4	592.9	103.5	20.1	1.000003
104500.0	8.7	-41.3	0.0	0.0**	13.1	592.9	99.7	20.7	1.000003
105000.0	8.5	-41.3	0.0	0.0**	12.8	592.9	150.7	24.9	1.000003
105500.0	8.3	-42.2	0.0	0.0**	12.6	591.8	212.2	29.8	1.000003
106000.0	8.2	-43.2	0.0	0.0**	12.4	590.4			1.000003
106500.0	8.0	-44.3	0.0	0.0**	12.2	589.0			1.000003
107000.0	7.8	-45.4	0.0	0.0**	11.9	587.6			1.000003
107500.0	7.6	-46.5	0.0	0.0**	11.7	586.2			1.000003
108000.0	7.5	-47.6	0.0	0.0**	11.5	584.8			1.000003

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

APPENDIX D

AEROBEE NASA 4.57 GG (S/N NASA 143)

IMPACT PREDICTION DATA

TABLE		PAGE
D-I.	Impact Prediction Data	38

APPENDIX D

TABLE D-I

IMPACT PREDICTION DATA

MISSILE: AEROBEE NASA 4.57 GG (S/N NASA 143)

TIME: 2000 MST
DATE: 18 March 1965

RELEASE TIME (MST)		DISPLACEMENT OF IMPACT DUE TO WIND IN MILES				THEORETICAL IMPACT IN MILES	
RAWIN-SONDE	PIBAL	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 1400 R 1400	P 1540	16.3S 9.2W	6.6S 25.9W	4.8S 32.8W	27.7S 67.9W	54.3N	30.0W
R_1 1400 R 1400	P 1600	16.1S 2.2W	7.7S 23.5W	4.8S 32.8W	28.6S 58.5W	53.4N	20.6W
R_1 1400 R 1400	P 1630	20.6S 8.3W	8.7S 26.1W	4.8S 32.8W	34.1S 67.2W	47.9N	29.3W
R_1 1400 R 1400	P 1700	27.0S 8.1W	10.0S 24.5W	4.8S 32.8W	41.8S 65.4W	40.2N	27.5W
R_1 1630 R 1400	P 1730	22.9S 27.0E	5.6S 29.7W	4.8S 32.8W	33.3S 35.5W	48.7N	2.4E
R_1 1630 R 1400	P 1800	25.8S 28.7E	5.6S 29.7W	4.8S 32.8W	36.2S 33.8W	45.8N	4.1E
R_1 1630 R 1630	P 1830	23.8S 29.6E	6.7S 28.9W	1.7S 26.1W	32.2S 25.4W	49.8N	12.5E
R_1 1630 R 1630	P 1900	26.5S 31.0E	7.8S 26.3W	1.7S 26.1W	36.0S 21.4W	46.0N	16.5E
R_1 1630 R 1630	P 1915	15.9S 20.1E	7.7S 26.8W	1.7S 26.1W	25.3S 32.8W	56.7N	5.1E
R_2 1900 R 1630	P 1930	15.6S 15.8E	9.1S 28.5W	1.7S 26.1W	26.4S 38.8W	55.6N	0.9W
R_2 1900 R 1630	P 1940	24.5S 8.9E	8.5S 30.2W	1.7S 26.1W	34.7S 47.4W	47.3N	9.5W
R_2 1900 R 1630	P 1950	13.3S 10.4E	8.5S 29.0W	1.7S 26.1W	23.5S 44.7W	58.5N	6.8W
*R_1 2000 *R 2000	*P 2002	18.8S 13.3E	11.3S 29.4W	4.3S 25.7W	34.4S 41.8W	47.6N	3.9W

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

APPENDIX D

TABLE D-I (Cont)

IMPACT PREDICTION DATA

AEROBEE NASA 4.57 GG SERIAL NO. NASA 143

JACK SETTINGS

West leg 56 inches East leg 30 inches

LAUNCHER SETTING

Tilt 5.34 degrees Azimuth 027.6 degrees

COMPONENTS OF TILT

4.73 degrees north 2.48 degrees east

NO WIND IMPACT

82.0 miles north of Navy Blockhouse 37.9 miles east of Navy Blockhouse

PREDICTED IMPACT

60 miles north of Navy Blockhouse 0 miles E-W of Navy Blockhouse

PREDICTED BOOSTER IMPACT

Azimuth 031 degrees Distance 1,875 feet

Recommendation Fire

With 80 % confidence of impacting on range, based upon:

wind correction 44 miles

one hour wind variability 26.5 miles

Date/Time 18 March 1965/1956 MST

Actual Impact (From Launcher) 45.6 miles north, 8.4 miles east (*SOTIM)

Actual Booster Impact (From Launcher) N/A

*Sonic Observation of Trajectory and Impact of Missiles

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

FRANCISCO MEJIA-FLORES
LT COLONEL, SIGNAL CORPS
COMMANDING

Approval. Data Report ERDA-297 has been reviewed and approved for publication:

Chris H. Roach

CHRIS H. ROACH
Acting Chief
Meteorological Support Division

for Lloyd White

BERNARD J. GUDENKAUF
Major, Signal Corps
Director
Environmental Sciences Directorate

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

April 1965

1. Data Report ERDA-297 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.

FOR THE COMMANDER:

G. H. HENDRIKS
2d Lt, AGC
Assistant Adjutant

AD ACCESSION NO.

Army Electronics Research and Development Activity, Meteorological Support Division, White Sands Missile Range, New Mexico.

METEOROLOGICAL DATA REPORT, AEROBEE NASA 4.57 GG by Marjorie McLardie Hoidale, ERDA-297, April, 1965, 41 pp.

UNCLASSIFIED REPORT

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UNCLASSIFIED

1. Ballistics
2. Meteorology
3. Wind

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1. Ballistics
2. Meteorology
3. Wind

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23) Descriptors

(*Meteorological parameters, Exterior ballistics), (*Exterior ballistics, Meteorological parameters).

25) Identifiers

Aerobee, Ballistic meteorology.

27) Abstract: See reverse ( ) Page (s) --

29) Inventory

30) Annotated Title Ballistic meteorology: NASA Aerobee rocket launching

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