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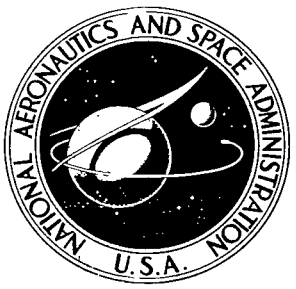

TEMPERATURE, PRESSURE, DENSITY, AND WIND MEASUREMENTS IN THE STRATOSPHERE AND MESOSPHERE, 1969

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16. Abstract

Complete data from a total of 23 rocket soundings conducted from Arenosillo, Spain; Barrow, Alaska; Churchill, Canada; and Wallops Island, Virginia are presented. Temperature, pressure, density, and wind profiles from 21 acoustic grenade experiments covering the altitude range of approximately 30 to 90 km are tabulated. No attempt has been made here to analyze the meteorological significance of these data. Errors for each of the 21 grenade soundings have been computed and are included.

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INTRODUCTION

During 1969, 21 acoustic grenade and 2 pitot probe experiments were conducted by the Goddard Space Flight Center, the University of Michigan under contract to Goddard, and the Instituto Nacional de Tecnica Aerospacial in cooperation with Goddard. Launch sites included: Arenosillo, Spain (37°N); Barrow, Alaska (71°N); Churchill, Canada (59°N); and Wallops Island, Virginia (38°N). These soundings were carried out as part of the Meteorological Sounding Rocket Program, a primary objective of which is to observe the structure of the upper stratosphere, mesosphere, and lower thermosphere, and to investigate specific phenomena which occur in these regions of the atmosphere. In order to extend the coverage over the widest possible geographic area, and to permit more accurate analyses, the GSFC soundings are coordinated with soundings in other parts of the world whenever possible. Since the data obtained from these soundings are published here to serve as a basis for further investigation and interpretation of the physics and meteorology of the upper atmosphere, no analysis is attempted.

EXPERIMENTAL TECHNIQUES

The acoustic grenade and pitot probe techniques were employed to obtain the data reported here. These techniques are described only briefly since the details of the theory, instrumentation, and data reduction have been published elsewhere (References 1, 2, and 3).

In the grenade technique, 1, 2, and 3 pound explosive charges (grenades) are carried aloft in the nose cone of a Nike Cajun sounding rocket. The grenades are ejected and detonated at 2 to 4 km

intervals. The payload carries 19 grenades, permitting an average vertical resolution in the data of about 3 km. The position of the rocket, and therefore of each explosion, is determined by a Doppler tracking system, a high precision radar such as the FPQ-6, or both. The time of each explosion is detected by sensors in the payload and telemetered to the ground. A ground based array of hot-wire microphones, capable of responding to frequencies in the 4 Hertz range, is used to detect and record the arrivals of the sound waves generated by the exploding grenades. The measured experimental parameters are the times and positions of the grenade explosions, and the arrival times of the sound waves at the ground based microphones.

The elevation and azimuth angles of the normal to each arriving spherical sound wave front are computed by applying a least-squares-fit to the arrival times at the various microphones. Each wave front is then analytically traced back along its path of propagation through the atmosphere by means of Snell's Law. Wind and temperature data from balloonsondes and rocketsondes obtained near the time of the grenade sounding are introduced to account for their influence in retracing the path of the sound wave from the ground to the level of the first explosion; above this altitude, the results of the grenade sounding itself are used for each succeeding explosion. The origin of the sound wave as determined by ray tracing is compared with the known position of the explosion, and the horizontal difference by which the sound wave has been displaced from one explosion to the next is a measure of the average wind velocity in the layer bounded by the two explosions. The average speed of sound, and hence the average temperature of the atmosphere between adjacent explosions, may also be determined. The temperature and wind profiles consist of discrete points, each representing the average temperature and average wind, respectively, of the vertically stacked horizontal layers between consecutive explosions. The pressure profile is derived from the temperature profile, using the pressure measured by an accompanying balloonsonde as a reference value. Pressure is then calculated as a function of altitude from the barometric equation (a form of the hydrostatic equation), by integrating the pressure upward over the temperature profile. The density is then calculated as a function of altitude from the temperature and pressure using the equation of state (Reference 4).

In the pitot probe technique, a radioactive ionization gage and a hot filament gage mounted in the forward tip of the payload measure impact pressure, which is related to ambient density, as the rocket ascends. The gage outputs are telemetered to ground-based receiving and recording equipment. The trajectory of the rocket is provided by Doppler tracking, radar tracking, or both, to determine the altitude and velocity of the rocket. The measured experimental parameters are ram pressure, and the velocity, position and orientation of the payload. Ram pressure is related to density by the Rayleigh equation and the equation of state in the continuum region, and by a modified thermal transpiration equation in the free-molecular flow region. The temperature profile is computed by integrating the density profile with altitude using a form of the hydrostatic equation.

RESULTS

The launch sites of Arenosillo, Spain (37°N); Barrow, Alaska (71°N); Churchill, Canada (59°N); and Wallops Island, Virginia (38°N) were chosen because they represent temperate, arctic, and sub-arctic locations. Table 1 summarizes the date, time, and location of each of the 21 grenade

Table 1

1969 Summary of Soundings

Figure	Date	Time (GMT)	Location	Experiment
1	11 January	1015	Barrow	Grenade
2	17 January	2132	Wallops	Grenade
3	19 January	0200	Barrow	Grenade
4	20 January	1804	Churchill	Grenade
5	22 January	2217	Churchill	Grenade
6	24 January	2000	Wallops	Grenade
7	26 January	0500	Barrow	Grenade
8	30 January	1710	Churchill	Grenade
9	31 January	0700	Barrow	Grenade
10	31 January	1757	Wallops	Grenade
11	4 February	2230	Barrow	Grenade
12	6 February	0940	Churchill	Grenade
13	6 February	2109	Wallops	Grenade
14	28 March	0023	Arenosillo	Grenade
15	28 March	0732	Wallops	Grenade
16	29 March	0005	Arenosillo	Grenade
17	29 March	0715	Wallops	Grenade
18	8 May	0005	Arenosillo	Grenade
19	8 May	0311	Wallops	Grenade
20	10 May	0145	Arenosillo	Grenade
21	10 May	0436	Wallops	Grenade
22	12 May	1923	Wallops	Pitot
23	21 August	1539	Wallops	Pitot

and 2 pitot probe soundings conducted during 1969. The observations include: a spaced series of thirteen soundings from Barrow, Churchill and Wallops to study circulation changes in the winter mesosphere; and four paired soundings to examine longitudinal variations between Arenosillo and Wallops.

The results of the soundings are given in Figures 1 through 23. In the grenade results, the directly measured parameters, temperature and wind, are tabulated on the left-hand page of each figure. Values of interpolated temperature, computed pressure, pressure deviation from the 1962 U. S. Standard Atmosphere (Reference 5), computed density, and density deviation from the standard atmosphere are tabulated on the right-hand page of each figure as functions of geometric altitude. The wind components, interpolated at 2 km intervals, are tabulated on the left-hand page. The pitot probe results give computed temperature, computed pressure, pressure deviation from the standard atmosphere, measured density and density deviation from standard. Balloonsonde and rocketsonde observations which accompanied the soundings are also plotted to provide an essentially continuous profile of temperature (and wind) from the surface to the mesopause.

ERROR ANALYSIS

The errors contributing to the inaccuracy of the grenade technique can be classified according to source (Reference 6) as errors inherent in the experimental measurements and errors resulting

from approximations made in the course of analysis. The latter consists of errors resulting from the formation of least-squares operational equations, the deviation of the model atmosphere from the true atmosphere, and the finite amplitude propagation correction. These analytical approximations are considered to be second order effects of negligible quantities or systematic errors that are effectively removed.

Experimental measurement uncertainties are surveying errors in determining the location of each microphone in the array, determination of the grenade burst time and position, and reading the break times for the sound wave as it crosses the array. Of these errors, the reading of the individual microphone break times contributes the majority of the inaccuracy. (An exception due to grenade burst time and position errors for a large-area sound-ranging array as installed at Wallops is discussed in Reference 7).

Measurement of the break time for the wave from a grenade explosion on more than three microphones in the array produces an over-determined sound-ranging solution. A least-squares analysis of this solution yields the standard error of the direction cosines and the travel time for the wave from each grenade. These standard errors of surface values can be propagated through the ray-tracing analysis to yield standard errors in the computed values of temperature and wind for each grenade pair layer (Reference 6).

In cases where an over-determined solution was not available (an array of three microphone break times), standard errors could not be determined, and no errors were computed for temperature and wind. Such instances are denoted by their zero error in the tabulations.

The pressure and density values which are tabulated for each grenade sounding do not include the effects of temperature errors. The calculation of such errors can be made by introducing the stated temperature errors into the barometric equation, an exercise left to the reader.

The experimental errors included in the measurement of density by the pitot probe technique are estimated as follows: ±1 percent below 84 km altitude; ±4 percent between 84 km and 100 km altitude; and ±10 percent above 100 km altitude. Also, all temperatures given are the kinetic temperatures.

ACKNOWLEDGMENTS

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Goddard Space Flight Center
National Aeronautics and Space Administration
Greenbelt, Maryland - September 8, 1970
607-12-01-01-51

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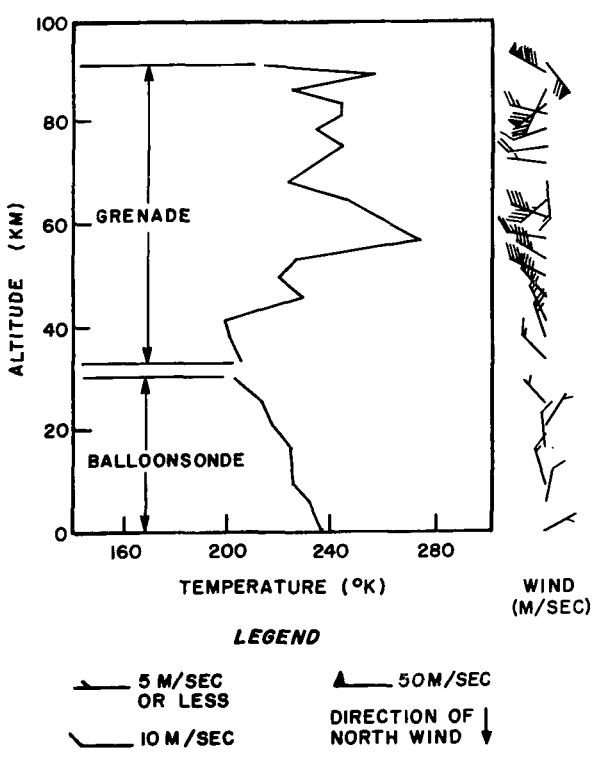
FIGURE 1

BARROW, 11 JANUARY 1969, 1015 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
33185.6	206.6	0.8	16.8	3.3	316.3	11.8
37372.5	201.7	1.7	27.3	7.0	342.3	14.5
41389.7	199.5	1.1	25.2	4.6	335.3	10.4
45358.4	228.5	1.4	38.9	4.9	321.7	7.3
49190.8	219.2	1.8	44.1	6.2	297.8	8.4
52858.7	226.0	3.0	46.4	9.6	302.5	12.2
56449.9	275.3	3.8	25.0	9.5	280.0	22.5
60421.4	260.3	3.5	45.5	9.4	291.4	12.2
64180.8	246.6	3.6	45.8	10.2	228.9	12.0
67784.1	222.5	6.4	14.3	19.5	175.2	75.3
71228.6	231.9	7.9	5.8	22.3	278.3	228.8
74530.0	244.4	11.0	17.7	29.9	261.2	98.1
77688.3	233.1	11.3	9.2	32.1	250.9	200.1
80300.8	243.7	18.0	23.6	47.6	285.9	119.8
82767.8	242.9	15.0	70.1	41.8	231.8	31.9
85465.8	224.3	16.9	34.6	49.3	206.2	76.1
87995.3	257.8	22.3	137.5	57.2	300.5	22.9
90587.5	213.3	15.6	72.3	42.0	144.8	35.4



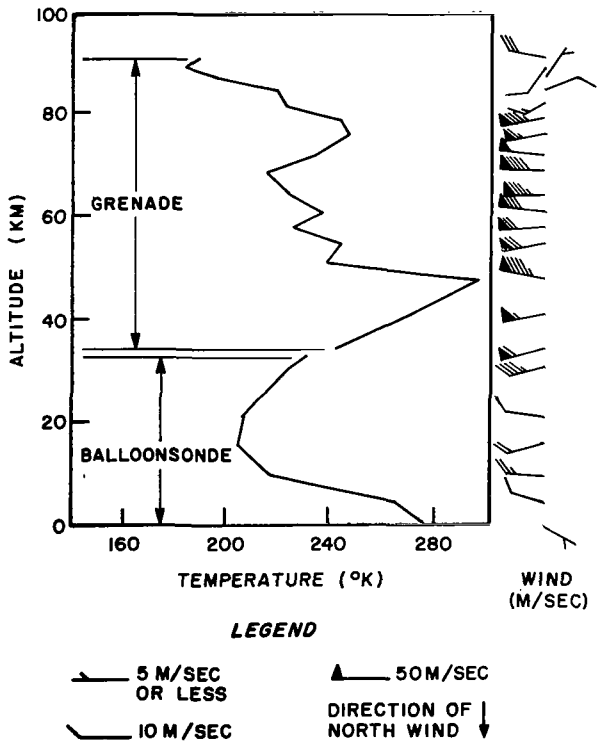
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
34000	-14.8	10.9
36000	-21.5	9.3
38000	-25.4	8.6
40000	-24.0	9.7
42000	-24.2	12.7
44000	-27.9	19.4
46000	-28.7	26.6
48000	-23.6	34.4
50000	-21.6	39.0
52000	-23.9	39.1
54000	-18.4	34.5
56000	-7.6	27.1
58000	-9.1	31.6
60000	-14.0	39.9
62000	2.9	39.1
64000	25.0	33.6
66000	22.1	16.5
68000	13.3	1.0
70000	4.5	3.3
72000	0.0	8.5
74000	2.0	15.2
76000	2.8	13.4
78000	1.4	11.3
80000	-2.4	22.1
82000	27.4	44.6
84000	37.7	36.9
86000	7.8	40.1
88000	-47.4	92.7
90000	29.8	-5.3

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
34000	205.6	0.532E 03	-19.6	0.902E-02	-8.7
35000	204.5	0.452E 03	-21.2	0.770E-02	-8.9
36000	203.3	0.383E 03	-23.0	0.656E-02	-9.5
37000	202.1	0.324E 03	-25.1	0.558E-02	-10.4
38000	201.3	0.274E 03	-27.3	0.474E-02	-11.6
39000	200.8	0.231E 03	-29.5	0.402E-02	-13.1
40000	200.2	0.195E 03	-31.8	0.340E-02	-14.8
41000	199.7	0.165E 03	-34.2	0.288E-02	-16.6
42000	204.0	0.139E 03	-36.6	0.238E-02	-20.4
43000	211.3	0.117E 03	-38.9	0.194E-02	-25.3
44000	218.6	0.100E 03	-40.9	0.159E-02	-29.3
45000	225.9	0.864E 02	-42.0	0.133E-02	-32.2
46000	227.0	0.745E 02	-43.2	0.114E-02	-33.2
47000	224.5	0.643E 02	-44.4	0.997E-03	-33.3
48000	222.1	0.551E 02	-46.0	0.865E-03	-34.3
49000	219.7	0.473E 02	-47.6	0.750E-03	-35.5
50000	220.7	0.405E 02	-49.1	0.640E-03	-37.6
51000	222.6	0.347E 02	-50.6	0.544E-03	-39.9
52000	224.4	0.299E 02	-51.8	0.464E-03	-42.0
53000	228.0	0.257E 02	-53.0	0.394E-03	-44.5
54000	241.7	0.222E 02	-54.1	0.320E-03	-49.2
55000	255.4	0.194E 02	-54.4	0.265E-03	-52.6
56000	269.2	0.172E 02	-54.2	0.222E-03	-55.2
57000	273.3	0.152E 02	-54.0	0.194E-03	-55.9
58000	269.5	0.134E 02	-53.7	0.174E-03	-55.3
59000	265.7	0.118E 02	-53.4	0.155E-03	-54.9
60000	261.9	0.104E 02	-53.4	0.139E-03	-54.5
61000	258.2	0.919E 01	-53.3	0.124E-03	-54.1
62000	254.6	0.808E 01	-53.1	0.110E-03	-53.7
63000	250.9	0.707E 01	-53.1	0.981E-04	-53.8
64000	247.3	0.617E 01	-53.0	0.869E-04	-53.8
65000	241.1	0.538E 01	-52.9	0.778E-04	-53.3
66000	234.4	0.470E 01	-52.7	0.698E-04	-52.5
67000	227.7	0.404E 01	-53.0	0.618E-04	-52.2
68000	223.1	0.348E 01	-53.2	0.543E-04	-52.3
69000	225.8	0.299E 01	-53.3	0.461E-04	-53.8
70000	228.5	0.258E 01	-53.2	0.393E-04	-55.0
71000	231.3	0.223E 01	-52.7	0.336E-04	-55.9
72000	234.8	0.193E 01	-52.2	0.287E-04	-56.8
73000	238.6	0.167E 01	-51.4	0.244E-04	-57.7
74000	242.4	0.146E 01	-50.2	0.210E-04	-58.1
75000	242.7	0.127E 01	-48.7	0.183E-04	-57.7
76000	239.1	0.111E 01	-47.1	0.162E-04	-56.6
77000	235.5	0.964E 00	-45.5	0.142E-04	-55.5
78000	234.3	0.835E 00	-43.8	0.124E-04	-54.8
79000	238.4	0.724E 00	-41.7	0.105E-04	-54.9
80000	242.5	0.630E 00	-39.1	0.906E-05	-54.6
81000	243.5	0.549E 00	-36.1	0.786E-05	-52.6
82000	243.1	0.479E 00	-33.1	0.686E-05	-50.2
83000	241.3	0.418E 00	-29.8	0.603E-05	-47.5
84000	234.4	0.364E 00	-26.5	0.541E-05	-43.3
85000	227.5	0.314E 00	-23.7	0.481E-05	-39.4
86000	231.3	0.271E 00	-20.9	0.408E-05	-38.2
87000	244.6	0.234E 00	-17.7	0.334E-05	-39.2
88000	257.7	0.206E 00	-13.0	0.278E-05	-39.0
89000	240.5	0.181E 00	-8.1	0.262E-05	-31.0
90000	223.4	0.156E 00	-5.0	0.243E-05	-23.2

FIGURE 2

WALLOPS, 17 JANUARY 1969, 2132 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
34476.8	242.9	0.5	62.1	0.5	255.9	0.9
41817.6	272.6	0.5	56.3	0.5	258.8	1.1
47702.7	297.9	1.6	97.1	2.2	281.8	1.7
51088.6	239.8	1.2	26.0	1.7	262.7	6.6
54384.4	243.5	1.0	72.1	1.4	259.5	2.1
57588.2	225.2	0.8	71.7	1.2	265.2	2.0
60704.5	237.9	0.9	81.8	1.5	276.9	1.8
64215.2	223.8	0.8	83.5	1.3	269.1	1.6
68082.1	215.0	0.8	90.8	1.4	272.5	1.6
71784.9	234.0	1.3	49.3	2.2	274.7	4.3
75362.8	247.3	1.7	63.1	2.3	257.9	4.1
78776.2	243.2	1.4	84.6	2.1	257.9	2.8
81605.7	223.9	1.8	13.7	3.2	241.4	22.9
83931.1	219.2	2.5	8.0	4.0	68.9	57.3
86180.3	198.6	2.6	6.0	7.4	34.3	67.4
88328.4	185.7	3.5	10.5	9.9	214.7	57.1
90328.7	190.1	4.3	29.3	9.3	281.1	28.1



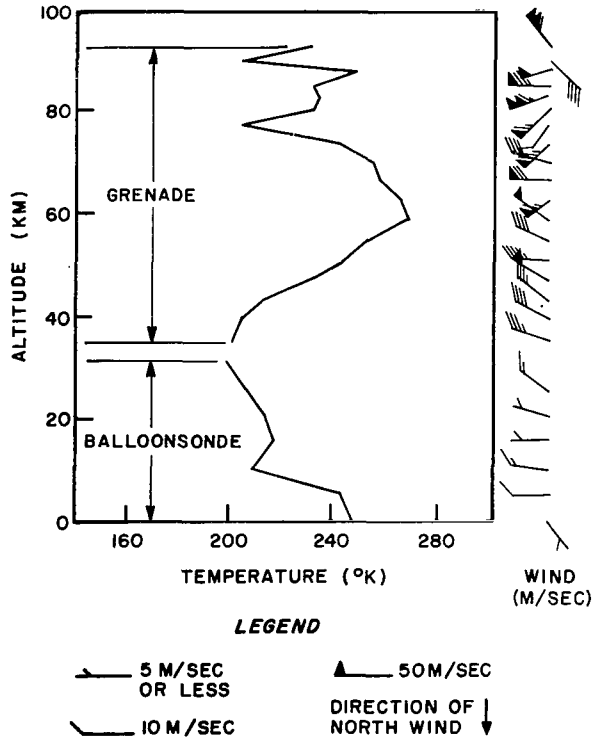
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	14.2	59.2
38000	13.1	57.9
40000	11.9	56.5
42000	9.2	57.7
44000	-0.5	70.0
46000	-11.0	83.5
48000	-16.4	85.6
50000	-4.1	48.1
52000	5.9	38.4
54000	11.4	64.4
56000	9.5	71.2
58000	3.6	73.0
60000	-6.1	78.9
62000	-5.7	82.1
64000	-0.1	83.5
66000	-1.1	86.8
68000	-3.6	87.8
70000	-4.0	69.2
72000	-2.3	52.1
74000	6.5	56.9
76000	13.9	65.7
78000	16.6	77.6
80000	12.8	52.2
82000	4.9	10.2
84000	-2.2	-5.1
86000	-3.6	-3.3
88000	5.0	5.3
90000	-3.3	25.0

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
35000	245.0	0.534E 03	-7.0	0.759E-02	-10.2
36000	249.1	0.464E 03	-6.7	0.650E-02	-10.4
37000	253.1	0.404E 03	-6.6	0.556E-02	-10.7
38000	257.2	0.354E 03	-6.1	0.479E-02	-10.6
39000	261.2	0.312E 03	-4.8	0.417E-02	-9.8
40000	265.3	0.276E 03	-3.7	0.362E-02	-9.1
41000	269.3	0.244E 03	-2.7	0.315E-02	-8.5
42000	273.4	0.215E 03	-1.8	0.275E-02	-8.1
43000	277.7	0.190E 03	-1.1	0.239E-02	-7.9
44000	282.0	0.168E 03	-0.5	0.208E-02	-7.7
45000	286.3	0.149E 03	-0.0	0.181E-02	-7.7
46000	290.6	0.131E 03	0.3	0.157E-02	-7.8
47000	294.9	0.117E 03	1.5	0.139E-02	-7.1
48000	292.8	0.105E 03	2.7	0.125E-02	-5.0
49000	275.7	0.939E 02	3.9	0.118E-02	2.0
50000	258.5	0.825E 02	3.4	0.111E-02	8.3
51000	241.4	0.717E 02	1.8	0.103E-02	14.2
52000	240.8	0.623E 02	0.2	0.902E-03	12.6
53000	241.9	0.542E 02	-1.2	0.781E-03	9.9
54000	243.1	0.472E 02	-2.4	0.677E-03	7.3
55000	240.0	0.412E 02	-3.6	0.598E-03	6.6
56000	234.3	0.359E 02	-4.6	0.533E-03	7.2
57000	228.6	0.309E 02	-6.6	0.471E-03	6.8
58000	226.9	0.266E 02	-8.5	0.409E-03	4.6
59000	231.0	0.229E 02	-10.2	0.346E-03	0.1
60000	235.0	0.199E 02	-11.2	0.295E-03	-3.4
61000	236.7	0.173E 02	-12.0	0.254E-03	-5.7
62000	232.7	0.150E 02	-12.8	0.225E-03	-5.9
63000	228.7	0.129E 02	-13.9	0.197E-03	-6.9
64000	224.6	0.111E 02	-15.0	0.173E-03	-8.0
65000	222.0	0.962E 01	-15.9	0.151E-03	-9.4
66000	219.7	0.828E 01	-16.6	0.131E-03	-10.6
67000	217.4	0.710E 01	-17.5	0.113E-03	-12.1
68000	215.2	0.608E 01	-18.3	0.984E-04	-13.6
69000	219.7	0.520E 01	-18.8	0.825E-04	-17.4
70000	224.8	0.445E 01	-19.2	0.690E-04	-21.0
71000	229.9	0.386E 01	-18.3	0.585E-04	-23.3
72000	234.8	0.335E 01	-17.2	0.497E-04	-25.3
73000	238.5	0.290E 01	-15.8	0.424E-04	-26.6
74000	242.2	0.252E 01	-13.9	0.363E-04	-27.4
75000	245.9	0.220E 01	-11.2	0.312E-04	-27.8
76000	246.5	0.193E 01	-8.2	0.272E-04	-26.9
77000	245.3	0.168E 01	-4.8	0.239E-04	-25.3
78000	244.1	0.147E 01	-1.0	0.210E-04	-23.6
79000	241.6	0.128E 01	3.1	0.185E-04	-21.2
80000	234.8	0.111E 01	7.9	0.166E-04	-16.9
81000	228.0	0.969E 00	12.5	0.148E-04	-10.8
82000	223.1	0.835E 00	16.6	0.130E-04	-5.5
83000	221.1	0.720E 00	20.7	0.113E-04	-1.3
84000	218.6	0.618E 00	24.7	0.985E-05	3.0
85000	209.4	0.531E 00	28.9	0.884E-05	11.1
86000	200.2	0.450E 00	31.2	0.783E-05	18.3
87000	193.7	0.381E 00	33.5	0.685E-05	24.5
88000	187.7	0.319E 00	34.6	0.593E-05	29.5
89000	187.2	0.267E 00	35.3	0.497E-05	30.5
90000	189.4	0.224E 00	36.4	0.412E-05	30.0

FIGURE 3

BARROW, 19 JANUARY 1969, 0200 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
34919.0	201.3	0.7	32.9	2.2	290.9	3.9
39102.3	205.0	0.6	39.3	1.8	298.8	2.6
43147.1	212.2	1.4	37.2	3.8	308.0	5.9
47098.1	232.7	2.9	49.4	7.3	300.3	8.5
50893.9	242.7	3.3	47.2	7.7	275.3	9.3
54603.5	251.6	5.2	38.3	11.4	295.9	17.3
58198.1	269.4	3.3	49.6	6.7	306.1	7.8
62131.4	266.1	3.7	63.2	7.8	232.1	6.7
65878.5	258.3	4.7	69.0	9.8	271.5	8.0
69475.8	254.9	6.2	37.7	12.5	285.2	19.2
72911.0	242.9	7.6	74.5	16.5	227.9	11.9
76216.8	203.5	5.7	8.2	14.4	216.8	96.2
79357.7	230.9	7.0	66.0	15.9	227.2	13.0
81949.4	233.3	14.4	115.8	32.6	252.2	14.8
84407.8	230.9	19.1	72.7	41.0	272.3	31.1
87081.5	248.1	22.4	48.4	43.4	253.2	50.0
89586.5	204.7	24.3	39.3	52.2	133.0	80.5
92137.8	230.0	52.1	107.5	110.3	324.9	54.5



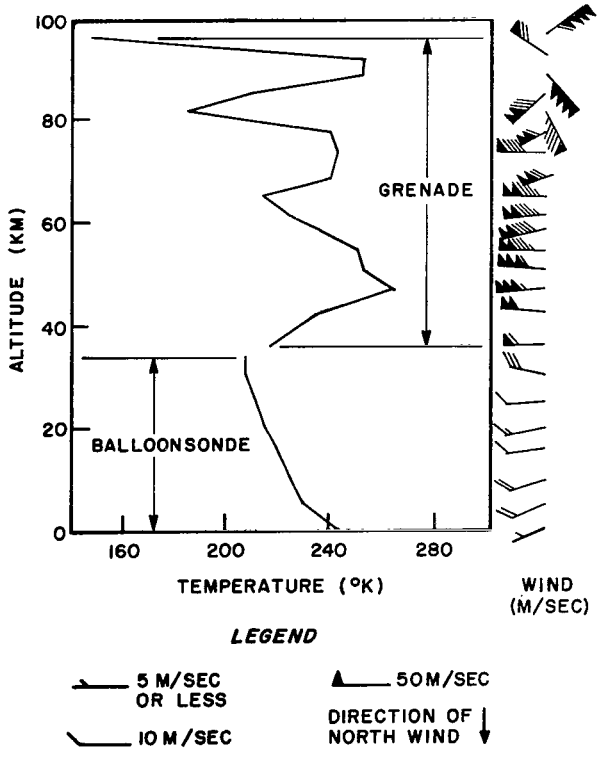
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	-13.6	31.7
38000	-17.0	33.5
40000	-19.8	33.3
42000	-21.8	30.8
44000	-23.4	32.2
46000	-24.4	38.9
48000	-20.0	43.7
50000	-9.2	46.0
52000	-8.0	43.2
54000	-14.7	36.6
56000	-21.6	36.6
58000	-25.2	39.9
60000	1.9	44.6
62000	31.2	50.1
64000	18.5	59.4
66000	-0.4	65.1
68000	-6.6	49.7
70000	0.3	40.1
72000	33.9	50.2
74000	35.6	38.7
76000	13.3	12.7
78000	28.3	29.6
80000	41.9	64.1
82000	31.7	100.7
84000	5.3	79.4
86000	7.1	57.0
88000	18.7	18.8
90000	3.9	-8.4
92000	-81.7	56.9

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
35000	201.4	0.441E 03	-23.2	0.763E-02	-9.8
36000	202.2	0.372E 03	-25.1	0.642E-02	-11.4
37000	203.1	0.315E 03	-27.2	0.540E-02	-13.3
38000	204.0	0.267E 03	-29.1	0.455E-02	-15.0
39000	204.9	0.226E 03	-31.1	0.384E-02	-16.8
40000	206.6	0.192E 03	-33.1	0.323E-02	-18.9
41000	208.4	0.162E 03	-35.1	0.272E-02	-21.1
42000	210.1	0.138E 03	-36.8	0.230E-02	-23.0
43000	211.9	0.118E 03	-38.5	0.194E-02	-25.0
44000	216.6	0.101E 03	-40.3	0.162E-02	-28.0
45000	221.8	0.862E 02	-42.1	0.135E-02	-31.1
46000	227.0	0.741E 02	-43.5	0.113E-02	-33.6
47000	232.2	0.641E 02	-44.6	0.961E-03	-35.7
48000	235.1	0.554E 02	-45.7	0.821E-03	-37.5
49000	237.7	0.480E 02	-46.7	0.704E-03	-39.4
50000	240.4	0.418E 02	-47.5	0.606E-03	-40.9
51000	243.0	0.364E 02	-48.3	0.521E-03	-42.4
52000	245.4	0.316E 02	-49.0	0.449E-03	-43.8
53000	247.8	0.275E 02	-49.7	0.387E-03	-45.3
54000	250.2	0.241E 02	-50.2	0.336E-03	-46.7
55000	253.6	0.211E 02	-50.6	0.290E-03	-48.2
56000	258.5	0.184E 02	-50.9	0.248E-03	-49.9
57000	263.5	0.162E 02	-50.8	0.215E-03	-51.2
58000	268.4	0.143E 02	-50.6	0.186E-03	-52.2
59000	268.7	0.126E 02	-50.4	0.164E-03	-52.4
60000	267.8	0.111E 02	-50.1	0.145E-03	-52.3
61000	267.0	0.987E 01	-49.8	0.128E-03	-52.3
62000	266.2	0.870E 01	-49.5	0.113E-03	-52.4
63000	264.3	0.767E 01	-49.1	0.101E-03	-52.4
64000	262.2	0.676E 01	-48.5	0.898E-04	-52.3
65000	260.2	0.594E 01	-48.1	0.795E-04	-52.2
66000	258.2	0.521E 01	-47.5	0.703E-04	-52.1
67000	257.3	0.458E 01	-46.7	0.620E-04	-52.1
68000	256.3	0.402E 01	-45.9	0.546E-04	-52.0
69000	255.3	0.352E 01	-45.0	0.481E-04	-51.8
70000	253.0	0.309E 01	-43.9	0.425E-04	-51.3
71000	249.5	0.271E 01	-42.7	0.378E-04	-50.4
72000	246.1	0.236E 01	-41.5	0.335E-04	-49.6
73000	241.8	0.206E 01	-40.2	0.297E-04	-48.6
74000	229.9	0.179E 01	-38.8	0.272E-04	-45.6
75000	218.0	0.154E 01	-37.7	0.247E-04	-42.8
76000	206.1	0.131E 01	-37.5	0.222E-04	-40.5
77000	210.3	0.111E 01	-37.0	0.184E-04	-42.4
78000	219.0	0.949E 00	-36.1	0.151E-04	-45.0
79000	227.7	0.821E 00	-33.9	0.125E-04	-46.4
80000	231.5	0.711E 00	-31.4	0.107E-04	-46.4
81000	232.4	0.615E 00	-28.5	0.922E-05	-44.4
82000	233.3	0.533E 00	-25.5	0.796E-05	-42.3
83000	232.3	0.462E 00	-22.4	0.693E-05	-39.6
84000	231.3	0.400E 00	-19.2	0.602E-05	-36.9
85000	234.7	0.346E 00	-15.9	0.514E-05	-35.3
86000	241.2	0.300E 00	-12.3	0.434E-05	-34.3
87000	247.6	0.262E 00	-7.8	0.369E-05	-32.8
88000	232.2	0.229E 00	-3.1	0.344E-05	-24.6
89000	214.9	0.197E 00	-0.0	0.320E-05	-15.9
90000	208.8	0.167E 00	2.1	0.280E-05	-11.6
91000	218.7	0.143E 00	4.5	0.228E-05	-12.1
92000	228.6	0.123E 00	8.2	0.188E-05	-11.6

FIGURE 4

CHURCHILL , 20 JANUARY 1969, 1804 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
36529.7	217.3	0.5	57.7	0.9	268.7	1.0
42492.5	236.9	1.8	100.4	3.9	276.3	2.3
46992.6	266.5	3.7	154.1	7.7	266.1	2.7
50738.1	253.4	2.6	158.5	5.7	275.8	2.0
54409.6	250.5	4.8	136.2	10.7	271.0	4.3
58002.7	237.5	4.5	141.1	10.7	256.0	4.1
61501.6	223.2	5.5	137.2	13.4	264.9	5.3
64910.9	213.6	7.7	132.6	19.1	272.5	7.9
68755.9	240.2	6.5	118.4	14.5	250.0	6.5
72998.8	242.1	4.9	89.5	10.3	275.2	6.5
77099.1	240.4	7.4	112.4	16.5	243.0	7.7
81066.6	185.3	7.2	95.1	19.9	154.4	11.4
84871.9	210.7	7.8	130.6	21.0	227.6	8.2
88063.4	251.3	29.3	199.1	60.0	138.2	17.1
91924.9	253.0	35.0	71.2	75.7	305.5	59.4
96749.5	147.8	18.4	209.6	58.4	52.2	19.5



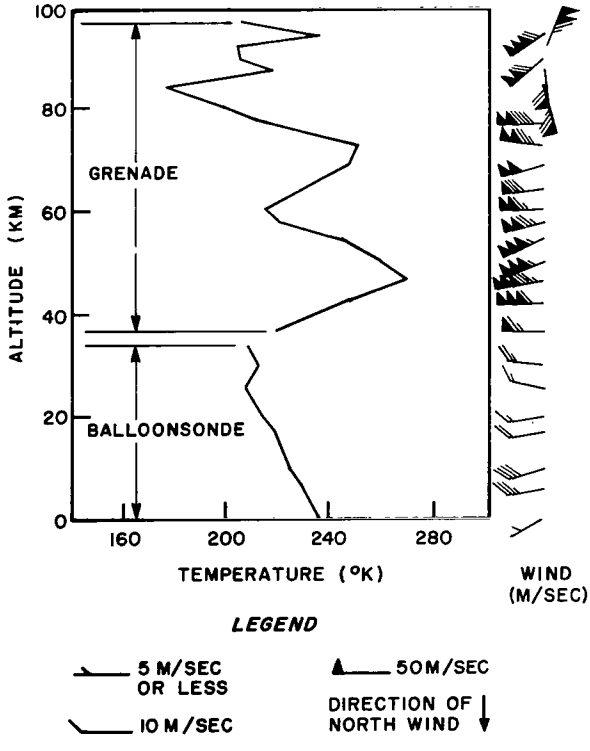
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
38000	-1.7	68.1
40000	-5.9	82.2
42000	-9.7	96.6
44000	-3.9	117.8
46000	5.6	141.8
48000	3.2	154.8
50000	-10.7	156.8
52000	-11.4	150.3
54000	-3.3	139.1
56000	13.6	136.5
58000	29.8	136.9
60000	21.4	136.8
62000	9.5	136.0
64000	-1.0	133.6
66000	7.2	126.4
68000	30.9	115.5
70000	26.1	104.8
72000	3.2	94.4
74000	6.2	91.8
76000	35.1	97.2
78000	58.9	68.0
80000	76.5	-3.0
82000	86.4	-7.2
84000	87.6	64.5
86000	109.4	15.5
88000	132.4	-101.3
90000	53.3	-36.9
92000	-36.1	33.9
94000	-78.7	-38.3
96000	-114.7	-131.0

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
37000	218.9	0.345E 03	-20.1	0.550E-02	-11.7
38000	222.1	0.296E 03	-21.4	0.464E-02	-13.5
39000	225.4	0.253E 03	-22.9	0.391E-02	-15.4
40000	228.7	0.217E 03	-24.3	0.330E-02	-17.2
41000	232.0	0.188E 03	-24.9	0.282E-02	-18.1
42000	235.3	0.163E 03	-25.7	0.241E-02	-19.2
43000	240.3	0.141E 03	-26.5	0.205E-02	-20.9
44000	246.8	0.122E 03	-27.4	0.173E-02	-23.2
45000	253.4	0.106E 03	-28.5	0.146E-02	-25.5
46000	260.0	0.937E 02	-28.5	0.125E-02	-26.6
47000	266.5	0.826E 02	-28.6	0.108E-02	-27.8
48000	263.0	0.728E 02	-28.7	0.964E-03	-26.7
49000	259.5	0.641E 02	-29.0	0.860E-03	-25.9
50000	256.0	0.561E 02	-29.6	0.764E-03	-25.5
51000	253.2	0.491E 02	-30.2	0.676E-03	-25.4
52000	252.4	0.430E 02	-30.8	0.594E-03	-25.8
53000	251.6	0.376E 02	-31.4	0.521E-03	-26.5
54000	250.8	0.329E 02	-32.0	0.457E-03	-27.5
55000	248.4	0.288E 02	-32.6	0.404E-03	-27.9
56000	244.7	0.252E 02	-33.0	0.358E-03	-27.9
57000	241.1	0.219E 02	-33.8	0.316E-03	-28.2
58000	237.5	0.190E 02	-34.7	0.278E-03	-28.6
59000	233.4	0.165E 02	-35.4	0.246E-03	-28.7
60000	229.3	0.143E 02	-36.2	0.217E-03	-28.9
61000	225.2	0.123E 02	-37.4	0.190E-03	-29.5
62000	221.8	0.105E 02	-38.5	0.166E-03	-30.4
63000	219.0	0.911E 01	-39.5	0.145E-03	-31.7
64000	216.1	0.780E 01	-40.6	0.125E-03	-33.2
65000	214.2	0.667E 01	-41.7	0.108E-03	-34.9
66000	221.1	0.569E 01	-42.6	0.897E-04	-38.9
67000	228.0	0.490E 01	-42.9	0.749E-04	-42.1
68000	235.0	0.427E 01	-42.6	0.633E-04	-44.4
69000	240.3	0.371E 01	-42.1	0.538E-04	-46.1
70000	240.8	0.323E 01	-41.4	0.467E-04	-46.5
71000	241.2	0.281E 01	-40.5	0.406E-04	-46.8
72000	241.7	0.245E 01	-39.5	0.353E-04	-46.9
73000	242.1	0.213E 01	-38.2	0.307E-04	-46.9
74000	241.7	0.185E 01	-36.7	0.267E-04	-46.5
75000	241.3	0.161E 01	-34.9	0.233E-04	-46.0
76000	240.8	0.140E 01	-33.0	0.203E-04	-45.4
77000	240.4	0.122E 01	-30.7	0.177E-04	-44.6
78000	227.9	0.106E 01	-28.2	0.163E-04	-40.6
79000	214.0	0.930E 00	-25.1	0.151E-04	-35.4
80000	200.1	0.780E 00	-24.7	0.135E-04	-32.0
81000	186.2	0.651E 00	-24.3	0.121E-04	-26.6
82000	191.5	0.543E 00	-24.1	0.989E-05	-28.4
83000	198.2	0.454E 00	-23.7	0.798E-05	-30.5
84000	204.9	0.388E 00	-21.7	0.659E-05	-30.9
85000	212.4	0.331E 00	-19.6	0.543E-05	-31.6
86000	225.1	0.282E 00	-17.5	0.437E-05	-33.8
87000	237.8	0.243E 00	-14.7	0.356E-05	-35.2
88000	250.4	0.213E 00	-10.2	0.296E-05	-35.2
89000	251.7	0.186E 00	-5.4	0.258E-05	-32.1
90000	252.1	0.163E 00	-0.4	0.226E-05	-28.6
91000	252.6	0.143E 00	4.8	0.198E-05	-23.7
92000	251.3	0.125E 00	9.9	0.174E-05	-18.3
93000	229.5	0.110E 00	15.0	0.167E-05	-4.9
94000	207.7	0.971E-01	20.4	0.162E-05	11.6
95000	185.9	0.806E-01	18.6	0.151E-05	24.8
96000	164.1	0.644E-01	12.1	0.136E-05	35.7

FIGURE 5

CHURCHILL, 22 JANUARY 1969, 2217 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
36289.9	218.9	1.0	64.6	1.9	270.7	1.9
42170.3	247.8	1.3	160.6	2.7	267.3	0.9
46590.4	270.1	3.6	186.6	7.4	258.7	2.1
50290.0	259.0	3.7	155.5	7.9	247.8	2.6
53904.5	245.7	2.9	155.1	6.4	244.5	2.1
57411.4	219.9	2.8	123.7	6.5	254.9	2.8
60823.5	213.4	3.2	115.6	7.6	266.4	3.6
64161.8	228.3	4.6	80.8	9.9	261.2	6.9
67934.7	247.1	5.8	102.0	12.1	253.6	6.4
72109.1	250.5	6.8	123.6	13.9	274.0	6.1
76128.3	210.2	4.9	140.5	12.3	265.2	4.7
80011.7	198.0	5.9	126.7	15.3	238.1	6.3
83749.6	176.1	5.8	76.7	16.3	168.3	11.1
86869.6	217.1	10.6	68.5	24.5	171.9	18.8
89425.0	205.1	25.5	120.8	66.0	229.0	28.7
91920.7	203.4	26.1	115.5	57.0	22.4	30.2
94323.8	234.8	18.0	167.6	45.0	237.0	18.8
96573.5	205.7	34.9	304.4	103.0	319.1	16.0



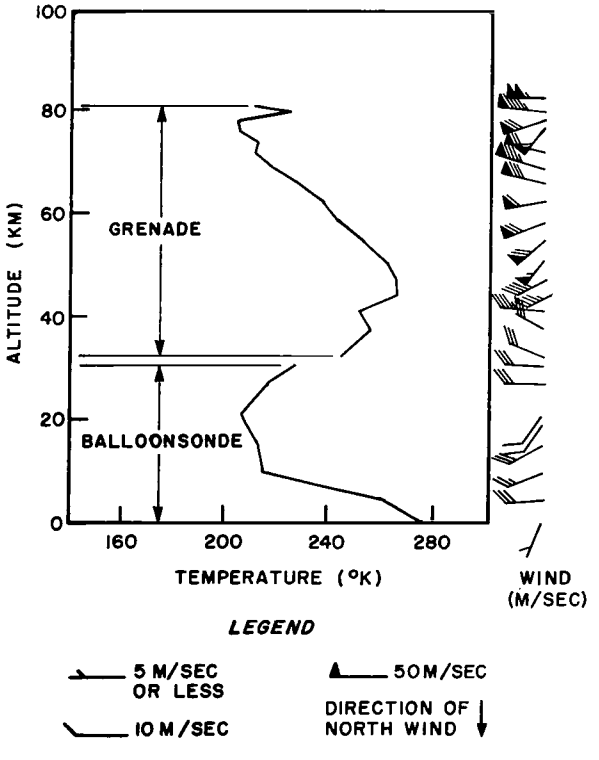
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
38000	1.5	92.5
40000	4.3	125.0
42000	8.0	155.7
44000	19.3	169.8
46000	32.4	179.3
48000	44.8	168.1
50000	56.3	148.2
52000	62.4	142.1
54000	63.2	138.5
56000	46.0	127.7
58000	27.9	118.9
60000	13.2	116.3
62000	8.9	102.9
64000	12.5	84.3
66000	20.3	88.6
68000	25.2	98.5
70000	10.1	110.4
72000	-5.0	122.3
74000	0.8	131.2
76000	12.7	137.1
78000	38.2	124.4
80000	63.7	101.7
82000	71.2	42.1
84000	73.9	-10.1
86000	69.9	-11.0
88000	72.9	35.0
90000	32.8	55.8
92000	-67.0	-10.2
94000	38.6	109.9
96000	-148.3	184.2

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
37000	222.4	0.347E 03	-19.8	0.543E-02	-12.8
38000	227.3	0.297E 03	-21.0	0.455E-02	-15.0
39000	232.3	0.254E 03	-22.4	0.382E-02	-17.3
40000	237.2	0.220E 03	-23.3	0.323E-02	-19.1
41000	242.1	0.192E 03	-23.5	0.276E-02	-20.0
42000	247.0	0.167E 03	-23.8	0.236E-02	-21.0
43000	252.0	0.146E 03	-24.2	0.202E-02	-22.2
44000	257.1	0.127E 03	-24.7	0.172E-02	-23.4
45000	262.1	0.111E 03	-25.0	0.148E-02	-24.4
46000	267.1	0.986E 02	-24.8	0.128E-02	-24.9
47000	268.9	0.870E 02	-24.8	0.112E-02	-24.6
48000	265.9	0.768E 02	-24.8	0.100E-02	-23.5
49000	262.9	0.676E 02	-25.0	0.896E-03	-22.9
50000	259.9	0.594E 02	-25.5	0.796E-03	-22.4
51000	256.4	0.521E 02	-25.9	0.708E-03	-21.8
52000	252.7	0.458E 02	-26.3	0.631E-03	-21.1
53000	249.0	0.399E 02	-27.2	0.559E-03	-21.2
54000	245.0	0.348E 02	-28.0	0.495E-03	-21.4
55000	237.6	0.304E 02	-28.8	0.446E-03	-20.4
56000	230.2	0.263E 02	-29.9	0.399E-03	-19.7
57000	222.9	0.226E 02	-31.6	0.354E-03	-19.7
58000	218.7	0.194E 02	-33.2	0.309E-03	-20.7
59000	216.8	0.166E 02	-34.7	0.268E-03	-22.4
60000	214.9	0.142E 02	-36.4	0.231E-03	-24.3
61000	214.2	0.121E 02	-38.0	0.198E-03	-26.6
62000	218.6	0.104E 02	-39.5	0.165E-03	-30.6
63000	223.1	0.895E 01	-40.6	0.139E-03	-34.2
64000	227.6	0.772E 01	-41.2	0.118E-03	-37.2
65000	232.5	0.667E 01	-41.7	0.999E-04	-40.0
66000	237.4	0.577E 01	-41.8	0.847E-04	-42.3
67000	242.4	0.504E 01	-41.4	0.724E-04	-44.0
68000	247.1	0.440E 01	-40.8	0.620E-04	-45.5
69000	247.9	0.384E 01	-40.0	0.540E-04	-45.9
70000	248.8	0.335E 01	-39.1	0.470E-04	-46.2
71000	249.6	0.293E 01	-37.9	0.410E-04	-46.3
72000	250.4	0.257E 01	-36.4	0.357E-04	-46.2
73000	241.6	0.225E 01	-34.8	0.324E-04	-43.9
74000	231.5	0.197E 01	-32.8	0.296E-04	-40.8
75000	221.5	0.168E 01	-32.2	0.265E-04	-38.7
76000	211.5	0.143E 01	-31.6	0.237E-04	-36.5
77000	207.4	0.122E 01	-30.7	0.206E-04	-35.7
78000	204.3	0.104E 01	-29.5	0.178E-04	-35.0
79000	201.2	0.886E 00	-28.7	0.153E-04	-34.6
80000	198.0	0.749E 00	-27.7	0.131E-04	-34.1
81000	192.2	0.633E 00	-26.5	0.114E-04	-30.9
82000	186.3	0.534E 00	-25.5	0.998E-05	-27.7
83000	180.5	0.442E 00	-25.8	0.853E-05	-25.8
84000	179.4	0.365E 00	-26.2	0.710E-05	-25.7
85000	192.5	0.302E 00	-26.6	0.547E-05	-31.2
86000	205.7	0.254E 00	-25.8	0.430E-05	-34.8
87000	216.5	0.218E 00	-23.4	0.351E-05	-36.1
88000	211.8	0.187E 00	-21.0	0.308E-05	-32.7
89000	207.1	0.159E 00	-19.2	0.268E-05	-29.5
90000	204.7	0.135E 00	-17.4	0.230E-05	-27.1
91000	204.0	0.115E 00	-15.8	0.196E-05	-24.2
92000	204.4	0.979E-01	-14.4	0.166E-05	-21.8
93000	217.5	0.831E-01	-13.3	0.133E-05	-24.4
94000	230.6	0.719E-01	-10.7	0.108E-05	-25.4
95000	226.0	0.625E-01	-8.0	0.963E-06	-20.4
96000	213.1	0.537E-01	-6.5	0.878E-06	-12.8

FIGURE 6

WALLOPS, 24 JANUARY 1969, 2000 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
32549.0	245.8	0.7	28.8	1.0	292.5	2.8
37593.7	256.7	0.8	29.3	1.4	298.3	3.2
41329.9	252.8	1.1	46.1	1.5	274.3	3.4
44350.7	267.9	1.1	45.4	1.4	254.0	3.4
47347.6	267.6	0.9	47.1	1.2	241.2	2.6
50264.9	263.3	0.9	56.1	1.8	218.4	2.0
54413.3	253.4	0.4	67.6	0.8	228.6	0.9
58866.3	243.2	0.6	68.5	1.0	247.6	1.6
62214.6	238.1	0.6	59.1	1.1	258.5	2.1
65399.5	227.7	0.6	81.7	1.3	283.5	1.3
68439.6	217.9	0.6	82.9	1.6	287.9	1.4
71297.8	211.0	0.7	68.3	1.7	283.7	2.0
73679.5	212.7	1.1	38.1	1.9	248.0	5.5
75628.5	205.3	1.2	60.4	3.1	220.7	3.5
77463.3	204.9	1.4	68.4	2.7	252.3	4.2
79213.3	223.0	1.4	93.1	2.9	276.2	2.7
80892.7	210.1	1.7	107.7	3.6	277.5	2.7



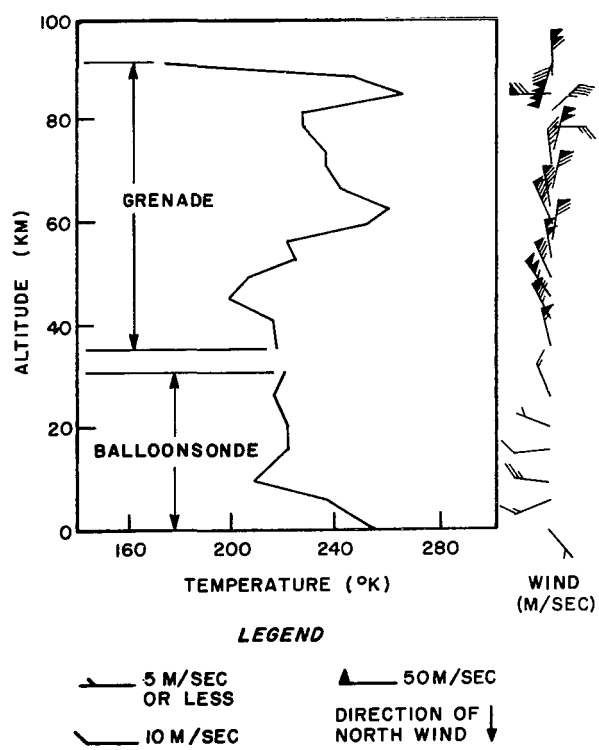
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
34000	-11.8	26.3
36000	-13.0	26.0
38000	-12.5	28.5
40000	-7.2	38.8
42000	0.1	45.3
44000	10.4	43.9
46000	18.1	42.4
48000	27.5	39.8
50000	41.0	36.3
52000	44.2	41.5
54000	44.2	49.0
56000	38.0	55.2
58000	29.6	60.8
60000	21.2	61.5
62000	11.8	59.5
64000	-5.5	69.9
66000	-20.1	79.0
68000	-24.1	78.6
70000	-20.4	72.0
72000	-7.0	57.0
74000	19.8	37.8
76000	37.7	45.8
78000	11.0	73.7
80000	-12.0	99.2

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
33000	246.8	0.725E 03	-5.4	0.102E-01	-11.5
34000	249.0	0.632E 03	-4.6	0.884E-02	-10.5
35000	251.1	0.551E 03	-4.0	0.764E-02	-9.6
36000	253.3	0.482E 03	-3.2	0.663E-02	-8.6
37000	255.4	0.422E 03	-2.3	0.576E-02	-7.5
38000	256.3	0.370E 03	-1.6	0.503E-02	-6.1
39000	255.2	0.325E 03	-1.1	0.443E-02	-4.1
40000	254.2	0.285E 03	-0.7	0.390E-02	-2.2
41000	253.1	0.249E 03	-0.6	0.343E-02	-0.6
42000	256.2	0.218E 03	-0.7	0.296E-02	-0.8
43000	261.2	0.191E 03	-0.8	0.255E-02	-1.8
44000	266.2	0.168E 03	-0.4	0.220E-02	-2.2
45000	267.9	0.148E 03	-0.1	0.193E-02	-1.5
46000	267.8	0.131E 03	-0.0	0.170E-02	-0.3
47000	267.7	0.115E 03	-0.1	0.150E-02	0.6
48000	266.7	0.102E 03	-0.2	0.133E-02	1.2
49000	265.2	0.899E 02	-0.3	0.118E-02	1.6
50000	263.7	0.792E 02	-0.7	0.104E-02	1.8
51000	261.6	0.697E 02	-1.0	0.928E-03	2.3
52000	259.2	0.612E 02	-1.5	0.823E-03	2.8
53000	256.8	0.536E 02	-2.3	0.728E-03	2.5
54000	254.4	0.470E 02	-3.0	0.643E-03	1.9
55000	252.1	0.411E 02	-3.6	0.569E-03	1.4
56000	249.8	0.360E 02	-4.1	0.503E-03	1.1
57000	247.5	0.316E 02	-4.6	0.444E-03	0.8
58000	245.2	0.275E 02	-5.4	0.391E-03	0.1
59000	243.0	0.240E 02	-6.1	0.344E-03	-0.4
60000	241.5	0.209E 02	-6.8	0.301E-03	-1.3
61000	239.9	0.182E 02	-7.5	0.264E-03	-2.1
62000	238.4	0.158E 02	-8.2	0.231E-03	-3.3
63000	235.5	0.137E 02	-8.8	0.203E-03	-4.3
64000	232.3	0.119E 02	-9.2	0.178E-03	-5.0
65000	229.0	0.103E 02	-10.0	0.156E-03	-6.0
66000	225.8	0.889E 01	-10.4	0.137E-03	-6.6
67000	222.5	0.768E 01	-10.8	0.120E-03	-7.2
68000	219.3	0.658E 01	-11.4	0.104E-03	-8.2
69000	216.5	0.565E 01	-11.9	0.909E-04	-9.0
70000	214.1	0.484E 01	-12.1	0.788E-04	-9.9
71000	211.7	0.413E 01	-12.6	0.680E-04	-10.9
72000	211.5	0.353E 01	-12.7	0.581E-04	-12.6
73000	212.2	0.301E 01	-12.6	0.495E-04	-14.4
74000	211.5	0.257E 01	-12.1	0.424E-04	-15.2
75000	207.7	0.220E 01	-11.5	0.369E-04	-14.8
76000	205.2	0.187E 01	-11.0	0.317E-04	-14.9
77000	205.0	0.159E 01	-10.2	0.270E-04	-15.7
78000	210.4	0.135E 01	-9.1	0.223E-04	-18.6
79000	220.8	0.115E 01	-6.8	0.182E-04	-22.1
80000	216.9	0.998E 00	-3.6	0.160E-04	-19.7

FIGURE 7

BARROW, 26 JANUARY 1969, 0500 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
35388.4	217.0	0.6	53.2	1.8	344.4	1.9
41102.1	216.7	1.7	76.7	5.0	332.5	3.4
45383.4	199.5	3.4	104.8	10.2	324.5	5.1
48947.6	206.1	3.8	73.5	10.5	336.4	7.7
52438.3	224.2	3.7	99.0	9.3	350.5	4.9
55844.8	220.7	2.4	71.7	5.9	4.4	4.4
59149.2	250.9	3.3	94.5	7.1	336.0	4.0
62365.5	260.0	8.4	86.9	17.0	350.6	10.3
66002.0	241.8	6.8	70.8	14.5	8.0	10.9
70014.4	236.7	6.5	45.3	14.0	353.4	16.8
73860.5	236.0	6.5	100.6	13.5	16.0	7.1
77570.0	227.0	8.1	26.8	15.8	90.4	37.3
81127.9	226.2	12.3	45.4	27.2	46.7	33.6
84090.0	265.9	26.3	72.0	51.2	267.6	39.4
87663.2	245.7	19.4	111.0	41.4	358.6	19.4
91116.3	175.7	37.6	231.8	99.5	195.0	25.3



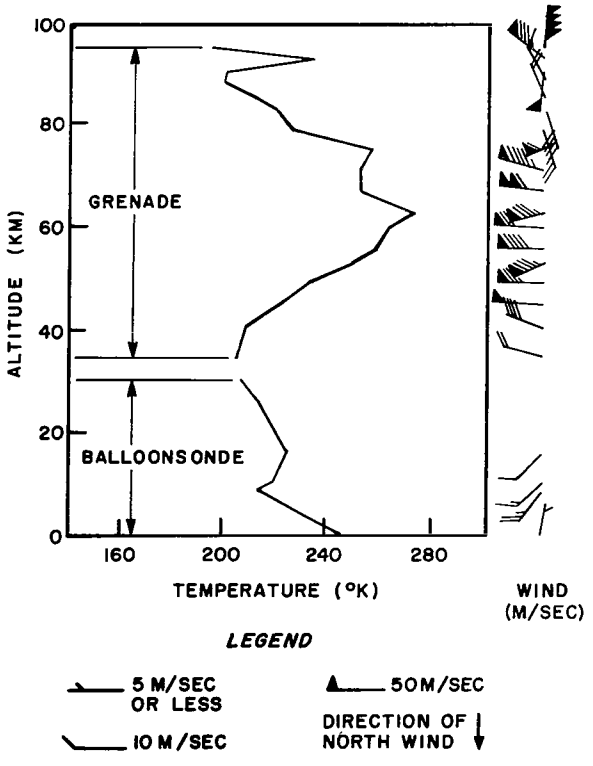
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	-53.1	16.5
38000	-58.9	23.8
40000	-64.8	31.2
42000	-71.7	40.6
44000	-79.8	52.5
46000	-81.9	54.7
48000	-72.2	37.6
50000	-76.5	25.4
52000	-92.6	17.7
54000	-85.7	6.2
56000	-74.4	0.0
58000	-81.2	23.0
60000	-86.2	31.8
62000	-85.4	16.9
64000	-78.7	3.3
66000	-69.6	-7.3
68000	-57.6	-2.3
70000	-49.9	2.1
72000	-71.7	-11.8
74000	-85.7	-26.1
76000	-40.7	-27.2
78000	-6.4	-27.7
80000	-21.2	-31.1
82000	-21.0	-1.9
84000	-7.0	57.4
86000	-57.9	34.9
88000	-64.2	12.2
90000	115.6	41.5

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
36000	216.9	0.433E 03	-13.1	0.695E-02	-4.2
37000	216.9	0.370E 03	-14.4	0.594E-02	-4.5
38000	216.8	0.317E 03	-15.9	0.509E-02	-5.1
39000	216.8	0.271E 03	-17.5	0.435E-02	-5.8
40000	216.7	0.232E 03	-19.1	0.372E-02	-6.6
41000	216.7	0.198E 03	-20.9	0.319E-02	-7.6
42000	213.1	0.169E 03	-22.7	0.277E-02	-7.2
43000	209.1	0.145E 03	-24.6	0.242E-02	-6.8
44000	205.1	0.123E 03	-27.0	0.210E-02	-6.9
45000	201.1	0.104E 03	-29.9	0.180E-02	-7.9
46000	200.7	0.882E 02	-32.8	0.153E-02	-10.6
47000	202.5	0.744E 02	-35.7	0.128E-02	-14.4
48000	204.3	0.631E 02	-38.2	0.107E-02	-18.2
49000	206.3	0.536E 02	-40.6	0.905E-03	-22.1
50000	211.5	0.455E 02	-42.8	0.750E-03	-26.9
51000	216.7	0.388E 02	-44.8	0.624E-03	-31.1
52000	221.9	0.334E 02	-46.2	0.524E-03	-34.5
53000	223.6	0.287E 02	-47.6	0.447E-03	-36.9
54000	222.6	0.247E 02	-48.9	0.387E-03	-38.6
55000	221.5	0.212E 02	-50.2	0.334E-03	-40.4
56000	222.1	0.182E 02	-51.5	0.286E-03	-42.4
57000	231.3	0.156E 02	-52.7	0.236E-03	-46.4
58000	240.4	0.135E 02	-53.4	0.196E-03	-49.6
59000	249.6	0.118E 02	-53.5	0.165E-03	-52.0
60000	253.3	0.103E 02	-53.7	0.142E-03	-53.3
61000	256.1	0.909E 01	-53.7	0.123E-03	-54.2
62000	258.9	0.799E 01	-53.6	0.107E-03	-55.0
63000	256.8	0.702E 01	-53.3	0.953E-04	-55.1
64000	251.8	0.617E 01	-53.0	0.853E-04	-54.6
65000	246.8	0.537E 01	-53.0	0.758E-04	-54.5
66000	241.8	0.467E 01	-52.9	0.673E-04	-54.1
67000	240.5	0.407E 01	-52.7	0.589E-04	-54.4
68000	239.3	0.354E 01	-52.3	0.516E-04	-54.7
69000	238.0	0.307E 01	-52.0	0.450E-04	-54.9
70000	236.8	0.267E 01	-51.5	0.393E-04	-55.0
71000	236.6	0.232E 01	-50.9	0.341E-04	-55.3
72000	236.3	0.201E 01	-50.2	0.296E-04	-55.4
73000	236.1	0.174E 01	-49.3	0.257E-04	-55.4
74000	235.6	0.151E 01	-48.3	0.224E-04	-55.2
75000	233.2	0.131E 01	-47.1	0.196E-04	-54.6
76000	230.8	0.114E 01	-45.7	0.172E-04	-53.8
77000	228.4	0.985E 00	-44.4	0.150E-04	-53.1
78000	226.9	0.850E 00	-42.8	0.130E-04	-52.5
79000	226.7	0.734E 00	-40.9	0.112E-04	-51.9
80000	226.5	0.633E 00	-38.9	0.974E-05	-51.2
81000	226.3	0.546E 00	-36.5	0.841E-05	-49.3
82000	237.9	0.471E 00	-34.1	0.690E-05	-50.0
83000	251.3	0.408E 00	-31.4	0.565E-05	-50.7
84000	264.7	0.360E 00	-27.3	0.474E-05	-50.4
85000	260.8	0.317E 00	-22.9	0.424E-05	-46.6
86000	255.1	0.278E 00	-18.8	0.380E-05	-42.5
87000	249.5	0.243E 00	-14.7	0.339E-05	-38.3
88000	238.9	0.212E 00	-10.5	0.309E-05	-32.3
89000	218.6	0.185E 00	-6.1	0.295E-05	-22.4
90000	198.4	0.162E 00	-1.4	0.284E-05	-10.2
91000	178.1	0.134E 00	-2.1	0.262E-05	0.9

FIGURE 8

CHURCHILL, 30 JANUARY 1969, 1710 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
34619.0	205.8	1.1	18.9	2.2	286.3	7.6
40471.5	208.8	1.3	39.3	2.9	291.9	4.6
44866.0	222.9	0.9	47.5	2.2	274.5	2.8
48532.7	232.2	0.6	73.3	1.6	271.2	1.2
52112.7	249.7	1.4	86.7	3.8	247.8	2.4
55603.6	259.1	1.7	90.1	4.2	271.4	2.6
59003.0	263.1	2.8	71.6	7.1	273.6	5.6
62331.5	273.2	5.6	85.3	14.1	254.4	9.0
66080.2	252.3	4.1	111.5	11.2	276.7	5.5
70207.4	252.5	2.6	92.8	6.9	286.4	4.2
74201.3	258.4	4.1	61.0	10.7	243.2	9.6
78056.0	227.4	4.5	22.8	13.1	162.2	32.6
81749.4	220.5	6.1	37.8	19.2	163.8	28.8
84861.1	211.8	7.0	19.1	23.0	336.7	68.6
87405.5	200.7	7.5	11.9	27.2	331.3	130.8
89845.8	201.9	9.8	52.0	36.4	183.8	39.0
92220.5	233.1	10.6	85.2	34.4	309.7	22.6
94446.6	194.9	8.3	198.9	31.1	2.3	9.2



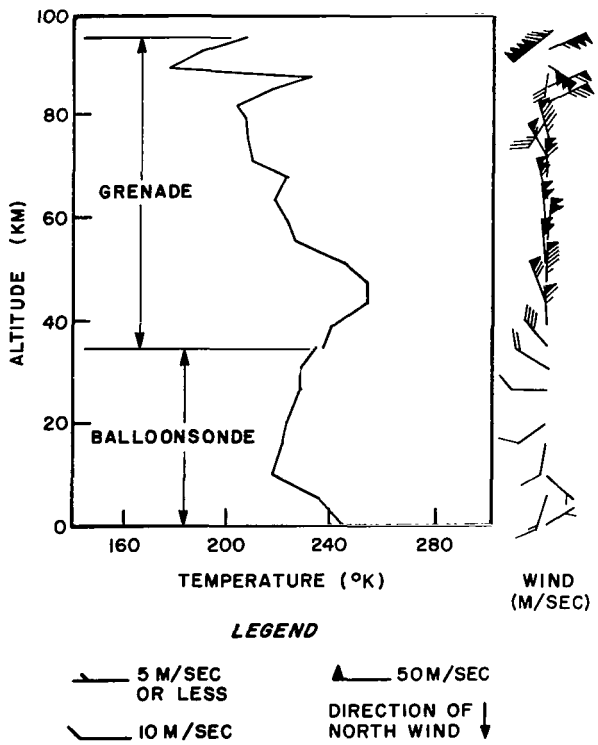
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	-7.5	22.4
38000	-10.7	28.7
40000	-13.7	34.9
42000	-10.9	40.2
44000	-5.9	45.2
46000	-3.1	55.3
48000	-1.4	69.2
50000	12.4	76.1
52000	27.7	80.2
54000	13.7	85.5
56000	-1.7	87.1
58000	-3.8	77.0
60000	3.6	74.7
62000	18.1	81.6
64000	6.8	94.9
66000	-11.0	107.4
68000	-19.2	100.6
70000	-22.9	89.6
72000	-2.1	73.5
74000	22.4	55.1
76000	24.8	25.8
78000	23.0	-2.7
80000	29.4	-8.8
82000	29.0	-8.1
84000	-2.5	2.5
86000	-14.4	6.7
88000	5.6	5.1
90000	32.4	12.3
92000	-47.6	50.8
94000	-169.8	6.7

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
35000	205.9	0.473E 03	-17.6	0.800E-02	-5.3
36000	206.5	0.401E 03	-19.4	0.677E-02	-6.6
37000	207.0	0.340E 03	-21.3	0.573E-02	-8.0
38000	207.5	0.289E 03	-23.2	0.485E-02	-9.5
39000	208.0	0.246E 03	-25.1	0.411E-02	-10.9
40000	208.5	0.209E 03	-27.1	0.349E-02	-12.5
41000	210.5	0.178E 03	-29.0	0.294E-02	-14.7
42000	213.7	0.151E 03	-31.1	0.246E-02	-17.6
43000	216.9	0.128E 03	-33.2	0.206E-02	-20.4
44000	220.1	0.110E 03	-34.6	0.175E-02	-22.4
45000	223.3	0.952E 02	-36.1	0.148E-02	-24.4
46000	225.8	0.818E 02	-37.6	0.126E-02	-26.3
47000	228.3	0.704E 02	-39.1	0.107E-02	-28.1
48000	230.8	0.609E 02	-40.4	0.919E-03	-30.1
49000	234.5	0.527E 02	-41.6	0.783E-03	-32.6
50000	239.4	0.455E 02	-42.8	0.663E-03	-35.3
51000	244.3	0.397E 02	-43.6	0.566E-03	-37.5
52000	249.2	0.347E 02	-44.2	0.485E-03	-39.4
53000	252.1	0.303E 02	-44.7	0.419E-03	-40.9
54000	254.8	0.265E 02	-45.2	0.362E-03	-42.5
55000	257.5	0.233E 02	-45.4	0.315E-03	-43.7
56000	259.6	0.204E 02	-45.6	0.274E-03	-44.7
57000	260.7	0.179E 02	-45.7	0.240E-03	-45.5
58000	261.9	0.158E 02	-45.7	0.210E-03	-46.1
59000	263.1	0.139E 02	-45.5	0.184E-03	-46.7
60000	266.1	0.122E 02	-45.4	0.160E-03	-47.5
61000	269.2	0.108E 02	-45.1	0.139E-03	-48.2
62000	272.2	0.955E 01	-44.6	0.122E-03	-48.9
63000	269.5	0.845E 01	-43.9	0.109E-03	-48.5
64000	263.9	0.747E 01	-43.1	0.986E-04	-47.6
65000	258.3	0.654E 01	-42.8	0.882E-04	-47.0
66000	252.7	0.573E 01	-42.3	0.789E-04	-46.2
67000	252.3	0.501E 01	-41.7	0.692E-04	-46.5
68000	252.4	0.439E 01	-40.9	0.606E-04	-46.7
69000	252.4	0.385E 01	-40.0	0.531E-04	-46.8
70000	252.5	0.337E 01	-38.9	0.465E-04	-46.8
71000	253.7	0.295E 01	-37.6	0.405E-04	-46.9
72000	255.1	0.258E 01	-36.1	0.353E-04	-46.9
73000	256.6	0.227E 01	-34.2	0.308E-04	-46.7
74000	258.1	0.199E 01	-32.0	0.269E-04	-46.2
75000	252.0	0.175E 01	-29.5	0.242E-04	-44.0
76000	244.0	0.154E 01	-26.7	0.220E-04	-41.0
77000	235.9	0.133E 01	-24.6	0.197E-04	-38.5
78000	227.9	0.115E 01	-22.5	0.176E-04	-35.9
79000	225.7	0.995E 00	-19.9	0.153E-04	-34.5
80000	223.8	0.859E 00	-17.0	0.133E-04	-33.0
81000	221.9	0.739E 00	-14.2	0.116E-04	-30.1
82000	219.8	0.635E 00	-11.3	0.100E-04	-27.1
83000	217.0	0.546E 00	-8.3	0.877E-05	-23.7
84000	214.2	0.468E 00	-5.5	0.761E-05	-20.3
85000	211.2	0.400E 00	-2.9	0.660E-05	-17.0
86000	206.8	0.342E 00	-0.2	0.576E-05	-12.9
87000	202.5	0.290E 00	1.7	0.499E-05	-9.2
88000	201.0	0.245E 00	3.5	0.426E-05	-6.9
89000	201.5	0.208E 00	5.5	0.360E-05	-5.4
90000	203.9	0.176E 00	7.5	0.302E-05	-4.7
91000	217.0	0.149E 00	9.4	0.240E-05	-7.4
92000	230.2	0.129E 00	13.4	0.196E-05	-7.9
93000	219.7	0.112E 00	17.5	0.178E-05	1.4
94000	202.5	0.960E-01	19.0	0.165E-05	13.2

FIGURE 9

BARROW, 31 JANUARY 1969, 0700 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
34334.5	236.0	1.1	41.0	4.1	321.3	6.0
38745.0	240.5	2.0	63.6	7.5	358.9	6.4
43018.7	253.3	1.5	72.3	5.1	339.8	4.2
47173.6	253.1	1.3	92.9	3.8	359.2	2.7
51169.3	245.5	0.7	101.3	2.5	356.5	1.4
55092.8	225.5	1.3	98.3	7.4	6.8	3.0
58875.4	222.0	1.3	101.0	6.2	355.2	2.9
63021.0	218.1	1.4	109.2	5.1	346.9	2.5
67014.7	222.7	1.4	108.0	4.7	355.9	2.3
70853.4	209.1	1.2	55.2	4.0	332.7	4.1
74521.5	208.3	5.0	95.9	21.0	343.8	11.8
78079.6	208.5	8.3	35.7	31.2	214.0	39.9
81456.9	203.5	9.1	74.9	28.4	62.8	21.8
84251.4	217.6	11.1	61.3	34.0	66.1	32.1
86903.4	231.9	8.8	31.9	26.5	190.9	45.7
89781.2	177.9	5.4	151.7	19.0	126.5	10.5
92524.7	189.3	6.6	156.5	28.7	64.4	10.3
95341.7	208.6	10.8	233.2	55.8	232.0	10.2



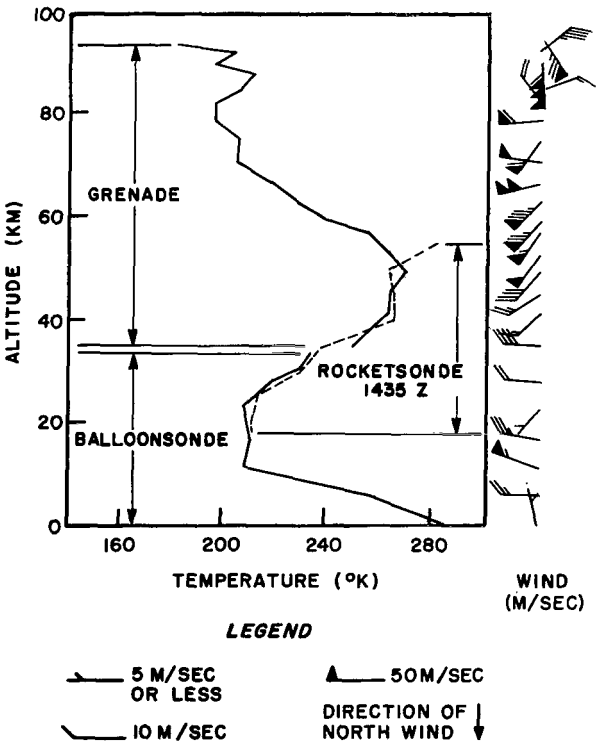
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	-43.9	16.3
38000	-58.1	5.4
40000	-64.8	8.1
42000	-66.9	19.2
44000	-73.8	19.3
46000	-85.9	7.9
48000	-94.6	2.2
50000	-98.7	4.6
52000	-100.3	2.2
54000	-98.6	-6.7
56000	-98.3	-6.9
58000	-100.0	3.6
60000	-102.2	12.7
62000	-105.0	20.6
64000	-106.8	20.4
66000	-107.4	11.9
68000	-92.7	12.1
70000	-62.3	21.3
72000	-62.5	25.7
74000	-83.4	26.4
76000	-41.5	23.9
78000	15.6	15.1
80000	-6.6	-29.2
82000	-31.2	-63.0
84000	-23.2	-54.3
86000	12.2	-15.2
88000	53.8	-42.6
90000	65.9	-117.6
92000	-29.8	-130.6
94000	42.9	29.0

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
35000	236.7	0.536E 03	-6.6	0.789E-02	-6.7
36000	237.7	0.464E 03	-6.8	0.680E-02	-6.2
37000	238.7	0.402E 03	-7.0	0.587E-02	-5.7
38000	239.7	0.349E 03	-7.2	0.508E-02	-5.3
39000	241.3	0.303E 03	-7.5	0.438E-02	-5.1
40000	244.3	0.264E 03	-8.0	0.376E-02	-5.7
41000	247.3	0.230E 03	-8.3	0.324E-02	-6.1
42000	250.2	0.201E 03	-8.4	0.280E-02	-6.4
43000	253.2	0.176E 03	-8.6	0.242E-02	-6.7
44000	253.2	0.154E 03	-8.9	0.212E-02	-6.0
45000	253.2	0.135E 03	-9.4	0.185E-02	-5.5
46000	253.1	0.118E 03	-9.9	0.162E-02	-5.1
47000	253.1	0.103E 03	-10.7	0.142E-02	-4.9
48000	251.5	0.905E 02	-11.5	0.125E-02	-4.8
49000	249.6	0.792E 02	-12.3	0.110E-02	-4.9
50000	247.7	0.690E 02	-13.4	0.970E-03	-5.4
51000	245.8	0.601E 02	-14.5	0.852E-03	-5.9
52000	241.3	0.524E 02	-15.6	0.757E-03	-5.4
53000	236.2	0.457E 02	-16.7	0.674E-03	-4.9
54000	231.1	0.396E 02	-18.2	0.597E-03	-5.4
55000	226.0	0.341E 02	-20.1	0.526E-03	-6.2
56000	224.7	0.293E 02	-21.9	0.455E-03	-8.4
57000	223.8	0.253E 02	-23.6	0.394E-03	-10.6
58000	222.8	0.217E 02	-25.3	0.340E-03	-13.0
59000	221.9	0.187E 02	-26.9	0.293E-03	-15.1
60000	221.0	0.160E 02	-28.4	0.253E-03	-17.1
61000	220.0	0.138E 02	-29.8	0.218E-03	-19.0
62000	219.0	0.118E 02	-31.3	0.188E-03	-21.2
63000	218.1	0.101E 02	-32.6	0.162E-03	-23.6
64000	219.2	0.871E 01	-33.7	0.138E-03	-26.5
65000	220.4	0.746E 01	-34.7	0.118E-03	-29.1
66000	221.5	0.642E 01	-35.3	0.101E-03	-31.3
67000	222.7	0.552E 01	-35.8	0.864E-04	-33.3
68000	219.2	0.475E 01	-36.1	0.755E-04	-33.7
69000	215.7	0.408E 01	-36.2	0.660E-04	-33.9
70000	212.1	0.348E 01	-36.8	0.572E-04	-34.6
71000	209.0	0.296E 01	-37.2	0.494E-04	-35.2
72000	208.8	0.253E 01	-37.5	0.421E-04	-36.6
73000	208.6	0.215E 01	-37.5	0.359E-04	-37.8
74000	208.4	0.183E 01	-37.5	0.306E-04	-38.8
75000	208.3	0.156E 01	-37.1	0.261E-04	-39.6
76000	208.4	0.133E 01	-36.7	0.222E-04	-40.4
77000	208.4	0.113E 01	-36.0	0.189E-04	-40.9
78000	208.5	0.966E 00	-35.0	0.161E-04	-41.2
79000	207.1	0.823E 00	-33.7	0.138E-04	-41.0
80000	205.6	0.701E 00	-32.3	0.118E-04	-40.5
81000	204.1	0.595E 00	-30.9	0.101E-04	-38.8
82000	206.2	0.505E 00	-29.5	0.853E-05	-38.2
83000	211.3	0.428E 00	-28.0	0.707E-05	-38.5
84000	216.3	0.367E 00	-25.8	0.592E-05	-38.0
85000	221.6	0.315E 00	-23.5	0.495E-05	-37.6
86000	227.0	0.272E 00	-20.6	0.417E-05	-36.8
87000	230.1	0.235E 00	-17.3	0.356E-05	-35.1
88000	211.3	0.204E 00	-13.9	0.336E-05	-26.4
89000	192.6	0.172E 00	-12.8	0.311E-05	-18.2
90000	178.8	0.142E 00	-13.1	0.278E-05	-12.2
91000	183.0	0.118E 00	-13.5	0.225E-05	-13.2
92000	187.1	0.991E-01	-13.3	0.184E-05	-13.6
93000	192.6	0.832E-01	-13.2	0.150E-05	-14.6
94000	199.4	0.699E-01	-13.2	0.122E-05	-16.2
95000	206.3	0.596E-01	-12.2	0.100E-05	-16.7

FIGURE 10

WALLOPS, 31 JANUARY 1969, 1757 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
35444.0	250.4	0.5	39.0	0.6	274.3	1.8
41226.2	265.4	0.8	17.3	1.3	227.3	5.5
45565.5	265.6	1.0	23.3	1.6	236.7	6.2
49185.9	271.1	0.8	38.5	1.7	222.0	2.9
52691.7	265.7	0.9	51.9	2.1	215.4	2.3
56093.6	257.4	0.8	53.7	2.3	214.6	2.3
59421.6	239.8	0.6	73.1	1.8	220.2	1.5
62658.5	228.6	0.5	83.6	1.6	224.1	1.3
66326.3	219.6	0.4	97.8	1.1	255.8	1.2
70371.3	205.7	0.5	48.0	1.5	279.4	3.0
74253.2	206.4	0.7	57.7	3.0	215.4	2.9
78009.1	196.7	0.9	58.0	2.6	265.3	5.0
81608.9	197.6	0.9	19.2	4.5	323.9	9.3
84616.2	207.4	1.5	14.8	3.9	68.5	28.5
87086.8	211.2	1.9	141.3	8.8	13.1	2.1
89468.6	196.2	1.3	160.1	6.6	178.9	1.2
91760.6	205.0	1.7	46.4	5.8	50.3	9.6
93917.5	181.2	1.6	74.4	8.5	145.0	4.5



WIND COMPONENTS M/SEC

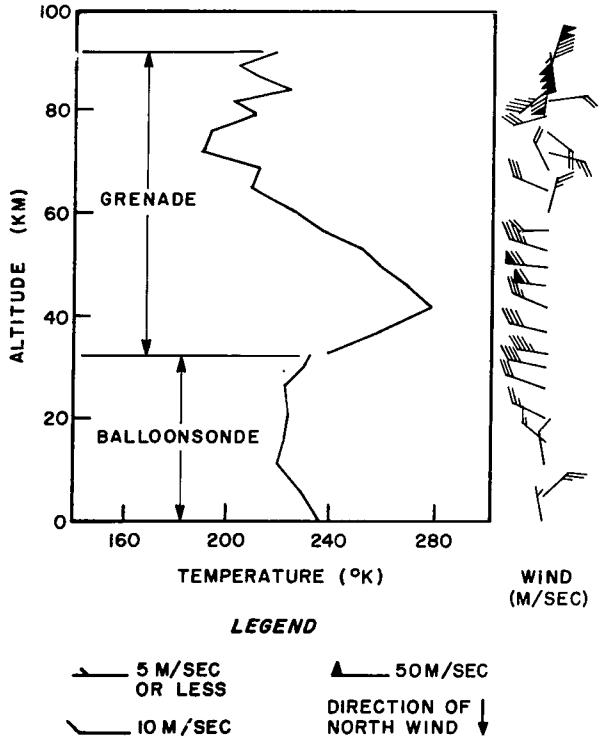
ALTITUDE M MSL	SOUTH COMPONENT	WEST COMPONENT
36000	-1.5	36.3
38000	3.5	27.3
40000	8.6	18.3
42000	11.9	14.0
44000	12.4	17.0
46000	15.0	20.2
48000	23.4	23.7
50000	31.7	26.7
52000	39.5	29.2
54000	43.0	30.2
56000	44.7	31.5
58000	50.8	40.1
60000	56.4	49.1
62000	58.8	56.2
64000	46.8	71.6
66000	27.3	89.1
68000	10.7	75.1
70000	-2.7	52.5
72000	15.1	41.5
74000	39.8	35.8
76000	27.3	44.8
78000	6.2	53.0
80000	-6.4	32.1
82000	-13.3	8.4
84000	-9.5	-8.6
86000	-79.4	-24.1
88000	-23.1	-20.9
90000	104.7	-11.9
92000	-1.5	-34.9

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
36000	251.8	0.478E 03	-4.0	0.661E-02	-8.8
37000	254.4	0.418E 03	-3.4	0.572E-02	-8.2
38000	257.0	0.365E 03	-3.1	0.495E-02	-7.7
39000	259.6	0.320E 03	-2.6	0.429E-02	-7.2
40000	262.2	0.281E 03	-1.8	0.374E-02	-6.3
41000	264.9	0.248E 03	-1.1	0.326E-02	-5.5
42000	265.5	0.218E 03	-0.6	0.286E-02	-4.2
43000	265.5	0.192E 03	-0.1	0.252E-02	-2.7
44000	265.6	0.169E 03	0.1	0.222E-02	-1.4
45000	265.6	0.149E 03	0.2	0.196E-02	-0.2
46000	266.3	0.131E 03	0.3	0.172E-02	0.5
47000	267.8	0.116E 03	0.1	0.150E-02	0.8
48000	269.3	0.102E 03	0.0	0.132E-02	0.5
49000	270.8	0.904E 02	0.1	0.116E-02	0.0
50000	269.8	0.799E 02	0.1	0.103E-02	0.4
51000	268.3	0.705E 02	0.1	0.916E-03	1.0
52000	266.8	0.622E 02	-0.0	0.812E-03	1.4
53000	265.0	0.548E 02	-0.2	0.720E-03	1.4
54000	262.5	0.483E 02	-0.3	0.641E-03	1.5
55000	260.0	0.424E 02	-0.6	0.569E-03	1.4
56000	257.6	0.372E 02	-0.9	0.504E-03	1.3
57000	252.6	0.327E 02	-1.2	0.451E-03	2.3
58000	247.3	0.286E 02	-1.5	0.403E-03	3.3
59000	242.1	0.249E 02	-2.5	0.358E-03	3.7
60000	237.8	0.216E 02	-3.4	0.317E-03	3.8
61000	234.3	0.188E 02	-4.1	0.280E-03	3.7
62000	230.9	0.163E 02	-5.5	0.245E-03	2.7
63000	227.7	0.140E 02	-6.6	0.215E-03	1.3
64000	225.3	0.121E 02	-7.4	0.188E-03	-0.1
65000	222.9	0.104E 02	-8.6	0.163E-03	-1.9
66000	220.4	0.898E 01	-9.6	0.141E-03	-3.4
67000	217.3	0.771E 01	-10.4	0.123E-03	-4.5
68000	213.9	0.662E 01	-10.9	0.107E-03	-5.3
69000	210.5	0.565E 01	-11.8	0.936E-04	-6.3
70000	207.0	0.481E 01	-12.8	0.809E-04	-7.5
71000	205.9	0.408E 01	-13.6	0.691E-04	-9.4
72000	206.0	0.347E 01	-14.1	0.587E-04	-11.7
73000	206.2	0.295E 01	-14.3	0.499E-04	-13.6
74000	206.4	0.251E 01	-14.3	0.424E-04	-15.3
75000	204.5	0.214E 01	-13.9	0.364E-04	-15.8
76000	201.9	0.182E 01	-13.4	0.314E-04	-15.8
77000	199.3	0.154E 01	-13.1	0.269E-04	-16.1
78000	196.8	0.130E 01	-12.6	0.230E-04	-16.2
79000	197.0	0.109E 01	-11.7	0.194E-04	-17.3
80000	197.2	0.927E 00	-10.5	0.163E-04	-18.0
81000	197.4	0.783E 00	-9.1	0.138E-04	-16.8
82000	198.9	0.662E 00	-7.6	0.115E-04	-16.0
83000	202.1	0.559E 00	-6.1	0.964E-05	-16.1
84000	205.4	0.475E 00	-4.1	0.806E-05	-15.7
85000	208.0	0.405E 00	-1.8	0.678E-05	-14.7
86000	209.5	0.345E 00	0.6	0.573E-05	-13.2
87000	211.1	0.294E 00	3.3	0.486E-05	-11.5
88000	205.4	0.252E 00	6.1	0.427E-05	-6.6
89000	199.1	0.213E 00	8.1	0.373E-05	-1.9
90000	198.2	0.180E 00	9.7	0.316E-05	-0.0
91000	202.1	0.152E 00	11.4	0.263E-05	1.3
92000	202.4	0.129E 00	13.4	0.223E-05	4.6
93000	191.4	0.110E 00	14.8	0.200E-05	13.8

FIGURE 11

BARROW, 4 FEBRUARY 1969, 2230 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
32632.3	239.5	0.5	43.5	1.5	280.3	2.1
36944.7	259.6	0.9	38.6	2.6	284.7	3.7
41095.4	278.0	1.3	35.3	3.3	292.6	5.5
45143.1	269.7	1.7	59.4	4.5	277.0	4.5
49038.3	259.3	1.4	69.1	3.7	277.0	3.1
52842.2	251.5	3.9	46.3	9.9	284.9	12.8
56514.5	236.0	2.8	18.6	7.6	268.1	24.2
60547.1	223.0	1.6	25.3	4.9	14.3	10.4
64412.5	208.5	2.2	27.5	7.0	291.7	15.4
68125.3	211.5	3.2	21.8	9.8	333.7	25.9
71665.9	188.3	2.5	25.9	8.2	104.9	19.9
75085.0	192.3	2.5	22.4	8.2	126.1	22.9
78347.0	209.4	5.0	28.6	16.0	254.9	31.9
81030.0	201.3	11.1	21.4	35.6	81.2	99.7
83584.4	222.9	10.4	44.9	32.5	231.2	38.7
86364.7	209.9	10.5	69.0	33.8	186.8	26.0
88983.6	202.9	20.3	138.8	65.3	17.8	25.9
91674.8	218.6	23.0	203.2	71.2	172.4	19.0



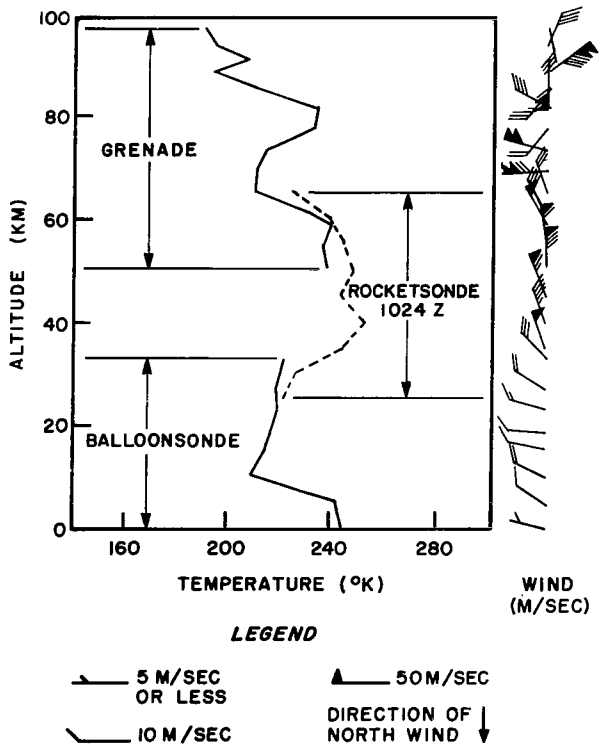
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
34000	-8.4	41.1
36000	-9.4	38.5
38000	-10.7	36.1
40000	-12.6	33.8
42000	-12.1	38.5
44000	-9.0	51.5
46000	-7.5	61.1
48000	-8.1	66.0
50000	-9.3	62.6
52000	-11.1	50.0
54000	-8.0	36.5
56000	-1.7	22.3
58000	-8.6	9.4
60000	-20.6	-2.1
62000	-19.1	5.6
64000	-12.2	21.0
66000	-14.2	18.7
68000	-17.3	9.1
70000	-5.6	-8.7
72000	6.7	-23.0
74000	11.1	-20.3
76000	11.6	-5.2
78000	7.8	19.3
80000	0.8	-2.4
82000	8.6	0.1
84000	34.3	28.3
86000	54.0	10.7
88000	-56.7	-23.4
90000	-6.1	-36.5

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
33000	241.2	0.714E 03	-6.9	0.103E-01	-10.8
34000	245.8	0.620E 03	-6.5	0.878E-02	-11.1
35000	250.5	0.538E 03	-6.3	0.748E-02	-11.5
36000	255.2	0.471E 03	-5.3	0.644E-02	-11.2
37000	259.8	0.414E 03	-4.3	0.555E-02	-10.9
38000	264.3	0.363E 03	-3.5	0.479E-02	-10.7
39000	268.7	0.319E 03	-2.7	0.414E-02	-10.3
40000	273.2	0.283E 03	-1.3	0.361E-02	-9.6
41000	277.6	0.250E 03	-0.1	0.314E-02	-8.9
42000	276.2	0.222E 03	0.9	0.280E-02	-6.4
43000	274.1	0.196E 03	1.9	0.249E-02	-3.8
44000	272.0	0.173E 03	2.5	0.222E-02	-1.4
45000	269.9	0.153E 03	2.8	0.197E-02	0.6
46000	267.4	0.135E 03	3.0	0.176E-02	2.8
47000	264.7	0.119E 03	2.9	0.157E-02	4.9
48000	262.1	0.104E 03	2.4	0.139E-02	5.7
49000	259.4	0.920E 02	1.8	0.123E-02	6.2
50000	257.3	0.808E 02	1.2	0.109E-02	6.5
51000	255.3	0.709E 02	0.7	0.968E-03	6.7
52000	253.2	0.621E 02	-0.1	0.854E-03	6.6
53000	250.8	0.543E 02	-1.0	0.754E-03	6.2
54000	246.6	0.475E 02	-1.9	0.671E-03	6.3
55000	242.4	0.413E 02	-3.1	0.594E-03	6.0
56000	238.2	0.358E 02	-4.6	0.524E-03	5.4
57000	234.5	0.311E 02	-6.0	0.462E-03	4.8
58000	231.2	0.269E 02	-7.3	0.406E-03	4.0
59000	228.0	0.233E 02	-8.8	0.356E-03	3.0
60000	224.8	0.200E 02	-10.6	0.311E-03	1.6
61000	221.3	0.172E 02	-12.3	0.271E-03	0.5
62000	217.5	0.148E 02	-13.8	0.237E-03	-0.6
63000	213.8	0.127E 02	-15.6	0.207E-03	-2.5
64000	210.0	0.108E 02	-17.6	0.179E-03	-4.7
65000	209.0	0.921E 01	-19.5	0.153E-03	-7.8
66000	209.8	0.784E 01	-21.0	0.130E-03	-11.4
67000	210.6	0.669E 01	-22.3	0.110E-03	-14.5
68000	211.4	0.571E 01	-23.2	0.941E-04	-17.4
69000	205.8	0.487E 01	-24.0	0.825E-04	-17.4
70000	199.2	0.415E 01	-24.6	0.726E-04	-16.9
71000	192.7	0.348E 01	-26.4	0.629E-04	-17.7
72000	188.7	0.291E 01	-28.0	0.537E-04	-19.2
73000	189.9	0.243E 01	-29.3	0.447E-04	-22.6
74000	191.1	0.204E 01	-30.3	0.373E-04	-25.5
75000	192.2	0.172E 01	-30.8	0.311E-04	-28.0
76000	197.1	0.144E 01	-31.2	0.255E-04	-31.5
77000	202.3	0.121E 01	-31.2	0.209E-04	-34.6
78000	207.5	0.103E 01	-30.1	0.174E-04	-36.5
79000	207.4	0.886E 00	-28.7	0.148E-04	-36.6
80000	204.4	0.755E 00	-27.1	0.128E-04	-35.6
81000	201.4	0.640E 00	-25.7	0.110E-04	-33.3
82000	209.5	0.542E 00	-24.3	0.901E-05	-34.7
83000	217.9	0.465E 00	-21.8	0.744E-05	-35.2
84000	220.9	0.401E 00	-19.1	0.632E-05	-33.8
85000	216.3	0.345E 00	-16.2	0.556E-05	-30.0
86000	211.6	0.294E 00	-14.0	0.485E-05	-26.6
87000	208.2	0.251E 00	-11.8	0.420E-05	-23.5
88000	205.5	0.214E 00	-9.7	0.363E-05	-20.6
89000	203.0	0.181E 00	-7.9	0.312E-05	-18.0
90000	208.8	0.154E 00	-6.0	0.257E-05	-18.7
91000	214.6	0.132E 00	-3.5	0.214E-05	-17.4

FIGURE 12

CHURCHILL , 6 FEBRUARY 1969, 0940 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
50567.4	237.8	3.2	80.2	13.6	359.2	9.7
54263.5	236.8	3.4	61.4	15.4	350.2	14.4
57857.6	240.3	2.7	47.6	14.4	329.2	17.6
61382.1	231.7	2.2	42.8	12.3	332.6	16.6
64823.7	210.8	0.8	31.2	6.0	340.3	11.1
68700.2	211.1	1.7	120.7	10.8	266.8	4.9
72990.4	215.9	1.8	98.7	10.8	285.2	6.1
77119.6	233.5	2.7	17.6	13.5	221.2	42.5
81169.6	234.3	3.3	40.8	16.3	299.0	23.1
85016.1	210.2	3.7	34.6	20.6	219.9	33.0
88190.0	195.5	7.5	138.8	47.4	51.1	15.1
90839.1	207.4	8.7	112.2	44.9	180.8	27.9
93410.3	196.3	8.5	37.8	56.5	22.6	85.0
97000.9	191.1	13.3	32.3	93.7	160.4	167.7



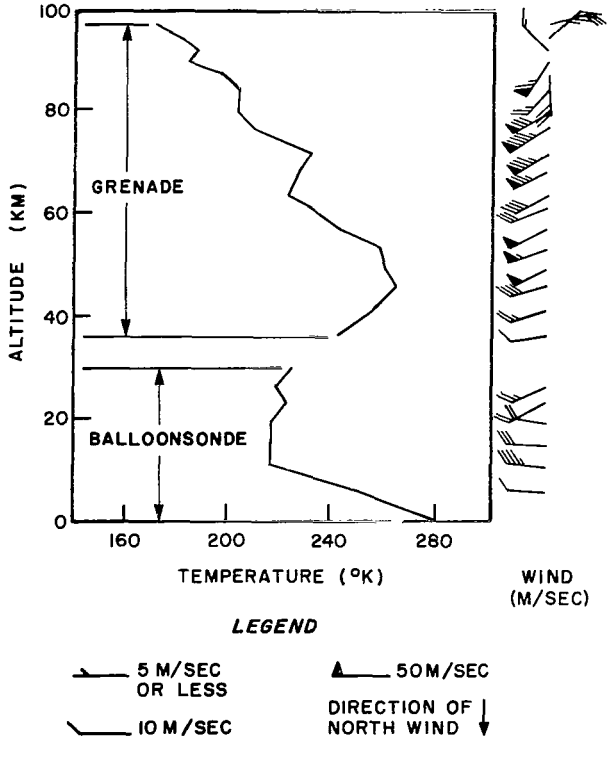
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
52000	-72.6	4.7
54000	-61.9	9.9
56000	-51.0	17.1
58000	-41.6	23.1
60000	-39.2	21.5
62000	-36.4	18.0
64000	-31.4	12.9
66000	-18.5	43.9
68000	-0.2	99.9
70000	-3.2	112.9
72000	-18.4	101.1
74000	-16.3	74.8
76000	2.6	34.3
78000	6.0	16.9
80000	-10.2	28.7
82000	-9.6	32.7
84000	14.2	25.8
86000	-8.7	-18.1
88000	-62.1	-86.8
90000	48.2	-33.4
92000	45.7	-5.7
94000	-21.0	-13.6
96000	12.2	-11.8

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
51000	237.7	0.599E 02	-14.9	0.878E-03	-3.1
52000	237.4	0.520E 02	-16.3	0.763E-03	-4.6
53000	237.2	0.451E 02	-17.7	0.663E-03	-6.6
54000	236.9	0.391E 02	-19.1	0.576E-03	-8.7
55000	237.6	0.340E 02	-20.4	0.498E-03	-11.0
56000	238.5	0.295E 02	-21.6	0.430E-03	-13.4
57000	239.5	0.256E 02	-22.5	0.373E-03	-15.4
58000	240.0	0.223E 02	-23.4	0.323E-03	-17.1
59000	237.5	0.194E 02	-24.1	0.284E-03	-17.7
60000	235.1	0.168E 02	-25.0	0.249E-03	-18.4
61000	232.7	0.145E 02	-25.9	0.218E-03	-19.3
62000	228.0	0.126E 02	-26.9	0.192E-03	-19.5
63000	221.9	0.109E 02	-27.6	0.171E-03	-19.3
64000	215.8	0.932E 01	-29.0	0.150E-03	-20.1
65000	210.8	0.795E 01	-30.5	0.131E-03	-21.1
66000	210.9	0.678E 01	-31.7	0.112E-03	-23.8
67000	211.0	0.578E 01	-32.7	0.955E-04	-26.2
68000	211.1	0.494E 01	-33.6	0.815E-04	-28.4
69000	211.5	0.421E 01	-34.3	0.694E-04	-30.5
70000	212.6	0.359E 01	-34.8	0.589E-04	-32.6
71000	213.7	0.307E 01	-35.1	0.500E-04	-34.4
72000	214.8	0.263E 01	-35.0	0.426E-04	-35.9
73000	215.9	0.225E 01	-34.7	0.363E-04	-37.1
74000	220.2	0.193E 01	-34.2	0.305E-04	-39.0
75000	224.4	0.165E 01	-33.5	0.256E-04	-40.7
76000	228.7	0.143E 01	-31.9	0.218E-04	-41.6
77000	233.0	0.124E 01	-29.9	0.185E-04	-42.1
78000	233.6	0.107E 01	-27.6	0.160E-04	-41.6
79000	233.8	0.933E 00	-24.9	0.138E-04	-40.8
80000	234.0	0.809E 00	-21.9	0.120E-04	-39.7
81000	234.2	0.701E 00	-18.5	0.104E-04	-37.2
82000	229.1	0.608E 00	-15.0	0.925E-05	-33.0
83000	222.8	0.528E 00	-11.3	0.826E-05	-28.1
84000	216.6	0.452E 00	-8.8	0.727E-05	-23.9
85000	210.3	0.385E 00	-6.4	0.639E-05	-19.6
86000	205.6	0.329E 00	-3.9	0.558E-05	-15.6
87000	201.0	0.280E 00	-1.6	0.486E-05	-11.6
88000	196.3	0.236E 00	-0.3	0.419E-05	-8.2
89000	199.1	0.199E 00	1.0	0.349E-05	-8.3
90000	203.6	0.169E 00	2.9	0.289E-05	-8.6
91000	206.7	0.144E 00	5.2	0.242E-05	-6.4
92000	202.4	0.122E 00	7.3	0.211E-05	-1.0
93000	198.1	0.103E 00	8.2	0.182E-05	3.5
94000	195.5	0.877E-01	8.7	0.156E-05	7.1
95000	194.0	0.739E-01	8.7	0.132E-05	9.6
96000	192.6	0.621E-01	8.1	0.112E-05	11.5
97000	191.1	0.522E-01	7.3	0.952E-06	13.2

FIGURE 13

WALLOPS, 6 FEBRUARY 1969, 2109 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
35701.5	241.3	0.5	12.0	0.3	261.0	3.8
41604.0	257.8	0.6	27.1	0.6	252.3	2.9
46046.1	265.0	0.8	37.7	1.0	254.1	3.4
49758.7	260.6	0.8	51.6	1.2	242.6	2.5
53371.9	259.8	0.9	52.5	1.3	249.5	2.9
56885.5	243.7	0.9	48.7	1.7	242.5	3.6
60312.7	231.4	1.0	28.9	1.8	248.5	7.2
63647.7	221.8	1.0	40.1	2.1	242.4	5.3
67419.2	227.1	0.7	72.8	1.5	244.6	2.2
71612.1	231.1	0.7	83.2	1.6	240.0	1.9
75629.8	209.4	0.7	94.6	1.8	237.2	1.8
79497.9	203.7	0.7	79.5	1.9	239.1	2.4
83221.5	204.8	0.8	24.2	3.0	221.8	8.3
86341.0	197.6	1.4	28.8	7.1	176.2	6.8
88910.8	183.0	1.7	67.4	7.6	213.6	6.3
91398.6	187.6	2.2	13.6	10.5	313.8	36.4
93806.9	183.5	2.3	36.2	8.9	47.6	18.2
96061.1	171.8	19.2	30.8	113.0	71.7	386.3



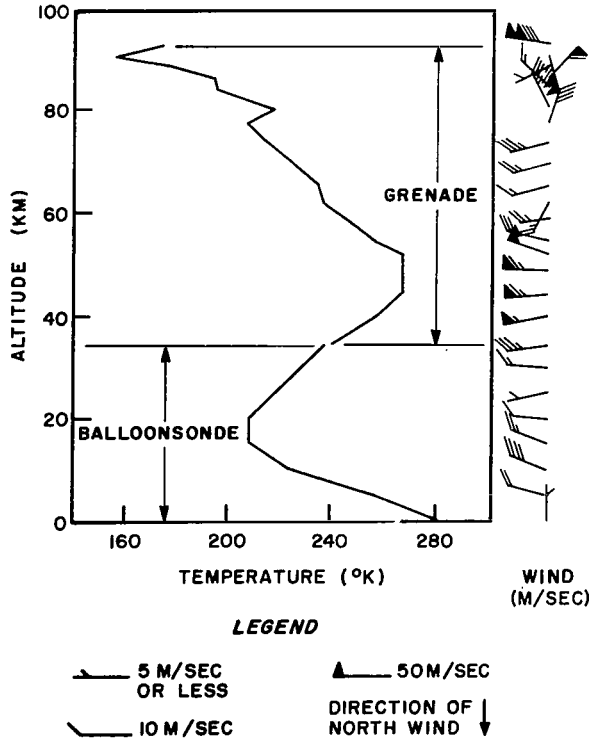
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	2.1	12.5
38000	4.3	17.3
40000	6.5	22.0
42000	8.3	26.8
44000	9.3	31.5
46000	10.9	36.2
48000	17.3	41.3
50000	22.6	45.8
52000	20.3	47.9
54000	19.1	48.0
56000	21.4	44.7
58000	18.6	37.9
60000	12.3	29.3
62000	14.6	31.3
64000	19.8	39.0
66000	26.4	54.4
68000	32.6	66.3
70000	37.5	69.7
72000	42.4	72.8
74000	47.2	76.5
76000	49.7	78.0
78000	44.8	72.6
80000	37.4	60.5
82000	25.5	33.2
84000	20.8	11.7
86000	28.3	2.3
88000	46.3	23.3
90000	27.4	25.3
92000	-12.4	0.5
94000	-21.1	-24.7
96000	-10.0	-29.1

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
36000	242.1	0.485E 03	-2.5	0.698E-02	-3.7
37000	244.9	0.422E 03	-2.4	0.600E-02	-3.6
38000	247.7	0.367E 03	-2.5	0.516E-02	-3.7
39000	250.5	0.319E 03	-2.8	0.444E-02	-4.0
40000	253.3	0.280E 03	-2.4	0.385E-02	-3.6
41000	256.1	0.245E 03	-2.0	0.334E-02	-3.2
42000	258.5	0.215E 03	-1.9	0.290E-02	-2.9
43000	260.1	0.189E 03	-1.9	0.253E-02	-2.4
44000	261.7	0.166E 03	-1.9	0.221E-02	-2.1
45000	263.3	0.146E 03	-1.9	0.193E-02	-1.6
46000	264.9	0.128E 03	-1.9	0.169E-02	-1.2
47000	263.9	0.113E 03	-2.1	0.149E-02	0.0
48000	262.7	0.999E 02	-2.3	0.132E-02	0.5
49000	261.5	0.878E 02	-2.7	0.116E-02	0.5
50000	260.6	0.771E 02	-3.2	0.103E-02	0.4
51000	260.3	0.678E 02	-3.6	0.907E-03	0.1
52000	260.1	0.596E 02	-4.1	0.798E-03	-0.2
53000	259.9	0.524E 02	-4.6	0.702E-03	-1.1
54000	256.9	0.460E 02	-5.0	0.624E-03	-1.1
55000	252.4	0.404E 02	-5.2	0.558E-03	-0.3
56000	247.8	0.353E 02	-6.1	0.496E-03	-0.2
57000	243.3	0.307E 02	-7.1	0.440E-03	-0.1
58000	239.7	0.268E 02	-7.9	0.389E-03	-0.2
59000	236.1	0.233E 02	-8.8	0.343E-03	-0.5
60000	232.6	0.201E 02	-10.1	0.302E-03	-1.2
61000	229.4	0.174E 02	-11.3	0.265E-03	-1.9
62000	226.5	0.151E 02	-12.4	0.232E-03	-2.9
63000	223.6	0.129E 02	-13.8	0.202E-03	-4.7
64000	222.3	0.111E 02	-15.0	0.175E-03	-7.0
65000	223.7	0.960E 01	-16.0	0.149E-03	-10.2
66000	225.1	0.828E 01	-16.6	0.128E-03	-12.8
67000	226.5	0.715E 01	-16.9	0.109E-03	-15.1
68000	227.7	0.617E 01	-17.0	0.944E-04	-17.1
69000	228.6	0.532E 01	-16.9	0.811E-04	-18.8
70000	229.5	0.460E 01	-16.5	0.698E-04	-20.1
71000	230.5	0.398E 01	-15.8	0.602E-04	-21.2
72000	229.0	0.345E 01	-14.8	0.524E-04	-21.1
73000	223.6	0.298E 01	-13.5	0.465E-04	-19.6
74000	218.2	0.257E 01	-12.4	0.410E-04	-18.1
75000	212.8	0.219E 01	-11.8	0.359E-04	-17.1
76000	208.8	0.187E 01	-11.1	0.312E-04	-16.4
77000	207.4	0.159E 01	-9.9	0.268E-04	-16.5
78000	205.9	0.135E 01	-8.6	0.229E-04	-16.4
79000	204.5	0.115E 01	-7.2	0.196E-04	-16.3
80000	203.9	0.979E 00	-5.5	0.167E-04	-16.2
81000	204.2	0.832E 00	-3.4	0.141E-04	-14.5
82000	204.5	0.707E 00	-1.3	0.120E-04	-12.8
83000	204.7	0.601E 00	0.8	0.102E-04	-11.0
84000	203.0	0.511E 00	3.0	0.877E-05	-8.2
85000	200.7	0.434E 00	5.3	0.754E-05	-5.1
86000	198.4	0.367E 00	7.1	0.645E-05	-2.5
87000	193.9	0.310E 00	8.8	0.558E-05	1.4
88000	188.2	0.261E 00	10.0	0.483E-05	5.6
89000	183.1	0.218E 00	10.3	0.414E-05	8.8
90000	185.0	0.181E 00	10.6	0.342E-05	8.0
91000	186.8	0.152E 00	11.1	0.283E-05	9.2
92000	186.6	0.127E 00	11.4	0.238E-05	11.4
93000	184.9	0.106E 00	11.2	0.201E-05	14.1
94000	182.5	0.891E-01	10.5	0.170E-05	16.6
95000	177.3	0.744E-01	9.4	0.146E-05	20.7
96000	172.1	0.613E-01	6.7	0.124E-05	23.2

FIGURE 14

ARENOSILLO, 28 MARCH 1969, 0023 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
34447.6	240.8	0.8	32.5	2.2	263.6	5.9
40160.7	257.9	1.2	56.1	3.3	258.5	5.1
44447.3	267.4	1.7	63.7	4.5	266.6	6.2
48025.4	267.5	0.9	66.0	2.6	272.5	3.3
51502.8	267.6	1.6	49.6	4.8	289.7	7.3
54887.7	257.8	2.5	35.9	7.4	282.3	16.6
58193.3	246.4	3.1	24.5	9.1	261.9	32.0
61397.4	236.7	2.4	25.2	10.5	207.4	19.8
65010.5	234.1	1.9	15.2	6.2	254.6	33.9
69014.5	224.3	2.2	24.1	7.4	254.5	25.6
72850.8	214.0	1.8	34.3	6.3	254.1	15.3
76548.8	206.5	1.4	38.6	7.4	17.6	8.0
80100.1	216.7	3.2	34.3	14.6	335.3	18.2
83057.6	195.3	5.6	16.9	25.0	315.9	80.4
85476.6	193.1	7.8	58.1	34.0	42.1	31.9
87815.8	177.5	7.9	4.0	30.8	242.6	553.1
90068.5	155.6	5.1	115.7	28.8	166.1	10.5
92173.1	174.7	5.5	129.6	20.9	279.2	13.4



WIND COMPONENTS M/SEC

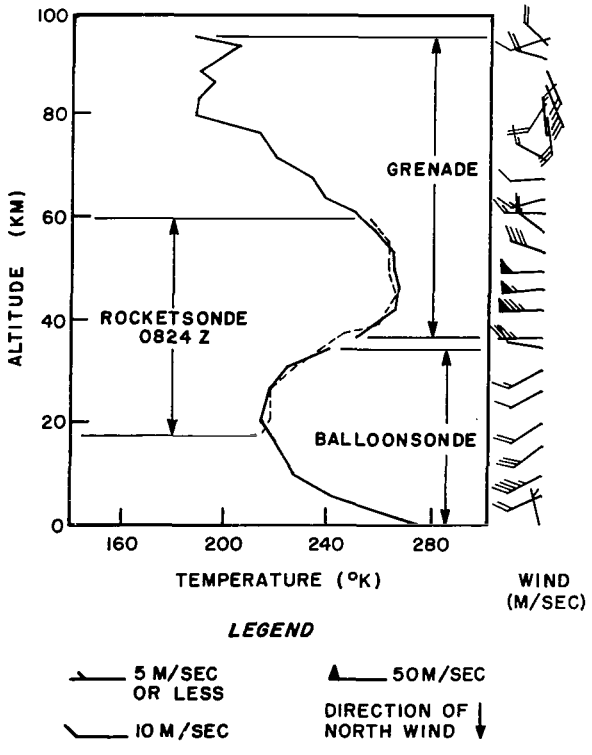
ALTITUDE M MSL	SOUTH COMPONENT	WEST COMPONENT
36000	5.6	38.5
38000	8.2	46.4
40000	10.3	54.0
42000	7.9	58.7
44000	4.4	62.6
46000	0.8	64.6
48000	-3.3	64.5
50000	-10.7	55.0
52000	-14.9	45.1
54000	-10.0	38.1
56000	-3.9	31.4
58000	3.1	24.8
60000	14.1	17.1
62000	18.9	12.3
64000	9.1	13.8
66000	4.6	16.8
68000	5.8	21.0
70000	7.1	25.7
72000	8.6	30.8
74000	-4.9	19.1
76000	-29.2	-4.0
78000	-34.5	-1.0
80000	-30.3	11.9
82000	-19.0	12.7
84000	-24.2	-8.0
86000	-31.2	-27.2
88000	15.8	-4.2
90000	84.6	-7.6
92000	-9.8	115.2

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
35000	242.4	0.529E 03	-7.8	0.760E-02	-10.1
36000	245.4	0.460E 03	-7.6	0.653E-02	-10.0
37000	248.4	0.399E 03	-7.6	0.560E-02	-10.0
38000	251.4	0.348E 03	-7.5	0.483E-02	-9.9
39000	254.4	0.306E 03	-6.9	0.418E-02	-9.4
40000	257.4	0.268E 03	-6.4	0.363E-02	-9.0
41000	259.8	0.235E 03	-6.1	0.315E-02	-8.5
42000	262.0	0.206E 03	-6.0	0.274E-02	-8.2
43000	264.2	0.181E 03	-5.8	0.239E-02	-7.8
44000	266.4	0.160E 03	-5.4	0.209E-02	-7.2
45000	267.5	0.141E 03	-5.2	0.184E-02	-6.3
46000	267.5	0.124E 03	-5.0	0.162E-02	-5.3
47000	267.5	0.109E 03	-5.1	0.143E-02	-4.4
48000	267.5	0.969E 02	-5.2	0.126E-02	-4.1
49000	267.5	0.854E 02	-5.3	0.111E-02	-4.3
50000	267.6	0.753E 02	-5.5	0.981E-03	-4.4
51000	267.6	0.664E 02	-5.6	0.865E-03	-4.5
52000	266.1	0.586E 02	-5.7	0.767E-03	-4.1
53000	263.3	0.517E 02	-5.8	0.684E-03	-3.6
54000	260.4	0.454E 02	-6.2	0.608E-03	-3.6
55000	257.4	0.399E 02	-6.6	0.540E-03	-3.6
56000	254.0	0.350E 02	-6.9	0.480E-03	-3.3
57000	250.5	0.306E 02	-7.3	0.426E-03	-3.2
58000	247.0	0.267E 02	-8.0	0.377E-03	-3.3
59000	243.9	0.233E 02	-8.5	0.333E-03	-3.4
60000	240.9	0.203E 02	-9.2	0.294E-03	-3.6
61000	237.9	0.177E 02	-10.0	0.259E-03	-4.1
62000	236.2	0.153E 02	-10.9	0.226E-03	-5.3
63000	235.5	0.133E 02	-11.5	0.197E-03	-7.1
64000	234.8	0.115E 02	-12.0	0.171E-03	-8.9
65000	234.1	0.100E 02	-12.4	0.149E-03	-10.5
66000	231.7	0.869E 01	-12.5	0.130E-03	-11.1
67000	229.2	0.753E 01	-12.4	0.114E-03	-11.6
68000	226.8	0.649E 01	-12.7	0.997E-04	-12.5
69000	224.3	0.559E 01	-12.8	0.868E-04	-13.1
70000	221.6	0.482E 01	-12.6	0.757E-04	-13.4
71000	218.9	0.415E 01	-12.2	0.660E-04	-13.5
72000	216.2	0.355E 01	-12.2	0.572E-04	-14.0
73000	213.7	0.304E 01	-11.9	0.495E-04	-14.3
74000	211.6	0.260E 01	-11.3	0.428E-04	-14.5
75000	209.6	0.222E 01	-10.6	0.369E-04	-14.7
76000	207.6	0.189E 01	-10.1	0.317E-04	-15.0
77000	207.8	0.161E 01	-9.1	0.269E-04	-15.9
78000	210.7	0.137E 01	-7.9	0.226E-04	-17.6
79000	213.5	0.117E 01	-5.7	0.191E-04	-18.6
80000	216.4	0.100E 01	-3.0	0.161E-04	-19.0
81000	210.2	0.862E 00	0.0	0.142E-04	-13.9
82000	203.0	0.737E 00	2.8	0.126E-04	-8.4
83000	195.7	0.621E 00	4.3	0.110E-04	-3.7
84000	194.5	0.524E 00	5.8	0.939E-05	-1.7
85000	193.5	0.441E 00	7.1	0.795E-05	-0.0
86000	189.6	0.372E 00	8.5	0.683E-05	3.3
87000	182.9	0.311E 00	9.2	0.593E-05	7.8
88000	175.7	0.258E 00	9.0	0.513E-05	12.0
89000	166.0	0.214E 00	8.4	0.449E-05	18.0
90000	156.2	0.173E 00	5.3	0.385E-05	21.7
91000	164.0	0.139E 00	2.0	0.296E-05	14.2
92000	173.1	0.115E 00	0.6	0.231E-05	8.5

FIGURE 15

WALLOPS, 28 MARCH 1969, 0732 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
36245.2	252.9	0.4	33.6	0.2	268.2	1.1
42014.0	265.7	0.4	77.0	0.4	267.2	0.7
46358.3	267.0	0.6	57.1	0.8	265.8	1.8
49979.9	265.4	0.6	47.8	0.9	266.8	2.3
53504.0	265.3	0.6	38.0	1.2	290.2	2.7
56936.9	258.6	0.7	26.9	1.7	307.9	3.6
60272.5	248.9	0.6	12.6	1.0	270.9	9.5
63522.0	238.1	0.5	16.4	0.9	253.9	6.6
67181.4	232.7	0.4	10.3	0.8	265.8	10.0
71215.0	218.8	0.5	15.1	1.6	298.7	7.4
75097.0	212.5	0.8	16.8	3.4	352.8	5.6
78847.6	187.8	0.6	28.3	3.2	172.4	3.2
82431.6	189.9	0.7	19.9	2.8	212.6	7.5
85421.6	195.8	1.4	31.2	6.5	158.5	6.5
87874.9	189.0	1.3	22.3	6.4	159.5	9.0
90242.6	196.1	1.2	23.8	3.8	285.8	13.4
92515.1	204.1	1.7	18.6	6.8	313.3	18.0
94633.3	186.9	2.1	11.8	5.7	251.0	52.0



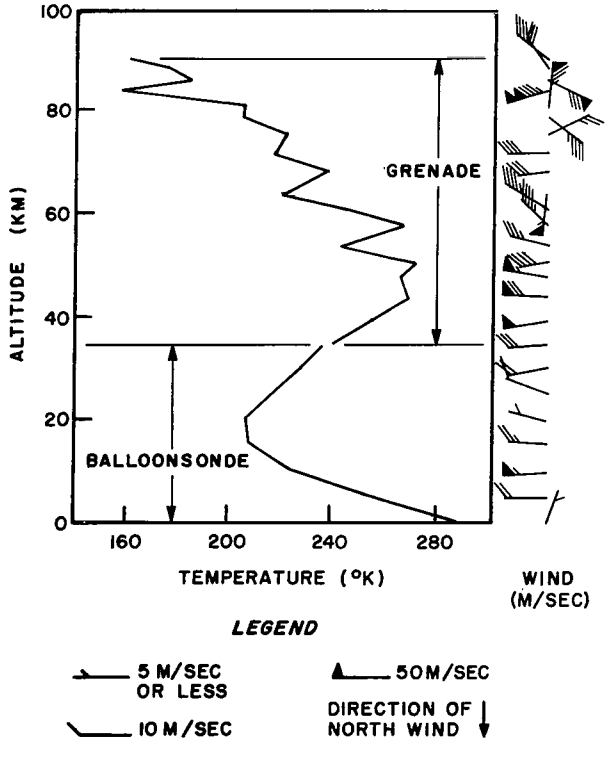
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
38000	1.8	46.7
40000	2.7	61.8
42000	3.5	73.9
44000	3.8	67.8
46000	4.0	58.8
48000	3.4	52.8
50000	1.5	47.5
52000	-6.4	40.8
54000	-13.4	33.5
56000	-15.6	25.1
58000	-11.3	18.4
60000	-2.0	13.7
62000	2.3	14.2
64000	3.8	14.8
66000	1.9	12.0
68000	-0.8	10.9
70000	-4.8	12.4
72000	-9.2	10.9
74000	-14.0	5.2
76000	-5.8	0.6
78000	17.8	-2.3
80000	24.4	0.9
82000	18.7	8.0
84000	23.2	-0.8
86000	26.8	-10.1
88000	17.8	-3.9
90000	-2.4	17.3
92000	-10.7	15.8
94000	-1.1	11.9

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
37000	254.6	0.436E 03	0.8	0.597E-02	-4.1
38000	256.8	0.382E 03	1.4	0.518E-02	-3.3
39000	259.0	0.334E 03	1.7	0.450E-02	-2.7
40000	261.2	0.293E 03	2.3	0.391E-02	-1.9
41000	263.5	0.258E 03	3.0	0.342E-02	-0.9
42000	265.7	0.228E 03	3.6	0.298E-02	-0.2
43000	266.0	0.200E 03	4.0	0.262E-02	1.1
44000	266.3	0.176E 03	4.4	0.231E-02	2.4
45000	266.6	0.155E 03	4.6	0.203E-02	3.6
46000	266.9	0.137E 03	4.7	0.179E-02	4.6
47000	266.7	0.121E 03	4.5	0.158E-02	5.7
48000	266.3	0.106E 03	4.4	0.139E-02	6.1
49000	265.8	0.941E 02	4.2	0.123E-02	6.1
50000	265.4	0.829E 02	4.0	0.108E-02	6.0
51000	265.4	0.731E 02	3.7	0.959E-03	5.8
52000	265.3	0.644E 02	3.5	0.845E-03	5.5
53000	265.3	0.567E 02	3.3	0.745E-03	4.9
54000	264.3	0.500E 02	3.1	0.659E-03	4.3
55000	262.4	0.440E 02	3.1	0.585E-03	4.3
56000	260.5	0.387E 02	2.8	0.518E-03	4.1
57000	258.5	0.340E 02	2.7	0.458E-03	3.9
58000	255.5	0.299E 02	2.6	0.407E-03	4.2
59000	252.6	0.262E 02	2.4	0.361E-03	4.4
60000	249.7	0.229E 02	2.0	0.319E-03	4.4
61000	246.5	0.200E 02	1.7	0.283E-03	4.7
62000	243.2	0.175E 02	1.4	0.250E-03	4.7
63000	239.9	0.152E 02	0.8	0.220E-03	3.9
64000	237.4	0.132E 02	0.4	0.193E-03	2.9
65000	235.9	0.114E 02	0.2	0.169E-03	1.6
66000	234.5	0.995E 01	0.1	0.147E-03	0.4
67000	233.0	0.862E 01	0.0	0.128E-03	-0.5
68000	229.9	0.746E 01	0.2	0.113E-03	-0.7
69000	226.4	0.646E 01	0.7	0.995E-04	-0.4
70000	223.0	0.556E 01	0.8	0.869E-04	-0.7
71000	219.5	0.477E 01	0.9	0.758E-04	-0.8
72000	217.5	0.410E 01	1.2	0.656E-04	-1.3
73000	215.9	0.352E 01	1.9	0.568E-04	-1.8
74000	214.3	0.301E 01	2.5	0.489E-04	-2.3
75000	212.6	0.257E 01	3.4	0.421E-04	-2.6
76000	206.5	0.220E 01	4.6	0.371E-04	-0.5
77000	199.9	0.188E 01	6.1	0.327E-04	2.1
78000	193.4	0.157E 01	5.9	0.283E-04	3.2
79000	187.9	0.132E 01	6.1	0.244E-04	4.2
80000	188.4	0.110E 01	6.6	0.204E-04	2.2
81000	189.0	0.926E 00	7.5	0.170E-04	2.7
82000	189.6	0.777E 00	8.5	0.142E-04	3.3
83000	191.0	0.652E 00	9.5	0.119E-04	3.5
84000	193.0	0.548E 00	10.5	0.989E-05	3.4
85000	194.9	0.462E 00	12.0	0.825E-05	3.7
86000	194.2	0.390E 00	13.6	0.699E-05	5.7
87000	191.4	0.328E 00	15.1	0.597E-05	8.6
88000	189.3	0.275E 00	16.0	0.506E-05	10.7
89000	192.4	0.231E 00	16.9	0.418E-05	9.8
90000	195.4	0.195E 00	18.6	0.347E-05	9.7
91000	198.8	0.164E 00	20.2	0.288E-05	11.1
92000	202.3	0.139E 00	22.0	0.240E-05	12.5
93000	200.2	0.118E 00	23.7	0.206E-05	17.2
94000	192.1	0.100E 00	24.4	0.182E-05	24.7

FIGURE 16

ARENOSILLO, 29 MARCH 1969, 0005 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
34271.1	240.2	0.6	27.5	1.3	266.0	4.2
39744.3	255.8	0.6	49.5	1.3	262.9	2.3
43866.0	270.0	0.8	70.3	1.9	273.5	2.0
47299.8	266.9	3.0	57.0	6.4	280.6	9.3
50629.0	272.1	4.5	40.8	9.1	260.4	19.2
53866.0	243.1	4.0	33.4	9.4	285.2	22.8
57028.0	268.3	5.9	46.3	15.3	315.3	18.2
60113.6	246.4	5.6	44.5	14.4	304.7	20.6
63575.3	220.8	4.4	55.2	15.3	185.3	10.9
67383.8	239.2	7.8	31.6	17.0	263.3	46.8
71045.9	217.0	9.3	42.2	22.0	269.7	45.7
74570.6	221.8	8.4	23.9	21.9	64.6	66.8
77935.9	206.8	7.6	44.3	21.6	127.0	31.7
80738.3	207.7	12.4	72.8	45.8	6.7	23.0
83037.1	158.0	6.0	136.8	16.2	253.7	11.2
85244.4	185.8	5.0	78.7	12.5	115.2	13.4
87367.2	177.7	8.9	29.5	32.6	324.1	48.0
89350.0	161.4	15.6	37.5	54.9	310.6	87.4



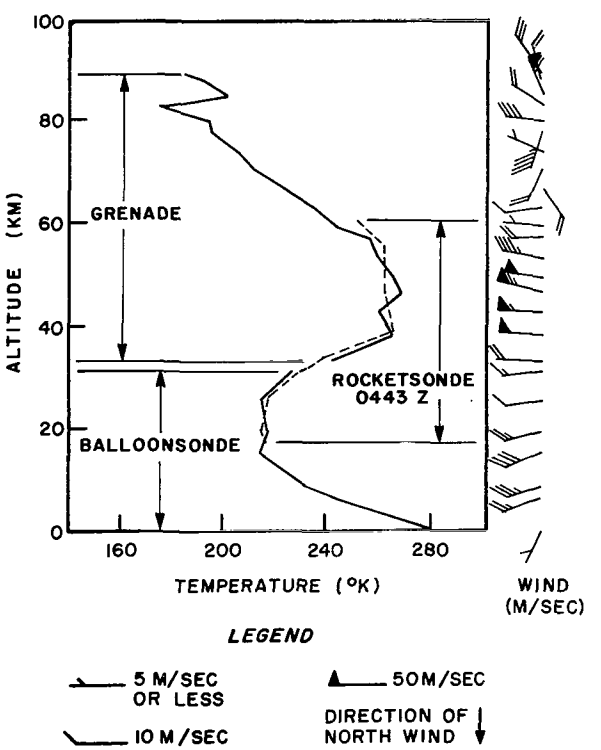
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	3.2	34.3
38000	4.7	42.2
40000	4.9	50.6
42000	0.3	60.6
44000	-4.4	67.9
46000	-8.2	61.4
48000	-6.7	52.7
50000	3.1	43.3
52000	0.1	36.8
54000	-10.3	32.7
56000	-25.0	32.4
58000	-30.5	33.8
60000	-21.5	34.4
62000	18.4	19.4
64000	46.2	9.4
66000	22.3	21.8
68000	3.5	33.1
70000	1.1	39.1
72000	-2.6	24.9
74000	-7.9	-10.6
76000	5.4	-27.4
78000	14.2	-31.8
80000	-44.8	-14.7
82000	-11.6	68.3
84000	36.1	42.9
86000	12.7	-37.7
88000	-23.1	19.6

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
35000	242.3	0.529E 03	-7.9	0.760E-02	-10.1
36000	245.1	0.459E 03	-7.7	0.653E-02	-10.0
37000	248.0	0.399E 03	-7.8	0.560E-02	-10.0
38000	250.8	0.348E 03	-7.4	0.484E-02	-9.7
39000	253.7	0.305E 03	-6.9	0.420E-02	-9.2
40000	256.7	0.268E 03	-6.6	0.363E-02	-8.9
41000	260.1	0.235E 03	-6.4	0.314E-02	-8.9
42000	263.5	0.205E 03	-6.3	0.272E-02	-9.1
43000	267.0	0.181E 03	-5.8	0.237E-02	-8.7
44000	269.9	0.160E 03	-5.3	0.207E-02	-8.3
45000	269.0	0.141E 03	-5.0	0.183E-02	-6.7
46000	268.1	0.124E 03	-4.8	0.162E-02	-5.2
47000	267.2	0.110E 03	-4.9	0.143E-02	-4.0
48000	268.0	0.971E 02	-5.0	0.126E-02	-4.1
49000	269.5	0.856E 02	-5.2	0.110E-02	-4.8
50000	271.1	0.756E 02	-5.1	0.972E-03	-5.3
51000	268.8	0.668E 02	-5.0	0.866E-03	-4.4
52000	259.8	0.591E 02	-4.9	0.793E-03	-0.9
53000	250.9	0.516E 02	-5.9	0.717E-03	1.0
54000	244.2	0.450E 02	-7.1	0.642E-03	1.7
55000	252.1	0.392E 02	-8.2	0.541E-03	-3.4
56000	260.1	0.344E 02	-8.6	0.460E-03	-7.4
57000	268.1	0.303E 02	-8.3	0.394E-03	-10.5
58000	261.4	0.268E 02	-7.9	0.357E-03	-8.6
59000	254.3	0.235E 02	-7.9	0.322E-03	-6.7
60000	247.2	0.205E 02	-8.4	0.289E-03	-5.3
61000	239.8	0.179E 02	-8.8	0.260E-03	-3.5
62000	232.4	0.155E 02	-9.7	0.233E-03	-2.4
63000	225.0	0.133E 02	-11.2	0.207E-03	-2.5
64000	222.8	0.115E 02	-12.5	0.179E-03	-4.5
65000	227.7	0.988E 01	-13.7	0.151E-03	-9.3
66000	232.5	0.854E 01	-14.0	0.128E-03	-12.9
67000	237.3	0.743E 01	-13.7	0.109E-03	-15.8
68000	235.5	0.646E 01	-13.2	0.955E-04	-16.1
69000	229.4	0.562E 01	-12.3	0.853E-04	-14.6
70000	223.3	0.483E 01	-12.3	0.754E-04	-13.8
71000	217.3	0.414E 01	-12.4	0.664E-04	-13.0
72000	218.3	0.355E 01	-12.2	0.567E-04	-14.8
73000	219.7	0.305E 01	-11.6	0.483E-04	-16.4
74000	221.0	0.262E 01	-10.6	0.413E-04	-17.5
75000	219.9	0.225E 01	-9.2	0.357E-04	-17.4
76000	215.4	0.194E 01	-7.6	0.314E-04	-15.8
77000	211.0	0.165E 01	-6.3	0.274E-04	-14.6
78000	206.8	0.141E 01	-5.0	0.237E-04	-13.4
79000	207.1	0.120E 01	-3.3	0.202E-04	-13.9
80000	207.5	0.102E 01	-1.2	0.171E-04	-13.9
81000	202.1	0.874E 00	1.4	0.150E-04	-9.2
82000	180.4	0.740E 00	3.2	0.142E-04	3.3
83000	158.8	0.599E 00	0.5	0.131E-04	14.3
84000	170.1	0.485E 00	-2.1	0.993E-05	3.8
85000	182.7	0.404E 00	-1.9	0.770E-05	-3.1
86000	182.9	0.338E 00	-1.4	0.643E-05	-2.6
87000	179.1	0.281E 00	-1.4	0.546E-05	-0.6
88000	172.5	0.233E 00	-1.6	0.471E-05	2.9
89000	164.3	0.191E 00	-3.1	0.405E-05	6.4

FIGURE 17

WALLOPS, 29 MARCH 1969, 0715 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
33189.7	241.2	0.6	20.0	0.6	273.5	3.6
38694.5	265.2	0.9	47.8	0.9	274.0	2.0
42834.0	260.6	1.2	54.9	1.3	273.2	2.6
46273.2	269.4	1.2	63.6	1.5	284.8	2.1
49622.3	266.0	1.1	51.4	1.3	278.0	2.5
52878.5	260.1	1.2	45.0	1.5	281.5	3.2
56041.6	257.1	1.3	20.1	1.5	265.8	8.6
59112.4	244.1	1.4	6.9	1.7	275.4	27.1
62575.8	235.1	1.6	10.8	1.9	261.9	21.5
66398.0	221.9	1.5	21.6	3.6	144.4	6.6
70061.4	211.9	1.0	18.5	2.4	205.9	6.3
73585.4	206.3	1.0	6.8	2.1	295.2	22.1
76951.5	195.1	1.5	44.4	4.2	199.1	4.0
79754.5	194.8	2.4	42.4	4.4	277.1	9.8
82052.0	175.7	2.5	21.5	7.1	304.5	18.6
84271.2	201.9	4.0	69.3	12.5	341.8	5.1
86404.4	192.9	3.3	19.6	10.4	345.2	15.2
88388.9	185.3	4.5	27.5	13.5	326.0	17.8



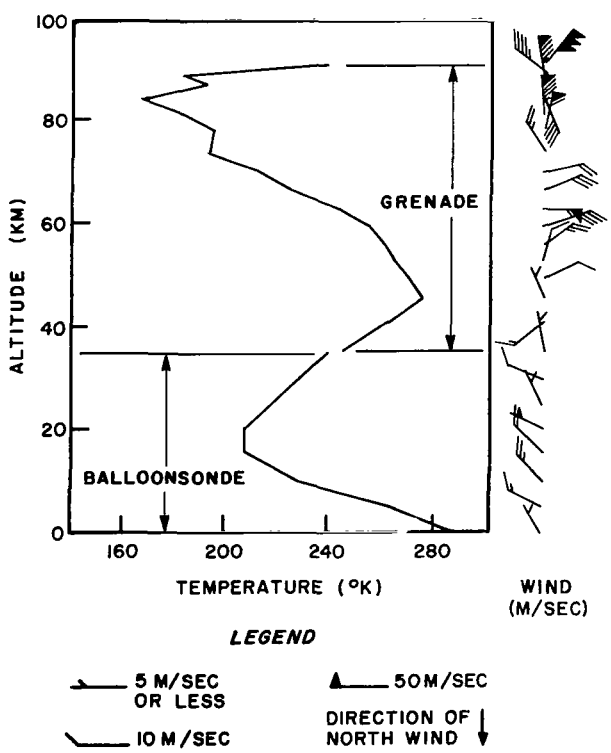
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
34000	-1.5	24.1
36000	-2.3	34.1
38000	-3.1	44.1
40000	-3.3	49.9
42000	-3.2	53.3
44000	-7.5	57.1
46000	-14.3	60.3
48000	-11.6	56.1
50000	-7.7	50.2
52000	-8.5	45.9
54000	-5.3	35.6
56000	0.3	21.2
58000	0.1	11.6
60000	-0.0	7.8
62000	1.3	9.7
64000	7.5	2.0
66000	15.5	-9.0
68000	17.1	-3.5
70000	15.5	6.3
72000	5.8	7.0
74000	4.2	7.4
76000	29.2	12.2
78000	24.3	24.8
80000	-4.0	36.6
82000	-16.8	21.0
84000	-53.1	19.8
86000	-30.0	9.3
88000	-22.0	13.3

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
34000	244.7	0.649E 03	-2.1	0.924E-02	-6.5
35000	249.1	0.564E 03	-1.7	0.789E-02	-6.7
36000	253.4	0.490E 03	-1.5	0.674E-02	-7.0
37000	257.8	0.430E 03	-0.6	0.581E-02	-6.7
38000	262.1	0.379E 03	0.5	0.503E-02	-6.1
39000	264.8	0.333E 03	1.5	0.439E-02	-5.1
40000	263.7	0.293E 03	2.3	0.388E-02	-2.8
41000	262.6	0.258E 03	3.0	0.343E-02	-0.6
42000	261.5	0.227E 03	3.4	0.303E-02	1.1
43000	261.0	0.199E 03	3.5	0.266E-02	2.6
44000	263.6	0.175E 03	3.6	0.232E-02	2.7
45000	266.1	0.154E 03	3.7	0.202E-02	2.9
46000	268.7	0.136E 03	3.9	0.176E-02	3.2
47000	268.7	0.120E 03	3.9	0.156E-02	4.3
48000	267.6	0.106E 03	3.9	0.138E-02	5.1
49000	266.6	0.937E 02	3.7	0.122E-02	5.2
50000	265.3	0.826E 02	3.5	0.108E-02	5.6
51000	263.5	0.728E 02	3.3	0.962E-03	6.1
52000	261.7	0.640E 02	2.9	0.852E-03	6.4
53000	260.0	0.562E 02	2.4	0.754E-03	6.1
54000	259.0	0.494E 02	2.0	0.665E-03	5.3
55000	258.1	0.434E 02	1.6	0.586E-03	4.5
56000	257.1	0.381E 02	1.2	0.516E-03	3.8
57000	253.0	0.334E 02	1.0	0.460E-03	4.4
58000	248.8	0.293E 02	0.5	0.410E-03	4.9
59000	244.6	0.255E 02	-0.1	0.363E-03	5.1
60000	241.8	0.222E 02	-0.8	0.320E-03	4.8
61000	239.2	0.193E 02	-1.5	0.282E-03	4.3
62000	236.6	0.168E 02	-2.5	0.247E-03	3.3
63000	233.7	0.145E 02	-3.3	0.217E-03	2.2
64000	230.2	0.126E 02	-3.8	0.191E-03	1.5
65000	226.7	0.109E 02	-4.6	0.167E-03	0.6
66000	223.3	0.939E 01	-5.4	0.146E-03	-0.3
67000	220.3	0.808E 01	-6.1	0.127E-03	-1.3
68000	217.5	0.695E 01	-6.6	0.111E-03	-2.3
69000	214.8	0.594E 01	-7.3	0.964E-04	-3.5
70000	212.1	0.508E 01	-7.9	0.834E-04	-4.6
71000	210.4	0.434E 01	-8.3	0.718E-04	-5.9
72000	208.8	0.370E 01	-8.4	0.618E-04	-7.1
73000	207.2	0.315E 01	-8.7	0.529E-04	-8.4
74000	204.9	0.268E 01	-8.6	0.455E-04	-9.0
75000	201.6	0.228E 01	-8.3	0.394E-04	-9.0
76000	198.3	0.192E 01	-8.3	0.338E-04	-9.2
77000	195.1	0.162E 01	-8.2	0.290E-04	-9.5
78000	195.0	0.137E 01	-7.8	0.244E-04	-10.9
79000	194.9	0.115E 01	-7.0	0.205E-04	-12.0
80000	192.8	0.974E 00	-5.9	0.176E-04	-11.9
81000	184.5	0.820E 00	-4.8	0.154E-04	-6.7
82000	176.2	0.679E 00	-5.2	0.134E-04	-2.8
83000	186.9	0.561E 00	-5.7	0.104E-04	-8.9
84000	198.7	0.474E 00	-4.2	0.831E-05	-13.0
85000	198.8	0.402E 00	-2.4	0.705E-05	-11.3
86000	194.6	0.339E 00	-0.9	0.608E-05	-8.0
87000	190.6	0.286E 00	0.2	0.522E-05	-5.0
88000	186.8	0.239E 00	1.0	0.447E-05	-2.3

FIGURE 18

ARENOSILLO, 8 MAY 1969, 0005 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
35463.9	245.6	1.2	2.0	5.1	349.7	97.5
41179.3	263.6	1.7	12.9	5.2	230.7	26.5
45479.6	275.0	0.8	6.8	3.0	337.0	18.8
49031.9	271.0	0.4	7.8	1.4	64.5	14.2
52486.0	265.4	2.7	7.7	11.2	14.9	60.5
55861.3	262.8	4.5	23.2	15.1	53.7	43.2
59143.5	255.9	3.9	40.2	12.0	70.2	23.5
62341.3	245.0	4.5	56.5	13.3	89.9	19.6
65945.8	224.6	3.1	30.4	10.5	67.0	26.6
69909.2	212.4	2.1	21.4	8.2	77.2	23.9
73718.4	193.7	2.0	23.2	8.1	327.4	21.9
77393.2	194.9	2.4	57.7	11.2	9.4	8.5
80900.3	184.4	2.4	85.6	12.5	358.7	5.4
83826.9	167.6	6.3	39.6	31.7	156.6	34.6
86230.3	191.9	11.5	83.1	53.3	349.5	24.0
88543.1	183.8	15.2	45.1	58.2	308.5	76.3
90771.8	239.2	23.9	149.4	79.0	37.1	25.7



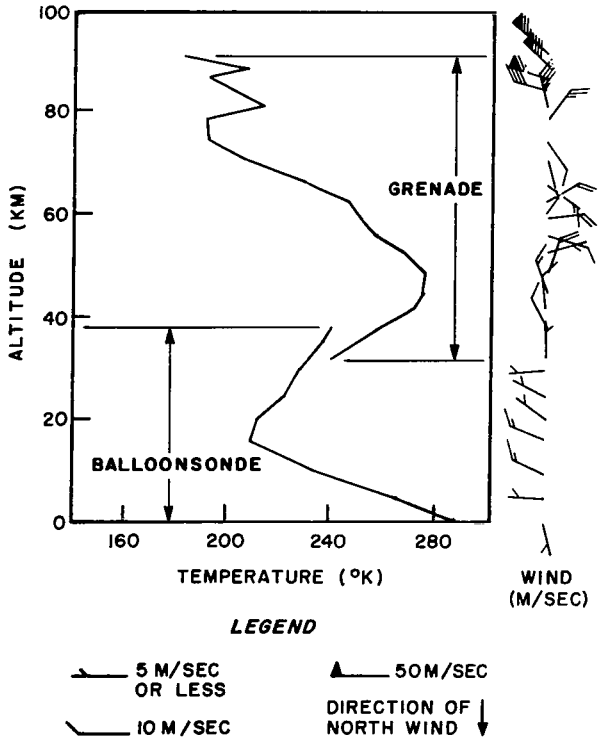
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
36000	-1.0	1.2
38000	2.5	4.6
40000	6.1	8.0
42000	5.3	8.6
44000	-1.3	5.2
46000	-5.6	1.1
48000	-4.2	-4.2
50000	-4.5	-5.6
52000	-6.9	-3.1
54000	-10.2	-9.5
56000	-13.3	-19.7
58000	-13.6	-31.2
60000	-9.9	-42.8
62000	-2.2	-53.1
64000	-5.4	-43.4
66000	-10.6	-29.3
68000	-8.1	-24.3
70000	-6.2	-18.6
72000	-12.8	-2.5
74000	-23.2	8.9
76000	-42.7	-1.1
78000	-61.8	-7.1
80000	-78.1	-1.0
82000	-39.7	-4.7
84000	12.3	-10.2
86000	-59.7	11.5
88000	-44.0	27.1
90000	-87.6	-46.7

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
36000	247.3	0.484E 03	-2.8	0.682E-02	-6.0
37000	250.4	0.422E 03	-2.5	0.587E-02	-5.8
38000	253.6	0.367E 03	-2.4	0.505E-02	-5.8
39000	256.7	0.321E 03	-2.1	0.436E-02	-5.6
40000	259.9	0.283E 03	-1.4	0.379E-02	-5.0
41000	263.0	0.249E 03	-0.7	0.329E-02	-4.5
42000	265.8	0.219E 03	-0.3	0.287E-02	-4.0
43000	268.4	0.192E 03	-0.0	0.250E-02	-3.7
44000	271.1	0.170E 03	0.3	0.218E-02	-3.2
45000	273.7	0.150E 03	0.9	0.191E-02	-2.5
46000	274.4	0.133E 03	1.4	0.169E-02	-1.3
47000	273.3	0.117E 03	1.6	0.150E-02	0.3
48000	272.2	0.104E 03	1.8	0.133E-02	1.1
49000	271.0	0.919E 02	1.8	0.118E-02	1.6
50000	269.4	0.812E 02	1.8	0.105E-02	2.3
51000	267.8	0.717E 02	1.8	0.933E-03	2.9
52000	266.2	0.632E 02	1.5	0.827E-03	3.2
53000	265.0	0.557E 02	1.3	0.732E-03	3.0
54000	264.2	0.490E 02	1.2	0.647E-03	2.5
55000	263.5	0.432E 02	1.1	0.571E-03	1.8
56000	262.5	0.380E 02	1.0	0.504E-03	1.4
57000	260.4	0.334E 02	1.0	0.447E-03	1.5
58000	258.3	0.294E 02	0.9	0.396E-03	1.5
59000	256.2	0.258E 02	0.8	0.350E-03	1.4
60000	253.0	0.226E 02	0.8	0.311E-03	1.9
61000	249.6	0.198E 02	0.7	0.276E-03	2.4
62000	246.2	0.173E 02	0.3	0.244E-03	2.3
63000	241.3	0.151E 02	0.1	0.218E-03	2.6
64000	235.6	0.131E 02	0.0	0.194E-03	3.2
65000	230.0	0.113E 02	-0.9	0.171E-03	3.0
66000	224.5	0.977E 01	-1.6	0.151E-03	3.0
67000	221.4	0.842E 01	-2.1	0.132E-03	2.2
68000	218.3	0.725E 01	-2.5	0.115E-03	1.5
69000	215.2	0.620E 01	-3.4	0.100E-03	0.3
70000	212.0	0.529E 01	-4.0	0.870E-04	-0.5
71000	207.1	0.453E 01	-4.3	0.762E-04	-0.2
72000	202.2	0.386E 01	-4.6	0.665E-04	-0.1
73000	197.3	0.325E 01	-5.8	0.573E-04	-0.8
74000	193.8	0.273E 01	-6.8	0.491E-04	-1.9
75000	194.1	0.230E 01	-7.4	0.413E-04	-4.6
76000	194.5	0.194E 01	-7.8	0.347E-04	-6.9
77000	194.8	0.163E 01	-7.7	0.292E-04	-8.8
78000	193.1	0.137E 01	-7.3	0.248E-04	-9.5
79000	190.1	0.116E 01	-6.5	0.213E-04	-9.3
80000	187.1	0.972E 00	-6.2	0.180E-04	-9.4
81000	183.9	0.811E 00	-5.8	0.153E-04	-7.4
82000	178.1	0.678E 00	-5.3	0.132E-04	-3.9
83000	172.3	0.562E 00	-5.7	0.113E-04	-1.2
84000	169.3	0.461E 00	-7.0	0.948E-05	-0.8
85000	179.4	0.377E 00	-8.4	0.733E-05	-7.8
86000	189.5	0.317E 00	-7.4	0.583E-05	-11.8
87000	189.2	0.267E 00	-6.3	0.491E-05	-10.6
88000	185.7	0.223E 00	-5.8	0.419E-05	-8.3
89000	195.2	0.186E 00	-5.6	0.332E-05	-12.6
90000	220.0	0.158E 00	-3.8	0.250E-05	-21.0

FIGURE 19

WALLOPS, 8 MAY 1969, 0311 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
32549.7	240.4	0.7	6.5	1.0	359.8	3.9
38148.3	258.7	1.0	10.4	1.3	332.6	4.6
42363.8	272.4	1.4	8.6	2.0	353.0	6.1
45884.5	275.9	1.2	14.5	1.8	342.9	3.8
49319.5	276.8	1.2	18.5	2.0	21.2	4.3
52677.0	269.9	1.1	6.0	1.2	72.2	24.1
55979.8	256.6	1.1	10.4	1.5	104.2	14.0
59194.6	251.3	1.1	19.7	1.3	82.1	8.6
62832.6	246.5	0.9	21.2	1.6	58.2	6.8
66896.4	230.2	1.0	13.7	2.5	126.9	10.4
70828.8	206.9	1.0	11.2	3.6	163.1	9.5
74639.7	192.4	0.9	12.3	3.2	144.4	10.5
78317.2	191.7	1.1	24.5	3.4	36.7	7.8
81408.2	213.5	2.7	43.1	9.5	346.0	5.9
84000.6	202.3	2.3	40.7	5.3	285.3	11.1
86531.7	192.6	2.3	62.5	5.9	288.8	7.1
88955.5	207.5	3.2	78.3	10.2	316.4	5.6
91245.7	182.4	3.8	75.0	13.0	312.2	8.2



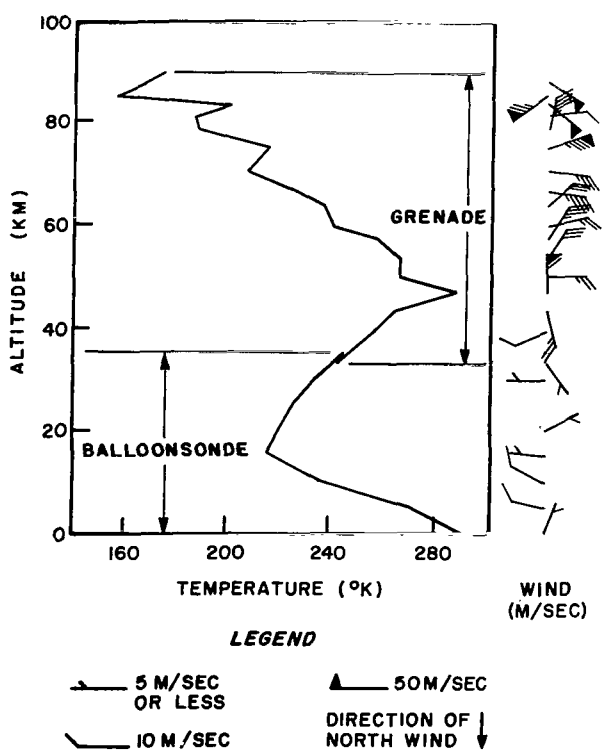
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
34000	-7.2	1.2
36000	-8.2	2.9
38000	-9.0	4.3
40000	-8.9	3.1
42000	-8.8	1.5
44000	-11.0	2.5
46000	-13.9	3.0
48000	-15.9	-2.4
50000	-13.9	-6.4
52000	-5.0	-5.9
54000	-0.0	-7.4
56000	1.8	-10.5
58000	-0.7	-16.0
60000	-4.5	-19.1
62000	-9.2	-18.4
64000	-5.6	-16.0
66000	3.9	-12.5
68000	8.9	-8.8
70000	10.2	-4.9
72000	10.5	-4.4
74000	9.9	-6.5
76000	-0.9	-9.9
78000	-17.0	-12.8
80000	-31.7	-1.0
82000	-34.0	17.1
84000	-14.7	38.5
86000	-18.8	54.4
88000	-42.3	56.0
90000	-53.8	54.7

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
33000	241.9	0.809E 03	5.5	0.116E-01	0.7
34000	245.1	0.703E 03	6.0	0.999E-02	1.1
35000	248.4	0.611E 03	6.3	0.857E-02	1.2
36000	251.7	0.532E 03	6.8	0.737E-02	1.6
37000	254.9	0.467E 03	7.9	0.638E-02	2.4
38000	258.2	0.410E 03	8.8	0.553E-02	3.1
39000	261.5	0.360E 03	9.5	0.480E-02	3.7
40000	264.7	0.316E 03	10.1	0.416E-02	4.1
41000	268.0	0.278E 03	10.8	0.361E-02	4.7
42000	271.2	0.246E 03	11.8	0.315E-02	5.5
43000	273.0	0.217E 03	12.6	0.277E-02	6.7
44000	274.0	0.192E 03	13.3	0.244E-02	8.1
45000	275.0	0.170E 03	14.0	0.215E-02	9.5
46000	276.0	0.150E 03	14.6	0.189E-02	10.8
47000	276.2	0.133E 03	14.9	0.168E-02	12.2
48000	276.5	0.117E 03	15.3	0.148E-02	12.8
49000	276.8	0.104E 03	15.6	0.131E-02	13.0
50000	275.4	0.925E 02	16.0	0.117E-02	13.9
51000	273.4	0.819E 02	16.3	0.104E-02	15.1
52000	271.3	0.723E 02	16.3	0.929E-03	16.0
53000	268.6	0.639E 02	16.3	0.828E-03	16.6
54000	264.6	0.564E 02	16.4	0.743E-03	17.6
55000	260.5	0.496E 02	16.1	0.663E-03	18.3
56000	256.6	0.435E 02	15.6	0.591E-03	18.8
57000	254.9	0.382E 02	15.3	0.522E-03	18.3
58000	253.3	0.335E 02	14.9	0.460E-03	17.8
59000	251.6	0.293E 02	14.5	0.405E-03	17.3
60000	250.3	0.256E 02	14.2	0.357E-03	16.7
61000	248.9	0.224E 02	14.0	0.314E-03	16.2
62000	247.6	0.195E 02	13.6	0.275E-03	15.2
63000	245.8	0.171E 02	13.4	0.242E-03	14.0
64000	241.8	0.149E 02	13.5	0.215E-03	14.2
65000	237.8	0.130E 02	13.7	0.190E-03	14.4
66000	233.8	0.112E 02	13.3	0.167E-03	14.1
67000	229.6	0.974E 01	13.1	0.147E-03	14.0
68000	223.7	0.842E 01	13.2	0.131E-03	15.1
69000	217.8	0.727E 01	13.3	0.116E-03	16.4
70000	211.8	0.619E 01	12.2	0.101E-03	16.3
71000	206.3	0.527E 01	11.3	0.890E-04	16.4
72000	202.5	0.448E 01	10.7	0.771E-04	15.9
73000	198.6	0.380E 01	10.2	0.667E-04	15.3
74000	194.8	0.320E 01	8.9	0.572E-04	14.1
75000	192.3	0.269E 01	8.1	0.487E-04	12.4
76000	192.1	0.226E 01	7.5	0.410E-04	9.8
77000	192.0	0.190E 01	7.3	0.345E-04	7.5
78000	191.8	0.159E 01	7.5	0.290E-04	5.6
79000	196.5	0.134E 01	8.1	0.238E-04	1.4
80000	203.6	0.113E 01	9.0	0.193E-04	-3.2
81000	210.6	0.965E 00	12.0	0.159E-04	-3.9
82000	210.9	0.826E 00	15.2	0.136E-04	-1.2
83000	206.6	0.705E 00	18.2	0.118E-04	3.3
84000	202.3	0.598E 00	20.6	0.103E-04	7.7
85000	198.5	0.507E 00	23.1	0.891E-05	12.0
86000	194.7	0.428E 00	24.8	0.766E-05	15.8
87000	195.5	0.360E 00	26.3	0.642E-05	16.6
88000	201.7	0.304E 00	28.1	0.525E-05	14.7
89000	207.0	0.259E 00	31.2	0.436E-05	14.5
90000	196.1	0.221E 00	34.4	0.392E-05	23.9
91000	185.1	0.184E 00	34.9	0.347E-05	33.9

FIGURE 20

ARENOSILLO, 10 MAY 1969, 0145 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
33652.8	241.9	0.8	3.9	2.7	142.4	34.7
39193.1	257.6	1.2	11.6	2.9	247.4	20.1
43344.7	263.1	4.2	27.1	13.8	162.4	20.7
46795.0	287.1	6.3	60.2	19.8	0.7	12.0
50155.9	266.6	5.6	25.6	11.5	90.1	39.1
53419.3	267.7	4.3	32.3	12.2	32.7	18.6
56609.4	258.9	3.4	34.8	9.4	33.5	13.3
59704.7	240.3	3.9	23.3	8.7	76.7	31.3
63173.8	236.0	4.0	31.5	10.7	49.5	20.9
66992.4	223.1	4.4	47.3	10.1	97.4	17.9
70654.4	206.8	4.4	36.8	10.6	96.1	24.5
74185.6	214.5	5.6	82.8	13.8	70.6	12.5
77562.2	188.5	5.1	46.3	18.9	14.4	16.0
80373.3	186.6	8.6	8.2	20.3	82.0	212.6
82667.2	200.8	15.1	51.8	40.1	129.3	47.6
84866.6	156.7	16.9	75.9	47.0	234.8	50.7
86978.4	167.0	19.7	55.0	58.7	124.8	73.1
88952.8	174.4	14.4	44.0	49.2	145.5	55.3



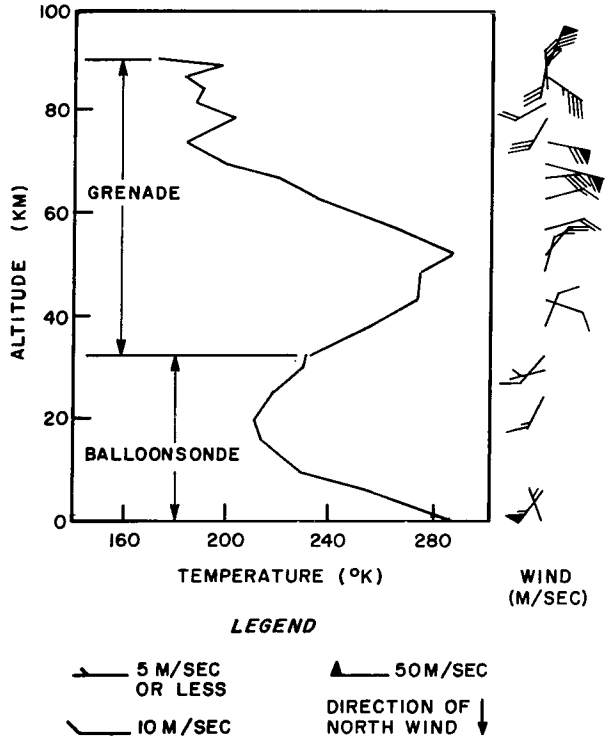
ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
34000	3.2	-1.5
36000	3.7	3.1
38000	4.1	7.9
40000	8.6	7.0
42000	18.9	-2.0
44000	8.6	-6.5
46000	-39.9	-2.5
48000	-38.5	-9.6
50000	-7.4	-22.7
52000	-15.3	-21.0
54000	-27.2	-17.9
56000	-28.3	-18.9
58000	-18.3	-20.8
60000	-8.1	-22.7
62000	-15.3	-23.5
64000	-14.6	-29.0
66000	-0.8	-40.9
68000	5.5	-44.0
70000	4.0	-38.9
72000	-8.0	-52.4
74000	-25.2	-70.7
76000	-36.8	-42.3
78000	-36.4	-12.4
80000	-7.0	-10.0
82000	22.7	-29.1
84000	39.4	21.3
86000	37.1	4.5
88000	33.9	-34.7

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
34000	242.9	0.733E 03	10.5	0.105E-01	6.4
35000	245.7	0.638E 03	11.0	0.904E-02	6.8
36000	248.6	0.554E 03	11.2	0.777E-02	7.1
37000	251.4	0.483E 03	11.6	0.670E-02	7.4
38000	254.2	0.424E 03	12.5	0.581E-02	8.3
39000	257.1	0.372E 03	13.2	0.504E-02	8.9
40000	258.7	0.326E 03	13.7	0.439E-02	10.0
41000	260.0	0.286E 03	14.1	0.383E-02	11.0
42000	261.3	0.251E 03	14.4	0.335E-02	12.0
43000	262.6	0.221E 03	14.7	0.293E-02	13.0
44000	267.7	0.194E 03	14.9	0.253E-02	12.2
45000	274.6	0.171E 03	14.9	0.217E-02	10.5
46000	281.6	0.152E 03	16.0	0.188E-02	9.9
47000	285.9	0.135E 03	16.9	0.165E-02	10.2
48000	279.8	0.120E 03	17.8	0.150E-02	13.9
49000	273.7	0.106E 03	18.1	0.135E-02	16.8
50000	267.6	0.941E 02	17.9	0.122E-02	19.2
51000	266.9	0.829E 02	17.7	0.108E-02	19.3
52000	267.2	0.731E 02	17.5	0.953E-03	19.0
53000	267.5	0.645E 02	17.4	0.840E-03	18.2
54000	266.1	0.569E 02	17.4	0.745E-03	18.0
55000	263.3	0.502E 02	17.5	0.664E-03	18.4
56000	260.6	0.441E 02	17.1	0.589E-03	18.5
57000	256.5	0.387E 02	16.9	0.526E-03	19.3
58000	250.5	0.340E 02	16.9	0.473E-03	21.2
59000	244.5	0.296E 02	16.0	0.422E-03	22.2
60000	239.9	0.258E 02	14.9	0.374E-03	22.5
61000	238.7	0.224E 02	14.1	0.327E-03	21.2
62000	237.5	0.195E 02	13.0	0.286E-03	19.5
63000	236.3	0.169E 02	12.2	0.249E-03	17.4
64000	233.2	0.146E 02	11.7	0.219E-03	16.4
65000	229.9	0.127E 02	11.3	0.193E-03	15.9
66000	226.5	0.109E 02	10.5	0.168E-03	14.8
67000	223.1	0.945E 01	9.8	0.147E-03	13.9
68000	218.6	0.814E 01	9.4	0.129E-03	13.8
69000	214.2	0.700E 01	9.0	0.113E-03	13.8
70000	209.7	0.595E 01	7.9	0.989E-04	12.9
71000	207.6	0.506E 01	7.0	0.850E-04	11.2
72000	209.7	0.431E 01	6.4	0.716E-04	7.5
73000	211.9	0.368E 01	6.6	0.605E-04	4.5
74000	214.1	0.315E 01	7.3	0.512E-04	2.2
75000	208.2	0.270E 01	8.4	0.451E-04	4.2
76000	200.5	0.230E 01	9.5	0.400E-04	7.2
77000	192.8	0.193E 01	9.0	0.349E-04	8.7
78000	188.2	0.161E 01	8.8	0.299E-04	9.0
79000	187.5	0.135E 01	9.1	0.252E-04	7.3
80000	186.9	0.113E 01	9.5	0.211E-04	5.9
81000	190.5	0.950E 00	10.2	0.173E-04	4.5
82000	196.7	0.800E 00	11.6	0.141E-04	2.5
83000	194.1	0.679E 00	13.9	0.121E-04	6.0
84000	174.1	0.569E 00	14.7	0.113E-04	19.0
85000	157.3	0.460E 00	11.5	0.101E-04	28.0
86000	162.2	0.372E 00	8.6	0.800E-05	20.9
87000	167.1	0.305E 00	7.0	0.636E-05	15.6
88000	170.8	0.250E 00	5.4	0.510E-05	11.4

FIGURE 21

WALLOPS, 10 MAY 1969, 0436 GMT.

ALTITUDE M MSL	TEMPERATURE DEG K	ERROR DEG K	WIND SPEED M/SEC	ERROR M/SEC	WIND DIRECTION DEGREES	ERROR DEG
32103.1	231.4	0.3	10.9	0.6	221.7	3.3
37603.7	255.3	0.5	9.5	1.3	21.9	5.3
43495.3	273.4	0.4	8.3	0.6	107.0	7.7
48655.1	274.9	0.9	10.7	2.4	14.9	7.9
51970.0	286.1	0.9	26.7	1.9	40.3	4.4
56811.3	267.6	0.3	17.5	0.5	73.4	3.4
62039.6	234.4	0.5	17.2	1.0	72.7	6.7
66030.1	219.1	0.6	39.0	1.1	83.8	3.6
69894.4	199.1	0.5	58.6	1.3	103.9	2.2
73660.9	183.4	0.5	70.1	1.2	99.6	1.9
77318.0	203.3	0.6	30.3	2.3	211.1	4.0
80385.7	187.5	1.0	20.5	2.9	240.6	13.7
82924.9	190.4	1.3	40.2	6.6	358.1	4.5
85395.0	182.1	1.3	42.5	5.1	124.0	7.5
87791.5	198.1	1.7	84.8	7.6	23.6	3.7
90054.2	172.9	1.8	32.1	9.5	185.8	9.3

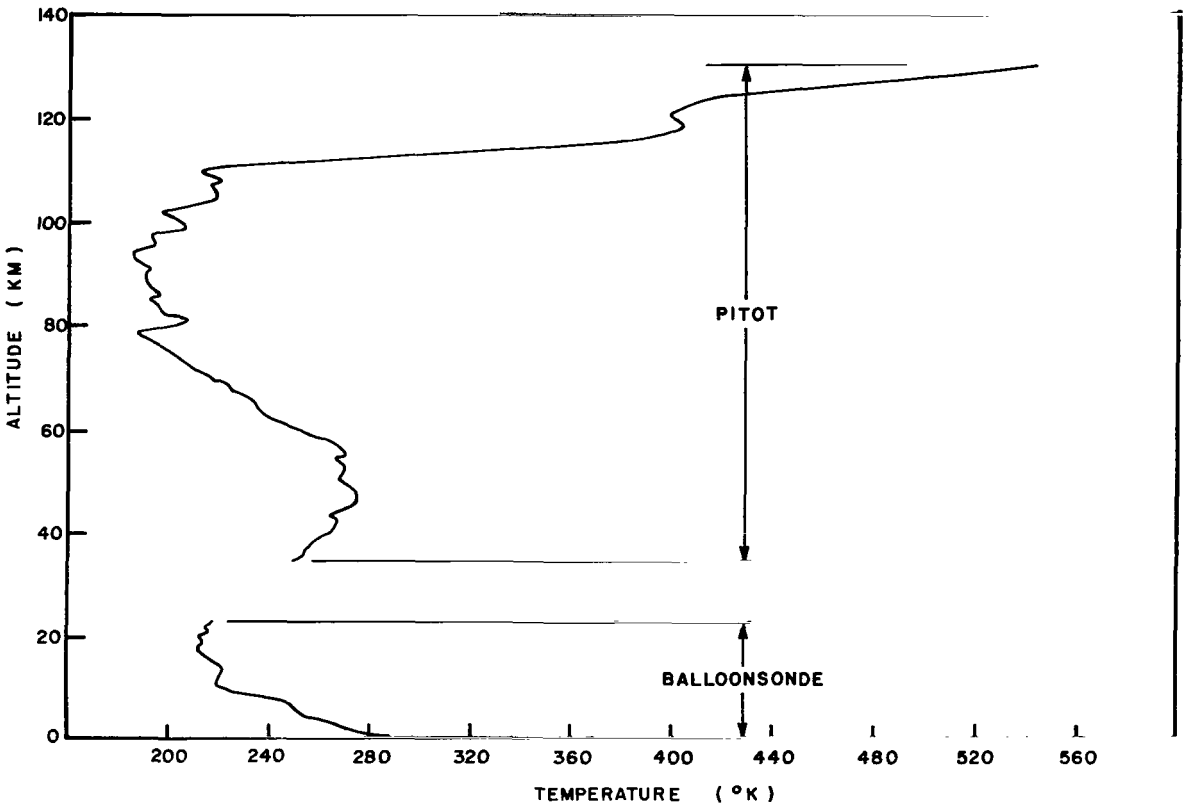


ALTITUDE M MSL	WIND COMPONENTS M/SEC SOUTH COMPONENT	WEST COMPONENT
34000	2.3	3.5
36000	-3.8	-0.3
38000	-7.6	-3.7
40000	-4.2	-5.3
42000	-0.4	-6.8
44000	0.9	-7.3
46000	-3.7	-5.4
48000	-8.7	-3.5
50000	-14.4	-8.6
52000	-18.8	-16.2
54000	-13.9	-17.1
56000	-7.6	-16.9
58000	-5.0	-16.7
60000	-5.0	-16.6
62000	-5.0	-17.7
64000	-4.6	-27.4
66000	-3.1	-38.4
68000	5.1	-48.0
70000	13.0	-57.0
72000	12.7	-63.7
74000	13.5	-58.4
76000	20.8	-14.8
78000	22.2	15.6
80000	10.6	16.9
82000	-21.8	7.3
84000	-12.3	-14.6
86000	-4.4	-34.3
88000	-53.3	-28.0
90000	29.3	2.3

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
33000	235.3	0.769E 03	0.3	0.113E-01	-1.4
34000	239.6	0.665E 03	0.2	0.967E-02	-2.1
35000	244.0	0.574E 03	0.0	0.820E-02	-3.0
36000	248.3	0.502E 03	0.7	0.704E-02	-2.9
37000	252.7	0.440E 03	1.6	0.606E-02	-2.7
38000	256.6	0.385E 03	2.2	0.523E-02	-2.4
39000	259.6	0.338E 03	2.8	0.453E-02	-1.9
40000	262.7	0.296E 03	3.1	0.392E-02	-1.7
41000	265.7	0.261E 03	4.2	0.343E-02	-0.6
42000	268.8	0.231E 03	5.2	0.299E-02	0.1
43000	271.9	0.204E 03	6.0	0.262E-02	0.8
44000	273.5	0.180E 03	6.7	0.230E-02	1.9
45000	273.8	0.159E 03	7.2	0.203E-02	3.5
46000	274.1	0.141E 03	7.7	0.179E-02	4.8
47000	274.4	0.125E 03	7.9	0.158E-02	6.0
48000	274.7	0.110E 03	8.1	0.140E-02	6.5
49000	276.1	0.979E 02	8.4	0.123E-02	6.2
50000	279.5	0.866E 02	8.6	0.108E-02	5.1
51000	282.8	0.769E 02	9.2	0.947E-03	4.4
52000	286.0	0.684E 02	9.9	0.833E-03	4.0
53000	282.2	0.608E 02	10.7	0.751E-03	5.7
54000	278.4	0.539E 02	11.2	0.675E-03	6.9
55000	274.5	0.475E 02	11.3	0.603E-03	7.6
56000	270.7	0.419E 02	11.4	0.540E-03	8.5
57000	266.4	0.370E 02	11.7	0.484E-03	9.7
58000	260.1	0.326E 02	12.1	0.437E-03	11.9
59000	253.7	0.288E 02	12.6	0.395E-03	14.4
60000	247.4	0.254E 02	13.3	0.358E-03	17.1
61000	241.0	0.220E 02	12.0	0.318E-03	17.9
62000	234.7	0.191E 02	10.8	0.283E-03	18.6
63000	230.7	0.165E 02	9.9	0.250E-03	17.7
64000	226.9	0.143E 02	9.3	0.220E-03	17.1
65000	223.0	0.123E 02	7.8	0.192E-03	15.6
66000	219.2	0.106E 02	6.6	0.168E-03	14.5
67000	214.1	0.910E 01	5.6	0.148E-03	14.2
68000	208.9	0.781E 01	4.9	0.130E-03	14.2
69000	203.7	0.660E 01	2.9	0.112E-03	12.9
70000	198.7	0.558E 01	1.2	0.979E-04	11.8
71000	194.5	0.472E 01	-0.2	0.846E-04	10.6
72000	190.3	0.398E 01	-1.6	0.729E-04	9.4
73000	186.1	0.332E 01	-3.8	0.621E-04	7.3
74000	185.2	0.276E 01	-5.7	0.520E-04	3.8
75000	190.7	0.230E 01	-7.2	0.421E-04	-2.7
76000	196.1	0.194E 01	-7.7	0.344E-04	-7.7
77000	201.5	0.164E 01	-7.0	0.284E-04	-11.2
78000	199.8	0.139E 01	-5.9	0.243E-04	-11.3
79000	194.6	0.118E 01	-4.5	0.212E-04	-9.5
80000	189.5	0.995E 00	-3.9	0.183E-04	-8.4
81000	188.2	0.834E 00	-3.2	0.154E-04	-7.1
82000	189.4	0.699E 00	-2.4	0.128E-04	-6.9
83000	190.2	0.587E 00	-1.5	0.107E-04	-6.5
84000	186.8	0.493E 00	-0.5	0.919E-05	-3.8
85000	183.4	0.411E 00	-0.2	0.781E-05	-1.7
86000	186.1	0.342E 00	-0.0	0.641E-05	-3.0
87000	192.8	0.287E 00	0.7	0.519E-05	-5.6
88000	195.7	0.243E 00	2.3	0.432E-05	-5.5
89000	184.6	0.205E 00	3.9	0.387E-05	1.7
90000	173.5	0.169E 00	3.1	0.340E-05	7.3

FIGURE 22

WALLOPS, 12 MAY 1969, 1923 GMT.

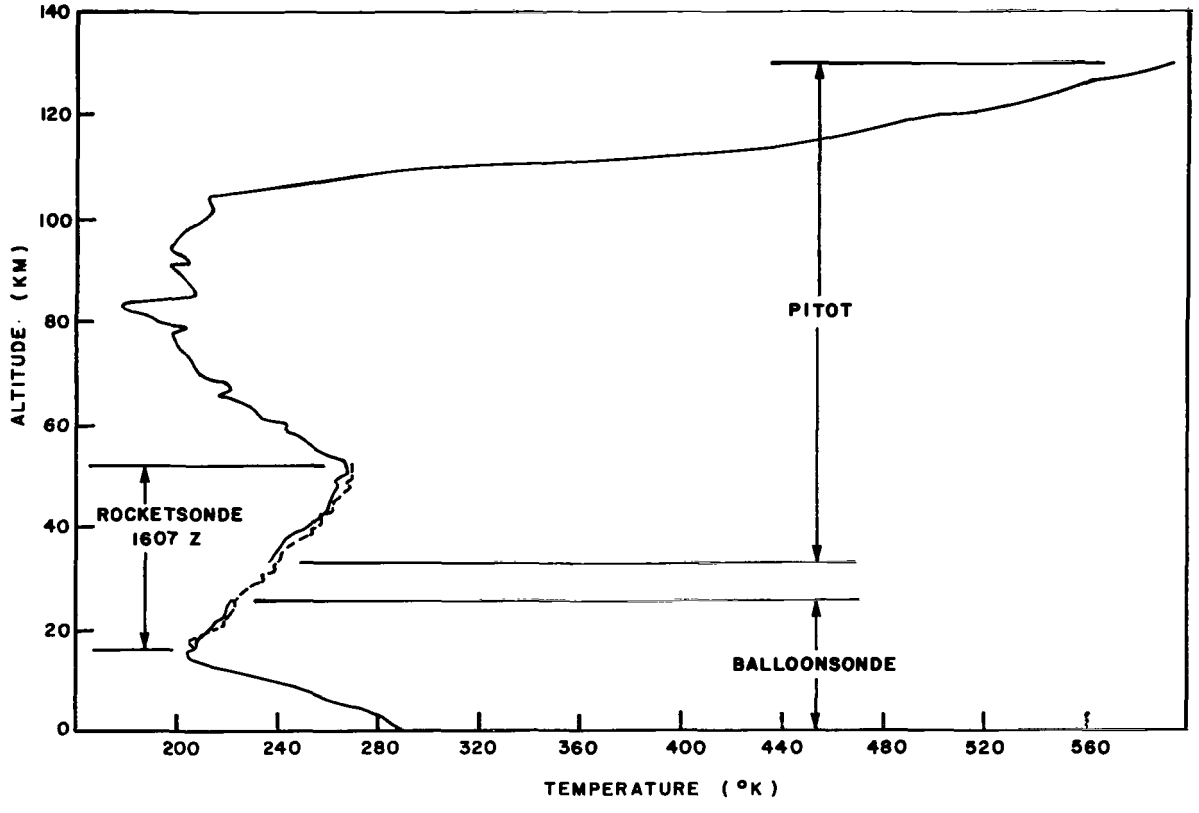


ALTITUDE M MSL	TEMPERATURE DEG K.	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
35000	248.4	0.607E 03	5.8	0.853E-02	0.7
36000	253.7	0.531E 03	6.7	0.730E-02	0.5
37000	254.6	0.465E 03	7.4	0.637E-02	2.1
38000	256.9	0.407E 03	8.1	0.553E-02	3.0
39000	260.8	0.358E 03	9.0	0.478E-02	3.3
40000	263.4	0.314E 03	9.5	0.416E-02	4.1
41000	265.0	0.277E 03	10.4	0.364E-02	5.3
42000	266.4	0.243E 03	10.8	0.319E-02	6.5
43000	264.4	0.214E 03	11.2	0.283E-02	8.8
44000	268.0	0.189E 03	11.6	0.246E-02	8.8
45000	273.4	0.166E 03	11.7	0.213E-02	8.3
46000	273.9	0.147E 03	12.7	0.188E-02	9.6
47000	274.3	0.130E 03	12.8	0.166E-02	10.8
48000	272.0	0.115E 03	12.9	0.148E-02	12.3
49000	269.4	0.102E 03	13.0	0.132E-02	13.4
50000	268.4	0.901E 02	12.9	0.117E-02	13.9
51000	269.2	0.795E 02	12.9	0.103E-02	13.5
52000	269.9	0.702E 02	12.9	0.907E-03	13.2
53000	267.7	0.619E 02	12.8	0.807E-03	13.6
54000	266.1	0.546E 02	12.7	0.716E-03	13.3
55000	269.3	0.482E 02	12.8	0.624E-03	11.2
56000	268.1	0.425E 02	12.9	0.553E-03	11.1
57000	265.2	0.375E 02	13.4	0.493E-03	11.7
58000	261.0	0.330E 02	13.4	0.441E-03	12.8
59000	255.2	0.290E 02	13.5	0.396E-03	14.4

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
60000	252.3	0.254E 02	13.3	0.351E-03	14.7
61000	247.4	0.222E 02	13.0	0.313E-03	15.7
62000	243.9	0.194E 02	12.8	0.277E-03	15.7
63000	239.1	0.169E 02	12.2	0.246E-03	15.7
64000	236.7	0.146E 02	11.5	0.216E-03	14.6
65000	233.3	0.127E 02	11.1	0.190E-03	13.9
66000	231.3	0.110E 02	10.9	0.166E-03	12.8
67000	229.0	0.953E 01	10.6	0.145E-03	11.8
68000	225.6	0.822E 01	10.4	0.127E-03	11.4
69000	224.6	0.709E 01	10.4	0.110E-03	9.9
70000	218.0	0.610E 01	10.6	0.975E-04	11.3
71000	216.0	0.522E 01	10.3	0.843E-04	10.2
72000	211.4	0.447E 01	10.6	0.737E-04	10.6
73000	208.4	0.381E 01	10.3	0.638E-04	10.2
74000	207.3	0.325E 01	10.7	0.546E-04	8.8
75000	203.5	0.275E 01	10.8	0.473E-04	9.1
76000	200.0	0.234E 01	11.4	0.408E-04	9.2
77000	195.2	0.197E 01	11.2	0.353E-04	9.9
78000	190.0	0.166E 01	11.9	0.305E-04	10.9
79000	187.4	0.139E 01	12.5	0.259E-04	10.2
80000	200.5	0.117E 01	13.2	0.204E-04	2.0
81000	207.0	0.998E 00	15.8	0.168E-04	1.0
82000	198.0	0.847E 00	18.2	0.149E-04	7.8
83000	197.8	0.715E 00	20.0	0.126E-04	9.5
84000	194.8	0.603E 00	21.7	0.108E-04	12.9
85000	192.5	0.507E 00	23.1	0.920E-05	15.6
86000	196.8	0.427E 00	24.7	0.758E-05	14.5
87000	194.4	0.361E 00	26.5	0.648E-05	17.7
88000	192.9	0.303E 00	27.9	0.550E-05	20.1
89000	191.1	0.255E 00	29.5	0.467E-05	22.5
90000	190.2	0.214E 00	30.5	0.394E-05	24.2
91000	190.7	0.181E 00	32.3	0.330E-05	27.0
92000	191.0	0.151E 00	32.7	0.277E-05	29.6
93000	188.9	0.127E 00	32.7	0.235E-05	33.2
94000	184.9	0.106E 00	32.3	0.201E-05	37.7
95000	186.1	0.891E-01	31.1	0.167E-05	37.9
96000	194.5	0.747E-01	30.1	0.134E-05	32.9
97000	194.6	0.631E-01	29.7	0.113E-05	34.2
98000	194.2	0.531E-01	28.5	0.954E-06	35.4
99000	207.0	0.450E-01	27.8	0.758E-06	28.2
100000	206.4	0.383E-01	27.6	0.648E-06	30.2
101000	201.3	0.326E-01	26.8	0.565E-06	35.8
102000	197.8	0.275E-01	24.7	0.486E-06	39.1
103000	212.7	0.234E-01	23.0	0.385E-06	30.7
104000	218.4	0.201E-01	22.0	0.322E-06	29.2
105000	218.9	0.173E-01	21.0	0.276E-06	30.3
106000	218.4	0.149E-01	19.8	0.238E-06	31.9
107000	217.8	0.128E-01	17.8	0.205E-06	32.8
108000	220.9	0.110E-01	15.9	0.174E-06	31.5
109000	216.0	0.949E-02	13.5	0.153E-06	34.3
110000	212.9	0.813E-02	10.5	0.133E-06	35.3
111000	220.7	0.697E-02	7.3	0.110E-06	31.5
112000	243.6	0.603E-02	4.8	0.864E-07	20.7
113000	286.5	0.533E-02	3.8	0.648E-07	5.3
114000	324.7	0.478E-02	4.2	0.513E-07	-3.5
115000	358.4	0.434E-02	5.4	0.422E-07	-8.7
116000	379.0	0.397E-02	6.9	0.365E-07	-9.5
117000	392.0	0.365E-02	8.8	0.324E-07	-8.3
118000	398.9	0.335E-02	10.4	0.293E-07	-5.8
119000	403.3	0.309E-02	11.8	0.267E-07	-2.8
120000	401.7	0.285E-02	13.1	0.247E-07	1.3
121000	399.1	0.262E-02	13.8	0.229E-07	8.4
122000	400.8	0.241E-02	13.7	0.210E-07	13.8
123000	406.2	0.222E-02	13.7	0.191E-07	17.8
124000	416.3	0.205E-02	13.1	0.172E-07	19.9
125000	433.1	0.190E-02	13.0	0.153E-07	20.0
126000	448.9	0.175E-02	11.8	0.137E-07	20.1
127000	473.4	0.163E-02	11.4	0.121E-07	18.2
128000	500.6	0.153E-02	11.1	0.107E-07	15.9
129000	519.3	0.143E-02	11.1	0.967E-08	15.7
130000	542.6	0.135E-02	11.3	0.870E-08	14.6

FIGURE 23

WALLOPS, 21 AUGUST 1969, 1539 GMT.



ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
33000	236.0	0.839E 03	9.4	0.124E-01	7.1
34000	237.0	0.727E 03	9.7	0.107E-01	8.2
35000	239.8	0.631E 03	9.9	0.918E-02	8.4
36000	241.5	0.549E 03	10.1	0.792E-02	9.1
37000	241.8	0.477E 03	10.1	0.688E-02	10.3
38000	245.0	0.415E 03	10.3	0.591E-02	10.1
39000	250.2	0.362E 03	10.2	0.505E-02	9.1
40000	252.9	0.317E 03	10.5	0.437E-02	9.3
41000	253.8	0.277E 03	10.4	0.381E-02	10.2
42000	257.7	0.243E 03	10.8	0.329E-02	9.8
43000	259.3	0.213E 03	10.5	0.287E-02	10.4
44000	259.4	0.187E 03	10.9	0.252E-02	11.5
45000	260.9	0.165E 03	10.8	0.220E-02	11.9
46000	261.5	0.145E 03	10.6	0.193E-02	12.6
47000	262.5	0.127E 03	9.8	0.169E-02	12.8
48000	261.9	0.112E 03	9.6	0.149E-02	13.1
49000	264.2	0.986E 02	9.2	0.130E-02	11.7
50000	267.7	0.869E 02	8.9	0.113E-02	10.0
51000	266.8	0.766E 02	8.7	0.100E-02	10.2
52000	266.1	0.675E 02	8.6	0.884E-03	10.3
53000	261.1	0.594E 02	8.2	0.793E-03	11.6
54000	256.1	0.522E 02	7.7	0.710E-03	12.4
55000	254.2	0.457E 02	6.9	0.627E-03	11.8
56000	251.9	0.401E 02	6.5	0.554E-03	11.3

ALTITUDE M MSL	TEMPERATURE DEG K	PRESSURE NT/SQ M	DEVIATION PER CENT	DENSITY KG/CU M	DEVIATION PER CENT
57000	248.0	0.350E 02	5.8	0.492E-03	11.5
58000	243.0	0.305E 02	4.7	0.438E-03	12.0
59000	242.0	0.266E 02	4.1	0.383E-03	10.7
60000	242.3	0.231E 02	3.2	0.333E-03	8.8
61000	239.6	0.201E 02	2.2	0.293E-03	8.3
62000	234.4	0.174E 02	1.2	0.260E-03	8.6
63000	231.5	0.151E 02	0.7	0.228E-03	7.2
64000	229.3	0.131E 02	-0.3	0.199E-03	5.6
65000	222.4	0.113E 02	-1.2	0.177E-03	6.1
66000	216.6	0.970E 01	-2.3	0.156E-03	6.0
67000	221.1	0.831E 01	-3.4	0.131E-03	1.0
68000	220.6	0.715E 01	-3.8	0.113E-03	-0.8
69000	214.0	0.613E 01	-4.4	0.998E-04	-0.1
70000	209.6	0.523E 01	-5.0	0.870E-04	-0.6
71000	208.0	0.446E 01	-5.6	0.747E-04	-2.2
72000	207.4	0.379E 01	-6.1	0.638E-04	-4.1
73000	205.2	0.322E 01	-6.5	0.548E-04	-5.3
74000	202.3	0.274E 01	-6.5	0.472E-04	-5.8
75000	200.7	0.231E 01	-6.8	0.403E-04	-7.0
76000	199.6	0.195E 01	-6.8	0.343E-04	-8.1
77000	199.0	0.166E 01	-6.0	0.291E-04	-9.3
78000	203.7	0.141E 01	-5.0	0.241E-04	-12.3
79000	199.1	0.119E 01	-3.8	0.209E-04	-11.0
80000	192.9	0.100E 01	-2.8	0.182E-04	-8.9
81000	187.8	0.846E 00	-1.7	0.167E-04	0.4
82000	180.9	0.706E 00	-1.4	0.136E-04	-1.5
83000	177.6	0.586E 00	-1.6	0.115E-04	0.0
84000	182.4	0.486E 00	-1.8	0.930E-05	-2.7
85000	208.6	0.410E 00	-0.4	0.685E-05	-13.8
86000	207.9	0.349E 00	1.8	0.586E-05	-11.4
87000	205.5	0.297E 00	4.1	0.505E-05	-8.2
88000	203.7	0.253E 00	6.6	0.433E-05	-5.4
89000	201.3	0.214E 00	8.6	0.372E-05	-2.3
90000	199.5	0.182E 00	11.1	0.318E-05	0.3
91000	196.4	0.154E 00	12.8	0.273E-05	5.0
92000	204.8	0.130E 00	13.9	0.222E-05	3.8
93000	200.9	0.110E 00	15.4	0.192E-05	8.9
94000	196.7	0.937E-01	16.1	0.166E-05	13.7
95000	198.5	0.791E-01	16.4	0.139E-05	14.7
96000	199.6	0.670E-01	16.6	0.117E-05	16.0
97000	201.2	0.569E-01	16.8	0.984E-06	16.9
98000	203.2	0.482E-01	16.6	0.827E-06	17.4
99000	209.1	0.410E-01	16.5	0.684E-06	15.7
100000	211.9	0.350E-01	16.5	0.577E-06	16.0
101000	212.1	0.299E-01	16.4	0.493E-06	18.5
102000	213.2	0.257E-01	16.3	0.420E-06	20.2
103000	213.5	0.219E-01	15.3	0.359E-06	21.9
104000	212.3	0.187E-01	13.9	0.309E-06	23.9
105000	222.5	0.161E-01	12.6	0.253E-06	19.5
106000	240.3	0.139E-01	12.3	0.203E-06	12.5
107000	254.0	0.122E-01	12.6	0.168E-06	8.8
108000	272.6	0.107E-01	13.4	0.138E-06	4.3
109000	285.6	0.959E-02	14.8	0.117E-06	2.7
110000	308.6	0.858E-02	16.7	0.969E-07	-1.4
111000	335.3	0.774E-02	19.2	0.805E-07	-3.7
112000	366.7	0.705E-02	22.4	0.670E-07	-6.3
113000	393.8	0.646E-02	25.9	0.572E-07	-7.0
114000	417.0	0.595E-02	29.7	0.498E-07	-6.4
115000	437.0	0.551E-02	33.9	0.440E-07	-4.8
116000	453.1	0.513E-02	38.2	0.394E-07	-2.3
117000	466.8	0.477E-02	42.2	0.356E-07	0.6
118000	478.4	0.445E-02	46.3	0.324E-07	4.1
119000	487.6	0.415E-02	50.3	0.297E-07	8.0
120000	501.9	0.389E-02	54.3	0.270E-07	10.8
121000	516.4	0.365E-02	58.3	0.246E-07	16.4
122000	527.8	0.342E-02	61.5	0.226E-07	22.5
123000	536.5	0.322E-02	64.7	0.209E-07	28.9
124000	546.8	0.302E-02	66.8	0.193E-07	34.5
125000	555.4	0.285E-02	69.2	0.179E-07	40.3
126000	561.3	0.269E-02	71.2	0.167E-07	46.4
127000	570.7	0.254E-02	73.1	0.155E-07	51.5
128000	580.2	0.239E-02	74.0	0.144E-07	56.0
129000	589.5	0.226E-02	74.8	0.134E-07	60.4
130000	593.1	0.214E-02	75.7	0.126E-07	66.0

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