NASA TN D-1569

TECHNICAL NOTE

D-1569

MONTHLY AND ANNUAL WIND DISTRIBUTIONS AS A FUNCTION OF ALTITUDE FOR SANTA MONICA, CALIFORNIA (PACIFIC MISSILE RANGE)

By J. W. Smith

George C. Marshall Space Flight Center
Huntsville, Alabama

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON

January 1963

code 1
copy #1

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

TECHNICAL NOTE D-1569

MONTHLY AND ANNUAL WIND DISTRIBUTIONS AS A FUNCTION OF ALTITUDE FOR SANTA MONICA, CALIFORNIA (PACIFIC MISSILE RANGE)

By J. W. Smith

SUMMARY

Wind and wind shear based on four daily rawinsonde observations for five years of record at Santa Monica, California, have been serially completed, analyzed, and tabulated at standard cumulative percentage frequency (cpf) levels for each kilometer of altitude up to 27 km.

The median annual Santa Monica wind speed varies from 2 m/sec at the surface to about 24 m/sec at 12 km altitude. The median speed then decreases with altitude to less than 6 m/sec in the 20-22 km level, after which it gradually increases with altitude. Wind speeds vary from calm, which is frequent near the surface, to an extreme of 89 m/sec at 12 km altitude. This extreme occurred on March 26, 1958. Winds are lower in summer than in winter. Speeds of 50 m/sec are rare in summer, and do not occur as much as 1 percent of the time, at any altitude, from July through September. In January and February wind speeds $\geq$ 50 m/sec are recorded more than 13 percent of the time in the maximum wind speed region (11 to 13 km altitude).

In the first kilometer northeasterly winds prevail in all months. From the land-sea breeze layer to about 16 km, westerly winds prevail in all seasons. These winds are southwesterly from May through September and northwesterly in the colder months. Above 16 km, easterly winds prevail in summer, and the speed increases with altitude.

Westerly winds are stronger than easterly winds except near 13 km altitude in summer, andnortherly winds are generally stronger than southerly winds.

The wind shear is not directly proportional to wind speed; but, as a rule, the highest shears for altitudes $\leq$1000 m are found in regions of highest wind speeds. The median wind shear is high in the friction layer (near the surface) after which it decreases to about 7 km altitude. The wind shear then increases to its highest median value of about 0.005 per second (per 1000 m layer) in the 10-17 km region. The highest shear observed in this five-year period was 0.0414 per second. This occurred in the 13 to 14 km layer on February 1, 1960. In the lower stratosphere, shear decreases to about half of its tropospheric peak. Zonal wind shears are greater than meridional wind shears at comparable levels, and winter wind shears are stronger than summer wind shears.

SECTION I. INTRODUCTION

Accurate and reliable information on the horizontal wind environment in a detailed form convenient for engineering uses is required for various problems in the field of missile and space vehicle design and performance, as well as for range safety. In general, the vertical wind environment may be neglected (Ref. 1) except for elastic body study wherein gusts and turbulence features of the atmosphere must be included. A wind analysis (Ref. 2) has been made for Santa Maria, California, about 150 km northwest of Pt. Mugu. The wind record for Pt. Mugu is too brief for statistical analysis. To obtain more valid statistical wind information, a study was accomplished based on a five year period of rawinsonde observations made at Santa Monica, California, located about 60 km west-southwest of Pt. Mugu.

The local geographical features are such that the surface wind and winds in the frictional layer (below about 2 km) at Santa Monica, California, are probably not representative of the other stations in the Pacific Missile Launch Area (Fig. 1). However, the upper level winds appear to be sufficiently similar (Ref. 3) to warrant use of the Santa Monica, California, observations to provide statistical values representative of the Pacific Missile Range Launch Area. This is especially true when the short period of record for reliable data at the nearby stations is taken into consideration.

Relatively new techniques have been employed to minimize the inaccuracies common to most high altitude wind studies. These techniques include serial completion of the wind observations to 27 km altitude and elimination of gross errors by methods described in Ref. 4. Five years' record is still not sufficient to cover all possible wind variations, so uncertainties may still exist in some details of the wind distributions. This is, however, the most detailed statistical analysis currently available, which represents the larger scale wind flow characteristics in the Pacific Missile Range Launch Area.

The information presented in this report is the result of wind environment investigations conducted by the Aerophysics and Astrophysics Branch, Aeroballistics Division, Marshall Space Flight Center for application to space vehicle design studies. The contributions of Messers. Paul Harness and Dick Moore, in performing the statistical computations necessary to produce the tabular values used in this report, are gratefully acknowledged. The idealized percentages of selected wind speeds in the maximum wind speed region were determined by Mr. G. E. Daniels.

SECTION II. SOURCE OF DATA

Upper air observations by the AN/GMD-1A sounding system were made at Long Beach and Santa Monica, California, from January 1, 1956, to April 17, 1956. The Long Beach, California, observations were made at 0300, 0900, 1500, and 2100 GCT. However, the bulk of the observations were made at Santa Monica, California, about 60 km west-southwest of Pt. Mugu. They began on April 18, 1956, and continued through December 31, 1960. After May 31, 1957, the observations were changed to 0000, 0600, 1200, and 1800 GCT.

The raw data were obtained on punched cards from the National Weather Records Center at Asheville, North Carolina. The four daily observations were serially completed at 1 km intervals up to 27 km altitude by the National Weather Records Center under contract to NASA, Marshall Space Flight Center, Aeroballistics Division. In order to complete the data it was necessary to insert missing or prematurely terminated observations by interpolation, extrapolation, or by the transfer of data from nearby Pt. Mugu or San Nicolas Island, California.

The interpolations and extrapolations were made through time and three-dimensional space considerations. Off-time and nearby station data were used in conjunction with the originally observed data to perform height-time cross-sectional and horizontal analyses. The height-time cross section was the principal analysis record used. It was prepared for the entire period of record. The original observations were plotted at their respective time intervals for each level of the cross section. The wind direction was plotted to the nearest degree while the wind speed was plotted to the nearest meter per second. An isotach analysis of the data not only provided the missing grid point values, but aided in finding computational errors in the original data. Original wind values were changed only when they were considered definitely erroneous (determined through examination of original computation forms), or they could not have occurred when consideration was given to the synoptic features at the time. All work was performed by professional meteorologists under the supervision of Dr. Harold Crutcher, National Weather Records Center, and Mr. Orvel E. Smith, Marshall Space Flight Center.

A unique feature of the serially complete wind records is the inclusion of a coded identifier to distinguish the data characteristics for each level of each observation. The code indicates whether the data were observed, corrected observed (transferred), interpolated or extrapolated.

SECTION III. METHOD OF COMPUTATION AND PRESENTATION

Except for a few minor computer program modifications, the data in this report were computed and presented in the same manner as the wind distributions for the Atlantic Missile Range at Cape Canaveral, Florida (Ref. 5). Since wind distributions are generally not normal, that is, not Gaussian, the multiples of standard deviation have been avoided in favor of the corresponding levels of cumulative percentage frequency (cpf). For example, the value of the variate of 84.1 cumulative percentage frequency corresponds to the mean plus one (1) standard deviation for a normal distribution. For zonal and meridional wind components, plus and minus signs are used to indicate wind direction. Therefore, negative wind values may exceed the positive winds.

All wind distribution tables are arranged to show the highest and lowest values observed, plus the 11 following percentage levels of the probability of occurrence: 0.135, 2.28, 15.9, 50, 68, 84.1, 90, 95,

97.72, 99, and 99.865 percent. Blanks are frequent in the 0.135 and 2.28 cpf columns because extrapolations were not made to fill them. In the monthly cases, one observation is more than 0.135 percent of the data. Hence, the 0.135 percent column is blank for all monthly tabulations.

The wind distribution data have been arranged in 10 sets of tables by monthly and annual reference periods.

To determine the vector wind shears, the partial derivative of the wind vector with respect to altitude is computed over 1000 m altitude intervals by the formula:

$$S = \frac{\sqrt{\Delta W_x^2 + \Delta W_z^2}}{\Delta h}$$

where ΔW_x is the zonal wind finite difference $(W_{x_n} - W_{x_{n-1}})$ and ΔW_z is the meridional wind finite difference $(W_{z_n} - W_{z_{n-1}})$ between two altitude levels with $\Delta h = 1000$ m. Shears are first computed for the individual wind profiles: then shear frequency distributions are tabulated as for other wind data.

The zonal and meridional shears are computed by taking the partial derivative of their respective wind components with respect to altitude over 1000 m altitude intervals.

For a quick visual presentation of Pacific Missile Range wind data a time altitude cross section of the median zonal wind components is shown in Fig. 2, and the median meridional components are similarly presented in Fig. 3. The data used in Fig. 4 were obtained from the Scalar Wind Distribution Tables (Tables I-2 through I-13). The altitude of the high wind speed layer was found to vary inversely with the wind speed. Therefore, it was necessary to use different altitude layers for the various wind speeds selected. The information in Fig. 4 should be useful in making judgments relative to limiting vehicle tests based on wind speeds in the maximum wind speed region between 8 and 14 km. Also, the graph shows the seasonal dependence of high wind speeds.

The values in Fig. 4 were obtained by averaging wind speeds for each cumulative percentage frequency throughout the maximum wind speed region for each month. The interpolation of the percentage values for the selected wind speeds (idealized) was made by use of normal probability graph paper. The irregularity of the data for speeds of 68 and 80 m/sec may be caused by the small size of the sample or it may be due to a transition of weather regimes. Further study will be needed to clarify this point.

SECTION IV. ACCURACY OF DATA

A. GENERAL CHARACTERISTICS

Rawinsonde observations are subject to various errors. These errors have been treated in detail by various authors (Refs. 6, 7, 8, 9, 10, 11, 12, 13, and 14). When working with a large volume of rawinsonde data on punched cards, it is impossible to eliminate all errors. Errors, which give rise to extreme and obviously erroneous wind data, can often be traced to punched card errors or to elevation angles so low as to render accurate computation impossible. In this study, the larger errors in the wind data have been detected and eliminated by methods described in Ref. 4.

To avoid bias in the wind data due to decrease in number of observations with altitude, the observations in this study were made serially complete. This was accomplished by filling in the relatively few short or missed observations by interpolation, extrapolation, or transfer of data from nearby stations. The Santa Monica, California, data were serially completed to 27 km by the National Weather Records Center as described in Section II. In order to minimize bias in wind distribution computations due to calms (wind speeds of less than $\frac{1}{2}$ m/sec, assigned the value of zero), whenever the wind was divided into components, one-half of all calms were arbitrarily assigned to each component.

In spite of all corrections it should be understood that errors exist and, in general, they increase with wind speed, altitude, and distance of balloon from point of observation. Hence data below 10 km altitude may be considered reasonably accurate, but data at higher levels are questionable under some observational conditions. Insofar as was technically feasible, we have endeavored to correct and verify questionable data points. Computed cumulative percentage frequency values nearest the median are most reliable, but accuracy decreases toward the outer limits of the frequency distribution and little statistical confidence can be assigned to extreme values. A five year period of observation is not extensive enough to show all possible wind variations. The methods which were used to compute this wind distribution are, for the most part, described in Ref. 15.

B. WIND SPEED

The U.S. Army Signal Research and Development Laboratory (Ref. 13) computed the rms vector error of wind speed at 12 km altitude with a 6 degree elevation angle to exceed 9 m/sec. This elevation angle is sometimes observed with high wind speeds. Most winds are of lower speed and will have smaller errors. An rms error of about 1.5 m/sec is applicable for wind velocity measurements at lower altitudes.

C. WIND SHEAR

The fact that shear is computed to four decimal places is not to be construed as a measure of the accuracy of the data. A study by Salmela and Sissenwine (Ref. 14) shows that the AN/GMD-1A system may provide wind and wind shear observations with relatively large errors. As noted earlier, considerable effort was made to resolve all questionable data points and, thereby, hopefully prevent the inclusion of data with large errors. Shear errors are greater for the smaller intervals of altitude. Since the shear values in this study were computed for 1000 m intervals, they are as reliable as can reasonably be determined from the basic raw data. If the measurement errors can be considered as random occurrences, then the resulting statistics on wind and wind shears can be considered to be highly representative of the central tendency, i.e., mean or median. On the other hand, if the basic measurements have unknown bias errors then the statistics as presented, in this report, are also subject to the effects of the bias errors.

SECTION V. DISCUSSION OF DATA

A. WIND SPEED

The Santa Monica median annual wind speed varies from 2 m/sec at the surface to about 24 m/sec at 12 km altitude (Table I-1). The median wind speed then decreases with altitude to less than 6 m/sec in the 20-22 km level, after which it gradually increases with altitude to 9 m/sec at 27 km. The wind speeds will continue to increase with altitude above this level as similar to the winds for the Atlantic Missile Range (Ref. 11). Winds near calm may be encountered at almost any altitude. Calms are especially frequent at the surface. February is

the windiest month of the year in the high speed wind region (Fig. 3) from 9 to 13 km. However, at Cape Canaveral, March is the strongest wind month (Ref. 5). The highest wind observed in this five year period was 89 m/sec which occurred at 12 km altitude on March 26, 1958. Winds almost as high occurred in all winter months, but during the summer a wind of 50 m/sec was quite rare and occurred less than one percent of the time from July through September. Winds of ≥ 50 m/sec occur more than 10 percent of the time in winter in the high speed wind region near 11 km altitude. The highest wind reported in July was 51 m/sec at 12 km altitude.

B. WIND DIRECTION

From the median zonal wind component chart (Fig. 2 and Table II) and the median meridional wind component chart (Fig. 3 and Table III), it may be seen that northeasterly winds prevail throughout the first km in all seasons. In late fall the northeasterly winds prevail up to about 3 km altitude. These low level northeasterly winds are caused by the land and seabreeze effect expected at any coastal location. Above the land and seabreeze layer, westerly winds prevail throughout the year to 16 km altitude. These winds are southwesterly from May through September and west or northwesterly in the colder months. The southerly wind component is quite strong in mid-summer, reaching a median speed of 9 m/sec at 13 km altitude in August. This is caused by a high pressure area, which is centered over the south central states at high levels in summer, and a low pressure trough along the east Pacific Coast (Ref. 16). This high-low pressure system reverses in winter to give mostly westerly winds with a small northerly component. Above 20 km altitude, easterly winds prevail in summer and their speed increases with altitude similar to the winds over the Atlantic Missile Range.

For the altitudes studied here, easterly winds are not generally as strong as westerly winds (Tables IV and V). Median values of easterly wind components are less than 4 m/sec in the troposphere and rarely exceed 30 m/sec maximum speed at any altitude, whereas the median westerly wind components reach 19 m/sec at 12-13 km, and an extreme westerly component of 87 m/sec was recorded at 11 km in February.

At most levels the median values of southerly wind components are slightly less than for northerly wind components at comparable

levels (Tables VI and VII), although the differences are not as large as between easterly and westerly components. The extreme northerly wind component recorded was 79 m/sec at 8 km altitude in December as compared to an extreme southerly component of 64 m/sec, which occurred at an altitude of 10 km in April.

Since Santa Monica is about 60 km east-southeast of Pt. Mugu (Fig. 1), the wind data in this analysis may differ from Pt. Mugu winds in a number of ways although large differences are not expected in the upper altitude layers. An analysis of upper level winds made for Vandenberg Air Force Base and based on five years of wind observations at Santa Maria, California, has been made by Pitchford (Ref. 2). Santa Maria is about 150 km northwest of Pt. Mugu. A comparison with the Santa Monica winds is difficult because of differences in the method of computation and the different reference periods employed. Wind shears are not given in the Vandenberg Air Force Base study (Ref. 2).

C. WIND SHEAR

From Table VIII it may be seen that the median vector wind shear is large in the friction layer near the earth's surface, followed by a moderate decrease to about 7 km altitude. The median then increases to about 0.005 per second in the 8-17 km altitude region where the strongest winds in the troposphere are found. In the lower stratosphere to about 20 km altitude, the vector wind shear gradually decreases to about one-half of the peak tropospheric values. Extreme vector wind shears increase steadily from about 0.02 per second near the surface to about 0.04 per second near 13 km altitude followed by a gradual decrease to about 0.02 per second near 21 km. The extreme shear observed in this five year period was 0.0414 per second, which occurred between 13 and 14 km altitude in February. Winter wind shears are generally stronger than summer wind shears at comparable levels as would be expected from the stronger winter winds.

While vector wind shears are largest in the high wind speed region, shear is not perfectly correlated with wind speed. This is especially true for wind shear over the smaller altitude intervals (i.e. < 1000 m). Vector wind shear, in part, is a function of change in wind direction. The rate of wind direction change with respect to altitude can be greater for low speeds than for high wind speeds. Hence, vector wind shear values for low wind speeds may be as large as shears for high wind speeds.

Zonal wind shears (Table IX) are greater than meridional wind shears (Table X), as would be expected from the stronger zonal wind components. The difference between the zonal and meridional wind shears is generally not large except above 15 km altitude. Above 15 km altitude the median zonal wind shear components are very large, and they exceed the median meridional shears by as much as 66 percent in the 19-20 km level.

SECTION V. RECOMMENDATIONS

In view of the limitations of wind observations, it is recommended that consideration be given to the use of either the 95 or 99 percent monthly values for space vehicle design criteria in preference to the use of extreme values. In monthly tabulations, use of the 99.865 percent profile should also be avoided since it is almost identical with the extreme profile. Observe, for example, in the July vector wind shear distribution (Table VIII), how the extreme and quite possibly erroneous shear value at 14-15 km is avoided by use of the more statistically reliable 99 percent cumulative percent frequency.

It should be noted that the wind statistics, as defined in this report, do not represent the random "turbulent or gust" characteristics of the wind profile. These characteristics are filtered out by the basic measuring system and data reduction techniques. Therefore, an allowance must be made to incorporate the turbulence or gust characteristics into the control and structural design studies, especially for the elastic body analysis. This may be accomplished in several different ways, depending upon the design philosophy employed. However, when allowances for the turbulent or gust characteristics have been made, then the basic wind flow statistics in this report may be used to establish design criteria.

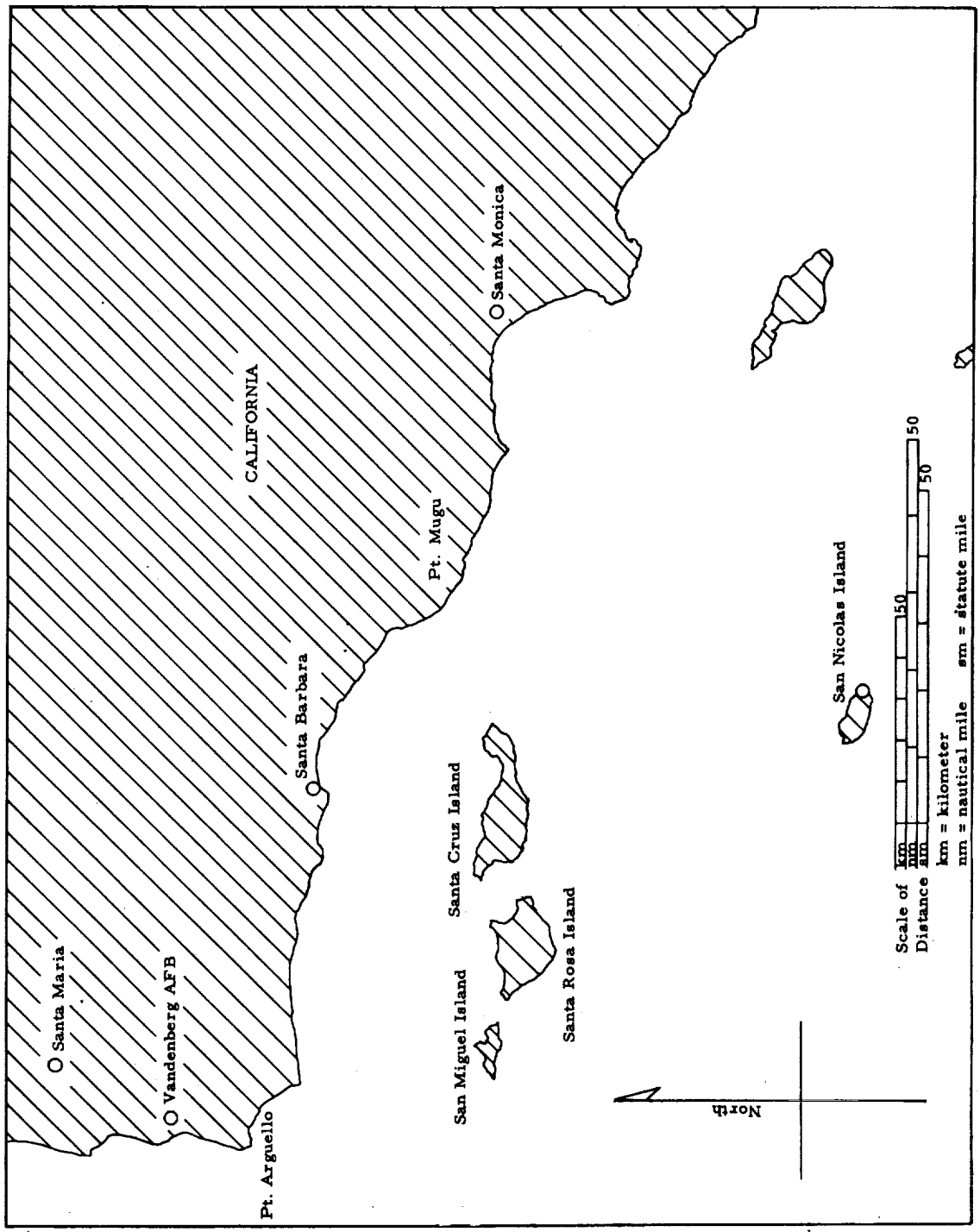

FIGURE 1. PACIFIC MISSILE RANGE LAUNCH AREA LOCATOR MAP

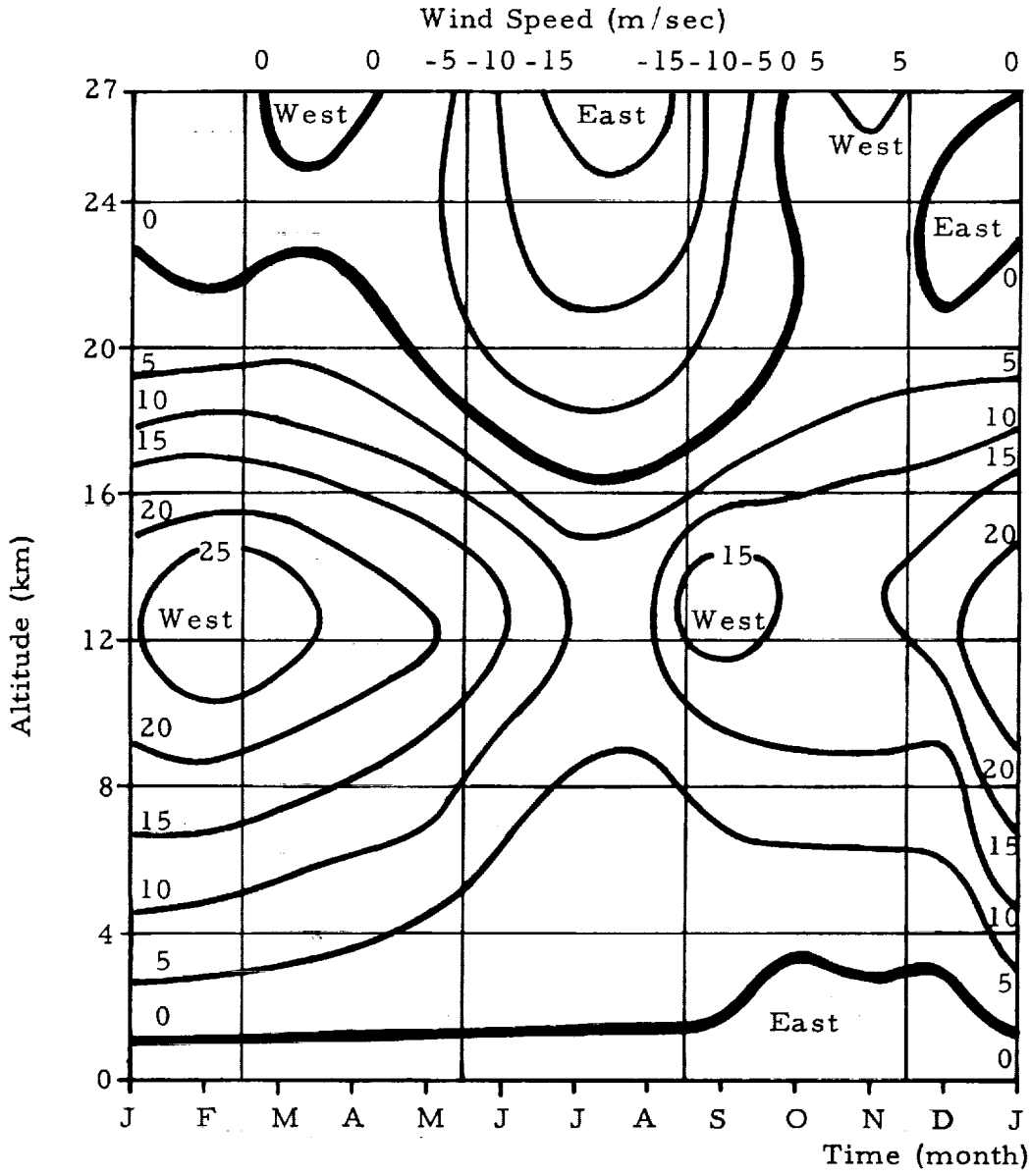

FIGURE 2. MEDIAN ZONAL WIND COMPONENT
SANTA MONICA, CALIFORNIA

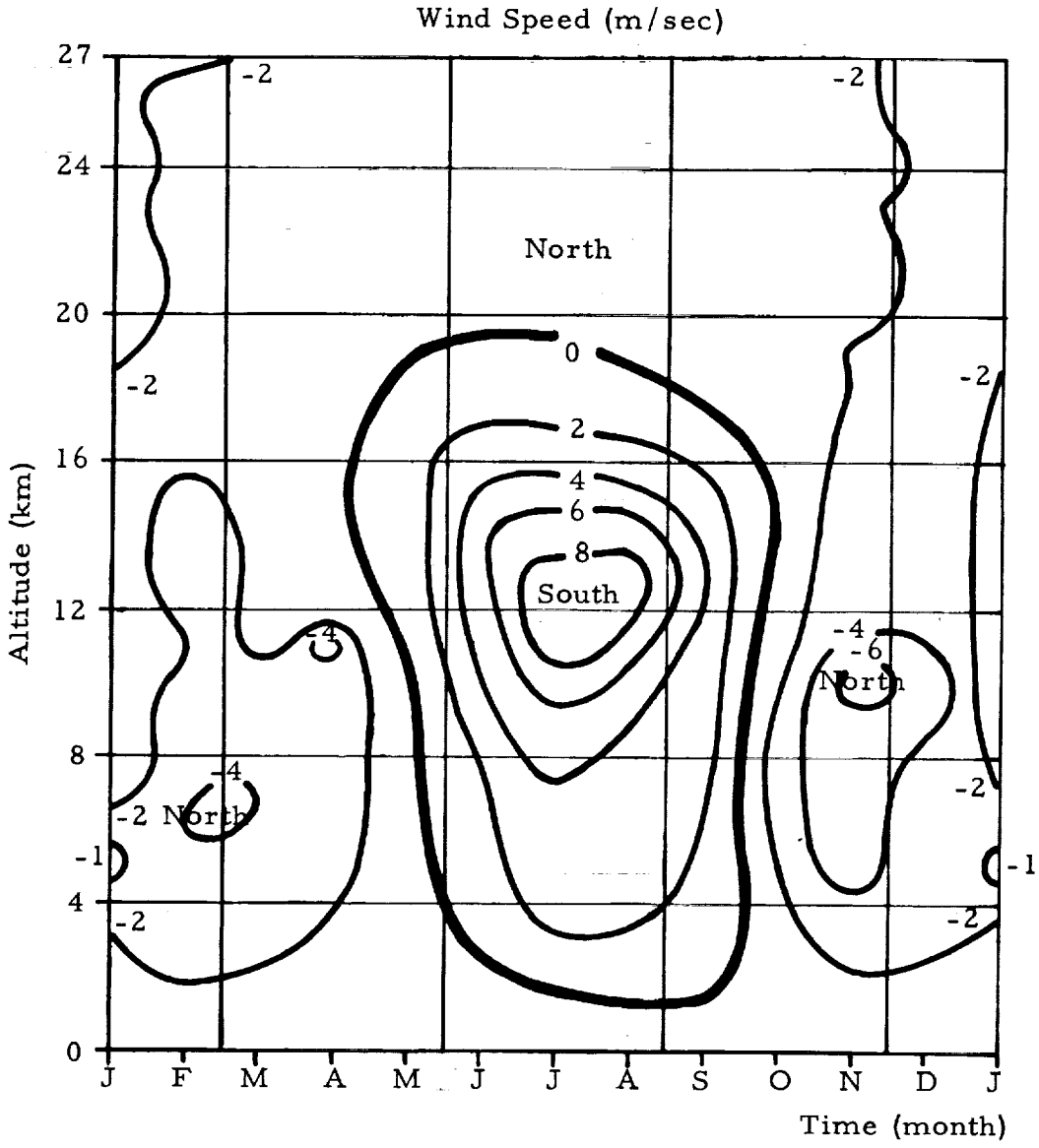

FIGURE 3. MEDIAN MERIDIONAL WIND COMPONENT
SANTA MONICA, CALIFORNIA

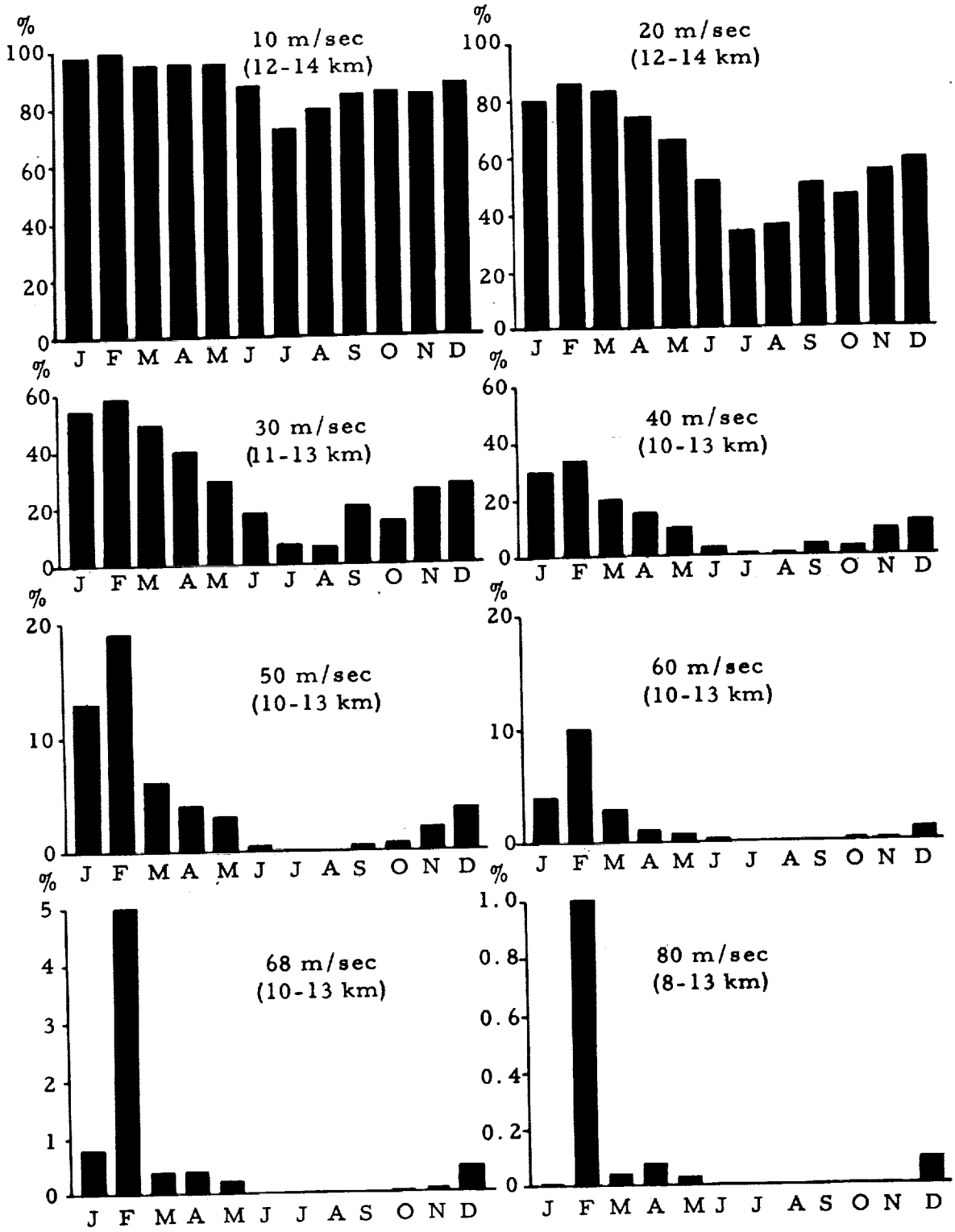

FIGURE 4. PERCENTAGE OF TIME THAT SELECTED WIND SPEEDS ARE EXCEEDED IN THE HIGHEST WIND SPEED ZONE (TROPOSPHERE); SANTA MONICA, CALIFORNIA

TABLE I

Page

Distribution of Scalar Winds

Unit: meters per second

TABLE I-1 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: ANNUAL

SANTA MONICA, CALIFORNIA
ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	17.16				2.0	2.9	4.5	5.2	6.1	7.4	8.5	12.5	22.0	0.01	sfc
1	calm	1.87		0.0	1.0	2.6	3.7	5.5	6.7	8.7	10.8	13.2	17.7	23.0	0.01	1
2	calm	0.27		0.4	2.1	4.7	6.4	8.7	10.1	12.2	14.4	16.8	23.1	29.0	0.01	2
3	calm	0.14		1.0	3.2	7.0	9.4	12.8	14.7	17.4	20.2	22.9	30.0	41.0	0.01	3
4	calm	0.08	0.0	1.0	3.9	8.6	11.9	16.2	18.8	21.9	25.0	28.8	38.0	50.0	0.01	4
5	calm	0.11	0.0	1.2	4.2	10.1	13.9	19.1	22.2	26.4	30.6	35.2	46.5	60.0	0.01	5
6	calm	0.05	0.0	1.5	4.9	11.8	16.0	22.2	25.7	30.7	36.1	42.4	56.1	68.0	0.01	6
7	calm	0.04	0.1	1.8	5.8	13.5	18.3	25.3	29.3	35.2	41.8	49.6	63.1	81.0	0.01	7
8	1.0	0.51		2.2	6.9	15.6	21.2	28.9	33.4	39.7	47.5	54.8	70.1	85.0	0.01	8
9	1.0	0.34		2.6	7.9	17.9	24.0	32.0	37.0	43.7	51.7	59.2	70.5	88.0	0.01	9
10	calm	0.01	0.4	3.1	9.3	20.4	27.0	35.4	40.1	47.5	55.2	61.4	75.7	86.0	0.03	10
11	1.0	0.33		3.7	10.8	22.5	29.3	37.7	42.5	50.5	59.7	66.6	79.0	88.0	0.01	11
12	calm	0.01	1.0	4.2	11.5	23.5	30.0	37.4	42.1	49.7	57.8	66.3	79.1	89.0	0.01	12
13	1.0	0.11	1.0	4.2	11.8	22.9	28.7	35.6	39.7	46.5	53.3	59.2	75.1	83.0	0.01	13
14	1.0	0.12	1.0	4.1	10.7	20.9	26.0	32.0	35.7	41.1	47.0	52.9	63.1	72.0	0.04	14
15	1.0	0.21		3.1	9.0	17.7	22.0	27.4	30.6	35.0	39.8	44.8	55.0	64.0	0.03	15
16	calm	0.03	0.2	2.3	6.6	14.1	18.2	23.0	25.8	29.6	33.4	38.4	46.3	56.0	0.01	16
17	calm	0.04	0.1	1.5	4.3	10.3	14.1	18.6	20.9	24.3	28.4	32.4	39.5	42.0	0.04	17
18	calm	0.08	0.0	1.0	3.2	7.5	10.3	14.2	16.7	19.7	23.3	27.0	32.2	42.0	0.01	18
19	calm	0.14		0.9	2.7	6.1	8.1	10.9	12.9	16.0	18.8	22.3	31.2	36.0	0.03	19
20	calm	0.19		0.7	2.4	5.5	7.4	9.8	11.3	13.4	16.3	19.8	27.0	33.0	0.01	20
21	calm	0.31		0.5	2.3	5.4	7.5	10.2	11.6	13.3	15.7	18.0	26.5	31.0	0.04	21
22	calm	0.33		0.5	2.3	5.8	7.9	11.0	12.3	14.1	16.4	19.6	27.0	33.0	0.01	22
23	calm	0.36		0.6	2.5	6.3	8.7	11.8	13.3	15.3	17.6	21.1	27.4	32.0	0.01	23
24	calm	0.29		0.6	2.6	6.8	9.6	13.0	14.7	16.6	18.9	21.9	27.3	33.0	0.01	24
25	calm	0.23		0.7	2.8	7.4	10.6	14.1	15.9	17.8	20.4	23.9	30.7	36.0	0.03	25
26	calm	0.36		0.8	3.1	8.2	11.6	15.4	17.0	19.4	22.5	26.6	33.8	43.0	0.01	26
27	calm	0.33		0.8	3.4	9.1	12.6	16.5	18.3	21.2	25.1	29.5	36.6	51.0	0.01	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

D-1569

TABLE I-2 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JANUARY

SANTA MONICA, CALIFORNIA

JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	22.10				1.8	2.7	3.8	4.6	5.8	7.3	8.9	10.1	11.0	0.16	sfc
1	calm	4.84			1.1	3.1	4.6	7.0	8.4	11.2	13.4	14.9	18.5	19.0	0.32	1
2	calm	0.81		0.5	2.7	6.1	7.9	10.5	12.1	14.0	16.3	17.9	23.1	24.0	0.16	2
3	calm	0.16		2.0	5.0	10.1	12.6	16.4	18.5	21.1	22.8	26.3	32.1	33.0	0.16	3
4	calm	0.16		2.8	6.9	13.5	17.1	21.5	23.4	26.6	29.3	31.4	38.1	39.0	0.16	4
5	calm	0.16		2.7	8.2	16.0	21.2	25.9	28.7	32.5	35.4	38.4	44.1	45.0	0.16	5
6	2.0	0.48		3.5	10.3	18.8	24.2	29.6	33.0	36.4	40.1	42.8	60.1	61.0	0.16	6
7	calm	0.16		5.3	11.9	21.5	27.0	33.4	36.2	41.1	48.4	56.8	74.1	75.0	0.16	7
8	3.0	0.65		6.4	13.7	24.7	30.7	37.4	41.7	47.8	54.7	60.8	70.1	71.0	0.16	8
9	5.0	0.81		7.5	15.6	27.7	34.2	41.3	46.7	54.7	61.8	64.8	70.1	71.0	0.16	9
10	4.0	0.32		9.1	17.5	30.0	36.7	46.2	51.2	58.3	61.5	65.7	67.1	68.0	0.16	10
11	2.0	0.16		9.1	19.0	31.9	38.8	47.9	56.1	61.4	66.2	69.2	73.5	74.0	0.32	11
12	7.0	0.48		9.9	19.2	32.0	38.5	48.9	54.5	60.8	67.2	70.1	75.1	76.0	0.16	12
13	6.0	0.16		11.2	19.3	29.2	36.0	45.0	51.2	55.8	60.2	66.9	81.1	82.0	0.16	13
14	7.0	0.32		10.7	17.3	26.7	32.4	39.9	45.0	49.5	54.2	59.2	71.1	72.0	0.16	14
15	7.0	0.48		9.6	15.3	24.0	28.1	33.9	37.7	40.7	45.9	49.6	57.1	58.0	0.16	15
16	4.0	0.16		7.5	13.2	19.9	23.4	27.1	29.4	33.0	39.4	41.9	55.1	56.0	0.16	16
17	1.0	0.32		4.6	9.8	16.3	19.4	22.2	24.5	28.8	32.9	35.9	41.1	42.0	0.16	17
18	1.0	0.32		3.0	6.9	12.2	15.2	18.1	20.1	25.0	27.3	28.8	40.1	41.0	0.16	18
19	calm	0.16		1.5	4.5	8.9	11.6	14.6	16.5	19.6	22.9	26.4	35.1	36.0	0.16	19
20	calm	0.48		1.0	3.0	7.4	10.0	12.5	14.4	17.0	20.1	22.4	27.1	28.0	0.16	20
21	calm	0.65		0.6	2.7	7.2	9.8	12.9	14.5	17.0	20.2	22.4	28.1	29.0	0.16	21
22	calm	0.32		1.0	3.0	7.0	9.9	13.1	15.7	20.1	21.9	24.8	31.1	32.0	0.16	22
23	calm	0.65		1.0	3.5	7.6	10.0	13.5	16.8	21.0	22.9	27.4	31.1	32.0	0.16	23
24	calm	0.32		1.0	3.5	8.2	11.3	15.3	18.3	21.5	24.2	27.4	32.1	33.0	0.16	24
25	calm	0.16		1.0	3.8	9.3	12.5	17.7	20.2	24.3	28.3	30.4	35.5	36.0	0.32	25
26	calm	0.48		1.1	5.0	10.5	14.3	19.8	22.7	27.1	30.9	34.8	42.1	43.0	0.16	26
27	calm	0.65		1.3	6.5	11.9	16.1	22.2	25.2	29.5	33.4	37.8	50.1	51.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-3 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

FEBRUARY

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	25.53				1.8	2.7	4.1	4.8	5.9	7.3	8.4	14.2	15.0	0.18	sfc
1	calm	7.22			0.8	2.8	4.5	7.2	9.2	11.4	14.4	15.7	22.2	23.0	0.18	1
2	calm	0.70		0.5	2.9	6.7	8.6	11.4	13.4	15.9	17.8	20.4	23.6	24.0	0.35	2
3	calm	0.18		1.7	5.2	10.1	13.1	16.8	18.2	20.4	22.8	26.6	36.2	37.0	0.18	3
4	1.0	0.18		2.7	7.2	13.2	17.1	20.9	22.8	26.3	31.3	34.3	38.6	39.0	0.35	4
5	1.0	0.18		3.0	8.4	16.3	20.3	24.7	27.3	31.9	39.3	42.6	50.2	51.0	0.18	5
6	1.0	0.18		3.4	9.4	19.1	23.3	29.1	33.1	41.3	48.6	51.7	58.6	59.0	0.35	6
7	1.0	0.18		4.3	10.7	21.6	26.5	33.4	40.2	48.6	58.0	61.6	71.2	72.0	0.18	7
8	2.0	0.35		5.2	12.0	24.9	30.4	39.0	45.0	56.3	62.7	72.3	81.2	82.0	0.18	8
9	1.0	0.18		5.9	14.0	27.7	34.6	44.3	51.0	59.9	66.6	76.1	87.2	88.0	0.18	9
10	1.0	0.18		5.9	17.0	30.5	38.0	49.6	56.3	61.7	72.5	76.3	85.6	86.0	0.35	10
11	2.0	0.18		7.2	18.9	33.2	40.9	54.0	60.4	68.4	75.0	80.4	87.2	88.0	0.18	11
12	4.0	0.18		9.9	20.7	34.2	40.6	52.7	59.2	67.2	72.5	80.1	85.2	86.0	0.18	12
13	7.0	0.35		11.7	20.5	33.1	39.2	48.9	54.2	60.3	69.6	76.1	82.2	83.0	0.18	13
14	5.0	0.18		11.4	19.9	29.7	35.5	43.3	48.0	56.1	61.0	66.6	71.6	72.0	0.35	14
15	5.0	0.18		10.9	18.2	25.7	30.1	37.2	40.4	47.8	53.0	56.6	63.6	64.0	0.35	15
16	5.0	0.53		9.2	15.6	21.3	24.6	30.9	34.7	39.8	43.5	47.3	53.2	54.0	0.18	16
17	4.0	0.35		6.8	11.9	17.4	20.0	25.9	29.2	33.5	35.6	38.5	40.6	41.0	0.35	17
18	2.0	0.53		4.2	8.1	12.5	15.8	20.5	23.2	26.1	29.8	31.5	41.2	42.0	0.18	18
19	1.0	0.35		1.7	5.0	9.0	11.7	16.6	18.7	21.2	24.0	26.3	33.2	34.0	0.18	19
20	calm	0.35		0.7	2.7	6.3	8.5	12.7	16.3	19.6	23.0	26.4	31.2	32.0	0.18	20
21	calm	0.53		0.4	2.1	4.8	6.5	10.6	14.2	19.1	22.2	26.1	30.2	31.0	0.18	21
22	calm	0.53		0.3	1.9	4.5	6.4	8.9	12.7	19.6	23.6	26.4	32.2	33.0	0.18	22
23	calm	0.18		0.4	1.9	5.0	6.8	9.7	11.9	20.5	24.7	26.6	30.2	31.0	0.18	23
24	calm	0.18		0.3	1.9	5.5	7.6	10.8	12.8	21.9	25.4	26.7	31.6	32.0	0.35	24
25	1.0	4.05			2.3	6.2	8.4	12.3	15.9	22.1	26.6	28.6	32.2	33.0	0.18	25
26	1.0	2.11		1.0	3.0	7.0	10.0	15.1	18.6	24.2	29.0	31.8	36.2	37.0	0.18	26
27	calm	0.35		0.6	3.5	7.9	11.3	17.2	21.5	28.3	33.0	35.7	42.2	43.0	0.18	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-4 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: MARCH

SANTA MONICA, CALIFORNIA
MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aerobalistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	24.68				1.8	3.1	4.7	5.6	6.9	7.9	8.8	12.1	13.0	0.16	sfc
1	calm	4.84			1.0	3.0	4.8	6.9	8.6	10.3	12.1	13.9	21.1	22.0	0.16	1
2	calm	0.65		0.5	2.5	5.7	7.6	10.3	11.8	13.3	15.4	17.9	24.1	25.0	0.16	2
3	calm	0.32		0.8	4.3	8.9	11.3	14.9	17.1	20.0	23.1	26.8	40.1	41.0	0.16	3
4	calm	0.16		1.7	4.8	11.4	14.8	18.3	20.4	23.1	27.6	32.6	41.1	42.0	0.16	4
5	calm	0.32		1.5	6.2	13.4	17.1	21.5	24.2	27.8	31.2	34.6	47.1	48.0	0.16	5
6	calm	0.16		2.0	7.6	15.8	20.1	24.7	27.1	31.6	34.1	38.8	50.1	51.0	0.16	6
7	calm	0.16		2.9	9.2	18.0	22.3	27.5	31.0	35.3	40.4	44.9	53.1	54.0	0.16	7
8	2.0	0.81		3.5	11.0	21.1	24.9	31.0	34.8	38.2	44.8	51.9	62.1	63.0	0.16	8
9	2.0	0.32		5.0	13.4	23.2	28.4	34.0	37.7	42.6	49.7	56.2	64.1	65.0	0.16	9
10	2.0	0.16		6.0	15.6	26.3	31.3	38.8	42.6	49.4	54.8	60.8	77.1	78.0	0.16	10
11	4.0	0.16		7.2	17.3	29.3	34.8	42.0	48.2	57.8	64.4	70.9	81.1	82.0	0.16	11
12	3.0	0.32		5.8	19.4	29.8	35.3	42.3	48.8	57.0	64.8	69.4	88.1	89.0	0.16	12
13	2.0	0.16		5.3	19.9	29.1	34.2	40.4	45.2	50.8	55.8	59.9	68.5	69.0	0.32	13
14	4.0	0.16		6.0	18.2	27.1	31.7	37.3	40.7	45.0	51.6	54.2	59.1	60.0	0.16	14
15	3.0	0.16		6.3	16.3	23.7	27.8	33.2	36.0	39.6	43.9	48.8	54.1	55.0	0.16	15
16	2.0	0.16		6.2	13.9	20.5	24.1	29.2	31.2	34.4	38.2	40.9	45.1	46.0	0.16	16
17	1.0	0.16		5.2	10.7	16.4	19.7	23.9	26.3	29.2	32.9	34.6	41.5	42.0	0.32	17
18	1.0	0.32		3.8	7.2	11.9	15.0	19.1	21.0	23.6	27.4	30.2	40.1	41.0	0.16	18
19	2.0	1.45		2.1	4.4	8.4	11.0	14.6	16.4	18.8	22.6	28.8	35.1	36.0	0.16	19
20	1.0	1.61		1.1	2.8	6.0	7.9	10.5	12.5	15.1	19.8	25.9	32.1	33.0	0.16	20
21	calm	0.16		0.6	2.2	4.8	6.3	8.7	10.3	12.7	16.4	23.4	30.5	31.0	0.32	21
22	1.0	3.06			2.2	4.6	6.2	7.8	9.2	11.2	13.8	19.4	26.1	27.0	0.16	22
23	calm	0.65		0.4	2.2	5.0	6.4	8.4	9.6	11.2	13.1	16.4	25.1	26.0	0.16	23
24	calm	0.32		0.6	2.4	5.7	7.1	9.1	10.6	12.2	15.5	17.2	21.1	22.0	0.16	24
25	calm	0.32		0.7	2.8	6.6	8.2	10.6	11.8	14.1	16.5	17.9	21.1	22.0	0.16	25
26	calm	0.81		0.6	2.9	7.5	9.8	12.2	13.5	15.7	17.4	20.2	24.1	25.0	0.16	26
27	calm	0.48		1.0	3.2	8.2	11.1	14.2	15.9	17.3	19.6	21.4	27.1	28.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-5 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: APRIL

SANTA MONICA, CALIFORNIA
APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	16.67				2.2	3.5	5.2	6.2	7.5	8.8	10.6	13.1	14.0	0.17	sfc
1	calm	2.00		0.0	1.2	2.9	4.4	6.6	7.9	9.8	11.7	15.5	20.1	21.0	0.17	1
2	calm	1.00		0.3	2.3	5.2	7.3	9.7	11.1	13.5	15.7	19.0	23.5	24.0	0.33	2
3	calm	0.17		1.1	3.6	7.7	10.4	13.7	15.6	18.0	21.6	24.5	28.5	29.0	0.33	3
4	1.0	0.83		1.7	4.9	10.0	13.4	17.3	19.7	22.5	24.4	27.5	43.1	44.0	0.17	4
5	1.0	0.83		1.6	5.7	12.2	15.9	21.5	24.2	27.5	31.0	37.5	54.1	55.0	0.17	5
6	1.0	0.50		1.9	6.4	14.3	18.8	24.8	28.1	34.3	38.8	46.0	52.1	53.0	0.17	6
7	2.0	1.33		2.7	7.6	16.6	21.5	28.7	34.2	40.5	46.7	52.0	69.1	70.0	0.17	7
8	1.0	0.33		3.2	9.4	19.4	24.7	32.6	39.0	45.2	51.6	59.0	72.1	73.0	0.17	8
9	2.0	0.33		3.9	10.7	21.8	28.5	36.5	42.2	49.0	56.3	61.0	72.1	73.0	0.17	9
10	1.0	0.17		3.6	12.2	23.7	31.1	39.7	45.1	50.3	55.1	62.0	80.1	81.0	0.17	10
11	1.0	0.17		4.6	13.7	26.1	33.0	42.8	46.5	50.0	55.1	64.3	79.1	80.0	0.17	11
12	1.0	0.17		4.8	14.8	26.8	32.8	41.1	45.1	49.0	55.1	59.0	70.1	71.0	0.17	12
13	3.0	0.17		8.1	16.1	26.5	30.6	37.4	41.2	46.2	51.3	56.6	77.1	78.0	0.17	13
14	4.0	0.17		8.2	15.1	24.3	28.3	33.0	36.8	40.3	44.0	48.3	59.1	60.0	0.17	14
15	4.0	0.17		8.4	13.9	21.1	24.8	29.2	31.7	34.8	38.1	42.0	45.5	46.0	0.33	15
16	2.0	0.17		7.5	11.9	17.9	21.2	25.0	27.7	30.0	32.0	36.0	43.1	44.0	0.17	16
17	2.0	0.17		4.9	9.1	14.3	17.0	20.3	22.3	24.2	26.3	28.6	31.5	32.0	0.33	17
18	1.0	0.33		2.7	6.4	10.5	12.8	15.7	18.0	19.7	21.9	25.0	30.5	31.0	0.33	18
19	1.0	1.50		1.3	3.6	7.3	9.1	11.4	12.9	15.1	17.8	22.3	25.5	26.0	0.33	19
20	calm	0.33		0.6	2.2	5.2	6.8	8.5	9.7	12.2	15.7	20.3	23.1	24.0	0.17	20
21	calm	0.50		0.2	1.7	4.0	5.4	7.1	8.0	9.8	12.5	17.0	19.1	20.0	0.17	21
22	calm	0.83		0.2	1.7	3.5	4.8	6.3	7.1	8.8	11.0	13.0	15.5	16.0	0.33	22
23	calm	0.83		0.2	1.6	3.5	4.8	6.5	7.5	8.8	10.2	12.0	16.1	17.0	0.17	23
24	calm	0.83		0.2	1.5	3.6	4.9	6.8	7.9	9.7	11.3	13.6	18.1	19.0	0.17	24
25	calm	0.83		0.2	1.6	3.5	5.3	7.6	9.8	11.2	13.5	15.6	19.5	20.0	0.33	25
26	calm	1.00		0.2	1.7	4.0	5.9	8.4	10.6	13.4	16.5	19.3	29.1	30.0	0.17	26
27	calm	1.33		0.1	1.8	4.5	6.7	10.2	12.0	15.0	19.0	22.0	25.1	26.0	0.17	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-6 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: MAY

SANTA MONICA, CALIFORNIA
MAY

STATION ELEVATION: 125 feet or 38.1 meters MSL.

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	9.03			0.4	2.4	3.7	5.3	6.0	7.2	8.6	9.9	16.1	17.0	0.16	sfc
1	calm	0.16		0.1	1.0	2.5	3.5	5.0	5.9	7.3	8.5	9.7	16.1	17.0	0.16	1
2	1.0	2.42			2.4	5.3	6.7	8.4	9.6	11.2	12.5	13.5	16.7	17.0	0.48	2
3	1.0	1.77		1.1	3.5	7.5	9.9	12.6	14.3	16.0	17.9	20.6	22.7	23.0	0.65	3
4	1.0	1.61		1.2	4.3	9.2	12.7	17.1	19.6	22.1	23.8	25.4	37.1	38.0	0.16	4
5	1.0	0.97		1.4	4.9	11.4	15.1	19.8	23.5	28.2	31.6	33.6	38.1	39.0	0.16	5
6	1.0	0.65		2.2	5.9	13.5	17.6	23.3	27.2	32.5	39.2	42.4	45.1	46.0	0.16	6
7	2.0	1.13		2.7	8.0	15.5	20.2	26.6	30.0	38.0	44.6	49.4	56.1	57.0	0.16	7
8	2.0	0.32		2.9	8.8	17.9	23.3	29.7	34.5	41.3	46.4	52.8	66.5	67.0	0.32	8
9	2.0	0.65		3.5	10.6	20.5	26.0	32.4	37.4	45.0	50.4	53.4	69.1	70.0	0.16	9
10	1.0	0.32		5.1	11.9	22.4	28.2	35.0	39.6	47.0	53.4	60.8	73.1	74.0	0.16	10
11	3.0	0.32		6.0	13.4	24.6	30.7	37.4	41.7	47.7	56.4	62.8	75.1	76.0	0.16	11
12	4.0	0.32		6.7	14.6	25.0	30.5	36.7	40.3	48.6	54.9	60.4	75.1	76.0	0.16	12
13	5.0	0.32		8.2	14.4	23.7	28.2	34.6	38.4	44.3	49.9	53.9	71.5	72.0	0.32	13
14	4.0	0.16		8.1	13.1	21.3	25.7	30.2	34.0	38.4	42.9	47.9	60.1	61.0	0.16	14
15	4.0	0.48		6.5	11.8	17.6	21.6	26.0	28.4	31.8	35.6	41.8	51.1	52.0	0.16	15
16	1.0	0.16		4.3	8.7	13.9	16.9	21.2	23.0	26.4	30.2	34.4	41.5	42.0	0.32	16
17	calm	0.16		2.1	5.7	10.4	12.6	16.0	18.0	21.5	23.4	26.8	34.1	35.0	0.16	17
18	calm	0.32		0.6	2.8	6.5	8.7	11.4	13.1	15.4	17.3	19.9	27.1	28.0	0.16	18
19	calm	0.16		0.6	2.0	4.1	5.7	7.7	8.8	10.8	13.2	15.8	20.1	21.0	0.16	19
20	calm	0.16		0.3	1.6	3.3	4.4	6.0	7.1	9.4	11.1	12.2	16.1	17.0	0.16	20
21	calm	0.97		0.2	1.5	3.3	4.5	5.9	7.0	7.9	9.5	11.4	16.1	17.0	0.16	21
22	calm	0.48		0.2	1.5	3.6	4.8	6.2	6.9	7.9	9.9	12.6	17.1	18.0	0.16	22
23	calm	0.48		0.2	1.7	3.9	5.6	7.0	7.8	9.4	11.3	14.8	19.1	20.0	0.16	23
24	calm	0.65		0.2	1.5	4.1	5.9	7.6	8.6	10.7	14.4	18.8	22.1	23.0	0.16	24
25	calm	0.48		0.2	1.6	4.3	5.9	7.7	9.0	10.8	15.1	17.9	25.1	26.0	0.16	25
26	calm	0.65		0.2	1.7	4.4	6.4	8.0	9.2	11.2	12.6	16.8	25.1	26.0	0.16	26
27	calm	0.48		0.2	1.8	4.7	6.6	8.6	9.8	11.4	12.7	15.8	22.5	23.0	0.32	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-7 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: JUNE

SANTA MONICA, CALIFORNIA

JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	13.00			0.1	2.0	3.2	4.9	5.6	6.4	7.3	7.7	10.1	11.0	0.17	sfc
1	calm	0.33		0.1	1.0	2.5	3.5	4.8	5.8	6.8	8.6	9.8	12.1	13.0	0.17	1
2	1.0	6.33			1.9	4.3	5.8	7.6	9.0	10.6	12.4	13.5	17.1	18.0	0.17	2
3	calm	0.33		0.8	2.5	6.2	8.6	11.2	12.9	14.8	15.9	17.3	20.1	21.0	0.17	3
4	calm	0.17		0.5	3.1	7.4	10.3	13.7	15.4	17.8	18.7	20.0	21.7	22.0	0.50	4
5	calm	0.33		0.8	3.0	8.2	11.5	15.1	17.2	19.9	21.5	23.0	35.1	36.0	0.17	5
6	1.0	1.83		1.1	3.9	9.0	12.9	17.1	19.6	22.8	25.8	28.0	31.1	32.0	0.17	6
7	1.0	1.83		1.2	4.6	10.4	14.2	18.8	21.8	25.4	28.1	31.0	37.1	38.0	0.17	7
8	1.0	0.50		2.1	5.4	12.3	16.5	21.5	24.4	29.0	32.4	37.0	42.7	43.0	0.67	8
9	1.0	0.50		2.3	6.7	14.7	19.2	24.2	27.0	31.1	35.0	40.0	56.1	57.0	0.17	9
10	1.0	0.17		3.2	7.8	16.9	21.5	27.4	31.3	35.4	39.1	43.0	50.1	51.0	0.17	10
11	1.0	0.83		3.1	9.5	19.3	24.6	31.1	34.3	38.4	42.1	49.0	57.1	58.0	0.17	11
12	1.0	0.33		3.8	10.8	20.2	26.7	32.4	36.2	39.8	47.4	52.5	58.1	59.0	0.17	12
13	1.0	0.17		3.7	10.5	20.1	26.4	32.7	35.7	40.4	46.1	50.0	60.1	61.0	0.17	13
14	2.0	0.67		3.6	9.4	18.6	23.7	30.1	33.0	34.9	39.0	42.0	55.1	56.0	0.17	14
15	1.0	0.50		2.4	7.8	14.5	19.2	23.9	26.1	28.8	30.4	32.0	42.1	43.0	0.17	15
16	1.0	0.83		2.1	5.6	10.3	13.2	16.8	19.0	22.8	24.9	26.7	29.1	30.0	0.17	16
17	1.0	1.50		1.1	3.1	6.5	8.3	11.2	12.8	15.3	17.5	19.6	27.1	28.0	0.17	17
18	1.0	3.83			2.0	4.0	5.5	7.6	8.7	10.4	12.4	14.3	17.1	18.0	0.17	18
19	calm	0.17		0.5	1.9	4.0	5.4	6.9	8.2	9.5	10.7	12.0	16.1	17.0	0.17	19
20	1.0	1.33		1.1	2.7	5.3	6.5	8.2	9.4	11.2	12.4	14.0	16.1	17.0	0.17	20
21	1.0	0.33		1.8	3.8	6.5	8.0	9.6	10.7	12.0	13.2	14.6	18.1	19.0	0.17	21
22	1.0	1.00		1.5	4.9	7.7	9.0	10.7	11.6	12.7	13.9	14.8	21.1	22.0	0.17	22
23	1.0	0.33		2.4	5.7	8.5	9.9	11.6	12.4	14.0	15.2	16.5	20.1	21.0	0.17	23
24	1.0	0.33		2.7	6.1	9.0	10.8	12.5	13.6	15.0	16.5	17.5	24.1	25.0	0.17	24
25	2.0	0.83		2.8	6.3	9.6	11.5	13.2	14.4	16.1	17.0	18.0	28.1	29.0	0.17	25
26	1.0	0.50		2.3	6.2	10.1	11.8	13.6	15.2	16.6	17.9	21.3	30.1	31.0	0.17	26
27	1.0	1.00		2.1	5.9	10.5	12.3	15.3	16.5	17.8	20.0	23.5	30.5	31.0	0.33	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-8 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JULY

SANTA MONICA, CALIFORNIA

JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	13.71			0.1	2.0	3.1	4.8	5.3	5.8	6.4	7.1	8.1	9.0	0.16	sfc
1	calm	0.81		0.0	0.7	2.0	2.8	4.1	4.7	5.8	7.1	8.2	10.7	11.0	0.48	1
2	1.0	5.81			1.8	3.8	5.1	6.7	7.7	8.8	9.6	10.6	16.1	17.0	0.16	2
3	calm	0.48		0.3	2.4	5.3	7.3	9.4	11.0	12.9	14.2	15.9	18.1	19.0	0.16	3
4	calm	0.32		0.6	3.0	6.2	8.6	11.0	12.4	14.0	15.9	17.4	21.1	22.0	0.16	4
5	1.0	2.74			3.0	6.8	9.0	11.9	13.6	15.2	16.7	17.7	21.5	22.0	0.32	5
6	1.0	1.77		1.0	3.3	7.5	10.0	13.2	14.9	17.3	18.9	22.4	27.5	28.0	0.32	6
7	1.0	1.77		1.1	3.6	8.6	11.7	15.1	17.2	19.6	22.6	26.2	30.1	31.0	0.16	7
8	1.0	1.94		1.1	3.8	10.1	13.0	17.0	19.3	23.6	26.9	28.9	33.1	34.0	0.16	8
9	1.0	0.97		1.3	4.2	11.3	15.4	20.2	22.4	26.0	28.4	30.6	40.1	41.0	0.16	9
10	1.0	0.81		1.4	5.4	12.8	17.5	23.1	26.5	29.1	31.6	33.9	38.1	39.0	0.16	10
11	1.0	0.97		1.7	6.7	14.8	19.7	26.2	29.0	32.1	34.1	36.9	40.7	41.0	0.48	11
12	calm	0.16		2.1	7.2	15.6	20.9	28.0	30.5	32.9	36.9	39.4	50.1	51.0	0.16	12
13	1.0	0.32		2.0	6.4	15.1	20.9	27.1	29.5	31.7	36.4	38.2	40.1	41.0	0.16	13
14	1.0	0.65		1.8	5.5	13.0	17.7	23.8	25.6	28.5	29.9	32.4	35.1	36.0	0.16	14
15	1.0	0.97		2.0	4.7	9.7	13.0	17.1	18.8	21.5	23.6	25.5	27.5	28.0	0.32	15
16	1.0	0.48		1.5	3.5	6.8	8.9	11.5	12.9	15.3	17.2	18.7	22.1	23.0	0.16	16
17	1.0	2.26		1.0	2.9	5.3	6.5	8.2	9.0	10.5	11.8	12.8	20.1	21.0	0.16	17
18	calm	0.32		1.1	2.7	5.3	6.6	7.9	8.9	10.1	10.9	11.9	13.1	14.0	0.16	18
19	1.0	1.77		1.2	3.7	6.6	8.1	9.9	10.8	11.6	12.5	13.5	15.1	16.0	0.16	19
20	1.0	0.32		1.8	5.4	8.2	9.7	11.1	12.0	12.8	13.8	15.1	18.1	19.0	0.16	20
21	1.0	0.48		3.0	7.0	9.9	11.3	12.7	13.3	14.4	15.6	16.8	19.1	20.0	0.16	21
22	1.0	0.16		4.5	8.2	11.2	12.4	13.9	14.9	16.0	16.8	17.7	21.1	22.0	0.16	22
23	2.0	0.32		6.0	9.4	12.5	13.6	15.1	15.8	17.0	17.9	18.8	22.1	23.0	0.16	23
24	2.0	0.32		6.1	10.9	13.5	14.9	16.5	17.2	18.0	18.9	19.9	21.5	22.0	0.32	24
25	2.0	0.32		6.7	11.2	14.2	15.9	17.5	18.4	19.5	20.7	21.8	25.1	26.0	0.16	25
26	2.0	0.16		7.5	11.8	15.3	16.8	18.4	19.4	20.8	21.9	22.8	25.7	26.0	0.48	26
27	2.0	0.16		8.8	12.4	16.1	17.5	19.9	20.8	22.0	23.6	26.6	28.1	29.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-9 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: AUGUST

SANTA MONICA, CALIFORNIA
AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	16.77				2.0	2.9	4.6	5.2	5.9	6.6	7.3	8.5	9.0	0.32	sfc
1	calm	0.97		0.0	0.8	2.0	2.8	3.9	4.7	5.6	6.5	7.4	8.5	9.0	0.32	1
2	1.0	6.29			1.6	3.5	4.5	5.9	7.0	8.1	10.1	11.1	12.5	13.0	0.32	2
3	1.0	2.90			2.5	5.1	6.5	8.2	9.2	10.6	12.0	12.9	16.5	17.0	0.32	3
4	1.0	4.35			2.8	6.0	7.7	10.1	11.5	12.9	14.1	15.6	18.1	19.0	0.16	4
5	calm	0.48		0.5	2.5	6.1	8.0	11.4	13.1	14.8	16.1	16.9	18.7	19.0	0.65	5
6	calm	0.32		0.7	3.0	6.5	8.9	12.2	14.2	16.6	17.9	20.4	25.1	26.0	0.16	6
7	1.0	2.42			3.1	7.4	10.3	14.1	16.1	18.4	21.2	22.7	25.5	26.0	0.32	7
8	1.0	1.45		1.2	4.1	8.8	11.8	16.4	18.3	21.0	23.6	25.8	27.1	28.0	0.16	8
9	1.0	1.13		1.7	4.8	10.0	14.1	19.6	22.7	24.9	28.1	29.4	31.1	32.0	0.16	9
10	1.0	1.13		2.0	6.4	12.2	16.8	22.8	26.0	28.2	30.6	33.9	40.1	41.0	0.16	10
11	1.0	0.65		2.9	7.6	14.8	20.3	25.7	27.9	30.8	32.2	34.4	41.1	42.0	0.16	11
12	1.0	0.16		3.5	8.6	16.9	22.1	27.8	30.5	33.3	35.6	37.9	43.1	44.0	0.16	12
13	1.0	0.16		3.5	8.6	16.6	21.5	26.9	29.4	32.3	34.9	37.9	44.1	45.0	0.16	13
14	1.0	0.16		3.2	7.6	14.4	18.1	22.6	24.3	27.3	30.4	31.6	35.1	36.0	0.16	14
15	1.0	0.48		2.1	5.3	10.4	13.5	17.2	18.8	21.2	22.8	24.9	28.1	29.0	0.16	15
16	calm	0.32		1.0	3.1	7.0	9.0	11.6	13.1	15.6	18.5	20.9	24.5	25.0	0.32	16
17	calm	0.16		0.6	2.0	4.3	5.8	7.6	8.6	10.3	12.7	14.9	19.1	20.0	0.16	17
18	1.0	3.39			2.0	4.1	5.3	6.8	7.6	8.7	9.9	10.9	16.1	17.0	0.16	18
19	calm	0.16		0.9	2.8	5.5	6.8	8.2	8.9	10.0	10.8	11.4	16.1	17.0	0.16	19
20	calm	0.16		1.3	3.9	7.2	8.5	10.1	10.8	11.8	12.7	13.7	16.1	17.0	0.16	20
21	1.0	0.16		2.3	5.8	9.0	10.3	11.7	12.4	13.3	14.5	15.4	16.5	17.0	0.32	21
22	3.0	0.97		4.1	7.6	10.8	11.9	13.3	14.2	15.3	16.3	17.4	20.1	21.0	0.16	22
23	3.0	0.48		6.0	8.8	12.0	13.3	14.9	15.6	16.6	17.9	18.9	27.1	28.0	0.16	23
24	5.0	0.32		6.4	10.1	13.2	14.6	16.0	16.7	17.9	18.9	20.5	26.5	27.0	0.32	24
25	4.0	0.16		7.2	11.0	14.1	15.6	17.1	17.8	18.9	20.6	21.6	27.1	28.0	0.16	25
26	6.0	0.32		7.4	11.4	14.9	16.4	18.0	19.1	20.5	21.6	23.8	29.1	30.0	0.16	26
27	5.0	0.16		7.3	11.9	15.6	17.0	19.0	20.4	21.7	22.9	25.6	30.1	31.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-10 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: SEPTEMBER

SANTA MONICA, CALIFORNIA
SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	21.67				1.7	2.8	4.3	4.9	5.6	6.0	7.4	8.7	9.0	0.50	sfc
1	calm	0.33		0.1	0.9	2.2	3.1	4.2	4.8	5.6	6.3	7.1	8.1	9.0	0.17	1
2	1.0	4.17			2.0	4.4	5.7	7.4	8.4	9.7	11.3	12.2	15.1	16.0	0.17	2
3	1.0	1.50		1.1	3.3	6.3	8.2	10.5	11.9	13.5	15.0	16.5	22.1	23.0	0.17	3
4	1.0	1.67		1.1	3.4	7.1	9.3	12.2	13.8	16.5	19.1	23.0	25.1	26.0	0.17	4
5	1.0	2.00		1.0	3.6	7.6	9.9	13.1	15.6	18.0	20.8	22.5	32.1	33.0	0.17	5
6	1.0	0.83		1.7	4.6	9.0	12.1	15.5	18.2	21.7	24.4	27.0	35.1	36.0	0.17	6
7	calm	0.17		2.1	5.4	11.2	13.9	17.8	21.4	24.7	29.4	33.0	41.1	42.0	0.17	7
8	1.0	0.67		3.0	7.0	12.6	15.8	21.5	25.4	30.2	34.0	38.5	47.1	48.0	0.17	8
9	1.0	0.50		2.8	7.5	14.1	18.4	25.6	29.5	33.8	38.3	41.3	44.1	45.0	0.17	9
10	1.0	0.17		3.0	8.3	16.6	21.6	28.6	32.0	36.5	41.0	45.0	55.1	56.0	0.17	10
11	1.0	0.33		3.0	9.4	18.8	24.7	32.4	35.6	40.0	43.3	47.0	63.1	64.0	0.17	11
12	1.0	0.17		4.0	10.1	21.0	26.3	34.6	37.4	40.6	45.4	47.6	56.1	57.0	0.17	12
13	1.0	0.17		4.5	10.3	21.8	27.2	32.9	36.0	40.8	45.3	49.0	51.1	52.0	0.17	13
14	1.0	0.50		3.3	9.7	19.6	23.7	28.9	31.2	35.0	40.7	45.0	48.5	49.0	0.33	14
15	1.0	0.17		2.4	7.6	15.6	19.6	23.5	25.8	28.8	33.1	36.2	47.1	48.0	0.17	15
16	1.0	0.67		1.9	5.0	10.7	13.8	17.2	19.3	21.9	26.0	29.5	31.7	32.0	0.50	16
17	calm	0.17		1.2	2.9	6.2	8.4	11.2	12.9	16.0	18.6	21.0	25.1	26.0	0.17	17
18	1.0	6.17			1.8	3.8	5.2	7.3	8.7	11.0	12.7	14.6	21.1	22.0	0.17	18
19	calm	0.33		0.2	1.5	3.3	4.5	6.0	6.8	8.0	9.6	11.4	16.1	17.0	0.17	19
20	calm	0.50		0.2	1.5	3.4	4.7	6.3	7.1	8.0	9.0	10.4	18.1	19.0	0.17	20
21	calm	0.33		0.3	1.9	4.1	5.6	7.0	7.8	8.9	10.3	11.2	13.5	14.0	0.33	21
22	calm	0.33		0.5	2.4	5.2	6.7	8.0	9.1	9.9	10.8	11.7	13.5	14.0	0.33	22
23	calm	0.50		0.7	2.7	6.0	7.5	9.3	10.4	11.3	12.2	13.4	18.1	19.0	0.17	23
24	calm	0.33		0.8	3.2	6.8	8.3	10.2	11.2	12.2	13.9	15.6	22.5	23.0	0.33	24
25	calm	0.17		1.0	3.3	7.1	8.8	10.9	11.8	13.1	15.2	16.4	20.1	21.0	0.17	25
26	calm	0.17		1.0	3.2	7.3	9.1	11.3	12.5	13.8	15.9	17.0	18.5	19.0	0.33	26
27	calm	0.17		0.9	3.2	7.5	9.4	11.6	12.5	15.1	16.6	17.6	20.1	21.0	0.17	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-11 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

OCTOBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	16.29				1.8	2.7	4.2	4.7	5.4	5.9	7.4	10.1	11.0	0.16	sfc
1	calm	0.48		0.1	0.9	2.5	3.5	5.0	5.9	7.5	9.8	11.9	21.1	22.0	0.16	1
2	1.0	5.65			1.7	4.3	5.8	7.8	9.0	10.4	11.9	13.2	17.1	18.0	0.16	2
3	1.0	1.77		1.0	2.8	5.9	8.1	11.2	12.6	14.7	17.3	18.8	27.1	28.0	0.16	3
4	1.0	1.94		1.0	3.5	7.6	10.3	13.5	15.5	18.6	21.4	24.2	29.1	30.0	0.16	4
5	1.0	0.97		1.3	4.0	9.2	12.0	16.3	18.6	22.7	26.9	31.8	46.1	47.0	0.16	5
6	calm	0.16		1.4	4.5	10.4	13.9	19.0	21.9	27.0	31.9	41.6	49.1	50.0	0.16	6
7	1.0	0.81		1.6	5.6	11.7	15.1	21.6	26.4	30.5	37.7	41.2	52.1	53.0	0.16	7
8	1.0	0.65		2.3	6.8	13.6	17.6	24.6	28.8	34.0	39.9	46.8	64.1	65.0	0.16	8
9	1.0	0.32		3.1	8.1	15.1	19.9	27.5	32.1	37.6	42.9	50.8	62.1	63.0	0.16	9
10	1.0	0.16		3.5	8.9	17.0	22.1	29.6	34.6	40.2	45.4	47.9	58.1	59.0	0.16	10
11	1.0	0.32		4.0	9.4	18.2	23.6	29.9	34.7	39.7	44.8	50.8	55.1	56.0	0.16	11
12	2.0	0.48		3.8	10.2	19.1	24.0	30.2	33.2	38.2	42.9	47.2	54.1	55.0	0.16	12
13	1.0	0.16		4.6	10.7	19.0	23.1	28.0	31.1	36.0	38.4	40.2	45.1	46.0	0.16	13
14	2.0	0.16		4.7	9.7	17.6	21.1	25.7	28.2	30.9	34.4	37.4	44.1	45.0	0.16	14
15	2.0	0.65		4.3	8.8	15.5	18.6	22.0	24.2	27.0	29.1	30.9	33.1	34.0	0.16	15
16	2.0	0.81		3.1	7.2	12.5	15.5	18.7	20.3	22.5	24.8	28.2	34.1	35.0	0.16	16
17	1.0	0.65		2.1	4.8	9.3	11.7	14.5	16.0	18.3	20.6	22.9	32.1	33.0	0.16	17
18	1.0	1.61		1.1	3.2	6.5	8.3	10.5	11.8	13.8	15.8	17.9	23.1	24.0	0.16	18
19	calm	0.16		0.8	2.3	4.6	6.1	7.7	8.7	10.5	13.5	16.4	18.1	19.0	0.16	19
20	1.0	5.32			1.7	3.7	5.0	6.9	8.1	9.5	11.2	13.8	17.1	18.0	0.16	20
21	calm	0.48		0.2	1.4	3.3	4.6	6.3	7.4	8.8	10.8	12.3	15.1	16.0	0.16	21
22	calm	1.13		0.1	1.4	3.4	4.7	6.4	7.3	8.6	9.9	11.1	15.1	16.0	0.16	22
23	calm	0.65		0.2	1.5	3.6	4.8	6.5	7.3	8.7	10.0	10.9	12.5	13.0	0.32	23
24	calm	0.32		0.2	1.6	3.9	5.5	6.9	7.9	9.5	11.3	12.7	22.1	23.0	0.16	24
25	calm	0.32		0.3	1.8	4.2	5.9	7.7	8.8	10.9	12.4	14.9	18.1	19.0	0.16	25
26	calm	0.48		0.3	1.9	4.6	6.6	9.2	10.6	12.8	14.9	16.9	19.1	20.0	0.16	26
27	calm	0.32		0.4	2.2	5.5	7.8	10.8	12.5	15.4	18.4	20.5	25.1	26.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-12 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: NOVEMBER

SANTA MONICA, CALIFORNIA
NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	calm	15.50			0.0	2.1	2.9	3.9	4.6	5.5	6.7	9.6	21.1	22.0	0.17	sfc
1	calm	0.67		0.1	1.0	2.6	3.8	5.7	7.0	9.4	11.6	14.2	16.1	17.0	0.17	1
2	calm	0.17		0.3	1.8	4.3	5.9	8.6	10.3	12.7	15.6	18.0	22.1	23.0	0.17	2
3	1.0	2.83			3.2	6.4	9.1	12.6	14.3	17.4	19.4	23.0	30.1	31.0	0.17	3
4	calm	0.17		0.9	3.4	7.9	11.7	16.1	18.8	22.1	25.4	29.0	37.1	38.0	0.17	4
5	1.0	1.00		1.3	4.3	9.9	13.9	19.3	22.7	26.3	30.8	35.6	43.5	44.0	0.33	5
6	1.0	1.33		1.4	5.0	12.0	16.4	22.2	26.5	31.0	35.0	41.0	67.1	68.0	0.17	6
7	1.0	0.17		1.9	5.6	13.4	18.3	27.0	31.0	35.9	41.7	47.5	56.5	57.0	0.33	7
8	1.0	0.33		2.2	6.9	15.5	21.2	30.1	34.3	39.8	45.4	50.0	68.1	69.0	0.17	8
9	1.0	0.33		2.8	7.6	18.1	23.8	33.2	38.3	44.0	47.9	51.0	64.1	65.0	0.17	9
10	calm	0.17		2.7	9.0	20.5	27.5	35.7	40.0	46.6	50.3	55.0	63.1	64.0	0.17	10
11	1.0	0.33		3.4	9.7	21.9	29.6	37.2	40.6	46.7	52.3	56.3	66.1	67.0	0.17	11
12	1.0	0.33		3.5	10.3	21.8	28.9	36.2	41.0	44.6	49.8	55.0	67.1	68.0	0.17	12
13	1.0	0.33		2.7	10.3	21.2	28.0	33.9	37.5	42.5	46.4	49.6	62.1	63.0	0.17	13
14	1.0	0.17		2.6	9.2	19.6	25.1	31.9	34.8	38.5	42.3	46.0	56.1	57.0	0.17	14
15	1.0	0.17		2.4	8.9	18.1	22.0	27.2	30.3	32.8	37.8	40.5	50.1	51.0	0.17	15
16	1.0	0.50		2.2	7.3	15.6	18.8	23.0	25.3	28.5	31.2	33.6	38.1	39.0	0.17	16
17	2.0	1.67		2.3	5.9	12.2	15.5	19.0	21.0	23.5	25.6	28.0	40.1	41.0	0.17	17
18	1.0	0.83		1.4	4.8	9.4	11.8	15.7	17.5	19.6	22.5	27.0	30.5	31.0	0.33	18
19	1.0	1.00		1.2	3.5	7.5	9.4	12.4	14.1	16.8	19.3	24.0	31.1	32.0	0.17	19
20	calm	0.17		1.0	3.0	6.3	8.0	10.9	12.6	14.8	18.0	19.8	23.5	24.0	0.33	20
21	1.0	2.50			2.4	5.8	7.7	10.0	11.7	13.7	16.0	17.7	20.1	21.0	0.17	21
22	calm	0.17		0.8	2.4	5.8	7.5	10.1	11.5	13.5	15.9	17.0	20.1	21.0	0.17	22
23	1.0	3.33			2.6	6.0	8.0	10.9	12.4	15.3	18.3	21.3	23.5	24.0	0.33	23
24	calm	0.17		0.8	2.8	6.4	8.7	12.1	13.9	17.5	20.7	23.6	26.7	27.0	0.50	24
25	calm	0.17		0.9	3.1	7.3	9.9	13.5	16.3	19.6	23.2	25.8	33.1	34.0	0.17	25
26	calm	0.17		1.3	3.6	8.6	11.9	15.8	18.3	22.9	26.1	29.0	34.1	35.0	0.17	26
27	calm	0.17		1.3	4.3	10.1	13.6	18.6	20.9	26.4	29.2	32.0	35.1	36.0	0.17	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE I-13 DISTRIBUTION OF SCALAR WINDS

SCALAR WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: DECEMBER

SANTA MONICA, CALIFORNIA
DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	0.0	11.61			0.4	2.2	2.8	3.7	4.3	5.5	6.9	8.5	14.5	15.0	0.32	sfc
1	0.0	0.16		0.2	1.3	2.9	4.4	6.7	8.4	10.2	11.9	14.2	19.1	20.0	0.16	1
2	1.0	5.16			2.1	5.0	6.9	9.4	11.2	13.2	16.9	22.6	28.1	29.0	0.16	2
3	1.0	1.77		1.0	3.2	6.8	9.4	13.5	15.8	19.0	23.1	24.9	28.7	29.0	0.48	3
4	1.0	1.29		1.2	4.0	8.7	11.8	16.6	19.4	23.2	28.4	32.8	49.1	50.0	0.16	4
5	1.0	0.32		1.7	4.7	10.5	13.6	19.6	22.3	27.0	31.9	40.8	59.1	60.0	0.16	5
6	1.0	1.29		2.0	5.7	12.1	15.8	22.4	26.2	32.3	38.6	47.9	66.1	67.0	0.16	6
7	1.0	0.65		1.9	6.3	14.2	18.3	25.6	31.0	36.3	46.2	50.8	80.1	81.0	0.16	7
8	1.0	0.16		1.8	6.7	16.1	21.8	30.1	34.3	44.0	50.9	54.9	84.1	85.0	0.16	8
9	1.0	0.16		2.7	8.2	18.2	24.6	33.5	38.0	47.0	54.4	57.9	74.1	75.0	0.16	9
10	2.0	0.81		3.2	10.0	21.0	28.1	36.8	41.8	47.8	55.6	65.8	77.1	78.0	0.16	10
11	1.0	0.32		3.2	11.1	23.1	30.4	38.6	44.0	51.6	59.6	69.8	76.1	77.0	0.16	11
12	2.0	0.81		4.1	11.5	23.4	29.3	36.2	41.3	49.5	57.9	62.9	87.1	88.0	0.16	12
13	2.0	0.81		3.7	11.5	21.6	26.4	34.2	38.2	45.6	51.2	57.9	65.1	66.0	0.16	13
14	2.0	0.48		4.1	10.7	20.1	24.8	31.0	34.6	38.5	43.2	45.9	51.1	52.0	0.16	14
15	1.0	0.16		3.7	9.9	18.0	22.1	26.9	29.3	34.0	36.8	39.9	44.1	45.0	0.16	15
16	1.0	0.16		3.0	8.6	15.7	18.9	23.2	26.3	29.8	32.9	35.4	39.1	40.0	0.16	16
17	1.0	0.16		2.0	6.4	12.5	15.6	19.2	21.4	24.5	27.9	30.9	38.1	39.0	0.16	17
18	0.0	0.32		1.5	5.3	9.6	12.3	15.5	17.5	21.0	23.5	27.9	32.1	33.0	0.16	18
19	0.0	0.48		0.9	3.6	7.5	9.5	12.4	14.6	17.2	19.4	21.4	32.1	33.0	0.16	19
20	0.0	0.16		0.7	2.5	5.6	7.6	10.5	11.9	14.0	15.6	17.2	21.1	22.0	0.16	20
21	0.0	0.16		0.8	2.3	5.1	6.9	9.7	11.4	12.8	15.4	17.4	19.1	20.0	0.16	21
22	0.0	0.16		0.6	2.3	5.2	7.1	9.6	11.1	13.0	14.8	17.2	20.1	21.0	0.16	22
23	0.0	0.32		0.8	2.5	5.6	7.2	9.5	11.1	13.2	16.2	18.4	23.1	24.0	0.16	23
24	0.0	0.32		0.8	2.6	6.2	7.8	10.8	12.1	14.3	16.4	19.2	25.1	26.0	0.16	24
25	0.0	0.32		1.0	2.8	6.8	9.1	11.7	13.2	15.0	16.7	18.8	29.1	30.0	0.16	25
26	0.0	0.48		1.0	3.6	7.8	10.4	13.2	15.1	17.2	19.8	21.9	30.1	31.0	0.16	26
27	1.0	1.29		1.4	4.4	8.6	11.4	15.2	16.7	18.7	21.8	23.9	30.1	31.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

(2) Calm denotes wind speed less than 0.5 m/sec.

TABLE II

Page

Distribution of Zonal Winds

(Positive for wind component from the west)

(Negative for wind component from the east)

Unit: meters per second

TABLE II-1 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: ANNUAL

SANTA MONICA, CALIFORNIA

ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118 27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aerobalistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 21, 1963

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 7.0	0.04	- 5.1	- 3.8	- 1.4	- 0.2	1.0	2.8	3.7	4.7	5.6	6.6	10.0	16.0	0.01	sfc
1	-18.0	0.01	-11.7	- 6.7	- 2.4	- 0.4	0.4	1.8	2.7	4.0	5.6	7.6	12.2	21.0	0.01	1
2	-19.0	0.01	-12.2	- 7.4	- 2.1	0.4	2.5	5.0	6.4	8.4	10.4	12.0	17.5	23.0	0.01	2
3	-21.0	0.01	-14.1	- 8.4	- 3.7	1.9	4.8	8.5	10.5	13.2	15.8	18.2	23.3	34.0	0.01	3
4	-30.0	0.01	-18.9	- 8.3	- 2.6	3.4	6.9	11.5	14.2	17.5	20.8	23.7	30.7	46.0	0.01	4
5	-22.0	0.01	-17.6	- 8.2	- 1.5	4.8	8.8	14.0	17.0	21.4	25.7	29.9	39.7	47.0	0.03	5
6	-24.0	0.01	-17.4	- 9.8	- 0.9	6.3	11.0	16.6	20.2	25.2	30.1	35.5	49.0	58.0	0.03	6
7	-35.0	0.01	-20.9	- 9.3	- 0.7	8.0	12.9	19.2	23.2	28.9	35.1	41.8	59.0	70.0	0.01	7
8	-34.0	0.01	-21.7	-10.9	- 0.3	9.7	15.1	22.1	26.7	32.8	39.2	48.3	63.5	80.0	0.01	8
9	-28.0	0.01	-22.4	-10.8	0.2	11.6	17.5	25.2	29.8	36.8	43.9	52.2	65.0	86.0	0.01	9
10	-31.0	0.01	-24.2	-10.3	1.3	13.9	20.2	28.5	33.2	40.4	48.1	55.4	70.7	85.0	0.01	10
11	-31.0	0.01	-24.8	- 9.3	2.7	16.2	22.8	31.2	36.2	43.4	53.1	60.7	75.1	87.0	0.01	11
12	-31.0	0.01	-22.1	- 7.0	4.5	18.0	24.2	32.2	36.8	44.1	53.3	60.4	75.0	86.0	0.01	12
13	-31.0	0.01	-22.9	- 5.4	5.7	18.2	23.9	31.1	35.3	41.6	48.5	54.7	69.1	80.0	0.01	13
14	-24.0	0.01	-20.9	- 4.7	5.6	16.8	22.0	28.3	32.0	36.9	43.1	49.0	60.0	69.0	0.01	14
15	-22.0	0.03	-14.8	- 4.9	4.4	14.3	18.8	24.4	27.5	31.8	36.9	41.8	51.6	63.0	0.01	15
16	-19.0	0.01	-11.4	- 4.2	2.2	11.1	15.6	20.5	23.2	27.2	30.8	35.6	44.5	51.0	0.01	16
17	-19.0	0.01	-11.5	- 5.1	- 0.5	7.6	11.8	16.5	18.8	22.2	26.5	30.1	37.4	42.0	0.01	17
18	-15.0	0.03	-12.4	- 7.3	- 2.3	4.2	8.1	12.1	14.6	18.0	21.6	25.1	30.3	39.0	0.01	18
19	-16.0	0.03	-14.9	- 9.1	- 4.1	1.4	4.8	8.5	10.7	14.1	17.1	20.4	26.8	35.0	0.01	19
20	-18.0	0.03	-15.1	-11.2	- 6.3	- 0.4	2.3	6.0	8.0	10.9	14.4	17.8	26.0	32.0	0.03	20
21	-21.0	0.01	-17.4	-13.9	- 8.7	- 1.5	0.7	4.4	6.5	9.5	12.5	16.3	24.7	30.0	0.04	21
22	-28.0	0.01	-21.9	-14.3	- 9.3	- 2.6	-0.0	3.4	5.6	8.6	11.9	15.9	25.0	31.0	0.01	22
23	-29.0	0.01	-22.4	-15.0	-10.0	- 3.8	-0.2	3.5	5.7	8.7	12.2	17.4	25.1	31.0	0.01	23
24	-30.0	0.01	-22.2	-17.7	-12.9	- 3.5	-0.3	4.0	6.3	9.7	13.8	18.9	25.5	31.0	0.01	24
25	-31.0	0.01	-26.4	-18.7	-12.2	- 3.4	-0.1	4.9	7.6	11.3	15.9	20.3	28.2	34.0	0.03	25
26	-32.0	0.01	-26.3	-19.4	-13.5	- 3.4	0.2	6.1	9.6	14.1	18.7	23.4	32.0	41.0	0.01	26
27	-33.0	0.01	-27.2	-20.1	-14.6	- 3.5	1.0	7.8	11.6	16.3	21.9	26.9	34.3	50.0	0.01	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-2 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JANUARY

SANTA MONICA, CALIFORNIA

JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118 27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 7.0	0.32		- 3.0	- 2.8	- 0.6	- 0.2	1.1	1.9	3.1	3.9	4.7	9.1	10.0	0.16	sfc
1	-18.0	0.16		- 7.1	- 3.4	- 0.4	0.5	2.0	2.9	4.6	6.9	10.9	14.1	15.0	0.16	1
2	-12.0	0.32		- 7.8	- 2.6	1.4	4.3	6.8	8.3	10.6	12.4	14.2	20.1	21.0	0.16	2
3	-21.0	0.16		- 7.0	- 0.2	5.5	8.5	11.9	14.2	16.6	18.8	20.9	25.5	26.0	0.32	3
4	-23.0	0.16		- 7.0	1.2	8.0	11.9	16.8	19.6	22.8	25.4	28.4	30.5	31.0	0.32	4
5	-22.0	0.16		- 5.0	2.9	10.7	15.0	21.0	23.5	28.0	32.1	34.9	39.1	40.0	0.16	5
6	-20.0	0.16		- 5.2	4.0	13.1	17.9	24.3	27.5	32.3	34.7	38.8	57.1	58.0	0.16	6
7	-24.0	0.16		- 5.0	5.6	15.2	20.3	26.8	30.7	36.0	41.8	49.8	69.1	70.0	0.16	7
8	-28.0	0.16		- 7.3	6.6	17.5	23.7	30.4	34.8	41.5	49.9	57.4	67.1	68.0	0.16	8
9	-27.0	0.16		- 6.6	7.6	19.8	25.9	34.4	39.5	46.5	54.7	58.9	66.1	67.0	0.16	9
10	-25.0	0.16		- 4.5	9.8	22.2	28.4	37.9	44.7	51.7	56.6	60.9	65.1	66.0	0.16	10
11	-14.0	0.16		- 0.9	11.1	24.1	30.7	41.0	48.0	57.0	61.1	64.9	71.1	72.0	0.16	11
12	-17.0	0.16		2.3	13.1	24.8	31.5	43.0	48.7	56.2	62.4	65.7	72.1	73.0	0.16	12
13	-14.0	0.32		2.5	13.3	24.2	30.4	39.8	46.0	52.6	56.9	63.8	79.1	80.0	0.16	13
14	- 1.0	0.16		4.3	12.5	23.1	27.5	35.4	41.5	45.6	52.1	56.9	64.1	65.0	0.16	14
15	- 7.0	0.16		2.0	11.7	19.5	24.2	30.3	34.0	39.2	43.9	47.6	52.1	53.0	0.16	15
16	- 7.0	0.16		2.1	9.8	16.8	20.3	24.6	26.8	30.4	37.4	40.8	48.1	49.0	0.16	16
17	- 5.0	0.32		- 0.1	6.3	13.7	16.7	20.0	21.9	27.0	31.7	34.4	39.5	40.0	0.32	17
18	- 6.0	0.81		- 3.0	3.1	9.6	12.5	15.9	18.1	23.8	26.1	27.7	34.1	35.0	0.16	18
19	-11.0	0.16		- 7.0	- 0.2	5.5	9.0	12.8	14.8	17.7	20.9	24.8	29.1	30.0	0.16	19
20	-16.0	0.32		-12.5	- 2.1	2.8	6.7	9.8	11.8	15.2	18.4	21.2	26.1	27.0	0.16	20
21	-21.0	0.16		-14.0	- 4.1	1.2	5.7	9.8	11.5	14.2	18.6	21.2	27.1	28.0	0.16	21
22	-28.0	0.16		-19.4	- 6.4	0.5	5.1	9.2	11.5	14.5	19.9	22.9	30.1	31.0	0.16	22
23	-29.0	0.16		-20.4	- 8.8	- 0.1	5.0	9.1	10.9	14.0	19.8	25.2	30.1	31.0	0.16	23
24	-30.0	0.16		-20.7	- 9.2	- 0.1	5.1	10.4	12.8	17.0	20.4	24.8	30.1	31.0	0.16	24
25	-31.0	0.16		-21.7	-11.7	- 0.3	6.3	13.0	15.6	19.7	24.6	27.9	33.5	34.0	0.32	25
26	-32.0	0.16		-22.5	-11.2	- 0.2	7.7	15.8	18.8	23.1	27.6	31.8	40.1	41.0	0.16	26
27	-33.0	0.16		-21.5	-12.7	0.0	9.6	18.9	22.5	26.3	29.7	35.8	49.1	50.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-3 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: FEBRUARY

SANTA MONICA, CALIFORNIA
FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 7.0	0.18		- 3.2	- 1.2	- 0.3	0.2	1.9	2.8	4.1	5.2	7.1	13.2	14.0	0.18	sfc
1	-14.0	0.18		- 8.9	- 2.5	- 0.2	0.8	2.6	3.8	6.3	8.8	11.6	13.6	14.0	0.35	1
2	-12.0	0.18		- 6.1	- 2.5	2.1	4.5	7.4	9.0	11.3	14.6	16.6	21.2	22.0	0.18	2
3	-10.0	0.35		- 6.3	- 0.7	5.3	8.5	12.0	14.1	16.7	18.8	21.3	33.2	34.0	0.18	3
4	- 9.0	0.70		- 5.9	0.1	8.0	12.3	16.8	19.0	21.3	25.0	29.6	36.6	37.0	0.35	4
5	-13.0	0.18		- 4.4	1.9	11.4	15.3	20.3	22.5	26.4	33.0	38.6	46.2	47.0	0.18	5
6	-18.0	0.18		- 5.9	2.2	13.5	18.5	24.1	27.5	32.9	45.0	49.1	57.2	58.0	0.18	6
7	-22.0	0.18		- 4.6	3.3	15.5	21.0	27.7	31.8	42.6	53.5	59.6	67.2	68.0	0.18	7
8	-20.0	0.18		- 4.3	4.9	18.5	24.9	32.6	36.8	50.8	59.0	63.3	79.2	80.0	0.18	8
9	-13.0	0.18		- 5.5	6.3	21.0	28.4	37.3	42.8	54.2	62.0	65.3	85.2	86.0	0.18	9
10	-21.0	0.18		- 5.7	8.6	24.1	31.3	41.6	48.2	58.3	66.0	73.3	84.2	85.0	0.18	10
11	-14.0	0.18		- 0.8	11.8	27.5	34.3	44.9	52.8	61.1	68.0	76.3	86.2	87.0	0.18	11
12	-14.0	0.18		3.9	15.3	29.4	36.1	47.0	53.0	58.8	66.6	75.1	84.2	85.0	0.18	12
13	5.0	0.53		8.8	17.3	28.5	35.1	44.1	48.6	54.3	63.0	69.3	77.2	78.0	0.18	13
14	4.0	0.35		8.9	17.2	26.7	31.5	39.0	43.5	49.8	55.5	63.1	68.2	69.0	0.18	14
15	3.0	0.18		7.9	15.5	23.0	27.5	33.1	37.0	44.6	49.0	52.3	62.2	63.0	0.18	15
16	-13.0	0.18		6.4	13.1	19.1	21.9	27.7	31.4	36.1	40.5	45.1	50.2	51.0	0.18	16
17	-14.0	0.18		4.7	9.8	15.3	18.0	23.5	26.8	29.9	32.6	36.3	38.6	39.0	0.35	17
18	- 6.0	0.18		2.1	6.3	11.0	13.8	18.1	20.7	24.0	27.0	29.3	32.2	33.0	0.18	18
19	- 6.0	0.18		- 0.8	2.6	7.1	9.7	14.5	16.6	19.3	21.8	25.1	29.2	30.0	0.18	19
20	- 7.0	0.35		- 3.6	- 0.0	4.2	6.3	10.8	14.5	17.9	20.8	24.3	29.2	30.0	0.18	20
21	-12.0	0.18		- 6.9	- 2.8	1.4	3.8	7.7	11.7	17.3	20.5	23.6	29.2	30.0	0.18	21
22	-11.0	0.35		- 7.1	- 3.1	- 0.1	2.3	6.2	10.7	18.1	21.6	24.1	29.2	30.0	0.18	22
23	-11.0	0.53		- 9.1	- 5.6	- 0.4	1.4	5.8	10.0	18.2	22.0	24.1	28.2	29.0	0.18	23
24	-15.0	0.18		-10.3	- 6.4	- 1.8	1.2	6.8	11.0	19.5	22.7	24.5	28.2	29.0	0.18	24
25	-15.0	0.88		-12.1	- 7.9	- 1.6	1.4	7.8	13.6	19.3	24.2	26.3	30.2	31.0	0.18	25
26	-20.0	0.18		-15.9	- 8.8	- 1.3	2.1	9.5	16.2	22.3	26.8	29.1	33.2	34.0	0.18	26
27	-26.0	0.18		-16.4	- 9.3	- 2.4	1.4	12.1	18.2	25.6	30.6	32.4	36.2	37.0	0.18	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-4 DISTRIBUTION OF ZONAL WINDS	ZONAL WIND DISTRIBUTION
STATION: SANTA MONICA, CALIFORNIA REFERENCE PERIOD: MARCH	SANTA MONICA, CALIFORNIA
STATION ELEVATION: 425 feet or 38.1 meters MSL	MARCH
STATION COORDINATES: 34.01 deg N, 118 27 deg W	
PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960	Positive for components from west Negative for components from east
DATA SOURCE: National Weather Records Center U. S. Weather Bureau Asheville, North Carolina	NO. OF OBS. FOR EACH LEVEL: 620
PREPARED BY: National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962	UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 5.0	0.65		- 3.2	-1.4	- 0.3	0.6	2.8	3.8	5.0	6.4	7.1	9.1	10.0	0.16	sfc
1	-12.0	0.16		- 6.5	-2.5	- 0.2	0.9	2.5	3.5	4.8	6.6	8.6	20.1	21.0	0.16	1
2	-14.0	0.16		- 7.9	-2.3	1.2	3.6	6.7	8.3	10.0	11.2	12.4	17.1	18.0	0.16	2
3	-13.0	0.32		- 8.0	-1.3	4.2	7.4	11.4	13.6	15.5	17.4	19.9	26.1	27.0	0.16	3
4	-18.0	0.16		- 8.8	-0.3	6.6	10.4	15.2	17.0	19.3	21.9	25.2	33.1	34.0	0.16	4
5	-17.0	0.16		- 6.7	1.0	8.4	13.1	18.1	20.8	24.1	27.2	29.6	38.1	39.0	0.16	5
6	-20.0	0.16		- 6.7	1.6	11.3	16.0	20.6	23.8	26.7	30.6	33.4	42.5	43.0	0.32	6
7	-22.0	0.16		- 9.8	2.8	13.2	18.1	23.4	26.2	31.0	34.2	37.8	50.1	51.0	0.16	7
8	-21.0	0.16		- 7.0	3.9	15.5	20.7	26.4	30.1	35.0	37.4	41.9	58.1	59.0	0.16	8
9	-19.0	0.16		- 9.5	5.7	17.8	23.3	29.0	33.2	38.8	43.5	49.4	54.1	55.0	0.16	9
10	-20.0	0.16		- 6.5	7.8	21.5	26.8	33.8	38.6	46.0	51.9	55.8	76.1	77.0	0.16	10
11	-13.0	0.16		- 3.4	11.0	24.5	30.6	38.9	43.4	54.0	62.2	70.2	80.1	81.0	0.16	11
12	- 3.0	0.16		0.7	14.5	27.1	32.4	39.4	44.7	54.6	61.9	66.9	85.1	86.0	0.16	12
13	0.0	0.97		2.1	16.3	26.7	32.3	38.3	42.1	48.4	53.8	58.7	66.1	67.0	0.16	13
14	- 8.0	0.16		3.1	14.9	25.1	29.7	35.7	38.5	43.2	50.1	52.9	58.1	59.0	0.16	14
15	- 2.0	0.16		1.4	14.1	21.7	25.8	31.6	34.6	38.3	42.9	46.8	54.1	55.0	0.16	15
16	- 1.0	0.16		1.1	12.1	18.8	22.4	27.7	29.9	32.7	37.2	40.2	45.1	46.0	0.16	16
17	- 2.0	0.48		0.3	8.9	14.8	18.1	22.8	25.4	28.2	31.3	32.9	41.1	42.0	0.16	17
18	- 4.0	0.16		- 0.6	5.5	10.5	13.6	18.1	19.9	22.5	26.3	28.9	38.1	39.0	0.16	18
19	- 6.0	0.16		- 2.8	2.2	7.0	9.3	13.2	15.1	17.6	21.6	26.8	34.1	35.0	0.16	19
20	- 9.0	0.16		- 4.7	-0.4	3.9	6.4	9.1	11.3	14.0	18.8	24.9	31.5	32.0	0.32	20
21	- 9.0	0.32		- 6.4	-2.8	1.7	4.1	7.1	9.0	11.4	15.2	22.4	29.5	30.0	0.32	21
22	-10.0	0.65		- 7.5	-3.3	0.4	2.9	5.8	7.1	9.6	12.6	18.9	25.5	26.0	0.32	22
23	-12.0	0.16		- 9.7	-5.9	-0.1	2.7	5.7	7.2	8.6	11.2	15.8	24.1	25.0	0.16	23
24	-16.0	0.16		-12.8	-6.3	-0.2	3.0	6.0	7.3	9.2	10.9	14.9	20.1	21.0	0.16	24
25	-18.0	0.48		-13.0	-7.2	-0.0	4.2	7.3	8.7	10.5	12.8	15.6	17.1	18.0	0.16	25
26	-22.0	0.16		-15.0	-8.2	-0.0	5.0	9.2	10.7	12.5	14.4	15.9	19.1	20.0	0.16	26
27	-27.0	0.16		-17.4	-9.4	0.5	6.0	10.9	12.7	14.7	16.2	17.5	21.1	22.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-5 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: APRIL

SANTA MONICA, CALIFORNIA
APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY										Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 6.0	0.17		-3.4	- 1.7	- 0.0	1.7	3.5	4.5	5.6	6.8	8.0	12.1	13.0	0.17	sfc
1	- 9.0	0.17		-4.0	- 1.0	- 0.1	1.0	2.8	3.7	5.4	7.0	9.5	16.1	17.0	0.17	1
2	-14.0	0.17		-7.8	- 2.6	1.2	3.4	6.1	7.4	9.6	11.7	14.0	22.1	23.0	0.17	2
3	-11.0	0.33		-7.8	- 2.1	2.9	5.9	10.2	12.2	14.3	17.1	19.4	26.1	27.0	0.17	3
4	-17.0	0.17		-7.5	- 1.4	5.1	9.1	13.5	15.3	18.8	22.0	23.7	39.1	40.0	0.17	4
5	-16.0	0.17		-6.3	- 0.5	7.5	11.8	16.5	19.5	23.0	27.4	30.6	44.1	45.0	0.17	5
6	-18.0	0.17		-6.5	0.3	9.7	13.9	20.4	23.2	28.4	34.0	40.0	48.5	49.0	0.33	6
7	-23.0	0.17		-6.8	1.4	11.7	16.9	22.8	26.7	34.5	41.1	47.5	68.1	69.0	0.17	7
8	-20.0	0.17		-5.8	3.0	14.6	19.4	27.1	31.3	38.0	43.8	57.0	70.5	71.0	0.33	8
9	-19.0	0.17		-4.3	3.9	16.3	22.1	31.0	35.4	42.0	47.4	54.0	71.1	72.0	0.17	9
10	-17.0	0.17		-4.2	5.1	18.7	25.7	34.1	38.5	42.6	50.1	54.0	64.1	65.0	0.17	10
11	- 9.0	0.17		-3.7	6.8	20.5	28.3	36.5	40.5	45.6	50.8	56.0	68.1	69.0	0.17	11
12	- 7.0	0.17		-0.6	9.5	21.9	29.2	36.4	40.0	44.8	50.1	56.0	59.1	60.0	0.17	12
13	- 1.0	0.33		4.2	11.5	22.4	28.1	34.1	37.4	41.7	47.1	54.0	76.1	77.0	0.17	13
14	0.0	0.17		5.5	12.1	20.8	25.6	30.3	34.5	36.8	40.3	44.0	58.1	59.0	0.17	14
15	3.0	0.33		5.9	11.4	18.7	22.7	26.6	29.1	31.6	33.9	37.6	45.1	46.0	0.17	15
16	0.0	0.17		4.4	9.6	15.8	19.1	23.0	25.2	27.8	28.9	31.3	43.1	44.0	0.17	16
17	- 8.0	0.17		2.4	7.1	12.5	15.2	18.4	20.2	22.2	23.9	25.8	28.1	29.0	0.17	17
18	- 1.0	0.33		0.2	4.2	8.6	11.1	13.9	15.9	18.1	19.8	22.5	28.1	29.0	0.17	18
19	- 5.0	0.17		-1.1	1.4	5.4	7.3	9.7	11.5	13.0	16.4	18.7	23.1	24.0	0.17	19
20	- 7.0	0.17		-3.1	- 0.6	2.9	5.1	7.0	8.2	10.3	12.7	15.6	22.1	23.0	0.17	20
21	- 9.0	0.33		-6.7	- 1.0	1.0	2.8	5.5	6.6	8.0	10.0	11.7	18.1	19.0	0.17	21
22	-11.0	0.17		-7.8	- 3.9	0.1	1.6	3.9	5.2	6.3	7.7	9.3	11.5	12.0	0.33	22
23	-10.0	0.17		-7.9	- 3.4	- 0.4	1.1	3.4	4.8	6.3	7.9	9.3	15.1	16.0	0.17	23
24	-14.0	0.17		-7.2	- 3.3	- 0.5	0.7	3.1	4.9	6.8	8.7	10.5	16.6	17.0	0.17	24
25	-15.0	0.33		-9.5	- 3.6	- 0.4	1.0	4.3	6.3	9.3	10.8	12.5	19.1	20.0	0.17	25
26	-13.0	0.33		-8.3	- 2.0	0.0	2.0	5.4	7.4	11.3	14.5	18.0	28.1	29.0	0.17	26
27	-12.0	0.33		-9.7	- 2.4	0.9	3.3	7.1	9.6	12.8	16.3	20.5	24.1	25.0	0.17	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

D-1569

TABLE II-6 DISTRIBUTION OF ZONAL WINDS

STATION:	SANTA MONICA, CALIFORNIA
REFERENCE PERIOD:	MAY
STATION ELEVATION:	125 feet or 38.1 meters MSL
STATION COORDINATES:	34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION:	Long Beach, California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE:	National Weather Records Center U. S. Weather Bureau Asheville, North Carolina
PREPARED BY:	National Aeronautics and Space Administration Marshall Space Flight Center, Aerobalistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962

ZONAL WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

MAY

Positive for components from west
Negative for components from east

NO. OF OBS. FOR EACH LEVEL: 620

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 3.0	1.29		- 2.1	-1.7	0.3	2.2	4.1	4.9	5.9	7.4	8.8	15.1	16.0	0.16	sfc
1	- 7.0	0.32		- 3.0	-1.0	-0.3	0.6	2.2	3.0	4.4	5.5	6.6	7.7	8.0	0.65	1
2	-10.0	0.16		- 6.2	-2.5	1.3	3.1	5.3	6.3	8.1	10.4	11.7	13.5	14.0	0.32	2
3	-11.0	0.32		- 7.5	-3.9	2.6	5,6	9.2	10.7	13.1	14.7	16.9	20.1	21.0	0.16	3
4	-12.0	0.16		- 7.8	-1.9	4.7	7.9	12.5	14.7	18.0	20.9	22.7	36.1	37.0	0.16	4
5	- 9.0	0.16		- 5.5	-0.0	6.8	10.1	15.0	17.7	22.3	27.4	31.3	35.1	36.0	0.16	5
6	-10.0	0.16		- 4.7	1.4	8.9	12.5	17.4	21.3	26.5	33.9	37.9	42.1	43.0	0.16	6
7	- 9.0	0.16		- 5.7	1.8	10.7	15.0	20.4	24.2	30.5	38.6	42.6	48.1	49.0	0.16	7
8	-11.0	0.16		- 3.3	3.1	12.8	17.5	23.4	27.6	33.5	41.7	47.8	57.1	58.0	0.16	8
9	-13.0	0.16		- 3.5	4.7	14.7	19.8	25.7	30.3	37.5	44.2	48.4	51.5	52.0	0.32	9
10	-16.0	0.16		- 1.3	6.7	17.0	22.3	28.6	33.4	40.3	47.7	50.8	57.1	58.0	0.16	10
11	-12.0	0.16		0.7	8.5	19.5	24.7	31.8	35.1	41.2	48.7	53.9	61.1	62.0	0.16	11
12	-12.0	0.16		2.3	10.6	21.0	24.9	32.2	35,8	41.6	48.2	55.8	64.1	65.0	0.16	12
13	2.0	0.32		4.2	11.4	19.8	24.5	30.8	34.4	39.7	45.2	50.8	61.1	62.0	0.16	13
14	1.0	0.32		4.6	10.5	18.3	22.1	27.4	30.5	34.6	38.6	44.9	49.5	50.0	0.32	14
15	2.0	0.65		4.0	9.0	15.2	18.8	23.2	25.5	28.5	32.2	37.9	46.1	47.0	0.16	15
16	- 4.0	0.16		2.3	6.3	11.7	14.9	18.5	20.6	24.0	27.5	30.8	38.1	39.0	0.16	16
17	- 3.0	0.48		- 0.8	3.1	8.3	10.8	14.0	16.1	18.7	21.9	24.8	30.5	31.0	0.32	17
18	- 6.0	0.32		- 2.2	-0.1	4.4	6.6	9.5	11.2	13.2	15.6	17.9	25.5	26.0	0.32	18
19	-14.0	0.32		- 6.5	-2.8	1.2	3.1	5.5	6.6	8.5	10.5	12,8	19.1	20.0	0.16	19
20	-15.0	0.32		- 9.7	-4.6	-0.8	0.4	2.3	3.3	5.0	6.7	9.1	10.5	11.0	0.32	20
21	-16.0	0.16		- 9.5	-5.6	-1.2	-0.5	1.2	2.2	3.6	4.8	5,7	10.1	11.0	0.16	21
22	-16.0	0.16		- 8.0	-5.0	-2.4	-1.9	0.0	1.1	2.6	3.6	4.5	6.1	7.0	0.16	22
23	-19.0	0.16		-11.8	-6.2	-2.0	-1.6	-0.0	1.3	2.6	4.5	5.6	7.1	8.0	0.16	23
24	-22.0	0.16		-14.8	-7.7	-3.9	-1.6	-0.1	1,1	2.8	4.9	6.9	15.1	16.0	0.16	24
25	-25.0	0.16		-14.1	-7.5	-4.0	-1.7	0.0	1,2	3,2	5.3	6,6	11.1	12.0	0.16	25
26	-25.0	0.16		-12.5	-7.4	-2.0	-0.8	0.3	1,6	4.0	5.9	7.9	11.1	12.0	0.16	26
27	-22.0	0.32		-12.5	-7.2	-2.4	-0.5	1.3	2.8	5,1	6.8	8.7	13.1	14.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-7 DISTRIBUTION OF ZONAL WINDS	ZONAL WIND DISTRIBUTION
STATION: SANTA MONICA, CALIFORNIA REFERENCE PERIOD: JUNE	SANTA MONICA, CALIFORNIA
STATION ELEVATION: 125 feet or 38.1 meters MSL	JUNE
STATION COORDINATES: 34.01 deg N, 118 27 deg W	
PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960	Positive for components from west Negative for components from east
DATA SOURCE: National Weather Records Center U. S. Weather Bureau Asheville, North Carolina	NO. OF OBS. FOR EACH LEVEL: 600
PREPARED BY: National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962	UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 3.0	0.50		- 2.5	- 0.9	0.3	1.8	3.7	4.4	5.2	5.9	6.5	7.1	8.0	0.17	sfc
1	-10.0	0.17		- 4.2	- 1.0	- 0.2	0.6	2.1	3.0	4.4	5.5	7.0	11.1	12.0	0.17	1
2	- 8.0	0.17		- 4.1	- 1.3	1.4	3.2	5.5	6.7	8.6	9.9	11.2	12.5	13.0	0.33	2
3	-11.0	0.17		- 6.1	- 2.4	1.8	5.0	8.8	10.5	12.0	13.8	15.6	19.1	20.0	0.17	3
4	-13.0	0.17		- 8.7	- 1.0	2.7	5.9	10.2	12.2	14.6	16.6	17.7	20.1	21.0	0.17	4
5	-13.0	0.17		- 8.6	- 1.5	3.2	7.0	11.4	12.8	15.5	18.4	20.0	28.1	29.0	0.17	5
6	-17.0	0.17		- 8.5	- 1.6	4.3	8.3	12.9	15.3	18.5	20.8	24.0	29.1	30.0	0.17	6
7	-19.0	0.17		- 8.0	- 0.8	5.4	9.4	14.3	17.1	19.8	23.8	26.5	32.1	33.0	0.17	7
8	-21.0	0.17		-10.2	- 0.5	7.0	10.9	16.4	19.2	22.6	25.4	30.0	39.1	40.0	0.17	8
9	-22.0	0.50		-12.9	- 0.5	8.5	13.1	17.9	20.7	23.9	26.4	31.3	35.1	36.0	0.17	9
10	-28.0	0.17		-13.8	- 0.5	11.0	15.6	20.8	24.0	27.4	31.2	32.7	42.1	43.0	0.17	10
11	-31.0	0.17		-13.8	0.5	13.5	18.4	24.4	27.1	29.8	31.9	38.0	43.5	44.0	0.33	11
12	-30.0	0.17		-12.8	2.4	15.0	20.0	25.6	27.8	30.6	34.3	42.0	45.1	46.0	0.17	12
13	-31.0	0.17		- 8.9	4.7	15.8	20.0	25.0	27.7	31.6	36.1	41.0	54.1	55.0	0.17	13
14	-23.0	0.17		- 2.6	5.4	14.6	18.0	22.5	25.1	29.0	32.7	36.0	41.1	42.0	0.17	14
15	-10.0	0.17		- 2.8	4.8	11.3	14.2	17.8	20.1	22.5	25.1	28.0	32.1	33.0	0.17	15
16	- 8.0	0.33		- 2.5	2.4	7.2	9.5	12.0	14.4	17.6	20.7	22.5	27.1	28.0	0.17	16
17	- 8.0	0.17		- 4.0	- 0.6	2.9	4.8	7.2	8.5	10.4	12.7	17.0	21.1	22.0	0.17	17
18	-15.0	0.17		- 7.1	- 3.5	- 0.5	0.5	2.7	4.1	5.8	7.4	11.0	16.1	17.0	0.17	18
19	-16.0	0.17		-10.6	- 6.6	- 2.0	- 1.3	- 0.3	0.3	1.7	3.6	4.7	6.1	7.0	0.17	19
20	-16.0	0.33		-12.5	- 8.7	- 5.9	- 3.3	- 2.8	-1.7	-0.3	0.7	1.8	5.5	6.0	0.33	20
21	-18.0	0.17		-13.5	- 9.3	- 6.4	- 5.7	- 3.4	-2.2	-1.0	- 0.7	0.6	9.1	10.0	0.17	21
22	-21.0	0.17		-14.9	-10.2	- 7.2	- 6.4	- 4.1	-3.2	-2.8	- 0.9	0.3	11.1	12.0	0.17	22
23	-20.0	0.17		-15.9	-11.3	- 8.4	- 7.8	- 5.4	-4.4	-3.7	- 1.1	-0.4	11.1	12.0	0.17	23
24	-24.0	0.17		-16.4	-12.3	- 9.9	- 7.3	- 6.9	-5.8	-3.2	- 2.4	-1.2	- 0.2	0.0	0.50	24
25	-28.0	0.17		-17.7	-13.6	- 9.3	- 7.1	- 6.6	-5.7	-3.3	- 2.2	-2.8	- 1.7	- 1.0	0.67	25
26	-30.0	0.17		-18.6	-13.2	-10.8	- 8.9	- 6.7	-5.9	-3.5	- 2.7	-1.6	- 0.2	0.0	0.50	26
27	-30.0	0.33		-20.5	-15.7	-10.4	- 8.9	- 5.0	-4.5	-3.9	- 2.9	-0.9	- 0.1	0.0	1.00	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-8 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: JULY

SANTA MONICA, CALIFORNIA
JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118 27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 4.0	0.32		- 2.9	- 0.8	0.6	1.9	3.5	4.1	4.7	5.3	5.8	8.1	9.0	0.16	sfc
1	9.0	0.32		- 4.0	- 2.8	- 0.4	0.2	1.4	2.1	3.3	3.9	5.4	7.5	8.0	0.32	1
2	-15.0	0.16		- 5.1	- 1.4	0.8	2.4	3.8	5.1	6.3	7.4	7.9	11.1	12.0	0.16	2
3	-12.0	0.16		- 7.2	- 2.3	1.0	3.4	5.7	7.1	8.6	9.8	11.3	13.1	14.0	0.16	3
4	-11.0	0.32		- 8.5	- 3.4	1.0	3.6	6.8	8.3	10.1	11.1	12.7	17.1	18.0	0.16	4
5	-12.0	0.32		- 8.0	- 3.1	1.1	4.2	7.3	9.0	11.1	12.4	13.9	20.1	21.0	0.16	5
6	-13.0	0.48		- 9.0	- 3.0	1.8	5.0	8.5	10.4	12.2	13.9	17.4	24.1	25.0	0.16	6
7	-14.0	0.32		- 9.6	- 3.5	2.9	6.4	10.6	12.5	14.8	17.2	22.8	27.1	28.0	0.16	7
8	-14.0	0.16		- 8.5	- 2.2	4.3	7.8	12.5	14.6	18.0	19.8	22.9	29.1	30.0	0.16	8
9	-15.0	0.16		- 8.8	- 2.9	5.1	9.7	15.0	17.5	20.0	22.4	24.9	29.1	30.0	0.16	9
10	-14.0	0.16		- 7.2	- 1.6	6.8	11.3	17.4	20.3	23.2	26.9	29.4	30.7	31.0	0.48	10
11	-16.0	0.16		- 7.2	- 0.8	8.0	12.7	19.6	22.2	25.2	27.9	29.9	34.1	35.0	0.16	11
12	-13.0	0.32		- 8.5	- 0.4	8.7	14.4	20.9	23.6	26.7	28.8	32.2	37.1	38.0	0.16	12
13	-13.0	0.16		- 7.6	- 0.3	8.3	14.4	19.8	23.2	26.6	28.8	30.9	34.1	35.0	0.16	13
14	-10.0	0.32		- 7.7	- 0.6	6.8	11.6	17.6	21.1	23.3	24.9	26.5	30.1	31.0	0.16	14
15	-10.0	0.32		- 7.1	- 1.5	4.6	7.8	12.8	14.9	17.0	18.4	20.6	26.1	27.0	0.16	15
16	-11.0	0.16		- 7.0	- 3.3	1.0	3.8	7.4	9.4	11.5	14.6	15.9	18.1	19.0	0.16	16
17	-13.0	0.16		- 9.0	- 5.5	-1.3	- 0.1	2.5	4.1	5.8	7.7	9.6	17.1	18.0	0.16	17
18	-13.0	0.16		-11.8	- 7.4	-4.6	- 2.4	-0.5	0.3	2.0	2.9	4.6	8.1	9.0	0.16	18
19	-15.0	0.16		-12.3	- 9.1	-6.5	- 4.2	-3.9	-2.9	-0.6	-0.0	1.1	7.1	8.0	0.16	19
20	-18.0	0.16		-13.0	-11.7	-8.7	- 6.1	-5.6	-4.7	-2.3	-1.6	-0.5	1.5	2.0	0.32	20
21	-18.0	0.32		-15.3	-12.2	-9.0	- 8.3	-6.0	-6.9	-4.6	-2.1	-1.3	-0.2	0.0	0.48	21
22	-22.0	0.16		-16.0	-14.8	-11.6	-10.9	-8.5	-7.5	-6.7	-4.4	-2.1	-0.8	0.0	0.16	22
23	-22.0	0.16		-18.4	-15.7	-12.3	-11.5	-9.4	-8.5	-7.9	-6.9	-3.5	-1.1	-1.0	0.16	23
24	-22.0	0.32		-19.7	-16.2	-13.3	-12.6	-10.0	-9.2	-7.2	-6.8	-3.1	-1.5	-1.0	0.32	24
25	-26.0	0.16		-20.0	-17.3	-14.5	-13.9	-11.6	-10.7	-8.6	-7.9	-5.4	-1.5	-1.0	0.32	25
26	-26.0	0.48		-22.5	-18.3	-15.5	-13.2	-11.0	-11.9	-9.6	-7.4	-6.4	-1.1	-1.0	0.16	26
27	-28.0	0.16		-24.6	-20.8	-16.8	-14.5	-12.4	-11.2	-10.7	-8.4	-6.9	8.1	9.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-9 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: AUGUST

SANTA MONICA, CALIFORNIA
AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL:
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 24, 1962

UNITS:
meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 3.0	0.48		- 2.4	- 0.8	0.6	1.8	3.4	4.1	4.8	5.4	5.8	6.7	7.0	0.48	sfc
1	- 7.0	0.32		- 4.1	- 2.5	- 0.4	0.1	1.4	2.2	3.3	4.2	4.9	7.1	8.0	0.16	1
2	- 9.0	0.16		- 6.8	- 1.1	0.4	1.7	3.2	4.0	5.4	6.7	9.4	11.1	12.0	0.16	2
3	-12.0	0.16		- 7.4	- 2.2	0.5	2.7	4.8	6.1	7.8	9.1	10.6	14.7	15.0	0.48	3
4	-14.8	0.16		- 7.0	- 2.1	0.8	3.5	6.5	8.0	9.7	11.3	12.3	16.1	17.0	0.16	4
5	-14.0	0.16		- 8.0	- 2.8	1.4	4.1	7.3	9.4	11.3	12.8	14.3	15.7	16.0	0.48	5
6	-14.0	0.16		- 7.1	- 2.7	2.4	5.1	8.3	10.4	13.0	14.4	16.4	24.1	25.0	0.16	6
7	-18.0	0.16		- 8.6	- 2.9	3.1	6.2	10.2	12.1	14.5	17.3	18.4	22.1	23.0	0.16	7
8	-15.0	0.16		- 8.0	- 1.5	4.2	7.9	12.0	14.2	16.2	18.4	20.4	24.1	25.0	0.16	8
9	-17.0	0.16		- 8.1	- 0.8	5.1	8.9	14.5	17.3	20.4	22.1	24.6	29.1	30.0	0.16	9
10	-23.0	0.16		- 9.4	- 0.6	6.6	10.8	16.9	19.3	22.2	25.4	27.2	35.1	36.0	0.16	10
11	-24.0	0.16		-10.6	- 0.3	8.3	12.5	19.2	21.6	25.1	28.4	30.4	36.1	37.0	0.16	11
12	-31.0	0.16		-10.7	- 0.2	9.1	13.7	21.9	24.6	29.0	32.2	34.2	38.1	39.0	0.16	12
13	-14.0	0.16		- 8.7	0.1	8.8	13.8	21.2	24.0	28.6	31.8	34.4	38.5	39.0	0.32	13
14	-17.0	0.16		- 8.5	0.1	8.0	12.1	17.4	20.0	23.7	26.4	28.1	30.1	31.0	0.16	14
15	-12.0	0.16		- 5.1	- 0.7	5.3	8.7	12.8	14.7	17.5	19.9	21.9	24.7	25.0	0.65	15
16	- 9.0	0.48		- 6.4	- 1.1	2.0	4.5	7.7	9.3	12.0	14.7	18.4	22.1	23.0	0.16	16
17	-10.0	0.32		- 7.8	- 3.0	- 0.8	0.4	2.7	4.3	6.4	9.4	12.4	16.5	17.0	0.32	17
18	-13.0	0.16		- 8.0	- 5.0	- 2.0	- 1.4	- 0.3	0.3	1.9	3.9	8.8	15.1	16.0	0.16	18
19	-16.0	0.16		-10.2	- 8.8	- 5.6	- 4.9	- 2.6	-1.7	-0.3	1.9	2.8	8.1	9.0	0.16	19
20	-16.0	0.16		-12.1	-10.8	- 7.7	- 5.3	- 3.2	-2.3	-1.3	- 0.5	-0.0	3.1	4.0	0.16	20
21	-16.0	0.48		-14.3	-11.2	- 9.9	- 7.2	- 5.1	-4.4	-3.7	- 2.7	-1.5	- 0.2	0.0	0.48	21
22	-20.0	0.16		-16.5	-13.5	-10.1	- 9.5	- 7.3	-6.3	-5.5	- 4.9	-2.1	- 0.8	0.0	0.16	22
23	-27.0	0.16		-17.1	-14.0	-12.9	-10.2	- 8.0	-7.1	-6.1	- 5.3	-3.4	- 0.8	0.0	0.16	23
24	-26.0	0.32		-19.5	-16.8	-13.6	-11.0	-10.8	-9.9	-7.1	- 6.4	-5.1	- 4.5	- 4.0	0.32	24
25	-27.0	0.16		-20.1	-17.5	-14.7	-12.4	-11.8	-9.1	-8.6	- 7.6	-6.4	- 3.1	- 3.0	0.16	25
26	-28.0	0.32		-21.3	-18.6	-15.9	-13.6	-11.5	-10.5	-8.2	- 7.4	-6.4	- 5.5	- 5.0	0.32	26
27	-31.0	0.16		-23.5	-19.8	-15.2	-13.0	-12.9	-12.0	-8.2	- 7.5	-6.9	- 4.1	- 4.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-10 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: SEPTEMBER

SANTA MONICA, CALIFORNIA
SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118 27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 4.0	0.50		- 2.1	- 1.8	-0.1	1.2	3.1	3.7	4.5	5.0	6.0	7.1	8.0	0.17	sfc
1	- 7.0	0.17		- 4.1	- 2.6	-0.3	0.4	1.7	2.4	3.4	4.3	5.0	6.7	7.0	0.50	1
2	-12.0	0.17		- 7.5	- 2.2	0.3	2.2	4.2	5.5	6.7	7.7	9.4	14.1	15.0	0.17	2
3	-14.0	0.17		- 9.7	- 4.6	1.0	3.2	6.0	7.6	9.5	11.0	12.6	15.1	16.0	0.17	3
4	-13.0	0.33		- 8.2	- 3.6	1.4	3.8	7.2	9.3	11.9	15.0	17.2	23.1	24.0	0.17	4
5	-10.0	0.50		- 7.5	- 2.1	2.5	5.6	8.5	10.6	13.6	16.1	19.0	26.1	27.0	0.17	5
6	-11.0	0.17		- 7.2	- 2.6	4.4	7.0	10.7	12.8	16.0	19.5	24.0	32.1	33.0	0.17	6
7	-20.0	0.17		- 9.7	- 1.2	5.6	9.2	13.2	15.4	20.2	22.6	31.0	34.1	35.0	0.17	7
8	-15.0	0.17		-10.4	- 1.6	7.6	11.7	15.7	19.5	23.8	29.3	35.3	45.1	46.0	0.17	8
9	-14.0	0.17		-10.4	- 0.7	9.1	13.4	19.6	23.4	27.3	32.3	36.5	43.1	44.0	0.17	9
10	-19.0	0.33		-11.8	- 0.0	11.3	16.6	23.7	26.6	30.7	35.4	39.5	48.1	49.0	0.17	10
11	-24.0	0.33		-14.9	1.6	14.0	18.8	27.5	31.0	34.3	37.7	42.5	57.1	58.0	0.17	11
12	-27.0	0.17		-12.7	3.3	16.8	21.5	29.6	33.4	36.0	39.0	41.5	46.1	47.0	0.17	12
13	-19.0	0.33		- 8.8	5.4	18.0	22.5	28.5	31.4	35.4	39.4	41.7	48.1	49.0	0.17	13
14	-15.0	0.17		- 5.8	5.4	16.0	20.3	24.6	27.5	31.3	34.4	39.0	44.1	45.0	0.17	14
15	-12.0	0.50		- 2.1	3.9	12.4	15.8	19.9	22.0	24.4	27.3	30.0	36.5	37.0	0.33	15
16	- 9.0	0.17		- 3.2	1.6	7.7	10.8	14.4	16.2	18.2	22.1	24.2	28.1	29.0	0.17	16
17	-10.0	0.17		- 5.6	- 0.9	3.4	5.9	8.8	10.6	12.8	16.0	19.0	21.1	22.0	0.17	17
18	-15.0	0.17		- 7.7	- 2.1	-0.0	2.0	4.4	5.9	7.9	10.4	11.5	18.5	19.0	0.33	18
19	-11.0	0.33		- 7.2	- 4.6	-1.7	-0.1	1.9	3.2	4.7	6.3	8.0	14.1	15.0	0.17	19
20	-18.0	0.17		- 8.2	- 5.1	-2.3	-1.8	-0.1	1.1	2.3	3.5	5.0	11.1	12.0	0.17	20
21	-12.0	0.17		-10.7	- 6.0	-3.1	-2.6	-0.7	-0.1	0.9	2.0	2.8	5.5	6.0	0.33	21
22	-13.0	0.50		-11.9	- 8.9	-6.0	-3.4	-1.4	-0.7	-0.0	1.0	2.4	5.1	6.0	0.17	22
23	-18.0	0.17		-12.4	- 9.6	-5.0	-4.9	-2.8	-1.7	-0.1	1.3	2.2	5.1	6.0	0.17	23
24	-22.0	0.17		-13.2	-10.6	-6.2	-4.1	-2.2	-1.3	-0.4	1.7	3.0	9.1	10.0	0.17	24
25	-19.0	0.17		-15.5	-11.9	-7.8	-5.7	-2.1	-1.2	-0.3	1.6	4.0	8.1	9.0	0.17	25
26	-18.0	0.33		-15.1	-11.4	-7.5	-5.6	-2.2	-1.3	-0.3	1.7	5.0	10.1	11.0	0.17	26
27	-20.0	0.17		-17.9	-11.2	-7.5	-5.6	-2.6	-1.8	1.0	3.3	6.2	10.1	11.0	0.17	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-11 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: OCTOBER

SANTA MONICA, CALIFORNIA
OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 4.0	0.48		- 2.1	- 1.5	-0.2	0.8	2.8	3.5	4.2	4.9	5.6	9.1	10.0	0.16	sfc
1	- 9.0	0.16		- 5.0	- 2.1	-0.6	-0.0	0.9	1.7	2.8	3.7	4.9	10.1	11.0	0.16	1
2	-11.0	0.16		- 7.3	- 4.6	-0.6	0.6	3.2	4.6	6.1	7.6	8.8	13.1	14.0	0.16	2
3	-17.0	0.16		-10.2	- 5.8	-0.5	2.2	5.8	7.6	11.0	12.7	15.6	23.1	24.0	0.16	3
4	-18.9	0.16		-10.2	- 3.2	1.1	4.4	9.0	11.4	14.8	18.4	21.2	27.1	28.0	0.16	4
5	-19.0	0.16		-10.6	- 2.0	2.8	6.7	11.2	13.6	18.0	23.3	26.6	45.1	46.0	0.16	5
6	-18.0	0.16		-11.7	- 2.7	4.0	7.8	12.9	15.8	21.3	25.9	30.6	47.1	48.0	0.16	6
7	-35.0	0.16		-13.8	- 2.4	5.6	9.2	14.1	18.0	24.1	29.3	36.8	51.1	52.0	0.16	7
8	-18.0	0.32		-12.3	- 2.7	7.1	11.2	15.8	20.5	26.3	31.9	35.8	63.1	64.0	0.16	8
9	-23.0	0.16		-13.0	- 2.6	8.7	13.3	19.0	22.8	28.4	33.4	37.9	59.1	60.0	0.16	9
10	-23.0	0.16		-14.5	- 1.9	10.7	15.3	20.5	23.5	30.3	34.3	38.9	47.1	48.0	0.16	10
11	-24.0	0.16		-12.0	- 0.5	12.5	17.0	22.4	25.6	30.3	36.9	38.8	44.5	45.0	0.32	11
12	-25.0	0.16		-12.0	1.0	13.2	18.3	23.3	26.2	30.6	33.8	37.9	41.1	42.0	0.16	12
13	-26.0	0.16		-12.1	3.5	13.9	18.8	22.9	25.7	29.1	32.7	34.7	38.1	39.0	0.16	13
14	-24.0	0.16		-11.0	4.3	14.1	17.8	21.6	24.1	27.0	29.1	32.8	38.1	39.0	0.16	14
15	-22.0	0.16		- 7.0	4.4	11.9	15.6	19.2	21.1	24.0	26.4	28.2	31.1	32.0	0.16	15
16	-19.0	0.16		- 6.7	3.3	9.5	12.7	16.2	18.0	20.1	23.4	26.9	29.1	30.0	0.16	16
17	-19.0	0.16		- 4.4	1.2	6.8	9.3	12.4	13.9	16.2	18.8	20.9	30.1	31.0	0.16	17
18	-13.0	0.16		- 4.8	-0.3	4.1	6.2	8.5	10.2	12.1	14.3	16.2	22.1	23.0	0.16	18
19	-10.0	0.16		- 5.7	-1.9	2.0	3.5	5.8	7.0	8.7	11.2	13.9	15.8	16.0	0.81	19
20	-15.0	0.16		- 6.2	-2.6	0.5	2.2	4.3	5.5	7.4	8.8	10.9	16.1	17.0	0.16	20
21	-13.0	0.16		- 6.1	-2.1	-0.0	1.3	3.4	4.8	6.0	7.5	9.4	11.5	12.0	0.32	21
22	-13.0	0.16		- 7.5	-3.7	-0.1	1.5	3.3	4.4	5.8	6.9	8.5	9.7	10.0	0.65	22
23	- 9.0	0.16		- 7.9	-3.2	0.1	1.7	3.7	4.8	6.5	8.3	9.2	9.8	10.0	1.29	23
24	- 8.0	0.65		- 7.7	-3.5	0.2	2.3	4.9	6.0	7.7	10.1	12.2	18.1	19.0	0.16	24
25	- 9.0	0.65		- 7.3	-3.9	0.7	2.9	6.0	7.2	9.3	11.3	13.8	17.1	18.0	0.16	25
26	-11.0	0.32		- 8.5	-2.1	1.6	4.2	7.5	9.2	11.8	13.8	15.6	18.1	19.0	0.16	26
27	-12.0	0.65		- 8.6	-2.5	2.4	5.9	9.1	11.4	14.5	16.9	19.6	24.1	25.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-12 DISTRIBUTION OF ZONAL WINDS	ZONAL WIND DISTRIBUTION
STATION: SANTA MONICA, CALIFORNIA REFERENCE PERIOD: NOVEMBER	SANTA MONICA, CALIFORNIA
STATION ELEVATION: 125 feet or 38.1 meters MSL	NOVEMBER
STATION COORDINATES: 34.01 deg N, 118.27 deg W	
PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960	Positive for components from west Negative for components from east
DATA SOURCE: National Weather Records Center U. S. Weather Bureau Asheville, North Carolina	NO. OF OBS. FOR EACH LEVEL: 600
PREPARED BY: National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962	UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 5.0	0.33		- 3.4	-2.8	-0.6	-0.1	1.8	2.6	3.7	4.6	5.5	14.1	15.0	0.17	sfc
1	-11.0	0.17		- 6.0	-2.0	-0.5	0.0	1.4	2.0	3.0	4.8	8.0	15.1	16.0	0.17	1
2	-19.0	0.17		- 8.0	-4.5	-0.6	0.8	3.1	4.4	6.3	8.8	11.6	20.1	21.0	0.17	2
3	-18.0	0.17		- 8.4	-4.4	0.3	3.1	6.4	8.6	10.7	14.1	16.7	21.1	22.0	0.17	3
4	-30.0	0.17		- 8.4	-3.1	2.0	5.4	10.1	12.0	15.4	19.0	22.0	29.1	30.0	0.17	4
5	-19.0	0.17		-10.9	-3.9	3.2	7.6	12.6	15.1	18.2	23.7	29.0	42.1	43.0	0.17	5
6	-19.0	0.17		-10.1	-2.4	4.8	9.9	15.4	18.2	22.7	29.3	32.0	51.1	52.0	0.17	6
7	-19.0	0.17		-12.8	-2.9	6.5	11.8	18.2	22.4	27.6	34.7	40.5	45.5	46.0	0.33	7
8	-25.0	0.17		-12.4	-1.4	8.9	13.8	20.8	26.5	31.8	37.1	41.3	52.1	53.0	0.17	8
9	-28.0	0.17		-13.8	-1.8	10.9	16.2	23.7	29.0	34.5	39.4	43.6	49.1	50.0	0.17	9
10	-23.0	0.33		-12.2	-0.4	12.3	18.8	28.3	32.2	37.8	41.4	45.0	52.1	53.0	0.17	10
11	-21.0	0.33		-13.9	1.2	13.5	20.6	29.8	33.2	38.8	43.6	53.0	60.1	61.0	0.17	11
12	-18.0	0.17		-11.9	2.4	14.2	22.0	29.8	33.1	38.5	43.3	52.0	64.1	65.0	0.17	12
13	-22.0	0.17		- 6.8	3.0	14.9	21.2	28.4	31.5	35.8	40.0	43.0	54.1	55.0	0.17	13
14	-23.0	0.17		- 6.5	3.1	14.1	20.0	27.6	30.6	34.0	36.4	37.8	54.1	55.0	0.17	14
15	-22.0	0.17		- 7.8	2.8	13.1	18.2	23.5	26.7	29.6	31.4	35.3	43.1	44.0	0.17	15
16	-16.0	0.17		- 5.2	2.3	11.7	15.9	19.9	22.1	24.1	27.2	28.7	36.1	37.0	0.17	16
17	-11.0	0.17		- 5.5	1.0	8.9	12.8	16.6	18.5	20.5	23.0	24.5	29.1	30.0	0.17	17
18	-11.0	0.17		- 5.1	-0.3	6.5	9.3	13.3	15.5	18.0	19.6	22.3	27.5	28.0	0.33	18
19	- 9.0	0.17		- 6.1	-1.6	4.4	7.1	10.2	12.5	14.8	17.1	20.5	25.1	26.0	0.17	19
20	-13.0	0.17		- 7.3	-2.7	2.8	5.7	8.9	10.6	12.6	15.8	17.7	22.1	23.0	0.17	20
21	-13.0	0.17		- 8.9	-2.2	2.0	5.1	8.4	9.9	12.3	14.4	15.7	18.1	19.0	0.17	21
22	-13.0	0.33		- 8.6	-3.8	1.8	5.2	8.3	9.7	12.0	14.6	16.0	18.1	19.0	0.17	22
23	-15.0	0.33		- 8.3	-3.6	2.1	5.8	9.2	10.7	13.6	16.4	20.0	22.5	23.0	0.33	23
24	-16.0	0.33		- 9.1	-3.5	2.8	6.4	10.4	12.3	15.8	19.0	22.0	25.5	26.0	0.33	24
25	-15.0	0.33		-10.7	-3.4	3.4	7.8	11.8	14.7	18.0	21.4	23.0	32.1	33.0	0.17	25
26	-22.0	0.17		-11.2	-2.1	5.1	10.0	14.5	17.0	21.3	24.5	27.0	32.5	33.0	0.33	26
27	-21.0	0.17		-13.8	-2.2	6.5	11.5	17.1	19.7	24.2	27.5	30.3	34.1	35.0	0.17	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE II-13 DISTRIBUTION OF ZONAL WINDS

ZONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: DECEMBER

SANTA MONICA, CALIFORNIA

DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from west
Negative for components from east

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 4.0	0.32		- 3.4	-2.7	-0.7	-0.1	1.2	1.8	2.6	3.5	4.7	7.1	8.0	0.16	sfc
1	-14.0	0.16		- 8.7	-3.1	-0.8	-0.2	1.1	2.0	3.6	5.3	6.9	10.1	11.0	0.16	1
2	-15.0	0.32		- 9.2	-5.8	-0.7	0.6	3.4	5.3	8.0	9.4	10.9	16.1	17.0	0.16	2
3	-17.0	0.32		-12.7	-5.8	-0.0	2.9	5.9	8.8	11.5	14.4	17.6	23.1	24.0	0.16	3
4	-23.0	0.16		-11.2	-4.5	1.7	5.2	9.3	12.3	16.0	19.3	24.9	45.1	46.0	0.16	4
5	-20.0	0.16		-12.7	-3.3	3.6	7.5	11.8	15.0	19.5	24.3	29.8	46.1	47.0	0.16	5
6	-24.0	0.16		-13.8	-4.9	4.9	9.4	14.0	17.8	23.6	28.2	33.9	55.1	56.0	0.16	6
7	-28.0	0.16		-14.0	-3.6	6.4	11.6	16.9	20.7	27.0	31.9	36.4	51.1	52.0	0.16	7
8	-34.0	0.16		-17.7	-3.7	7.7	13.5	20.6	24.0	30.2	36.4	41.2	54.5	55.0	0.32	8
9	-25.0	0.16		-16.0	-3.8	9.2	15.4	24.6	28.5	34.3	41.9	50.8	60.1	61.0	0.16	9
10	-31.0	0.16		-19.0	-2.8	11.5	18.4	28.0	33.0	37.5	44.4	57.8	74.1	75.0	0.16	10
11	-25.0	0.16		-16.7	-0.9	14.0	21.9	31.8	35.6	42.5	49.6	63.8	71.5	72.0	0.32	11
12	-25.0	0.16		-11.6	1.6	16.5	22.7	31.9	36.4	43.0	52.9	57.4	75.1	76.0	0.16	12
13	-23.0	0.16		- 5.4	3.4	16.3	22.4	29.9	34.0	41.7	46.9	51.9	61.1	62.0	0.16	13
14	- 8.0	0.16		- 2.3	5.3	16.3	21.1	27.6	31.0	35.0	37.9	42.6	49.1	50.0	0.16	14
15	-10.0	0.16		- 2.7	4.9	15.0	19.4	24.2	26.5	30.8	33.6	36.4	41.5	42.0	0.32	15
16	- 8.0	0.32		- 1.4	3.9	12.6	16.7	20.8	24.0	27.2	29.6	31.9	35.1	36.0	0.16	16
17	- 7.0	0.16		- 2.2	1.9	9.7	13.2	17.0	19.2	22.0	26.4	28.9	31.1	32.0	0.16	17
18	- 6.0	0.48		- 4.6	-0.0	7.0	10.0	13.5	15.3	18.8	22.2	26.2	28.7	29.0	0.48	18
19	-12.0	0.32		- 5.0	-0.9	3.8	7.0	10.1	11.9	15.3	18.4	20.2	26.1	27.0	0.16	19
20	-13.0	0.16		- 7.4	-2.6	1.3	3.9	7.5	9.4	12.0	13.8	16.2	20.1	21.0	0.16	20
21	-17.0	0.16		- 9.5	-4.8	0.0	2.3	5.9	8.1	10.7	12.9	15.9	18.1	19.0	0.16	21
22	-15.0	0.16		-11.7	-5.5	-0.5	1.5	4.8	6.9	10.1	11.9	14.8	19.1	20.0	0.16	22
23	-16.0	0.48		-12.8	-6.9	-0.6	1.4	4.7	6.4	9.0	11.9	16.4	23.1	24.0	0.16	23
24	-19.0	0.32		-12.2	-7.7	-0.5	1.7	5.2	6.6	10.1	13.6	17.8	25.1	26.0	0.16	24
25	-20.0	0.16		-14.3	-7.2	-0.1	2.6	6.3	8.3	10.8	14.1	16.6	28.1	29.0	0.16	25
26	-24.0	0.16		-16.5	-8.8	0.8	4.4	8.5	10.8	13.6	16.4	20.8	29.1	30.0	0.16	26
27	-21.0	0.81		-17.5	-7.0	1.8	6.0	10.8	13.4	16.1	19.9	22.9	29.1	30.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III

Page

Distribution of Meridional Winds

(Positive for wind component from the south)

(Negative for wind component from the north)

Unit: meters per second

TABLE III-1 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: ANNUAL

SANTA MONICA, CALIFORNIA
ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL:
7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aerobalistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	-15.0	0.03	-11.9	- 4.3	- 1.2	-0.3	0.1	1.3	1.8	2.6	3.1	3.8	5.8	15.0	0.01	sfc
1	-22.0	0.01	-16.9	- 8.4	- 2.1	-0.5	-0.0	1.2	1.9	2.9	4.6	6.9	12.3	18.0	0.01	1
2	-27.0	0.01	-20.8	-10.0	- 4.3	-0.5	0.7	2.8	4.1	6.0	7.9	10.2	14.3	23.0	0.03	2
3	-38.0	0.01	-26.9	-15.8	- 6.4	-0.5	1.6	4.6	6.4	8.8	11.5	14.4	19.5	27.0	0.01	3
4	-47.0	0.01	-29.6	-17.0	- 8.8	-0.5	2.2	5.8	7.9	11.0	14.4	17.5	24.6	33.0	0.01	4
5	-56.0	0.01	-36.8	-21.9	- 9.7	-0.4	2.6	6.6	9.0	12.6	16.7	20.3	26.0	39.0	0.01	5
6	-64.0	0.01	-46.8	-23.0	-10.5	-0.3	3.1	7.5	10.1	13.9	19.4	23.0	31.5	37.0	0.01	6
7	-76.0	0.01	-50.4	-27.8	-11.7	-0.3	3.5	8.4	11.4	15.9	21.6	26.5	38.0	51.0	0.01	7
8	-79.0	0.01	-54.9	-30.2	-12.5	-0.1	4.3	9.8	13.1	18.9	24.5	29.6	38.7	55.0	0.01	8
9	-73.0	0.01	-57.9	-34.9	-13.3	-0.0	5.1	11.2	15.3	21.1	26.9	32.6	44.0	54.0	0.01	9
10	-63.0	0.01	-54.4	-36.5	-14.2	0.1	5.8	12.8	16.8	22.8	28.6	33.2	46.1	64.0	0.01	10
11	-68.0	0.01	-53.5	-36.9	-14.1	0.2	6.7	14.0	18.8	23.8	29.5	33.7	45.0	57.0	0.01	11
12	-63.0	0.01	-51.9	-33.9	-12.0	0.8	7.0	14.2	18.3	24.0	28.2	33.1	42.8	57.0	0.01	12
13	-63.0	0.01	-45.9	-29.5	-10.3	1.3	6.9	13.6	17.3	21.9	26.2	29.6	37.6	49.0	0.01	13
14	-46.0	0.03	-43.9	-25.8	- 8.1	1.3	6.2	11.8	15.1	19.3	22.9	25.8	33.7	40.0	0.04	14
15	-39.0	0.01	-34.9	-20.9	- 7.5	1.0	4.9	9.3	12.0	15.8	18.9	22.1	30.2	36.0	0.01	15
16	-32.0	0.03	-28.7	-16.1	- 6.5	0.5	3.6	7.2	9.1	11.9	14.8	17.5	23.4	30.0	0.01	16
17	-26.0	0.01	-23.9	-13.3	- 5.6	-0.1	2.3	5.2	6.6	8.9	11.0	13.0	20.0	31.0	0.01	17
18	-23.0	0.01	-18.2	-11.3	- 4.1	-0.4	1.1	3.4	4.7	6.5	8.2	10.0	16.3	32.0	0.01	18
19	-19.0	0.01	-15.3	- 9.3	- 4.6	-0.6	0.4	2.2	3.2	4.7	6.2	7.8	15.0	30.0	0.01	19
20	-21.0	0.01	-15.8	- 8.7	- 3.1	-0.7	0.0	1.5	2.4	3.7	5.2	6.7	11.8	17.0	0.01	20
21	-21.0	0.01	-13.7	- 7.1	- 3.4	-0.7	-0.1	1.1	1.9	3.0	4.4	5.8	10.0	14.0	0.03	21
22	-20.0	0.01	-13.1	- 7.2	- 3.4	-0.7	-0.1	0.9	1.8	2.9	4.3	5.7	10.5	14.0	0.01	22
23	-15.0	0.03	-12.1	- 7.2	- 3.5	-0.8	-0.1	0.9	1.7	2.9	4.5	6.3	12.1	18.0	0.01	23
24	-16.0	0.07	-13.2	- 7.2	- 3.4	-0.8	-0.1	0.9	1.8	3.1	5.1	7.3	11.4	16.0	0.01	24
25	-20.0	0.01	-14.5	- 8.7	- 3.3	-0.7	-0.1	1.1	1.9	3.3	4.9	7.4	12.3	15.0	0.01	25
26	-24.0	0.01	-15.1	- 9.8	- 3.0	-0.8	-0.1	1.2	2.2	3.7	5.7	7.8	12.0	17.0	0.01	26
27	-27.0	0.01	-18.4	- 9.4	- 4.8	-0.8	-0.1	1.5	2.6	4.2	6.5	9.4	14.8	20.0	0.01	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-2 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: JANUARY

SANTA MONICA, CALIFORNIA
JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL:
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	-10.0	0.16		- 6.3	- 2.3	-0.7	-0.3	- 0.0	0.6	1.5	2.2	3.6	8.1	9.0	0.16	sfc
1	-16.0	0.16		- 8.0	- 3.5	-0.4	0.2	1.8	3.0	5.4	7.7	9.9	17.1	18.0	0.16	1
2	-19.0	0.16		-11.0	- 5.0	-0.8	0.9	3.7	5.3	6.9	9.8	12.2	20.1	21.0	0.16	2
3	-31.0	0.16		-16.3	-10.9	-1.3	1.5	5.1	7.0	9.6	12.9	16.2	25.1	26.0	0.16	3
4	-33 0	0.16		-20.0	-12.7	-2.9	2.1	6.7	9.0	12.6	16.9	19.4	30.1	31.0	0.16	4
5	-39.0	0.16		-25.0	-14.9	-1.0	2.6	8.1	11.3	15.5	19.6	23.2	27.1	28.0	0.16	5
6	-44.0	0.16		-27.0	-15.1	-2.5	3.5	9.3	12.0	16.8	21.6	24.8	33.1	34.0	0.16	6
7	-54.0	0.16		-33.0	-17.8	-1.7	4.1	10.2	12.8	20.2	26.4	29.6	33.1	34.0	0.16	7
8	-50.0	0.16		-37.1	-19.5	-0.7	5.0	11.7	15.7	25.0	30.8	32.6	37.1	38.0	0.16	8
9	-65.0	0.16		-40.1	-23.7	-0.4	5.9	13.8	18.1	26.8	33.2	36.9	44.1	45.0	0.16	9
10	-55.0	0.32		-41.7	-24.0	-0.2	6.4	14.4	21.0	27.5	30.7	34.8	40.1	41.0	0.16	10
11	-68.0	0.16		-45.1	-24.2	-0.7	6.6	16.4	21.8	27.1	31.5	33.7	38.1	39.0	0 16	11
12	-58.0	0.16		-43.0	-23.7	-0.9	6.1	15.3	20.5	24.5	26.9	30.4	36.1	37.0	0.16	12
13	-51.0	0.16		-40.0	-17.0	-0.8	5.5	13.8	17.5	21.1	25.4	27.4	32.1	33.0	0.16	13
14	-45.0	0.16		-32.0	-15.3	-0.7	5.2	11.4	15.7	19.2	22.4	24.8	28.5	29.0	0.32	14
15	-35.0	0.48		-29.2	-12.0	-0.8	3.5	8.9	12.4	17.3	19.6	21.4	25.5	26.0	0.32	15
16	-32.0	0.16		-25.7	- 9.1	-0.9	3.0	7.3	9.7	13.4	15.3	18.7	29.1	30.0	0.16	16
17	-26.0	0.16		-18.0	- 7.0	-1.5	1.9	5.3	7.8	10.2	11.9	13.9	30.1	31.0	0.16	17
18	-22.0	0.16		-16.5	- 7.0	-1.2	0.1	3.1	5.0	7.7	9.2	10.9	31.1	32.0	0.16	18
19	-18.0	0.16		-13.3	- 7.6	-2.8	-0.3	1.8	3.3	5.6	6.9	8.4	29.1	30.0	0.16	19
20	-17.0	0.16		-11.3	- 6.8	-2.7	-0.6	0.8	2.4	4.0	5.5	7.2	15.1	16.0	0.16	20
21	-13.0	0.32		-11.9	- 6.4	-2.8	-0.7	0.5	1.6	3.1	4.9	5.8	9.1	10.0	0.16	21
22	-17.0	0.16		-11.2	- 6.4	-2.5	-0.8	0.1	1.1	2.5	3.5	4.5	6.1	7.0	0.16	22
23	-15.0	0.16		-10.0	- 6.4	-2.2	-1.9	0.1	1.1	2.3	3.6	4.6	7.5	8.0	0.32	23
24	-16.0	0.81		-11.2	- 6.3	-2.4	-0.9	- 0.0	0.8	2.3	4.1	5.7	7.5	8.0	0.32	24
25	-20.0	0.16		-12.8	- 6.1	-2.4	-0.7	0.6	1.6	3.1	4.2	5.9	8.7	9.0	0.48	25
26	-24.0	0.16		-13.0	- 7.4	-2.4	-0.7	0.8	2.5	4.1	5.9	7.9	10.1	11.0	0.16	26
27	-27.0	0.16		-15.0	- 7.0	-2.2	-0.6	2.0	3.8	5.7	7.8	10.3	12.1	13.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-3 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center.
U. S. Weather Bureau
Asheville, North Carolina

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

SANTA MONICA, CALIFORNIA

FEBRUARY

Positive for components from south
Negative for components from north

NO. OF OBS. FOR EACH LEVEL: 568

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 8.0	0.53		- 5.7	- 2.9	-0.5	-0.1	0.5	1.1	1.9	2.9	3.7	6.2	7.0	0.18	sfc
1	-22.0	0.18		- 8.1	- 3.4	-0.6	-0.0	1.4	2.6	5.4	8.6	11.5	16.2	17.0	0.18	1
2	-20.0	0.18		-13.9	- 6.5	-3.0	-0.1	3.4	5.6	9.1	11.6	13.1	22.6	23.0	0.35	2
3	-22.0	0.18		-17.1	- 9.0	-2.1	-0.0	4.6	7.1	11.6	14.8	17.7	26.2	27.0	0.18	3
4	-37.0	0.18		-21.4	-11.7	-2.2	0.9	6.3	9.4	14.1	18.4	20.3	24.7	25.0	0.53	4
5	-48.0	0.18		-25.7	-14.6	-2.2	1.8	7.2	10.8	16.1	19.2	21.7	26.2	27.0	0.18	5
6	-49.0	0.18		-29.9	-15.2	-4.0	2.2	8.9	11.4	15.8	20.3	23.4	36.2	37.0	0.18	6
7	-64.0	0.18		-34.9	-17.4	-2.3	3.2	10.4	13.6	17.8	22.5	27.6	29.7	30.0	0.53	7
8	-74.0	0.18		-37.6	-20.5	-2.3	4.2	10.3	15.6	21.6	25.5	30.7	38.2	39.0	0.18	8
9	-66.0	0.18		-41.9	-21.2	-4.0	4.2	11.4	17.0	23.6	26.6	35.1	37.6	38.0	0.35	9
10	-58.0	0.18		-42.4	-24.0	-4.0	5.0	13.3	18.4	23.9	29.6	33.6	45.2	46.0	0.18	10
11	-61.0	0.18		-46.9	-24.9	-2.0	5.0	13.2	18.0	23.4	29.5	32.6	38.6	39.0	0.35	11
12	-63.0	0.18		-44.9	-22.2	-2.1	5.0	13.0	16.6	21.2	25.2	29.6	36.6	37.0	0.35	12
13	-63.0	0.18		-42.6	-18.6	-4.0	4.9	11.6	15.5	20.3	22.8	25.1	33.2	34.0	0.18	13
14	-46.0	0.35		-37.9	-16.3	-2.9	4.3	10.2	12.9	16.3	20.0	22.3	29.6	30.0	0.35	14
15	-38.0	0.18		-26.4	-14.8	-2.8	3.6	8.3	11.1	14.0	16.8	19.5	31.2	32.0	0.18	15
16	-32.0	0.18		-21.3	-11.2	-1.3	2.5	6.6	9.0	11.9	14.1	14.9	18.2	19.0	0.18	16
17	-25.0	0.18		-17.5	- 9.0	-1.5	1.7	5.4	7.3	9.6	12.0	13.7	17.2	18.0	0.18	17
18	-23.0	0.18		-14.1	- 8.7	-0.9	0.8	3.9	5.4	7.3	9.8	12.4	25.2	26.0	0.18	18
19	-19.0	0.18		-12.6	- 6.5	-1.7	0.0	3.0	4.2	5.8	7.8	9.8	18.2	19.0	0.18	19
20	-21.0	0.18		- 8.0	- 5.5	-1.4	-0.2	1.8	3.3	5.5	6.8	8.1	12.2	13.0	0.18	20
21	-21.0	0.18		- 9.7	- 4.0	-1.5	-0.1	1.7	3.0	4.9	6.6	8.3	12.2	13.0	0.18	21
22	-20.0	0.18		- 8.1	- 4.4	-1.7	-0.2	1.4	2.9	5.4	7.7	10.4	13.2	14.0	0.18	22
23	-15.0	0.18		- 7.0	- 4.8	-1.7	-0.3	1.5	3.1	6.5	9.4	12.0	13.6	14.0	0.35	23
24	-11.0	0.53		- 8.7	- 4.8	-1.8	-0.3	1.4	4.2	7.1	10.4	12.0	15.2	16.0	0.18	24
25	-13.0	0.18		- 9.9	- 4.3	-1.5	-0.4	1.7	4.6	8.6	11.0	12.5	13.6	14.0	0.35	25
26	-12.0	0.35		- 9.1	- 5.6	-1.0	-0.4	2.2	6.0	9.3	11.1	13.1	16.2	17.0	0.18	26
27	-17.0	0.18		-10.9	- 5.0	-2.8	-0.4	3.5	7.6	10.7	13.0	15.6	19.2	20.0	0.18	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-4 DISTRIBUTION OF MERIDIONAL WINDS

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: MARCH
STATION ELEVATION: 125 feet or 38.1 meters MSL
STATION COORDINATES: 34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina
PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

MERIDIONAL WIND DISTRIBUTION
SANTA MONICA, CALIFORNIA
MARCH
Positive for components from south
Negative for components from north
NO. OF OBS. FOR EACH LEVEL: 620
UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	-13.0	0.16		- 5.0	- 2.9	-0.4	-0.1	1.2	1.8	2.6	3.3	3.8	5.1	6.0	0.16	sfc
1	-16.0	0.16		-11.7	- 4.3	-0.7	-0.1	1.2	2.0	3.8	4.9	6.2	14.1	15.0	0.16	1
2	-23.0	0.16		-13.6	- 6.6	-1.3	-0.2	2.1	3.5	5.1	6.8	8.6	12.1	13.0	0.16	2
3	-38.0	0.16		-17.2	- 8.2	-2.5	-0.3	2.9	4.7	8.3	10.1	11.2	18.1	19.0	0.16	3
4	-32.0	0.16		-20.3	-10.2	-3.7	-0.3	3.0	5.1	7.9	12.9	15.9	28.1	29.0	0.16	4
5	-32.0	0.16		-22.5	-11.1	-3.5	-0.1	4.1	6.5	10.2	14.7	17.9	26.1	27.0	0.16	5
6	-40.0	0.16		-25.0	-13.5	-3.7	-0.0	4.7	7.7	11.5	16.4	21.2	29.1	30.0	0.16	6
7	-45.0	0.16		-26.0	-14.7	-4.0	0.3	5.4	8.1	13.3	19.2	23.9	32.1	33.0	0.16	7
8	-48.0	0.16		-28.0	-16.4	-3.8	0.5	6.3	9.6	14.4	19.8	29.8	33.1	34.0	0.16	8
9	-50.0	0.16		-32.1	-17.7	-3.8	0.5	6.9	10.1	15.6	23.9	30.6	35.1	36.0	0.16	9
10	-63.0	0.16		-35.5	-17.5	-2.9	1.4	7.9	11.3	16.5	22.2	29.8	36.1	37.0	0.16	10
11	-50.0	0.16		-32.1	-17.1	-0.9	2.4	8.3	13.2	18.4	23.4	28.8	46.1	47.0	0.16	11
12	-43.0	0.16		-28.4	-15.7	-0.8	2.9	8.6	11.3	16.2	21.9	27.8	41.1	42.0	0.16	12
13	-44.0	0.16		-25.7	-12.5	-0.6	3.3	7.6	10.0	13.5	18.1	21.6	33.1	34.0	0.16	13
14	-28.0	0.16		-21.3	- 9.3	-0.5	2.8	7.0	9.4	12.0	14.4	18.4	24.1	25.0	0.16	14
15	-25.0	0.16		-17.7	- 8.2	-0.6	2.3	5.6	7.2	9.9	12.4	17.4	22.1	23.0	0.16	15
16	-19.0	0.16		-15.8	- 7.3	-0.7	1.7	4.8	6.6	8.6	9.9	12.8	17.1	18.0	0.16	16
17	-21.0	0.16		-12.3	- 6.2	-0.8	0.5	3.3	4.9	6.4	8.4	10.3	12.1	13.0	0.16	17
18	-17.0	0.16		-10.8	- 5.6	-0.9	-0.0	2.3	3.3	4.8	7.0	7.9	13.1	14.0	0.16	18
19	-17.0	0.16		- 9.7	- 5.8	-1.6	-0.2	1.4	2.5	3.6	5.4	6.7	8.5	9.0	0.32	19
20	-11.0	0.16		- 7.8	- 4.6	-1.6	-0.2	1.5	2.4	3.5	4.5	5.7	7.5	8.0	0.32	20
21	-13.0	0.16		- 6.5	- 3.0	-1.6	-0.3	1.1	2.0	3.4	4.6	5.7	6.8	7.0	0.81	21
22	-12.0	0.16		- 6.0	- 3.0	-1.8	-0.3	0.8	1.9	3.7	5.2	6.3	8.1	9.0	0.16	22
23	-11.0	0.16		- 7.8	- 3.2	-1.7	-0.4	0.7	2.1	4.1	6.3	7.6	11.1	12.0	0.16	23
24	-12.0	0.48		- 6.3	- 3.3	-1.9	-0.2	1.2	2.6	4.5	5.9	7.7	9.5	10.0	0.32	24
25	-12.0	0.16		- 7.5	- 3.4	-0.8	-0.0	1.6	2.5	3.8	5.4	6.7	11.1	12.0	0.16	25
26	-12.0	0.16		- 8.3	- 3.1	-1.9	-0.2	1.4	2.5	4.0	5.5	6.5	10.1	11.0	0.16	26
27	-13.0	0.16		- 9.8	- 3.0	-1.8	-0.2	1.6	2.8	4.3	5.9	7.8	12.1	13.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-5 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: APRIL

SANTA MONICA, CALIFORNIA
APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	-13.0	0.33		- 4.2	- 1.7	-0.2	0.5	1.8	2.4	3.0	3.9	5.0	7.5	8.0	0.33	sfc
1	-20.0	0.17		-10.5	- 3.3	-0.6	-0.0	1.3	2.3	3.8	5.9	9.0	14.1	15.0	0.17	1
2	-21.0	0.17		-12.3	- 4.0	-0.9	-0.0	2.6	4.5	7.2	9.2	11.0	18.1	19.0	0.17	2
3	-28.0	0.17		-14.2	- 7.7	-1.0	0.1	4.0	6.2	9.7	11.8	14.5	17.5	18.0	0.33	3
4	-41.0	0.17		-17.6	- 8.1	-2.5	0.2	4.9	7.7	12.0	14.8	17.6	23.1	24.0	0.17	4
5	-50.0	0.17		-20.8	-10.3	-2.3	0.1	5.1	8.7	14.7	19.3	22.0	25.1	26.0	0.17	5
6	-46.0	0.17		-24.8	-12.9	-2.1	0.4	6.0	10.0	17.2	21.8	25.5	32.5	33.0	0.33	6
7	-50.0	0.17		-27.3	-13.8	-3.8	0.4	6.2	12.0	19.5	25.4	30.0	42.1	43.0	0.17	7
8	-55.0	0.17		-29.1	-13.0	-3.4	0.7	6.6	13.2	22.7	27.3	38.0	44.1	45.0	0.17	8
9	-60.0	0.17		-33.6	-16.7	-3.4	1.0	7.3	14.0	22.8	30.4	38.0	53.1	54.0	0.17	9
10	-58.0	0.17		-36.5	-16.2	-3.4	0.7	7.9	14.0	24.6	29.4	42.0	63.1	64.0	0.17	10
11	-46.0	0.17		-35.6	-17.3	-4.0	1.3	8.6	14.7	24.0	33.3	39.0	55.1	56.0	0.17	11
12	-46.0	0.17		-32.8	-15.0	-1.0	2.1	7.9	12.5	22.0	29.7	37.0	56.1	57.0	0.17	12
13	-37.0	0.17		-28.5	-12.8	-0.9	2.5	7.6	11.5	18.0	24.1	32.0	42.5	43.0	0.33	13
14	-35.0	0.33		-25.4	- 9.1	-0.5	2.7	7.3	9.7	13.8	20.4	24.6	35.1	36.0	0.17	14
15	-32.0	0.17		-22.2	- 7.0	-0.3	2.5	6.2	8.0	12.2	18.0	25.0	30.5	31.0	0.33	15
16	-28.0	0.17		-19.3	- 6.1	-0.5	2.1	5.3	7.0	9.7	13.0	16.5	23.1	24.0	0.17	16
17	-21.0	0.17		-14.1	- 5.7	-0.4	1.6	4.5	6.1	7.9	10.7	15.0	21.5	22.0	0.33	17
18	-17.0	0.33		-11.0	- 4.4	-0.4	1.0	3.9	5.3	7.6	9.8	12.0	17.5	18.0	0.33	18
19	-13.0	0.33		- 9.6	- 4.9	-0.5	0.8	3.2	4.3	6.0	7.9	10.5	15.7	16.0	0.50	19
20	-10.0	0.17		- 6.0	- 3.4	-0.5	0.4	2.1	3.2	4.8	7.7	11.5	14.1	15.0	0.17	20
21	-10.0	0.17		- 6.4	- 2.0	-0.6	-0.0	1.7	2.6	4.1	5.9	9.5	12.5	13.0	0.33	21
22	- 9.0	0.17		- 6.4	- 3.8	-0.6	0.0	1.6	2.3	3.5	4.9	10.0	12.5	13.0	0.33	22
23	- 9.0	0.17		- 6.5	- 3.8	-0.7	-0.0	1.3	2.1	3.9	5.7	8.0	14.1	15.0	0.17	23
24	- 9.0	0.50		- 6.5	- 3.9	-0.7	-0.0	1.6	2.7	4.4	6.7	9.0	10.5	11.0	0.33	24
25	-10.0	0.17		- 6.2	- 3.7	-0.8	-0.0	1.8	3.0	4.1	6.5	9.0	11.1	12.0	0.17	25
26	-14.0	0.17		- 7.9	- 3.6	-0.5	0.4	2.2	3.6	5.6	7.2	9.5	11.5	12.0	0.33	26
27	-18.0	0.17		- 7.3	- 3.9	-0.5	0.3	2.8	4.2	5.8	7.3	9.0	16.1	17.0	0.17	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-6 DISTRIBUTION OF MERIDIONAL WINDS	MERIDIONAL WIND DISTRIBUTION
STATION: SANTA MONICA, CALIFORNIA REFERENCE PERIOD: MAY	SANTA MONICA, CALIFORNIA MAY
STATION ELEVATION: 125 feet or 38.1 meters MSL	
STATION COORDINATES: 34.01 deg N, 118.27 deg W	
PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960	Positive for components from south Negative for components from north
DATA SOURCE: National Weather Records Center U. S. Weather Bureau Asheville, North Carolina	NO. OF OBS. FOR EACH LEVEL: 620
PREPARED BY: National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962	UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 6.0	0.16		- 2.0	- 0.9	0.0	0.9	1.9	2.5	2.9	3.7	4.2	8.1	9.0	0.16	sfc
1	-16.0	0.16		- 7.5	- 2.3	-0.5	0.0	1.3	2.0	2.8	3.8	4.8	7.7	8.0	0.48	1
2	-16.0	0.16		- 9.0	- 4.5	-0.5	0.8	3.3	4.8	6.5	7.8	8.9	10.5	11.0	0.32	2
3	-15.0	0.16		-11.5	- 5.5	-0.4	2.1	6.2	8.3	10.6	14.2	15.5	19.1	20.0	0.16	3
4	-23.0	0.16		-14.0	- 7.7	-0.4	2.8	7.8	10.7	15.0	17.4	18.8	22.1	23.0	0.16	4
5	-25.0	0.16		-15.0	- 8.2	-0.2	3.4	8.8	12.8	17.7	20.9	22.9	31.1	32.0	0.16	5
6	-29.0	0.32		-21.0	-10.8	-0.2	3.8	9.9	14.2	20.2	23.5	26.9	33.1	34.0	0.16	6
7	-35.0	0.16		-24.5	-11.3	-0.1	4.9	11.4	16.8	22.0	26.4	29.6	42.5	43.0	0.32	7
8	-41.0	0.16		-25.3	-12.4	-0.1	5.1	13.0	18.5	23.4	26.9	29.9	54.1	55.0	0.16	8
9	-43.0	0.16		-30.5	-13.3	0.1	6.4	14.6	19.1	25.5	30.2	35.4	52.1	53.0	0.16	9
10	-46.0	0.32		-30.5	-14.4	0.2	6.4	14.4	19.3	25.0	31.9	37.9	53.1	54.0	0.16	10
11	-41.0	0.16		-29.0	-15.6	0.2	7.1	15.6	20.4	26.8	33.9	39.8	52.1	53.0	0.16	11
12	-35.0	0.32		-26.0	-12.6	0.7	6.8	14.8	20.0	26.2	31.9	36.8	42.7	43.0	0.48	12
13	-27.0	0.32		-20.0	- 9.4	1.1	6.9	13.7	19.5	24.7	28.3	31.4	40.1	41.0	0.16	13
14	-26.0	0.16		-16.8	- 7.3	1.2	5.8	12.3	16.6	21.8	24.4	25.9	38.1	39.0	0.16	14
15	-18.0	0.16		-13.7	- 5.5	1.3	5.0	10.7	13.7	16.7	20.2	21.9	32.1	33.0	0.16	15
16	-15.0	0.16		-10.4	- 3.0	1.4	4.6	9.0	10.4	12.8	15.4	18.9	23.1	24.0	0.16	16
17	-12.0	0.16		- 6.0	- 2.3	0.9	3.6	6.3	8.2	10.2	11.7	13.9	21.1	22.0	0.16	17
18	-11.0	0.32		- 5.4	- 2.9	0.3	2.3	4.8	6.1	8.1	9.3	10.9	18.1	19.0	0.16	18
19	-12.0	0.16		- 5.3	- 2.9	-0.0	1.3	3.0	4.1	5.4	6.9	7.8	13.1	14.0	0.16	19
20	-11.0	0.16		- 5.8	- 2.8	-0.2	0.7	1.9	2.8	4.0	5.2	6.4	10.1	11.0	0.16	20
21	- 8.0	0.32		- 5.6	- 1.0	-0.3	0.3	1.4	1.9	2.8	3.6	4.4	7.5	8.0	0.32	21
22	-13.0	0.16		- 5.6	- 2.8	-0.5	-0.0	1.3	2.1	3.2	4.1	5.2	7.1	8.0	0.16	22
23	- 7.0	0.32		- 4.1	- 2.7	-0.5	-0.0	1.1	1.8	2.8	3.8	5.2	11.1	12.0	0.16	23
24	- 9.0	0.16		- 5.1	- 2.3	-0.5	-0.0	0.8	1.6	2.7	3.7	5.2	10.1	11.0	0.16	24
25	-11.0	0.16		- 5.0	- 2.1	-0.6	-0.1	0.9	1.6	2.6	3.8	4.7	6.1	7.0	0.16	25
26	-15.0	0.16		- 5.1	- 3.9	-0.6	-0.0	1.2	1.9	3.1	4.7	5.7	7.1	8.0	0.16	26
27	- 9.0	0.16		- 5.0	- 3.9	-0.8	-0.1	1.1	2.1	3.4	4.9	5.8	9.1	10.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-7 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: JUNE

SANTA MONICA, CALIFORNIA
JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 3.0	0.17		- 1.1	-0.8	-0.0	0.8	1.8	2.4	3.0	3.6	4.0	6.1	7.0	0.17	sfc
1	-10.0	0.33		- 6.1	-2.2	-0.6	-0.1	0.9	1.6	2.4	3.5	4.5	5.5	6.0	0.33	1
2	-16.0	0.17		- 8.5	-3.7	-0.3	0.6	2.5	3.4	4.5	6.0	7.2	12.1	13.0	0.17	2
3	-13.0	0.33		- 9.4	-3.4	0.3	2.4	4.8	6.4	8.7	10.7	11.8	15.5	16.0	0.33	3
4	-13.8	0.17		- 9.8	-3.5	1.1	3.7	7.0	9.1	11.6	13.3	15.6	17.7	18.0	0.50	4
5	-14.0	0.17		-11.5	-3.1	1.2	4.4	8.1	10.4	13.2	16.0	19.0	29.1	30.0	0.17	5
6	-24.0	0.17		-13.9	-4.3	1.1	4.7	8.8	10.6	14.0	17.8	21.6	27.1	28.0	0.17	6
7	-29.0	0.17		-13.9	-6.9	1.6	5.7	9.7	11.9	15.0	18.6	24.0	30.1	31.0	0.17	7
8	-42.0	0.17		-14.1	-6.4	2.0	6.7	11.7	14.3	18.0	20.8	25.0	37.1	38.0	0.17	8
9	-48.0	0.17		-18.6	-7.7	2.5	8.3	14.0	17.5	20.1	23.8	26.5	39.1	40.0	0.17	9
10	-50.0	0.17		-19.3	-7.6	3.5	10.4	15.9	18.9	22.0	26.3	29.4	38.1	39.0	0.17	10
11	-53.0	0.17		-23.3	-7.1	4.3	11.5	18.5	21.1	24.6	29.2	32.0	33.7	34.0	0.67	11
12	-49.0	0.17		-22.3	-7.4	5.4	12.4	20.1	24.0	27.4	29.9	33.5	40.1	41.0	0.17	12
13	-38.0	0.17		-17.2	-4.0	5.9	12.8	20.1	23.1	27.3	29.6	34.3	37.5	38.0	0.33	13
14	-25.0	0.17		-14.8	-3.5	5.6	11.9	18.4	21.7	24.7	26.5	28.5	39.1	40.0	0.17	14
15	-19.0	0.17		- 9.1	-1.3	4.5	9.6	15.0	17.2	19.4	21.7	23.0	27.5	28.0	0.33	15
16	-14.0	0.17		- 7.8	-1.7	3.6	7.1	10.6	12.4	14.5	17.6	20.0	24.1	25.0	0.17	16
17	- 9.0	0.33		- 6.9	-1.3	2.4	4.7	7.3	9.1	11.0	13.3	15.5	25.1	26.0	0.17	17
18	- 8.0	0.33		- 5.7	-1.2	1.0	2.6	4.8	6.1	7.7	9.0	10.7	15.1	16.0	0.17	18
19	- 7.0	0.17		- 4.7	-1.5	0.2	1.4	2.7	3.7	5.0	6.5	7.7	11.1	12.0	0.17	19
20	- 5.0	0.33		- 3.2	-1.2	-0.2	0.6	1.8	2.6	3.6	5.1	6.2	9.1	10.0	0.17	20
21	- 9.0	0.17		- 4.6	-1.3	-0.3	0.2	1.1	1.8	2.8	3.7	5.0	8.5	9.0	0.33	21
22	- 9.0	0.17		- 3.1	-1.1	-0.4	-0.0	0.9	1.5	2.4	3.5	4.6	7.7	8.0	0.50	22
23	-11.0	0.33		- 3.0	-1.0	-0.4	-0.0	0.8	1.6	2.4	3.1	4.2	6.1	7.0	0.17	23
24	- 9.0	0.17		- 4.4	-1.0	-0.4	-0.0	0.9	1.6	2.4	3.4	7.0	11.1	12.0	0.17	24
25	-10.0	0.17		- 4.2	-2.5	-0.5	-0.0	1.1	1.6	2.2	3.3	4.0	8.1	9.0	0.17	25
26	- 7.0	0.50		- 4.1	-2.5	-0.5	-0.0	0.9	1.5	2.2	3.3	4.0	6.1	7.0	0.17	26
27	- 8.0	0.33		- 5.6	-2.4	-0.5	0.0	1.2	1.7	2.7	3.5	4.0	5.7	6.0	0.50	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

D-1569

TABLE III-8 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: JULY

SANTA MONICA, CALIFORNIA

JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 3.0	0.16		-1.2	-0.7	0.1	0.9	1.8	2.2	2.7	3.3	3.8	4.7	5.0	0.65	sfc
1	-10.0	0.32		-4.2	-1.5	-0.2	0.4	1.4	1.8	2.5	3.4	4.2	6.1	7.0	0.16	1
2	-11.0	0.16		-4.1	-1.1	0.2	1.7	3.5	4.6	5.7	7.2	8.2	10.1	11.0	0.16	2
3	- 8.0	0.16		-4.4	-0.8	1.5	3.5	6.2	7.7	10.0	11.6	12.8	17.1	18.0	0.16	3
4	- 8.0	0.16		-4.8	-0.5	3.0	4.9	7.6	9.0	10.8	12.8	13.9	16.5	17.0	0.32	4
5	- 6.0	0.32		-3.0	-0.5	3.0	5.4	8.4	10.0	11.2	12.7	14.1	17.1	18.0	0.16	5
6	- 7.0	0.16		-3.2	-0.4	3.4	5.8	9.1	11.1	12.8	13.8	15.9	20.1	21.0	0.16	6
7	-11.0	0.16		-4.5	-0.6	3.8	6.4	9.7	11.9	14.5	16.5	20.4	24.1	25.0	0.16	7
8	-10.0	0.16		-6.6	-0.6	4.6	7.6	11.1	13.1	16.6	19.7	22.9	29.1	30.0	0.16	8
9	-15.0	0.16		-8.5	-0.5	5.4	8.6	12.0	15.3	18.8	21.9	24.9	34.1	35.0	0.16	9
10	-14.0	0.32		-8.0	-0.4	6.7	10.1	14.7	16.8	21.1	24.9	28.2	33.5	34.0	0.32	10
11	-16.0	0.32		-9.7	-0.4	8.1	11.8	16.6	19.4	23.2	25.9	31.4	38.1	39.0	0.16	11
12	-14.0	0.48		-9.0	-0.3	8.3	12.4	17.3	20.0	23.8	27.8	32.4	40.5	41.0	0.32	12
13	-15.0	0.16		-9.3	-0.7	8.3	12.1	16.9	20.0	23.2	27.4	31.4	35.1	36.0	0.16	13
14	-13.0	0.16		-7.5	-0.5	7.0	10.3	15.0	16.7	20.0	22.2	25.6	31.1	32.0	0.16	14
15	-10.0	0.16		-5.4	-0.5	4.9	7.8	10.9	13.2	15.1	17.2	19.4	24.1	25.0	0.16	15
16	- 8.0	0.16		-4.7	-0.4	3.2	5.1	7.7	9.0	10.9	12.6	14.2	17.5	18.0	0.32	16
17	- 7.0	0.32		-4.4	-1.7	1.9	3.3	5.2	6.3	7.3	8.5	9.8	12.1	13.0	0.16	17
18	- 5.0	0.65		-3.0	-1.6	0.7	2.0	3.5	4.2	5.1	5.8	6.4	9.1	10.0	0.16	18
19	- 5.0	0.48		-3.0	-1.7	0.1	1.2	2.4	2.9	4.0	4.8	5.4	6.1	7.0	0.16	19
20	- 5.0	0.16		-3.5	-1.6	-0.1	0.7	1.7	2.2	2.9	3.9	4.8	7.1	8.0	0.16	20
21	- 6.0	0.16		-3.4	-1.5	-0.1	0.5	1.4	1.9	2.7	3.7	4.8	6.7	7.0	0.48	21
22	- 5.0	0.16		-3.7	-1.6	-0.2	0.3	1.5	2.1	2.9	3.6	4.1	6.1	7.0	0.16	22
23	- 4.0	0.65		-3.7	-1.5	-0.3	0.3	1.3	1.8	2.6	3.4	3.9	6.1	7.0	0.16	23
24	- 5.0	0.32		-3.2	-1.3	-0.3	0.2	1.2	1.7	2.6	3.6	4.4	6.5	7.0	0.32	24
25	- 6.0	0.16		-3.0	-1.1	-0.4	0.1	1.0	1.8	2.7	3.6	4.4	6.1	7.0	0.16	25
26	- 9.0	0.32		-3.0	-1.2	-0.3	0.2	1.3	2.2	2.9	3.9	4.8	9.1	10.0	0.16	26
27	-13.0	0.16		-4.0	-1.0	-0.3	0.4	1.7	2.4	3.2	4.3	5.4	14.5	15.0	0.32	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-9 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: AUGUST

SANTA MONICA, CALIFORNIA
AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 4.0	0.32		-1.1	-0.7	0.0	0.8	1.7	2.1	2.7	3.0	3.8	5.1	6.0	0.16	sfc
1	- 8.0	0.16		-3.3	-1.7	-0.2	0.3	1.2	1.8	2.6	3.2	3.9	5.1	6.0	0.16	1
2	-10.0	0.16		-4.1	-0.9	0.5	1.7	3.2	4.0	4.8	6.3	6.9	11.1	12.0	0.16	2
3	- 8.0	0.16		-5.5	-0.9	1.8	3.4	5.1	5.8	7.2	8.7	9.7	13.1	14.0	0.16	3
4	- 9.0	0.16		-4.3	-0.8	2.3	4.3	6.6	7.6	8.7	9.9	11.3	14.1	15.0	0.16	4
5	-10.0	0.16		-4.7	-0.9	2.0	4.4	7.0	8.7	10.0	11.6	12.7	14.7	15.0	0.48	5
6	-13.0	0.16		-4.2	-1.4	2.1	4.6	7.6	8.8	11.5	13.7	15.1	16.1	17.0	0.16	6
7	-13.0	0.16		-5.5	-1.8	2.4	5.1	8.1	9.8	11.8	15.1	17.4	21.1	22.0	0.16	7
8	-12.0	0.16		-6.1	-1.7	3.0	5.7	9.6	11.7	14.6	18.4	21.3	22.7	23.0	0.48	8
9	-13.0	0.16		-7.6	-0.9	4.0	7.0	12.1	14.8	18.2	21.8	24.2	28.1	29.0	0.16	9
10	-16.0	0.16		-7.2	-0.7	5.1	9.2	14.3	17.5	22.0	25.9	27.3	36.1	37.0	0.16	10
11	-17.0	0.16		-9.3	-0.8	7.3	11.1	16.8	19.6	23.3	27.3	30.7	37.1	38.0	0.16	11
12	-17.0	0.16		-9.4	-0.4	8.3	12.8	17.7	20.8	24.8	27.6	30.4	39.1	40.0	0.16	12
13	-14.0	0.16		-7.5	-0.1	8.9	12.3	17.6	20.3	23.8	26.2	28.6	33.1	34.0	0.16	13
14	- 9.0	0.48		-6.0	0.7	7.5	10.7	14.8	16.7	19.5	21.9	22.9	31.1	32.0	0.16	14
15	-17.0	0.16		-5.0	0.1	5.6	8.1	10.7	12.3	14.7	16.6	18.5	23.1	24.0	0.16	15
16	- 9.0	0.16		-4.4	-0.5	3.5	5.6	7.8	9.0	10.7	12.6	15.2	17.1	18.0	0.16	16
17	- 6.0	0.16		-3.1	-0.9	1.4	3.1	5.2	6.1	7.0	8.8	9.9	18.1	19.0	0.16	17
18	- 6.0	0.16		-3.4	-1.8	0.3	1.5	2.9	3.6	4.6	5.8	6.8	9.5	10.0	0.32	18
19	- 7.0	0.16		-4.9	-1.5	-0.1	0.7	1.8	2.4	3.2	4.2	5.1	8.1	9.0	0.16	19
20	-10.0	0.16		-3.1	-1.7	-0.2	0.4	1.4	2.0	2.8	3.5	3.9	6.1	7.0	0.16	20
21	- 6.0	0.32		-3.3	-1.4	-0.3	0.2	1.3	1.8	2.6	3.2	4.1	5.5	6.0	0.32	21
22	- 7.0	0.48		-4.5	-1.1	-0.4	0.1	1.3	1.9	2.6	3.3	4.1	7.1	8.0	0.16	22
23	- 8.0	0.16		-3.0	-1.1	-0.4	0.1	1.3	1.8	2.7	3.6	4.7	13.1	14.0	0.16	23
24	- 6.0	0.48		-4.6	-1.0	-0.4	-0.0	0.9	1.6	2.6	3.5	4.4	5.7	6.0	0.65	24
25	- 8.0	0.32		-4.6	-2.9	-0.5	-0.0	1.1	1.7	2.7	3.6	4.3	5.7	6.0	0.48	25
26	- 7.0	0.16		-4.4	-2.9	-0.5	0.0	1.0	1.8	3.2	4.2	4.7	6.5	7.0	0.32	26
27	- 5.0	1.29		-4.3	-2.4	-0.5	0.2	1.5	2.3	3.4	4.4	4.9	7.1	8.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-10 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: SEPTEMBER

SANTA MONICA, CALIFORNIA

SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118 27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	- 3.0	0.67		- 2.5	-0.9	-0.1	0.4	1.4	2.0	2.6	2.9	3.5	4.1	5.0	0.17	sfc
1	- 7.0	0.17		- 5.9	-1.5	-0.2	0.4	1.3	1.8	2.6	3.3	4.0	5.1	6.0	0.17	1
2	-14.0	0.17		- 6.6	-2.8	0.5	2.0	3.7	5.1	6.5	7.7	8.8	11.1	12.0	0.17	2
3	-16.0	0.17		- 7.0	-2.2	1.2	3.7	6.5	7.8	9.6	12.4	14.6	21.1	22.0	0.17	3
4	-20.0	0.17		-11.3	-3.2	1.6	4.0	7.1	8.8	11.3	14.7	19.5	24.1	25.0	0.17	4
5	-22.0	0.17		-13.7	-3.4	1.8	4.1	6.6	8.7	12.6	15.3	18.0	24.1	25.0	0.17	5
6	-24.0	0.33		-15.6	-3.0	2.3	4.9	8.3	10.7	14.7	18.1	21.3	24.5	25.0	0.33	6
7	-29.0	0.17		-15.3	-4.4	2.4	5.2	9.8	12.0	15.6	21.1	24.5	28.1	29.0	0.17	7
8	-26.0	0.33		-16.6	-4.2	2.6	6.5	11.4	14.3	18.3	24.1	26.6	30.1	31.0	0.17	8
9	-27.0	0.17		-17.6	-5.6	2.7	7.1	12.8	16.5	21.6	27.7	32.2	36.1	37.0	0.17	9
10	-25.0	0.17		-16.1	-5.9	2.8	7.8	14.9	18.1	24.7	30.2	32.0	41.1	42.0	0.17	10
11	-29.0	0.17		-14.6	-4.0	3.5	8.7	16.1	20.2	25.7	30.8	35.0	42.1	43.0	0.17	11
12	-29.0	0.17		-12.9	-4.8	3.8	9.8	16.3	20.2	26.4	35.0	37.0	45.1	46.0	0.17	12
13	-24.0	0.17		-11.9	-3.7	4.3	9.3	15.9	19.0	25.3	33.3	35.8	48.1	49.0	0.17	13
14	-17.0	0.17		-10.4	-2.5	3.8	8.3	13.9	17.8	22.7	27.8	32.5	39.5	40.0	0.33	14
15	-17.0	0.17		- 7.3	-2.7	3.2	6.2	11.6	15.5	21.1	24.5	28.0	34.5	35.0	0.33	15
16	-12.0	0.33		- 6.6	-2.8	1.9	4.3	8.2	10.9	15.5	18.3	20.0	26.5	27.0	0.33	16
17	-10.0	0.17		- 5.0	-2.3	0.5	2.5	5.1	6.8	9.5	12.0	14.3	20.1	21.0	0.17	17
18	- 9.0	0.17		- 5.2	-2.2	-0.3	0.7	2.6	3.7	6.0	7.7	9.0	13.1	14.0	0.17	18
19	-12.0	0.17		- 5.7	-2.3	-0.5	0.0	1.6	2.6	4.0	5.2	6.0	9.1	10.0	0.17	19
20	- 8.0	0.17		- 4.4	-2.8	-0.5	-0.0	1.2	1.9	2.7	3.9	5.8	8.1	9.0	0.17	20
21	-12.0	0.17		- 4.7	-2.8	-0.5	-0.1	0.7	1.3	2.0	3.0	4.0	7.5	8.0	0.33	21
22	- 7.0	0.17		- 4.7	-2.9	-0.5	-0.1	0.5	1.0	1.8	2.7	4.0	7.1	8.0	0.17	22
23	- 7.0	0.33		- 4.8	-2.8	-0.6	-0.2	0.5	1.0	1.8	2.8	3.7	6.1	7.0	0.17	23
24	- 5.0	0.50		- 3.1	-1.0	-0.5	-0.1	0.7	1.4	2.4	3.5	4.8	8.5	9.0	0.33	24
25	- 6.0	0.17		- 3.0	-2.9	-0.5	-0.0	1.0	1.6	2.3	2.9	4.0	7.1	8.0	0.17	25
26	- 6.0	0.67		- 4.4	-2.6	-0.6	-0.1	0.9	1.5	2.2	2.9	3.7	4.7	5.0	0.67	26
27	- 8.0	0.33		- 5.8	-2.5	-0.5	-0.1	0.8	1.6	2.5	3.4	4.3	6.5	7.0	0.33	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-11 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: OCTOBER

SANTA MONICA, CALIFORNIA
OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118 27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components fron north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL:
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt (MSL) km	Ext. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	-11.0	0.16		- 4.9	- 1.2	-0.4	-0.0	0.9	1.5	2.1	2.7	3.3	5.1	6.0	0.16	sfc
1	-20.0	0.16		- 8.2	- 3.8	-0.5	0.0	1.1	1.8	2.7	3.7	4.5	6.5	7.0	0.32	1
2	-16.0	0.16		-10.3	- 4.5	-0.6	0.4	2.2	3.3	4.9	7.2	8.9	11.1	12.0	0.16	2
3	-19.0	0.16		-13.5	- 6.6	-1.9	0.3	3.1	4.5	7.0	8.9	10.9	14.1	15.0	0.16	3
4	-25.0	0.16		-15.0	- 7.2	-1.0	0.3	3.8	5.4	7.8	10.9	11.8	16.1	17.0	0.16	4
5	-31.0	0.16		-19.2	- 9.5	-1.0	0.7	4.4	6.4	8.6	11.9	15.6	22.1	23.0	0.16	5
6	-49.0	0.16		-24.2	-11.8	-2.5	1.0	5.1	7.4	10.7	13.5	18.9	22.7	23.0	0.48	6
7	-47.0	0.16		-27.0	-11.1	-2.9	1.2	5.6	8.6	13.1	16.9	23.8	31.1	32.0	0.16	7
8	-49.0	0.16		-30.2	-13.0	-2.8	1.6	6.2	10.2	15.5	20.6	23.9	37.1	38.0	0.16	8
9	-52.0	0.16		-34.0	-14.5	-2.7	2.0	7.7	12.6	17.3	24.8	30.2	44.1	45.0	0.16	9
10	-57.0	0.16		-36.0	-15.1	-1.0	2.7	8.7	13.6	18.6	26.4	31.8	41.1	42.0	0.16	10
11	-53.0	0.16		-38.7	-16.4	-1.1	2.8	9.5	13.3	21.1	25.6	29.9	42.1	43.0	0.16	11
12	-50.0	0.16		-34.0	-15.8	-0.8	3.1	8.9	13.6	18.4	22.4	26.7	46.1	47.0	0.16	12
13	-41.0	0.16		-31.5	-11.0	-0.2	3.6	9.1	12.3	17.5	19.9	22.7	28.1	29.0	0.16	13
14	-40.0	0.16		-22.0	- 9.2	-0.1	4.0	8.3	11.2	15.0	18.3	20.9	26.1	27.0	0.16	14
15	-30.0	0.16		-18.0	- 8.5	-0.0	3.4	7.1	8.8	11.7	14.1	17.8	20.1	21.0	0.16	15
16	-23.0	0.16		-15.3	- 7.9	-0.2	2.9	6.1	7.6	9.3	12.3	14.9	20.1	21.0	0.16	16
17	-16.0	0.16		-11.2	- 5.1	-0.4	1.8	4.7	5.8	7.2	8.7	10.9	12.7	13.0	0.48	17
18	-13.0	0.32		- 8.4	- 5.9	-0.5	0.9	3.2	4.2	5.8	6.8	8.4	9.7	10.0	0.65	18
19	-16.0	0.16		- 7.4	- 4.7	-0.8	0.3	2.2	2.9	4.4	5.5	6.6	8.5	9.0	0.32	19
20	-12.0	0.16		- 7.4	- 3.1	-0.8	-0.1	1.4	2.3	3.5	4.6	5.5	9.1	10.0	0.16	20
21	-12.0	0.16		- 7.2	- 3.3	-0.9	-0.2	0.9	1.8	2.9	4.1	5.1	7.1	8.0	0.16	21
22	-14.0	0.16		- 6.1	- 3.4	-0.8	-0.1	0.9	1.7	2.8	4.3	5.7	8.5	9.0	0.32	22
23	-11.0	0.16		- 6.7	- 3.8	-0.7	-0.0	1.1	1.7	2.9	4.6	5.5	8.1	9.0	0.16	23
24	-13.0	0.16		- 6.2	- 3.8	-0.6	-0.0	1.2	1.9	2.8	3.7	4.8	6.1	7.0	0.16	24
25	- 9.0	0.48		- 6.5	- 2.3	-0.5	0.1	1.5	2.1	3.2	4.6	5.7	7.1	8.0	0.16	25
26	- 9.0	0.16		- 5.7	- 2.3	-0.5	0.1	1.6	2.4	3.5	4.7	6.4	9.1	10.0	0.16	26
27	-10.0	0.16		- 5.0	- 2.1	-0.5	0.2	1.8	2.8	3.7	4.8	5.8	8.5	9.0	0.32	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-12 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: NOVEMBER

SANTA MONICA, CALIFORNIA
NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	-12.0	0.17		- 6.9	- 2.1	-0.8	-0.3	0.3	0.9	1.7	2.4	3.0	14.1	15.0	0.17	sfc
1	-14.0	0.50		- 8.2	- 3.1	-0.7	-0.2	0.6	1.2	2.5	3.8	7.5	11.1	12.0	0.17	1
2	-19.0	0.17		-12.9	- 5.3	-1.7	-0.3	1.2	2.4	5.1	8.1	11.7	16.1	17.0	0.17	2
3	-27.0	0.17		-16.4	- 8.1	-2.2	-0.5	1.3	2.7	7.2	11.6	14.0	23.1	24.0	0.17	3
4	-26.0	0.17		-18.8	-10.3	-3.7	-0.7	1.3	2.9	10.0	15.6	22.0	32.1	33.0	0.17	4
5	-33.0	0.17		-22.4	-12.4	-4.9	-0.8	2.4	4.6	12.0	18.7	24.0	38.1	39.0	0.17	5
6	-61.0	0.17		-25.8	-13.3	-4.3	-0.6	3.1	5.8	13.4	23.1	27.5	34.1	35.0	0.17	6
7	-51.0	0.17		-29.6	-14.2	-4.5	-0.3	4.0	7.1	15.0	25.3	35.5	50.1	51.0	0.17	7
8	-59.0	0.17		-31.4	-17.8	-4.5	0.1	5.4	8.7	18.7	29.1	34.0	45.1	46.0	0.17	8
9	-57.0	0.17		-37.8	-18.6	-4.3	0.4	6.6	10.8	22.2	32.3	36.5	44.1	45.0	0.17	9
10	-54.0	0.17		-37.4	-19.1	-6.0	0.7	7.5	12.8	22.1	31.1	37.0	47.5	48.0	0.33	10
11	-47.0	0.17		-38.1	-20.6	-4.2	1.8	7.7	14.2	23.7	29.7	35.0	41.1	42.0	0.17	11
12	-47.0	0.17		-37.3	-19.7	-3.1	1.3	7.6	13.6	24.0	27.4	30.0	35.1	36.0	0.17	12
13	-47.0	0.17		-34.5	-16.4	-2.2	2.2	8.1	12.5	21.0	26.0	27.7	32.1	33.0	0.17	13
14	-42.0	0.17		-31.6	-14.8	-2.4	1.3	7.2	10.5	18.4	23.5	27.0	35.1	36.0	0.17	14
15	-39.0	0.17		-23.5	-12.9	-2.1	0.6	5.5	8.6	16.5	21.2	24.5	35.1	36.0	0.17	15
16	-27.0	0.17		-20.6	-10.2	-2.4	-0.1	4.0	7.7	13.8	16.3	21.3	26.1	27.0	0.17	16
17	-24.0	0.17		-16.1	- 8.6	-2.1	-0.5	2.9	6.3	9.3	11.8	13.6	26.1	27.0	0.17	17
18	-17.0	0.50		-13.0	- 7.6	-2.0	-0.6	2.2	4.4	6.8	8.5	13.0	18.1	19.0	0.17	18
19	-14.0	0.17		- 9.0	- 6.7	-2.5	-0.7	1.6	3.3	5.5	7.6	12.0	20.1	21.0	0.17	19
20	-13.0	0.17		-10.9	- 5.3	-1.0	-0.5	1.3	2.7	4.5	6.1	8.7	16.1	17.0	0.17	20
21	-15.0	0.17		- 7.1	- 4.3	-1.4	-0.4	1.1	2.2	3.5	5.1	6.5	13.5	14.0	0.33	21
22	-14.0	0.17		- 7.1	- 4.3	-1.6	-0.3	1.1	1.9	3.5	5.1	6.3	8.5	9.0	0.33	22
23	-11.0	0.50		- 7.1	- 4.7	-1.7	-0.2	1.1	2.0	4.2	5.4	6.5	17.1	18.0	0.17	23
24	-12.0	0.17		- 7.3	- 4.5	-1.8	-0.2	1.1	2.3	5.1	7.4	9.2	12.1	13.0	0.17	24
25	-12.0	0.17		- 8.4	- 4.3	-1.8	-0.2	1.3	3.1	5.5	7.3	9.4	12.7	13.0	0.50	25
26	-12.0	0.17		- 9.9	- 4.0	-1.4	-0.2	1.9	3.3	5.4	7.1	10.0	12.5	13.0	0.33	26
27	-13.0	0.17		- 9.2	- 5.3	-1.4	-0.1	2.2	3.4	6.5	9.2	11.3	15.1	16.0	0.17	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE III-13 DISTRIBUTION OF MERIDIONAL WINDS

MERIDIONAL WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: DECEMBER

SANTA MONICA, CALIFORNIA

DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

Positive for components from south
Negative for components from north

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL:
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	Ext. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Ext. Speed	Pct. Freq.	Alt. (MSL) km
			0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	-15.0	0.32		- 6.1	- 3.8	-1.9	-0.4	0.0	0.8	1.6	1.9	2.7	4.5	5.0	0.32	sfc
1	-18.0	0.16		- 9.0	- 4.7	-0.8	-0.2	0.7	1.5	2.6	3.9	8.8	13.1	14.0	0.16	1
2	-27.0	0.16		-13.0	- 5.0	-1.7	-0.1	1.8	2.9	5.3	7.6	11.2	15.1	16.0	0.16	2
3	-28.0	0.16		-18.0	- 8.0	-2.5	-0.2	2.5	4.3	6.8	10.2	14.2	19.5	20.0	0.32	3
4	-47.0	0.16		-23.1	-11.6	-3.9	-0.3	3.4	5.0	9.0	12.1	15.7	26.1	27.0	0.16	4
5	-56.0	0.16		-25.7	-13.8	-2.1	0.1	4.2	6.8	9.9	15.1	18.4	24.1	25.0	0.16	5
6	-64.0	0.16		-29.5	-14.2	-2.1	0.7	5.1	8.3	12.0	15.7	17.7	30.1	31.0	0.16	6
7	-76.0	0.16		-34.1	-16.9	-3.4	1.0	6.3	9.8	14.0	19.2	24.9	38.1	39.0	0.16	7
8	-79.0	0.16		-40.1	-19.6	-3.5	0.9	7.7	11.1	17.5	23.9	29.8	37.1	38.0	0.16	8
9	-73.0	0.16		-43.1	-21.6	-4.5	0.3	8.3	13.1	19.6	25.8	33.8	43.1	44.0	0.16	9
10	-57.0	0.16		-44.7	-21.0	-5.8	0.5	9.3	14.8	22.5	30.8	35.7	52.1	53.0	0.16	10
11	-54.0	0.16		-37.0	-22.8	-4.1	0.6	10.3	15.2	23.0	29.9	38.4	56.1	57.0	0.16	11
12	-41.0	0.16		-32.0	-19.8	-3.4	1.5	10.2	14.6	21.3	30.8	36.4	45.5	46.0	0.32	12
13	-39.0	0.32		-27.3	-14.0	-3.8	1.4	8.6	12.8	18.5	23.7	28.9	36.1	37.0	0.16	13
14	-35.0	0.16		-23.0	-13.9	-2.2	1.7	7.7	11.0	16.0	19.7	21.8	29.1	30.0	0.16	14
15	-32.0	0.16		-20.7	-11.6	-3.8	1.2	7.0	9.7	13.0	15.8	18.9	26.1	27.0	0.16	15
16	-26.0	0.32		-18.0	-10.0	-2.3	0.8	5.4	7.5	10.4	12.9	14.7	21.5	22.0	0.32	16
17	-23.0	0.16		-14.8	- 8.2	-2.2	-0.0	4.1	6.0	8.0	9.9	12.6	23.1	24.0	0.16	17
18	-18.0	0.16		-12.1	- 7.0	-2.2	-0.3	2.4	4.2	5.7	7.5	10.4	15.1	16.0	0.16	18
19	-15.0	0.48		-11.0	- 7.7	-2.3	-0.7	0.9	2.3	4.0	5.5	7.5	16.1	17.0	0.16	19
20	-15.0	0.48		-10.2	- 6.5	-2.4	-1.9	0.1	1.1	3.0	4.4	5.7	7.1	8.0	0.16	20
21	-14.0	0.16		- 9.0	- 6.9	-2.4	-1.9	-0.0	0.9	2.0	3.1	4.4	7.1	8.0	0.16	21
22	-15.0	0.16		- 9.1	- 6.9	-2.3	-1.5	-0.2	0.2	1.3	3.2	4.1	5.5	6.0	0.32	22
23	-14.0	0.16		- 9.1	- 6.7	-2.3	-1.5	-0.2	0.3	1.4	2.8	4.3	5.7	6.0	0.48	23
24	-14.0	0.16		-10.5	- 6.5	-2.1	-1.6	-0.2	0.5	1.6	2.7	4.4	9.1	10.0	0.16	24
25	-14.0	0.32		-10.1	- 6.3	-2.2	-1.8	-0.2	0.4	1.7	2.9	3.9	14.1	15.0	0.16	25
26	-15.0	0.16		-12.7	- 7.7	-3.7	-1.4	-0.2	0.3	1.6	2.7	3.8	6.5	7.0	0.32	26
27	-17.0	0.16		-12.5	- 7.2	-3.8	-1.4	-0.1	0.8	1.8	2.9	4.2	7.1	8.0	0.16	27

NOTE: (1) When the percent frequency of extreme speed exceeded the 2.28 and or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV

Page

Distribution of Easterly Winds

(Component from the east semiplane)

Unit: meters per second

TABLE IV-1 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: ANNUAL

SANTA MONICA, CALIFORNIA

ANNUAL

STATION ELEVATION: 125 feet or 38 1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	2990	0.0	44.38				0.1	0.7	1.4	1.7	2.2	2.9	3.7	5.7	7.0	0.10	sfc
1	3471	0.0	31.58				0.7	1.6	2.9	3.8	5.1	6.6	8.1	11.6	18.0	0.03	1
2	2693	0.0	21.54				1.4	2.7	4.5	5.6	6.8	8.4	10.0	14.1	19.0	0.04	2
3	2376	0.0	17.59				2.1	3.6	5.6	6.6	8.4	10.6	12.1	17.3	21.0	0.04	3
4	1930	0.0	18.81				2.1	3.7	6.0	7.2	9.1	11.3	12.8	22.1	30.0	0.05	4
5	1623	0.0	21.01				2.1	3.9	6.2	7.8	9.8	11.7	14.5	19.8	22.0	0.06	5
6	1404	0.0	18.38				2.3	4.3	6.9	8.7	10.7	12.7	15.5	19.5	24.0	0.07	6
7	1238	0.0	15.35			0.0	2.8	5.0	8.0	9.7	12.5	15.1	18.5	27.3	35.0	0.08	7
8	1132	0.0	15.11			0.0	2.9	5.4	8.8	10.7	13.8	17.1	19.8	31.4	34.0	0.09	8
9	989	0.0	13.75			0.2	3.4	6.0	9.4	11.7	14.8	18.6	21.5	26.6	28.0	0.10	9
10	877	0.0	13.80			0.1	3.7	6.3	10.7	13.3	16.9	20.5	24.2	28.8	31.0	0.11	10
11	731	0.0	13.82			0.1	3.8	6.6	10.5	13.2	17.0	21.0	23.6	30.0	31.0	0.14	11
12	566	0.0	14.31			0.1	3.5	6.4	10.7	12.6	16.2	21.2	24.6	30.2	31.0	0.18	12
13	412	0.0	14.81			0.0	3.4	5.7	8.9	11.7	14.4	21.3	23.9	30.4	31.0	0.24	13
14	355	0.0	16.34				2.9	4.9	8.0	10.1	13.7	19.6	22.1	23.5	24.0	0.28	14
15	408	0.0	18.38				2.2	4.0	6.5	7.8	9.9	13.6	16.9	21.7	22.0	0.49	15
16	602	0.0	19.44				1.7	3.3	5.3	6.4	7.7	9.4	12.9	18.1	19.0	0.17	16
17	1156	0.0	17.73				1.6	2.9	4.6	5.7	6.9	8.7	10.0	16.4	19.0	0.09	17
18	1976	0.0	15.13			0.0	2.1	3.6	5.4	6.3	7.6	9.2	10.5	13.3	15.0	0.10	18
19	2832	0.0	11.58			0.3	3.0	4.7	6.7	7.7	9.1	10.3	11.2	14.0	16.0	0.07	19
20	3618	0.0	9.89			0.5	3.7	5.7	7.9	9.1	10.5	11.7	12.9	15.4	18.0	0.06	20
21	4261	0.0	9.27			0.6	4.2	6.5	9.1	10.3	11.7	12.9	14.4	17.0	21.0	0.02	21
22	4645	0.0	8.35			0.8	5.0	7.4	10.3	11.4	12.8	14.4	15.8	20.7	28.0	0.02	22
23	4832	0.0	7.12			1.1	5.5	8.3	11.3	12.6	14.2	15.6	17.4	23.1	29.0	0.02	23
24	4893	0.0	7.03			1.2	6.2	9.4	12.5	13.9	15.5	16.9	18.6	23.1	30.0	0.02	24
25	4799	0.0	5.96			1.3	6.9	10.4	13.5	15.0	16.6	18.0	20.1	27.3	31.0	0.02	25
26	4694	0.0	6.11			1.4	7.5	11.1	14.6	15.9	17.7	19.5	21.3	26.8	32.0	0.02	26
27	4549	0.0	5.87			1.7	8.3	11.8	15.5	16.8	19.2	20.8	22.7	28.4	33.0	0.02	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-2 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

JANUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of E'Ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	386	0.0	42.35				0.2	0.9	1.6	1.9	2.7	3.7	4.6	6.7	7.0	0.55	sfc
1	306	0.0	28.43				1.0	2.6	4.4	5.4	6.7	8.6	10.4	17.5	18.0	0.33	1
2	199	0.0	26.13				1.3	2.5	4.1	5.5	7.0	9.6	11.0	11.8	12.0	1.01	2
3	94	0.0	26.60				1.1	2.7	6.6	9.8	13.6	17.8	20.0	20.8	21.0	1.06	3
4	61	0.0	18.03				2.0	4.7	8.1	10.9	18.9	19.8	22.3	22.9	23.0	1.64	4
5	43	0.0	23.26				3.3	5.1	11.5	15.7	18.8	21.0	21.5	21.9	22.0	2.33	5
6	38	0.0	5.26			0.5	3.0	6.8	12.3	15.1	16.5	19.1	19.6	19.9	20.0	2.63	6
7	37	0.0	16.22				2.8	8.1	13.1	16.2	19.1	23.1	23.6	23.9	24.0	2.70	7
8	37	0.0	16.22				4.7	10.1	12.7	15.2	20.1	27.1	27.6	27.9	28.0	2.70	8
9	28	0.0	7.14			1.4	5.3	7.0	10.5	13.1	19.6	26.3	26.7	26.9	27.0	3.57	9
10	22	0.0	9.09			0.7	5.5	7.6	12.7	13.7	21.9	24.4	24.7	24.9	25.0	4.55	10
11	16	0.0	12.50			1.1	5.0	5.9	8.4	9.3	13.2	13.6	13.8	13.9	14.0	6.25	11
12	11	0.0	9.09			0.3	5.5	7.4	15.2	15.8	16.4	16.7	16.8	16.9	17.0	9.09	12
13	10	0.0	10.00			0.5	2.0	6.8	13.2	13.5	13.7	13.8	13.9	13.9	14.0	20.00	13
14	2	0.0	50.00					0.3	0.6	0.7	0.9	0.9	0.9	0.9	1.0	50.00	14
15	4	0.0	25.00				1.0	1.7	6.3	6.5	6.8	6.9	6.9	6.9	7.0	25.00	15
16	7	0.0	28.57				0.7	3.7	5.8	6.3	6.6	6.8	6.9	6.9	7.0	14.29	16
17	11	0.0	9.09			0.3	1.8	2.7	4.1	4.4	4.7	4.8	4.9	4.9	5.0	18.18	17
18	35	0.0	14.29			0.0	2.4	3.5	4.8	5.3	5.6	5.8	5.9	5.9	6.0	14.29	18
19	90	0.0	18.89				2.2	4.0	6.9	8.0	8.7	9.4	10.1	10.8	11.0	1.11	19
20	170	0.0	15.88			0.0	2.7	4.7	7.6	10.5	13.1	14.0	15.1	15.8	16.0	1.18	20
21	246	0.0	14.63			0.0	2.7	5.2	9.1	11.8	14.3	16.1	17.5	20.6	21.0	0.41	21
22	273	0.0	12.45			0.3	3.8	6.0	9.9	12.5	18.6	20.4	22.1	27.6	28.0	0.37	22
23	299	0.0	8.70			1.1	5.1	7.2	10.9	14.4	19.4	21.7	24.0	28.5	29.0	0.33	23
24	303	0.0	5.61			1.4	6.0	8.8	12.1	15.4	18.9	21.3	23.9	29.5	30.0	0.33	24
25	304	0.0	5.92			1.6	6.8	10.2	13.3	16.1	19.9	27.0	27.9	30.5	31.0	0.33	25
26	306	0.0	6.86			2.0	7.2	10.7	14.7	16.5	20.7	24.6	26.9	31.5	32.0	0.33	26
27	304	0.0	3.95			2.3	8.0	11.3	15.2	17.2	20.2	22.0	23.9	32.5	33.0	0.33	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-3 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

FEBRUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	267	0.0	45.32				0.1	0.8	1.6	1.9	2.6	3.6	5.4	6.6	7.0	0.37	sfc
1	241	0.0	37.34				0.6	1.9	4.1	5.1	7.2	8.7	9.5	13.6	14.0	0.41	1
2	163	0.0	18.40				1.6	3.1	4.6	5.5	6.7	8.2	10.3	11.7	12.0	0.61	2
3	104	0.0	25.00				1.5	3.0	5.2	5.9	7.7	8.8	9.4	9.9	10.0	1.92	3
4	75	0.0	25.33				1.5	2.7	4.2	6.7	8.0	8.5	8.8	8.9	9.0	5.33	4
5	54	0.0	29.63				1.4	2.5	4.8	5.8	10.1	10.8	12.4	12.9	13.0	1.85	5
6	44	0.0	25.00				2.1	3.6	6.3	7.3	12.8	16.9	17.5	17.9	18.0	2.27	6
7	43	0.0	23.26				1.5	3.0	8.0	9.3	13.4	21.0	21.5	21.9	22.0	2.33	7
8	45	0.0	31.11				1.3	3.3	5.9	8.7	11.7	15.9	19.5	19.9	20.0	2.22	8
9	40	0.0	32.50				2.6	4.4	6.6	8.0	9.0	12.0	12.6	12.9	13.0	2.50	9
10	31	0.0	35.48				2.8	5.0	8.0	9.8	13.4	20.2	20.6	20.9	21.0	3.23	10
11	18	0.0	33.33				1.6	3.2	8.1	10.1	13.1	13.5	13.8	13.9	14.0	5.56	11
12	4	0.0	25.00				2.0	3.7	13.3	13.5	13.7	13.9	13.9	13.9	14.0	25.00	12
13																	13
14																	14
15																	15
16	1	13.0	100.00												13.0	100.00	16
17	1	14.0	100.00												14.0	100.00	17
18	2	0.0	50.00					5.3	5.6	5.7	5.8	5.9	5.9	5.9	6.0	50.00	18
19	18	0.0	38.89				0.3	0.8	1.7	3.1	5.1	5.5	5.8	5.9	6.0	5.56	19
20	67	0.0	29.85				0.6	1.5	2.5	3.0	4.6	6.2	6.6	6.9	7.0	2.99	20
21	159	0.0	22.01				1.3	2.0	3.5	4.5	5.6	7.1	8.4	11.7	12.0	0.63	21
22	254	0.0	21.26				1.7	3.1	4.8	5.7	6.9	8.3	9.4	10.8	11.0	0.79	22
23	289	0.0	17.99				2.6	4.3	5.7	6.6	8.5	9.6	10.0	10.8	11.0	1.04	23
24	329	0.0	12.16			0.3	2.8	5.0	6.7	7.8	9.0	10.4	11.3	14.5	15.0	0.30	24
25	332	0.0	9.64			0.4	3.2	5.5	8.4	10.1	11.4	12.8	14.3	14.9	15.0	1.51	25
26	339	0.0	8.85			0.6	4.3	6.2	8.9	11.0	13.3	15.3	16.3	19.5	20.0	0.29	26
27	349	0.0	6.59			1.2	5.4	7.6	10.2	11.9	14.9	16.5	19.5	25.5	26.0	0.29	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-4 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

MARCH

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	276	0.0	51.09					0.6	1.5	1.9	2.7	3.6	4.3	4.9	5.0	1.45	sfc
1	260	0.0	32.31				0.7	1.7	3.2	4.2	5.5	7.0	8.4	11.6	12.0	0.38	1
2	203	0.0	20.69				1.5	3.0	4.8	5.6	6.5	8.4	11.4	13.7	14.0	0.49	2
3	140	0.0	23.57				1.9	4.6	6.6	8.0	10.3	11.6	12.3	12.9	13.0	1.43	3
4	89	0.0	19.10				2.3	4.4	7.1	9.0	11.5	12.4	17.1	17.8	18.0	1.12	4
5	71	0.0	19.72				2.4	3.7	6.2	8.4	13.4	14.6	16.2	16.9	17.0	1.41	5
6	64	0.0	21.88				2.1	3.9	8.2	9.5	10.9	13.5	19.3	19.9	20.0	1.56	6
7	57	0.0	21.05				3.7	5.6	8.7	9.6	11.7	15.7	21.4	21.9	22.0	1.75	7
8	45	0.0	22.22				4.1	6.9	9.9	13.5	17.3	17.9	20.5	20.9	21.0	2.22	8
9	39	0.0	17.95				6.5	9.1	12.7	14.6	16.0	18.1	18.6	18.9	19.0	2.56	9
10	33	0.0	12.12			0.2	4.5	8.4	14.7	15.8	16.6	19.2	19.6	19.9	20.0	3.03	10
11	24	0.0	16.67				3.0	5.1	8.1	9.5	10.8	12.4	12.7	12.9	13.0	4.17	11
12	8	0.0	12.50			0.0	0.7	1.2	1.8	2.1	2.6	2.8	2.9	2.9	3.0	12.50	12
13																	13
14	1	8.0	100.00												8.0	100.00	14
15	1	2.0	100.00												2.0	100.00	15
16	1	1.0	100.00												1.0	100.00	16
17	8	0.0	37.50				0.5	1.1	1.5	1.7	1.8	1.9	1.9	1.9	2.0	37.50	17
18	15	0.0	40.00				0.3	0.8	1.5	1.8	3.2	3.6	3.8	3.9	4.0	6.67	18
19	33	0.0	21.21				0.8	1.8	3.4	3.9	4.6	5.2	5.6	5.9	6.0	3.03	19
20	97	0.0	24.74				1.2	1.9	2.9	4.4	6.3	7.3	8.0	8.8	9.0	1.03	20
21	179	0.0	16.76				1.4	2.6	4.4	5.2	6.0	7.3	8.1	8.8	9.0	1.12	21
22	251	0.0	15.14			0.0	1.9	3.1	4.9	5.6	6.6	8.5	9.3	9.9	10.0	1.59	22
23	286	0.0	14.69			0.1	2.7	4.2	5.8	6.8	8.1	9.1	10.0	11.6	12.0	0.35	23
24	290	0.0	14.48			0.2	4.2	5.7	7.5	8.8	11.0	12.7	13.7	15.6	16.0	0.34	24
25	284	0.0	7.75			1.0	5.4	6.9	9.5	10.8	12.9	15.3	17.0	17.8	18.0	1.06	25
26	288	0.0	7.29			1.0	6.0	8.1	10.7	12.6	14.9	17.4	19.5	21.6	22.0	0.35	26
27	283	0.0	5.65			1.3	6.4	9.0	12.3	14.4	16.5	19.7	23.1	26.6	27.0	0.35	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-5 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

APRIL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: APRIL

STATION ELEVATION: 125 feet or 38 1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	215	0.0	49.77				0.0	0.6	1.4	1.9	2.9	3.8	4.6	5.7	6.0	0.47	sfc
1	252	0.0	36.51				0.4	1.2	2.5	3.2	3.9	6.4	7.2	8.6	9.0	0.40	1
2	200	0.0	27.00				1.2	2.3	3.9	5.0	6.7	9.1	11.0	13.7	14.0	0.50	2
3	169	0.0	11.83			0.2	2.1	3.2	5.2	5.8	6.5	7.1	10.1	10.8	11.0	1.18	3
4	130	0.0	16.15				2.3	3.7	5.3	6.5	8.2	10.5	11.7	16.8	17.0	0.77	4
5	96	0.0	19.79				1.8	3.2	5.3	6.3	8.1	11.4	15.0	15.8	16.0	1.04	5
6	62	0.0	20.97				1.9	3.4	8.0	8.5	8.9	12.5	17.3	17.9	18.0	1.61	6
7	47	0.0	17.02				1.5	3.9	8.1	9.2	10.8	14.9	22.5	22.9	23.0	2.13	7
8	42	0.0	28.57				1.3	4.1	9.3	10.8	13.9	19.0	19.5	19.9	20.0	2.38	8
9	33	0.0	12.12			0.2	3.0	4.4	11.7	15.3	17.3	18.2	18.6	18.9	19.0	3.03	9
10	33	0.0	18.18				2.9	5.4	11.7	15.2	15.7	16.2	16.6	16.9	17.0	3.03	10
11	31	0.0	19.35				1.9	3.0	5.6	6.4	7.4	8.2	8.6	8.9	9.0	3.23	11
12	14	0.0	21.43				1.5	2.7	4.7	5.6	6.3	6.6	6.8	6.9	7.0	7.14	12
13	2	1.0	100.00												1.0	100.00	13
14	1	0.0	100.00												0.0	100.00	14
15																	15
16																	16
17	3	2.0	66.67					7.0	7.5	7.6	7.8	7.9	7.9	7.9	8.0	33.33	17
18	7	0.0	71.43						0.4	0.6	0.8	0.9	0.9	0.9	1.0	28.57	18
19	38	0.0	42.11				0.2	0.9	2.2	2.8	3.5	4.1	4.6	4.9	5.0	2.63	19
20	100	0.0	24.00				0.8	1.5	2.4	3.7	5.2	5.7	6.0	6.8	7.0	1.00	20
21	186	0.0	25.27				1.0	2.1	3.4	4.5	5.6	6.5	8.0	8.8	9.0	1.08	21
22	232	0.0	18.97				1.5	2.5	3.8	4.7	6.4	7.4	8.3	10.6	11.0	0.43	22
23	296	0.0	16.89				1.5	2.5	4.0	4.9	5.9	7.0	8.0	9.6	10.0	0.34	23
24	304	0.0	17.76				1.5	2.6	4.1	5.2	6.5	9.6	10.9	13.5	14.0	0.33	24
25	295	0.0	20.00				1.3	2.4	4.3	5.5	8.3	10.6	13.0	14.8	15.0	0.68	25
26	257	0.0	21.01				1.2	2.4	4.9	5.9	7.7	9.7	11.4	12.8	13.0	0.78	26
27	214	0.0	28.04				1.2	2.7	5.3	6.6	8.8	10.0	10.9	11.8	12.0	0.93	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-6 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MAY

SANTA MONICA, CALIFORNIA

MAY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	198	0.0	43.43				0.1	0.7	1.3	1.6	1.9	2.4	2.7	2.9	3.0	4.04	sfc
1	277	0.0	35.02				0.4	1.0	1.8	2.3	2.9	4.9	5.8	6.8	7.0	0.72	1
2	183	0.0	16.39				1.6	2.8	4.6	5.2	6.4	7.6	8.5	9.7	10.0	0.55	2
3	185	0.0	16.76				2.2	3.7	5.3	6.0	6.8	7.9	10.0	10.8	11.0	1.08	3
4	127	0.0	22.05				1.6	2.9	5.3	6.4	8.8	9.7	10.7	11.8	12.0	0.79	4
5	75	0.0	22.67				1.4	2.5	4.8	6.0	6.8	7.6	8.2	8.8	9.0	1.33	5
6	57	0.0	21.05				1.9	2.8	3.9	4.8	5.7	7.7	9.4	9.9	10.0	1.75	6
7	48	0.0	10.42			0.2	2.1	3.8	5.8	6.5	7.3	7.9	8.5	8.9	9.0	2.08	7
8	43	0.0	18.60				1.5	2.7	7.0	7.9	8.9	10.0	10.5	10.9	11.0	2.33	8
9	31	0.0	29.03				2.1	4.0	6.5	7.3	7.8	12.2	12.6	12.9	13.0	3.23	9
10	18	0.0	11.11			0.2	2.5	5.0	5.7	13.1	15.1	15.5	15.8	15.9	16.0	5.56	10
11	8	0.0	12.50			5.2	7.0	9.2	9.8	11.1	11.6	11.8	11.9	11.9	12.0	12.50	11
12	5	3.0	20.00				4.5	5.3	11.2	11.5	11.7	11.8	11.9	11.9	12.0	20.00	12
13																	13
14																	14
15																	15
16	2	0.0	50.00					3.3	3.6	3.7	3.9	3.9	3.9	3.9	4.0	50.00	16
17	17	0.0	29.41				0.7	1.3	2.0	2.4	2.7	2.8	2.9	2.9	3.0	17.65	17
18	67	0.0	44.78				0.2	1.1	2.0	2.6	3.6	5.2	5.6	5.9	6.0	2.99	18
19	200	0.0	23.00				1.1	1.9	3.4	4.5	6.2	8.7	13.0	13.8	14.0	1.00	19
20	339	0.0	13.57			0.1	1.8	3.1	4.6	5.6	7.7	9.6	11.8	14.7	15.0	0.59	20
21	437	0.0	14.19			0.0	2.1	3.4	5.0	6.0	7.1	9.0	10.8	15.4	16.0	0.23	21
22	478	0.0	11.51			0.3	2.5	3.8	5.4	6.0	7.1	9.2	12.1	15.3	16.0	0.21	22
23	492	0.0	9.76			0.4	3.0	4.7	6.2	7.3	8.6	10.7	15.0	18.3	19.0	0.20	23
24	501	0.0	10.58			0.3	3.2	4.9	6.7	7.7	10.9	13.5	17.9	21.3	22.0	0.20	24
25	489	0.0	10.84			0.4	3.2	5.0	7.0	8.3	10.1	14.5	20.1	24.3	25.0	0.20	25
26	474	0.0	14.14			0.1	3.4	5.4	7.1	8.5	10.2	11.8	18.2	24.3	25.0	0.21	26
27	435	0.0	11.72			0.3	4.0	5.8	7.8	9.5	10.7	12.2	15.8	21.7	22.0	0.46	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-7 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JUNE

SANTA MONICA, CALIFORNIA

JUNE

STATION ELEVATION: 125 feet or 38 1 meters MSL

STATION COORDINATES: 34.01 deg N. 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
500

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	162	0.0	47.53				0.0	0.5	0.9	1.3	1.7	1.9	2.4	2.9	3.0	1.85	sfc
1	260	0.0	35.38				0.5	1.2	2.3	3.0	3.7	4.6	6.2	9.6	10.0	0.38	1
2	168	0.0	27.98				0.9	1.8	3.0	3.6	5.5	6.4	6.8	7.7	8.0	0.60	2
3	183	0.0	21.86				1.7	3.0	4.5	5.3	6.5	7.9	8.7	10.7	11.0	0.55	3
4	153	0.0	23.53				2.1	3.6	5.8	6.9	8.2	9.5	10.7	12.7	13.0	0.65	4
5	136	0.0	21.32				1.9	3.8	5.7	7.3	9.0	10.4	11.6	12.8	13.0	0.74	5
6	129	0.0	18.60				2.0	4.2	6.4	7.5	8.8	10.0	10.8	16.8	17.0	0.78	6
7	103	0.0	12.62			0.4	3.0	5.3	7.5	8.9	10.6	14.3	14.9	18.8	19.0	0.97	7
8	97	0.0	12.37			0.3	3.4	6.3	9.5	11.3	12.5	16.7	20.0	20.8	21.0	1.03	8
9	96	0.0	13.54			0.3	3.7	7.0	10.7	11.8	14.2	21.2	21.6	21.9	22.0	3.13	9
10	92	0.0	3.26			1.0	4.7	7.5	11.3	14.8	18.4	23.9	27.0	27.8	28.0	1.09	10
11	85	0.0	8.24			0.5	4.8	8.1	12.2	17.5	21.7	29.0	30.1	30.8	31.0	1.18	11
12	70	0.0	11.43			0.3	4.3	7.8	11.9	16.0	21.5	28.4	29.3	29.9	30.0	1.43	12
13	44	0.0	9.09			0.4	4.6	6.9	9.0	13.6	22.8	28.9	30.5	30.9	31.0	2.27	13
14	19	0.0	21.05				6.1	9.9	13.4	21.0	22.0	22.5	22.8	22.9	23.0	5.26	14
15	17	0.0	11.76			0.7	3.6	5.5	7.4	7.7	9.1	9.6	9.8	9.9	10.0	5.88	15
16	36	0.0	27.78				0.8	1.7	5.1	6.1	7.1	7.5	7.8	7.9	8.0	5.56	16
17	102	0.0	31.37				0.7	1.6	3.5	4.5	5.9	6.6	6.9	7.8	8.0	0.98	17
18	305	0.0	19.34				1.3	2.3	3.8	5.2	6.6	7.8	10.9	14.5	15.0	0.33	18
19	496	0.0	8.67			0.5	2.6	3.9	5.8	6.8	8.3	9.6	10.8	15.3	16.0	0.20	19
20	566	0.0	3.36			1.6	4.2	5.5	7.3	8.5	10.2	11.5	13.3	15.6	16.0	0.35	20
21	589	0.0	0.85		0.5	2.7	5.5	6.9	8.7	9.7	11.2	12.4	13.7	17.2	18.0	0.17	21
22	590	0.0	0.68		0.7	4.0	6.7	8.0	9.7	10.7	11.7	13.0	13.9	20.2	21.0	0.17	22
23	594	0.0	0.17		1.5	4.6	7.6	8.9	10.6	11.6	13.1	14.0	15.6	19.1	20.0	0.17	23
24	598	0.0	0.17		1.7	5.0	8.0	9.8	11.6	12.8	14.0	15.5	17.0	23.1	24.0	0.17	24
25	600	1.0	0.67		1.7	5.3	8.6	10.5	12.3	13.6	15.2	16.2	17.0	27.1	28.0	0.17	25
26	600	0.0	0.50		1.2	5.2	9.1	10.9	12.7	14.3	15.7	17.3	20.5	29.1	30.0	0.17	26
27	600	0.0	1.00		1.0	4.9	9.5	11.4	14.2	15.6	17.1	19.4	23.0	29.5	30.0	0.33	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-8 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JULY

JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	142	0.0	54.93					0.3	0.8	1.0	1.7	2.3	3.2	3.9	4.0	1.41	sfc
1	275	0.0	32.36				0.6	1.3	2.4	3.0	4.0	4.7	5.6	8.8	9.0	0.73	1
2	174	0.0	31.03				0.8	1.9	3.9	4.6	5.8	6.6	7.2	14.7	15.0	0.57	2
3	217	0.0	22.12				1.3	2.7	4.4	5.4	7.3	8.5	10.4	11.7	12.0	0.46	3
4	226	0.0	17.26				1.9	3.4	5.4	6.5	7.7	8.7	9.8	10.8	11.0	0.88	4
5	224	0.0	19.20				2.4	4.1	5.9	7.2	9.0	9.7	10.7	11.8	12.0	0.89	5
6	207	0.0	17.39				2.7	4.3	6.7	7.7	9.6	10.6	12.3	12.9	13.0	1.45	6
7	196	0.0	12.76			0.1	2.4	3.8	6.3	7.6	8.8	10.2	13.0	13.8	14.0	1.02	7
8	173	0.0	15.61			0.0	2.2	4.0	5.8	6.9	8.3	9.5	10.6	13.7	14.0	0.58	8
9	142	0.0	15.49			0.0	2.5	4.5	6.2	7.1	8.9	9.7	12.5	14.8	15.0	0.70	9
10	124	0.0	13.71			0.1	2.3	3.8	5.6	7.6	9.8	12.0	12.8	13.8	14.0	0.81	10
11	111	0.0	14.41			0.0	2.3	3.7	6.0	7.6	10.2	12.4	13.8	15.8	16.0	0.90	11
12	98	0.0	16.33				2.3	4.7	7.1	9.3	11.0	11.9	12.5	12.9	13.0	2.04	12
13	93	0.0	19.35				2.3	3.9	6.2	7.7	11.0	11.7	12.0	12.8	13.0	1.08	13
14	96	0.0	10.42			0.2	2.5	3.9	6.0	6.7	7.7	8.9	9.5	9.9	10.0	2.08	14
15	130	0.0	20.00				2.5	3.9	6.2	7.0	7.9	8.7	9.3	9.9	10.0	1.54	15
16	229	0.0	14.41			0.0	2.1	3.5	5.3	6.2	7.2	7.8	8.8	10.6	11.0	0.44	16
17	396	0.0	12.37			0.2	2.4	3.8	5.6	6.7	7.8	9.6	10.6	12.4	13.0	0.25	17
18	533	0.0	6.94			1.1	4.0	5.3	6.8	7.9	9.3	10.3	11.1	12.2	13.0	0.19	18
19	595	0.0	2.35			2.5	5.6	7.1	8.9	9.9	10.7	11.7	12.6	14.1	15.0	0.17	19
20	615	0.0	0.49		0.6	4.4	7.2	8.7	10.2	11.1	11.8	12.9	14.1	17.1	18.0	0.16	20
21	620	0.0	0.48		1.8	5.9	8.9	10.4	11.7	12.4	13.4	14.6	15.9	17.5	18.0	0.32	21
22	620	0.0	0.16		3.5	7.4	10.3	11.5	13.1	14.0	15.0	15.9	16.8	21.1	22.0	0.16	22
23	620	1.0	0.16		5.0	8.5	11.6	12.7	14.2	14.9	16.0	17.5	18.4	21.1	22.0	0.16	23
24	620	1.0	0.32		5.1	9.9	12.6	14.0	15.7	16.4	17.2	18.2	19.2	21.5	22.0	0.32	24
25	620	1.0	0.32		6.0	10.3	13.4	15.0	16.6	17.5	18.6	19.9	20.9	25.1	26.0	0.16	25
26	620	1.0	0.16		6.5	10.9	14.4	15.9	17.6	18.5	20.0	21.4	22.5	25.7	26.0	0.48	26
27	618	1.0	0.16		7.7	11.5	15.1	16.7	19.1	20.0	21.4	23.3	25.9	27.1	28.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-9 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

AUGUST

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: AUGUST

STATION ELEVATION: 125 feet or 38 1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	145	0.0	55.17					0.4	1.1	1.5	1.8	1.9	2.5	2.9	3.0	2.07	sfc
1	306	0.0	31.05				0.6	1.4	2.4	2.9	3.7	5.0	5.7	6.7	7.0	0.65	1
2	195	0.0	31.79				0.8	1.7	3.1	4.2	5.7	7.1	7.7	8.7	9.0	0.51	2
3	223	0.0	22.87				1.3	2.6	5.0	5.7	6.9	7.8	8.8	11.6	12.0	0.45	3
4	208	0.0	23.08				1.6	3.1	5.2	6.3	8.5	11.2	11.7	13.7	14.0	0.48	4
5	196	0.0	28.06				1.2	3.0	5.3	6.7	9.4	10.8	12.0	13.7	14.0	0.51	5
6	177	0.0	23.16				1.5	3.1	5.5	6.5	7.8	9.9	11.2	13.7	14.0	0.56	6
7	157	0.0	22.29				1.8	3.9	5.8	7.0	8.6	12.2	16.4	17.7	18.0	0.64	7
8	138	0.0	19.57				1.7	4.0	6.4	8.0	8.7	9.9	13.6	14.8	15.0	0.72	8
9	120	0.0	24.17				2.0	4.2	7.1	8.1	8.8	11.6	14.8	16.8	17.0	0.83	9
10	106	0.0	21.70				2.4	4.7	8.1	9.1	10.6	12.5	16.9	22.8	23.0	0.94	10
11	93	0.0	17.20				2.7	5.0	9.2	10.3	13.3	18.8	23.0	23.8	24.0	1.08	11
12	87	0.0	18.39				3.5	6.6	9.3	11.1	12.8	21.5	30.1	30.8	31.0	1.15	12
13	83	0.0	18.07				3.0	5.4	7.6	8.9	11.6	12.5	13.1	13.8	14.0	1.20	13
14	78	0.0	16.67				2.6	4.8	8.0	8.6	9.5	15.2	16.2	16.8	17.0	1.28	14
15	99	0.0	14.14			0.0	1.9	2.9	4.6	5.5	7.0	8.7	11.0	11.8	12.0	1.01	15
16	163	0.0	23.31				1.3	2.6	4.4	5.3	6.3	7.6	8.4	8.9	9.0	1.84	16
17	340	0.0	15.29			0.0	1.6	2.7	4.2	5.0	5.9	6.8	7.6	9.7	10.0	0.59	17
18	511	0.0	8.81			0.4	2.6	3.9	5.3	6.1	7.1	8.1	8.9	12.3	13.0	0.20	18
19	590	0.0	4.07			1.8	4.5	5.7	7.2	7.9	8.8	9.7	10.4	15.2	16.0	0.17	19
20	608	0.0	1.64		0.2	3.0	6.2	7.6	9.1	9.9	10.9	11.8	12.7	15.1	16.0	0.16	20
21	620	0.0	0.48		1.2	4.8	8.0	9.3	10.7	11.4	12.5	13.6	14.5	15.7	16.0	0.48	21
22	619	2.0	0.97		3.1	6.6	9.9	11.0	12.4	13.2	14.4	15.4	16.2	19.1	20.0	0.16	22
23	620	0.0	0.16		4.6	7.9	11.0	12.4	13.9	14.7	15.7	16.8	17.9	26.1	27.0	0.16	23
24	620	4.0	0.32		5.5	9.1	12.3	13.8	15.1	15.8	17.0	18.4	19.6	25.5	26.0	0.32	24
25	620	3.0	0.16		6.3	10.1	13.2	14.8	16.4	17.0	18.1	19.8	20.9	26.1	27.0	0.16	25
26	620	5.0	0.32		6.5	10.4	14.0	15.5	17.3	18.4	19.5	20.6	23.4	27.5	28.0	0.32	26
27	620	4.0	0.16		6.4	11.0	14.7	16.2	18.1	19.5	20.8	22.4	24.6	30.1	31.0	0.16	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

D-1569

TABLE IV-10 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

SEPTEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aerobalistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	216	0.0	51.85					0.5	1.1	1.5	1.9	2.6	3.2	3.9	4.0	1.39	sfc
1	279	0.0	37.63				0.5	1.4	2.5	3.2	3.8	4.4	4.8	6.6	7.0	0.36	1
2	222	0.0	22.97				1.3	2.5	4.2	5.4	6.7	7.7	10.3	11.7	12.0	0.45	2
3	225	0.0	12.00			0.3	2.7	4.1	5.8	7.3	8.5	9.9	11.8	13.6	14.0	0.44	3
4	193	0.0	18.13				2.2	4.0	6.4	7.3	8.2	9.5	11.0	11.8	12.0	1.04	4
5	169	0.0	19.53				2.2	3.4	4.9	6.1	7.1	8.5	9.4	9.9	10.0	1.78	5
6	144	0.0	15.97				2.4	4.4	6.2	6.7	7.9	8.9	9.7	10.8	11.0	0.69	6
7	126	0.0	16.67				3.2	5.5	7.4	8.3	9.9	10.7	11.7	19.8	20.0	0.79	7
8	107	0.0	8.41			1.0	3.8	6.2	8.8	10.2	11.5	12.5	12.9	14.8	15.0	0.93	8
9	98	0.0	6.12			0.8	3.5	6.0	9.1	11.0	11.7	12.3	13.0	13.8	14.0	1.02	9
10	88	0.0	9.09			0.6	3.6	6.8	10.0	11.4	12.3	15.9	18.5	18.9	19.0	2.27	10
11	65	0.0	10.77			0.3	4.1	9.7	13.7	15.2	18.7	23.2	23.6	23.9	24.0	3.08	11
12	49	0.0	6.12			0.7	5.1	10.6	13.4	15.0	16.2	16.9	26.5	26.9	27.0	2.04	12
13	31	0.0	6.45			0.9	6.2	8.3	12.5	13.8	18.2	18.6	18.8	18.9	19.0	6.45	13
14	28	0.0	14.29			0.2	4.0	7.0	9.8	12.1	13.6	14.3	14.7	14.9	15.0	3.57	14
15	34	0.0	26.47				1.2	3.5	7.7	9.7	11.4	11.7	11.8	11.9	12.0	8.82	15
16	39	0.0	28.21				1.7	2.9	4.9	6.3	7.0	8.1	8.6	8.9	9.0	2.56	16
17	114	0.0	19.30				1.1	2.1	3.7	4.6	5.8	8.2	8.9	9.8	10.0	0.88	17
18	240	0.0	21.67				1.3	2.3	4.0	5.0	6.5	8.5	10.6	14.6	15.0	0.42	18
19	381	0.0	16.27				1.6	2.7	4.4	5.3	6.2	7.7	9.0	10.7	11.0	0.52	19
20	484	0.0	13.64			0.1	2.3	3.6	5.2	6.1	6.8	7.9	9.2	17.3	18.0	0.21	20
21	536	0.0	8.58			0.6	3.3	4.7	6.2	6.9	8.1	9.3	9.8	11.2	12.0	0.19	21
22	556	0.0	4.50			1.2	4.4	5.8	7.2	8.1	8.9	10.1	11.1	12.7	13.0	0.54	22
23	565	0.0	2.83			1.9	5.1	6.7	8.5	9.5	10.5	11.6	12.5	17.2	18.0	0.18	23
24	572	0.0	2.27		0.0	2.2	5.9	7.4	9.4	10.3	11.5	12.8	14.7	21.2	22.0	0.17	24
25	572	0.0	2.27		0.0	2.3	6.3	8.0	10.1	10.9	12.6	14.4	16.3	18.2	19.0	0.17	25
26	572	0.0	2.27		0.0	2.3	6.6	8.3	10.6	11.7	12.9	14.8	16.3	17.6	18.0	0.35	26
27	558	0.0	2.33			2.2	6.6	8.7	10.9	11.8	14.5	16.1	16.9	19.2	20.0	0.18	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-11 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

OCTOBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	272	0.0	46.32				0.1	0.6	1.1	1.5	1.8	2.3	3.0	3.8	4.0	1.10	sfc
1	330	0.0	29.70				0.8	1.7	2.9	3.8	4.8	6.0	6.9	8.5	9.0	0.30	1
2	342	0.0	18.71				1.7	3.0	4.5	5.3	6.3	7.5	9.1	10.5	11.0	0.29	2
3	322	0.0	13.66			0.1	2.2	4.0	5.8	6.9	9.2	11.5	13.4	16.5	17.0	0.31	3
4	242	0.0	19.83				2.0	3.7	6.2	7.8	10.3	12.4	13.7	17.6	18.0	0.41	4
5	189	0.0	22.22				2.1	4.1	7.3	8.6	10.3	11.5	16.1	18.7	19.0	0.53	5
6	162	0.0	20.37				2.3	4.7	8.2	9.7	11.9	12.8	15.3	17.7	18.0	0.62	6
7	144	0.0	13.19			0.2	3.3	6.1	10.5	12.0	13.2	14.8	18.5	34.8	35.0	0.69	7
8	138	0.0	10.87			0.3	3.8	6.8	9.6	11.7	15.3	16.6	17.3	17.9	18.0	1.45	8
9	118	0.0	5.08			1.3	6.0	8.5	11.1	13.7	15.5	18.3	21.8	22.8	23.0	0.85	9
10	113	0.0	12.39			0.4	5.3	8.5	12.3	14.2	17.1	18.4	19.8	22.8	23.0	0.88	10
11	100	0.0	10.00			0.8	5.3	7.8	11.6	15.0	17.3	19.7	23.0	23.8	24.0	1.00	11
12	84	0.0	13.10			0.2	4.0	8.4	12.6	15.1	20.8	23.5	24.1	24.8	25.0	1.19	12
13	59	0.0	8.47			1.1	6.2	10.0	13.8	16.3	23.5	24.6	25.4	25.9	26.0	1.69	13
14	47	0.0	10.64			1.0	5.7	10.4	14.5	19.2	20.8	22.9	23.5	23.9	24.0	2.13	14
15	42	0.0	14.29			0.1	4.5	7.5	12.6	15.3	16.9	21.0	21.5	21.9	22.0	2.38	15
16	40	0.0	15.00			0.0	3.3	5.7	10.5	12.0	17.5	18.0	18.6	18.9	19.0	2.50	16
17	47	0.0	27.66				1.3	3.3	7.1	9.2	15.6	16.9	18.5	18.9	19.0	2.13	17
18	92	0.0	27.17				0.7	1.6	3.0	3.9	6.4	10.4	12.0	12.8	13.0	1.09	18
19	141	0.0	29.08				1.2	2.2	3.4	4.2	5.3	6.3	7.5	9.8	10.0	0.71	19
20	202	0.0	21.78				1.2	2.3	4.1	5.1	6.4	8.3	8.9	14.7	15.0	0.50	20
21	248	0.0	22.98				1.3	2.4	3.8	4.7	6.2	8.3	9.5	12.6	13.0	0.40	21
22	270	0.0	22.22				1.4	2.6	4.6	5.5	6.5	7.7	8.5	12.6	13.0	0.37	22
23	249	0.0	15.26			0.0	1.8	3.3	4.8	5.5	6.2	6.7	7.2	8.6	9.0	0.40	23
24	253	0.0	24.11				1.6	2.9	4.8	5.5	6.3	6.8	7.3	7.9	8.0	1.58	24
25	223	0.0	16.14				1.6	3.0	4.9	5.7	6.9	7.8	8.4	8.9	9.0	1.79	25
26	203	0.0	18.23				1.7	2.9	5.4	6.9	7.8	9.3	9.9	10.8	11.0	0.99	26
27	176	0.0	18.18				1.8	3.5	5.5	6.7	9.6	10.9	11.5	11.9	12.0	2.27	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-12 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: NOVEMBER

SANTA MONICA, CALIFORNIA

NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	348	0.0	34.20				0.4	0.9	1.6	1.8	2.3	2.9	3.7	4.7	5.0	0.57	sfc
1	311	0.0	27.33				0.8	1.8	3.2	3.8	5.6	6.9	7.9	10.5	11.0	0.32	1
2	307	0.0	13.68			0.1	1.9	3.3	5.0	6.0	7.7	9.5	10.4	18.5	19.0	0.33	2
3	249	0.0	15.66			0.0	2.7	4.1	5.8	6.7	7.6	9.1	10.7	17.6	18.0	0.40	3
4	209	0.0	15.79			0.0	2.4	4.0	5.7	6.6	8.5	11.2	12.6	29.7	30.0	0.48	4
5	190	0.0	17.37				2.1	4.3	6.7	8.2	10.1	11.4	13.1	18.7	19.0	0.53	5
6	160	0.0	18.12				2.1	4.4	7.2	9.5	11.6	12.6	13.4	18.7	19.0	0.62	6
7	131	0.0	12.98			0.2	3.1	5.5	9.0	11.3	13.7	16.3	16.8	18.8	19.0	0.76	7
8	116	0.0	12.07			0.3	3.6	6.8	10.3	12.4	16.1	19.3	20.8	24.8	25.0	0.86	8
9	108	0.0	9.26			0.4	2.9	5.5	9.2	14.2	18.3	22.2	22.9	27.8	28.0	0.93	9
10	99	0.0	18.18				3.1	5.1	11.0	14.0	17.0	18.7	22.5	22.9	23.0	2.02	10
11	73	0.0	21.92				2.9	6.8	12.5	13.9	16.3	20.1	20.6	20.9	21.0	2.74	11
12	56	0.0	19.64				3.4	8.2	11.0	12.3	13.7	16.7	17.4	17.9	18.0	1.79	12
13	45	0.0	17.78				2.4	4.8	9.6	14.5	19.7	20.9	21.5	21.9	22.0	2.22	13
14	55	0.0	20.00				2.6	4.6	7.6	12.2	19.1	19.8	22.4	22.9	23.0	1.82	14
15	51	0.0	15.69			0.0	3.1	5.4	8.4	10.8	15.4	20.8	21.4	21.9	22.0	1.96	15
16	58	0.0	10.91			0.3	3.1	4.3	6.6	7.8	9.2	13.7	15.4	15.9	16.0	1.82	16
17	67	0.0	13.43			0.1	1.8	3.4	4.7	6.0	6.7	9.4	10.3	10.9	11.0	1.49	17
18	88	0.0	17.05				2.3	3.0	4.8	5.5	6.5	7.9	10.1	10.8	11.0	1.14	18
19	126	0.0	18.25				1.8	3.4	5.3	5.9	6.9	7.6	7.9	8.8	9.0	0.79	19
20	170	0.0	20.00				1.5	2.8	4.9	6.3	7.1	8.7	9.6	12.7	13.0	0.59	20
21	179	0.0	17.88				1.9	3.5	5.5	6.4	8.0	9.4	11.2	12.7	13.0	0.56	21
22	193	0.0	18.13				2.1	3.7	5.5	6.4	8.0	11.1	12.0	12.8	13.0	1.04	22
23	198	0.0	17.68				2.2	4.0	5.6	6.6	9.0	11.6	14.0	14.8	15.0	1.01	23
24	190	0.0	12.11			0.2	2.5	4.0	6.4	8.0	10.1	11.8	15.0	15.8	16.0	1.05	24
25	176	0.0	15.34			0.0	2.8	4.9	6.7	8.5	10.1	12.9	14.1	14.8	15.0	1.14	25
26	156	0.0	8.97			0.4	2.9	6.2	8.3	10.3	13.1	15.7	17.4	21.7	22.0	0.64	26
27	154	0.0	16.23				3.4	6.4	9.5	11.3	15.1	18.2	19.4	20.7	21.0	0.65	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE IV-13 DISTRIBUTION OF EASTERLY WINDS

EASTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: DECEMBER

SANTA MONICA, CALIFORNIA

DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of E'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	386	0.0	33.16				0.4	0.9	1.6	1.8	2.3	2.7	2.9	3.7	4.0	0.52	sfc
1	376	0.0	22.34				1.2	2.2	4.1	5.1	6.7	7.8	9.6	13.4	14.0	0.27	1
2	338	0.0	15.68			0.0	2.1	3.8	6.0	7.0	8.2	10.0	11.8	14.7	15.0	0.59	2
3	267	0.0	13.48			0.1	2.9	4.6	7.1	9.3	11.3	12.4	13.6	16.8	17.0	0.75	3
4	219	0.0	13.70			0.1	2.8	5.2	7.6	9.0	11.4	12.6	17.4	22.7	23.0	0.46	4
5	181	0.0	17.13				3.2	5.8	8.7	9.9	12.4	14.9	17.1	19.7	20.0	0.55	5
6	161	0.0	13.04			0.2	4.3	6.9	9.7	11.7	13.6	15.4	18.3	23.7	24.0	0.62	6
7	150	0.0	13.33			0.2	4.1	7.1	10.8	13.6	15.2	18.5	20.5	27.7	28.0	0.67	7
8	151	0.0	11.26			0.4	3.8	7.6	12.3	15.9	18.1	22.5	31.4	33.7	34.0	0.66	8
9	136	0.0	11.03			0.5	5.3	8.9	14.1	16.1	20.0	21.4	23.6	24.8	25.0	0.74	9
10	118	0.0	11.02			1.0	6.3	11.0	17.0	19.5	25.0	27.6	28.8	30.8	31.0	0.85	10
11	107	0.0	9.35			1.5	6.2	9.1	13.9	17.1	21.2	23.2	23.9	24.8	25.0	0.93	11
12	80	0.0	12.50			0.4	3.8	5.8	10.6	13.5	17.6	21.1	24.2	24.8	25.0	1.25	12
13	45	0.0	17.78				2.9	4.5	6.4	7.1	7.9	13.9	22.5	22.9	23.0	2.22	13
14	28	0.0	32.14				1.6	2.8	3.8	5.0	5.8	7.3	7.7	7.9	8.0	3.57	14
15	30	0.0	30.00				1.0	2.2	4.0	4.6	6.5	9.3	9.7	9.9	10.0	3.33	15
16	29	0.0	34.48				0.5	1.1	3.6	6.1	7.2	7.6	7.8	7.9	8.0	6.90	16
17	51	0.0	39.22				0.6	1.5	2.9	4.8	5.6	5.9	6.4	6.9	7.0	1.96	17
18	81	0.0	23.46				1.1	2.1	3.5	4.1	4.8	5.3	5.7	5.9	6.0	3.70	18
19	127	0.0	24.41				1.5	2.8	4.2	5.2	6.3	7.1	11.3	11.9	12.0	1.57	19
20	203	0.0	21.67				1.2	2.5	4.4	5.5	7.4	9.3	10.9	12.7	13.0	0.49	20
21	264	0.0	15.53			0.0	2.0	3.6	5.3	6.5	8.7	11.4	14.1	16.6	17.0	0.38	21
22	332	0.0	13.14			0.1	2.4	4.4	6.7	7.9	10.0	10.9	12.8	14.5	15.0	0.32	22
23	326	0.0	11.35			0.3	3.1	4.8	7.3	8.6	10.7	12.6	14.7	15.8	16.0	0.92	23
24	314	0.0	13.06			0.2	3.6	6.1	8.6	10.1	11.5	13.4	15.4	18.7	19.0	0.64	24
25	286	0.0	9.79			0.5	4.6	7.1	10.2	11.8	13.6	14.6	15.5	19.6	20.0	0.35	25
26	262	0.0	11.45			0.4	5.3	8.0	10.8	12.9	15.9	17.8	19.3	23.6	24.0	0.38	26
27	240	0.0	12.92			0.3	5.2	8.1	11.6	12.9	17.0	18.8	20.5	20.9	21.0	2.08	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V

Page

Distribution of Westerly Winds

(Component from the west semiplane)

Unit: meters per second

TABLE V-1 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: ANNUAL

ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of W'ly Winds	Min. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	4318	0.0	28.35				1.3	2.4	3.8	4.5	5.3	6.2	7.3	12.0	16.0	0.02	sfc
1	3837	0.0	28.69				0.8	1.7	3.1	3.9	5.4	7.2	9.5	13.6	21.0	0.03	1
2	4615	0.0	13.69			0.1	2.6	4.2	6.4	7.7	9.6	11.4	13.6	18.9	23.0	0.02	2
3	4932	0.0	8.94			0.8	4.5	6.9	10.2	12.0	14.5	16.9	19.3	25.4	34.0	0.02	3
4	5378	0.0	6.75			1.2	5.8	9.0	13.3	15.7	18.8	21.8	24.8	32.7	46.0	0.02	4
5	5685	0.0	5.52			1.7	7.2	10.9	15.5	18.8	22.7	27.0	31.1	42.1	47.0	0.04	5
6	5904	0.0	4.22			2.2	8.6	12.7	18.4	21.9	26.6	31.6	37.3	50.0	58.0	0.03	6
7	6070	0.0	3.41			2.8	10.2	14.7	20.8	24.8	30.3	36.4	43.7	59.9	70.0	0.02	7
8	6176	0.0	2.61			3.7	12.0	16.8	23.8	28.2	34.2	41.2	49.7	65.6	80.0	0.02	8
9	6319	0.0	1.98		0.1	4.5	13.8	19.1	26.6	31.2	38.1	45.0	53.3	65.4	86.0	0.02	9
10	6431	0.0	1.66		0.3	5.6	15.9	21.7	29.7	34.6	41.7	49.7	56.7	73.1	85.0	0.02	10
11	6577	0.0	1.37		0.4	6.6	18.0	24.3	32.2	37.3	44.4	54.4	61.4	76.0	87.0	0.02	11
12	6742	0.0	1.02		0.8	7.6	19.1	25.2	33.0	37.5	45.0	54.0	61.2	75.2	86.0	0.01	12
13	6896	0.0	1.09		0.8	7.8	19.0	24.6	31.7	35.9	42.0	48.8	55.0	69.6	80.0	0.01	13
14	6953	0.0	0.99		1.0	7.3	17.6	22.6	28.7	32.4	37.4	43.4	49.4	60.3	69.0	0.01	14
15	6900	0.0	1.46		0.4	6.1	14.9	19.3	24.7	27.8	32.2	37.2	42.3	51.7	63.0	0.01	15
16	6706	0.0	2.19		0.0	4.4	12.1	16.3	21.0	23.7	27.6	31.2	36.1	44.9	51.0	0.01	16
17	6152	0.0	3.82			2.6	9.4	13.2	17.4	19.7	23.1	27.4	30.7	37.7	42.0	0.02	17
18	5332	0.0	6.04			1.7	7.1	10.1	13.9	16.2	19.2	22.9	26.2	31.2	39.0	0.02	18
19	4476	0.0	6.46			1.1	5.1	7.5	10.9	13.1	16.1	19.3	21.8	29.4	35.0	0.02	19
20	3690	0.0	10.19			0.4	3.6	5.9	8.9	10.9	13.8	16.9	20.6	28.0	32.0	0.05	20
21	3047	0.0	12.47			0.2	2.9	5.2	8.2	10.3	12.9	16.5	20.5	26.9	30.0	0.10	21
22	2663	0.0	14.31			0.1	2.7	5.0	7.9	10.0	12.9	17.3	21.3	27.4	31.0	0.04	22
23	2476	0.0	11.55			0.3	3.1	5.4	8.3	10.3	13.9	18.8	22.1	27.6	31.0	0.04	23
24	2415	0.0	11.81			0.3	3.7	6.0	9.5	11.9	15.7	19.8	22.9	27.3	31.0	0.04	24
25	2509	0.0	10.44			0.5	4.3	7.0	10.8	13.8	17.5	21.5	25.3	30.8	34.0	0.08	25
26	2614	0.0	8.26			0.8	5.3	8.6	13.1	16.0	20.5	24.8	27.8	37.2	41.0	0.04	26
27	2759	0.0	6.67			1.1	6.3	10.2	15.3	18.5	22.9	27.7	31.0	39.2	50.0	0.04	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-2 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JANUARY

SANTA MONICA, CALIFORNIA

JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of W'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	254	0.0	42.91				0.4	1.5	2.7	3.4	4.1	4.7	6.2	9.6	10.0	0.39	sfc
1	314	0.0	22.61				1.1	2.0	3.4	4.5	6.7	10.6	11.9	14.5	15.0	0.32	1
2	421	0.0	11.64			0.3	4.0	5.6	8.1	9.2	11.5	13.4	14.9	20.4	21.0	0.24	2
3	526	0.0	3.23			2.1	6.7	9.4	12.7	14.9	17.4	19.2	21.2	25.6	26.0	0.38	3
4	559	0.0	2.15		0.0	3.2	8.8	12.6	17.6	20.2	23.2	26.2	28.6	30.6	31.0	0.36	4
5	577	0.0	1.56		0.4	4.2	11.5	15.6	21.4	24.0	28.3	32.3	35.1	39.2	40.0	0.17	5
6	582	0.0	0.86		0.6	5.8	13.9	18.4	24.8	27.8	32.6	34.9	39.0	57.2	58.0	0.17	6
7	583	0.0	1.03		1.3	7.3	15.8	20.8	27.8	31.1	36.1	43.3	52.1	69.2	70.0	0.17	7
8	583	0.0	0.51		2.0	8.2	18.3	24.4	31.0	35.5	42.4	50.3	57.5	67.2	68.0	0.17	8
9	592	0.0	0.68		1.6	9.2	20.6	26.5	35.1	39.8	46.8	54.8	59.0	66.2	67.0	0.17	9
10	598	0.0	0.67		1.7	11.2	22.6	28.9	38.7	45.2	52.0	56.7	61.0	65.1	66.0	0.17	10
11	604	0.0	0.17		3.6	12.3	24.5	31.0	41.3	48.2	57.2	61.2	64.9	71.1	72.0	0.17	11
12	609	1.0	0.16		4.9	13.9	25.2	31.7	43.2	48.8	56.3	62.5	65.7	72.1	73.0	0.16	12
13	610	2.0	0.49		6.7	13.9	24.5	30.6	40.0	46.1	52.7	57.0	63.9	79.1	80.0	0.16	13
14	618	0.0	0.16		4.6	12.6	23.2	27.5	35.4	41.5	45.6	52.1	56.9	64.1	65.0	0.16	14
15	616	0.0	0.49		4.0	11.9	19.6	24.2	30.4	34.0	39.2	43.9	47.6	52.1	53.0	0.16	15
16	613	1.0	0.16		3.4	10.0	16.9	20.4	24.6	26.9	30.4	37.5	40.8	48.1	49.0	0.16	16
17	609	0.0	0.66		1.4	6.8	13.9	16.8	20.1	22.0	27.1	31.7	34.4	39.5	40.0	0.33	17
18	585	0.0	1.03		0.8	4.4	10.1	12.9	16.2	18.5	24.0	26.2	27.7	34.2	35.0	0.17	18
19	530	0.0	3.58			2.0	6.6	10.0	13.5	15.6	19.1	21.4	25.2	89.2	30.0	0.19	19
20	450	0.0	6.00			0.9	5.7	8.6	11.4	13.4	15.8	19.5	21.8	26.3	27.0	0.22	20
21	374	0.0	5.88			1.0	6.0	8.5	11.6	13.4	16.1	20.4	23.2	27.4	28.0	0.27	21
22	347	0.0	6.05			1.2	5.8	8.5	11.9	13.8	18.8	22.0	26.5	30.5	31.0	0.29	22
23	321	0.0	5.92			2.0	6.5	8.9	11.9	13.7	18.7	21.8	26.7	30.5	31.0	0.31	23
24	317	0.0	4.10			1.8	7.3	10.3	13.6	16.7	19.8	22.7	26.8	30.5	31.0	0.32	24
25	316	0.0	5.38			2.1	8.7	12.6	16.7	19.7	24.0	27.3	30.4	33.7	34.0	0.63	25
26	314	0.0	4.14			3.4	10.1	15.7	20.5	23.0	27.1	30.9	37.4	40.5	41.0	0.32	26
27	316	0.0	1.90		0.1	5.4	12.6	18.6	23.8	26.1	29.4	34.7	39.8	49.5	50.0	0.32	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-3 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

FEBRUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of Wly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	301	0.0	35.55				0.8	1.8	3.1	4.0	4.9	6.7	8.4	13.5	14.0	0.33	sfc
1	327	0.0	23.55				1.0	2.1	4.1	5.8	8.1	10.7	12.5	13.7	14.0	0.61	1
2	405	0.0	8.15			0.8	4.0	6.0	8.6	10.3	11.9	15.4	17.9	21.4	22.0	0.25	2
3	464	0.0	4.53			2.0	6.9	9.7	13.1	14.7	17.3	19.7	22.3	33.3	34.0	0.22	3
4	493	0.0	2.64			3.3	9.7	13.2	17.7	19.5	21.9	26.7	30.0	36.6	37.0	0.41	4
5	514	0.0	1.75		0.1	4.4	12.2	16.1	20.7	22.9	27.1	35.2	38.9	46.3	47.0	0.19	5
6	524	0.0	2.10		0.0	4.7	14.3	19.2	24.9	28.1	35.4	45.5	49.3	57.2	58.0	0.19	6
7	525	0.0	0.57		0.8	6.3	16.4	22.0	28.3	33.5	43.8	55.0	59.8	67.2	68.0	0.19	7
8	523	0.0	0.76		1.2	7.5	19.6	25.7	33.4	37.7	53.2	59.5	63.7	79.2	80.0	0.19	8
9	528	0.0	0.38		1.7	9.1	22.2	29.4	38.0	44.5	54.8	62.4	65.7	85.2	86.0	0.19	9
10	537	0.0	0.56		2.0	11.8	24.9	32.2	42.3	48.8	59.0	66.3	73.6	84.2	85.0	0.19	10
11	550	0.0	0.55		2.5	13.4	28.2	34.6	47.2	53.5	61.3	68.4	76.5	86.2	87.0	0.18	11
12	564	0.0	0.18		4.7	15.9	29.5	36.2	47.1	53.0	58.8	66.7	75.1	84.2	85.0	0.18	12
13	568	5.0	0.53		8.8	17.3	28.5	35.1	44.1	48.6	54.3	63.0	69.3	77.2	78.0	0.18	13
14	568	4.0	0.35		8.9	17.2	26.7	31.5	39.0	43.5	49.8	55.5	63.1	68.2	69.0	0.18	14
15	568	3.0	0.18		7.9	15.5	23.0	27.5	33.1	37.0	44.6	49.0	52.3	62.2	63.0	0.18	15
16	567	3.0	0.18		6.5	13.1	19.2	21.9	27.7	31.4	36.1	40.5	45.1	50.2	51.0	0.18	16
17	567	2.0	0.18		4.8	9.8	15.3	18.0	23.5	26.8	29.9	32.6	36.3	38.6	39.0	0.35	17
18	566	0.0	0.53		2.3	6.4	11.0	13.8	18.1	20.7	24.0	27.0	29.3	32.2	33.0	0.18	18
19	550	0.0	0.73		0.5	3.1	7.3	9.8	14.7	16.7	19.4	21.9	25.1	29.2	30.0	0.18	19
20	501	0.0	4.79			1.1	4.8	6.9	11.6	15.2	18.5	21.2	24.9	29.3	30.0	0.20	20
21	409	0.0	11.74			0.2	3.3	5.3	10.7	14.4	18.8	21.8	24.4	29.4	30.0	0.24	21
22	314	0.0	15.61			0.0	3.0	5.6	12.0	16.8	20.8	23.7	24.9	29.5	30.0	0.32	22
23	279	0.0	12.19			0.2	3.1	5.9	14.1	18.3	21.8	23.8	25.4	28.6	29.0	0.36	23
24	239	0.0	7.95			0.6	5.0	8.3	15.9	20.4	23.0	24.6	26.3	28.6	29.0	0.42	24
25	236	0.0	8.05			0.7	5.4	9.9	17.6	20.6	24.4	26.6	28.3	30.6	31.0	0.42	25
26	229	0.0	6.99			1.4	6.7	13.6	20.1	23.5	27.1	29.2	30.7	33.6	34.0	0.44	26
27	219	0.0	5.94			1.2	8.8	15.6	22.3	28.0	31.2	32.6	33.9	36.7	37.0	0.46	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-4 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MARCH

SANTA MONICA, CALIFORNIA

MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of W'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	344	0.0	34.88				1.2	2.6	4.0	4.8	6.1	6.9	7.5	9.5	10.0	0.29	sfc
1	360	0.0	23.61				1.1	2.1	3.6	4.6	5.8	7.9	10.2	20.5	21.0	0.28	1
2	417	0.0	13.19			0.2	3.3	5.5	8.2	9.3	10.6	11.7	13.8	17.4	18.0	0.24	2
3	480	0.0	5.42			1.6	6.1	8.8	12.8	14.4	16.1	17.8	20.6	26.3	27.0	0.21	3
4	531	0.0	3.95			2.4	8.2	11.8	15.7	17.4	19.8	23.2	25.5	33.2	34.0	0.19	4
5	549	0.0	2.19		0.0	3.4	9.7	13.9	19.0	21.5	24.7	27.6	29.8	38.2	39.0	0.18	5
6	556	0.0	1.26		0.4	5.0	12.5	16.6	21.5	24.3	27.0	30.9	33.6	42.6	43.0	0.36	6
7	563	0.0	1.07		0.7	5.7	14.4	18.9	23.9	27.3	31.4	34.4	38.1	50.2	51.0	0.18	7
8	575	0.0	1.39		0.6	7.0	16.6	21.4	26.9	30.7	35.3	37.9	42.2	58.2	59.0	0.17	8
9	581	0.0	1.03		1.0	8.9	18.6	23.8	29.7	33.7	40.1	43.6	49.5	54.2	55.0	0.17	9
10	587	0.0	0.85		2.0	10.7	22.2	27.6	34.3	39.2	46.8	52.3	56.1	76.2	77.0	0.17	10
11	596	0.0	1.01		1.3	14.0	25.3	31.0	39.1	43.7	55.1	62.4	70.3	80.1	81.0	0.17	11
12	612	0.0	0.65		2.4	15.0	27.3	32.5	39.5	44.9	54.8	62.0	66.9	85.1	86.0	0.16	12
13	620	0.0	0.97		2.1	16.3	26.7	32.3	38.3	42.1	48.4	53.8	58.7	66.1	67.0	0.16	13
14	619	0.0	0.32		3.2	15.0	25.1	29.7	35.7	38.5	43.2	50.1	52.9	58.1	59.0	0.16	14
15	619	0.0	1.13		1.6	14.2	21.7	25.8	31.6	34.6	38.3	42.9	46.8	54.1	55.0	0.16	15
16	619	0.0	0.48		1.3	12.2	18.8	22.4	27.7	29.9	32.7	37.2	40.2	45.1	46.0	0.16	16
17	612	0.0	0.65		1.9	9.2	14.8	18.2	22.9	25.4	28.3	31.4	32.9	41.1	42.0	0.16	17
18	605	0.0	1.16		1.3	5.9	10.6	13.7	18.2	20.0	22.5	26.4	28.9	38.1	39.0	0.17	18
19	587	0.0	1.02		0.4	2.9	7.2	9.7	13.5	15.3	17.8	21.8	28.1	34.2	35.0	0.17	19
20	523	0.0	4.59			1.1	4.9	7.0	9.9	11.9	15.1	21.0	25.7	31.6	32.0	0.38	20
21	441	0.0	9.75			0.5	3.5	5.7	8.6	10.1	12.2	17.9	24.2	29.7	30.0	0.45	21
22	369	0.0	10.03			0.4	3.3	5.3	7.3	8.9	10.9	14.7	21.3	25.7	26.0	0.54	22
23	334	0.0	9.58			0.5	3.6	5.4	7.5	8.5	10.7	14.6	21.6	24.5	25.0	0.30	23
24	330	0.0	11.82			0.4	4.1	5.8	7.7	9.0	10.5	14.4	17.7	20.5	21.0	0.30	24
25	336	0.0	8.63			1.1	5.3	7.0	9.1	10.2	11.8	15.1	16.4	17.5	18.0	0.30	25
26	332	0.0	7.23			1.3	6.2	8.7	11.1	12.3	14.2	15.4	16.5	19.5	20.0	0.30	26
27	337	0.0	4.75			1.7	6.9	10.5	13.1	14.5	15.9	17.2	18.6	21.5	22.0	0.30	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-5 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

APRIL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of W'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	385	0.0	25.97				1.6	2.8	4.4	5.2	6.3	7.5	8.7	12.4	13.0	0.26	sfc
1	348	0.0	23.56				1.3	2.4	3.8	5.1	6.4	8.6	10.5	16.5	17.0	0.29	1
2	400	0.0	10.00			0.5	3.2	5.0	7.3	8.7	10.6	13.2	14.6	22.4	23.0	0.25	2
3	431	0.0	6.73			1.2	5.2	8.3	11.6	13.3	16.2	18.3	19.7	26.4	27.0	0.23	3
4	470	0.0	3.62			1.9	7.3	10.6	14.5	16.5	20.0	22.6	26.1	39.3	40.0	0.21	4
5	504	0.0	4.37			3.0	9.2	13.3	17.5	20.6	24.5	27.9	30.9	44.3	45.0	0.20	5
6	538	0.0	4.46			2.8	11.0	14.9	21.4	24.1	28.8	34.3	40.6	48.6	49.0	0.37	6
7	553	0.0	3.44			3.2	12.9	17.5	24.1	27.7	35.0	41.4	47.7	68.2	69.0	0.18	7
8	558	0.0	1.97		0.1	4.7	15.5	20.4	28.0	31.7	38.7	44.1	57.2	70.6	71.0	0.36	8
9	567	0.0	1.76		0.7	5.6	17.2	22.8	31.5	36.1	42.2	47.6	54.3	71.2	72.0	0.18	9
10	567	0.0	1.41		0.6	7.5	19.5	26.8	35.0	39.0	42.9	50.5	54.3	64.2	65.0	0.18	10
11	569	0.0	0.70		1.3	9.3	21.5	28.9	36.9	41.3	46.2	51.0	56.3	68.2	69.0	0.18	11
12	586	0.0	0.68		1.1	10.3	22.6	29.5	36.8	40.2	44.9	50.3	56.0	59.2	60.0	0.17	12
13	598	0.0	0.17		4.4	11.6	22.5	28.1	34.1	37.4	41.7	47.1	54.0	76.1	77.0	0.17	13
14	599	1.0	0.17		5.6	12.2	20.9	25.6	30.3	34.5	36.8	40.3	44.0	58.1	59.0	0.17	14
15	600	3.0	0.33		5.9	11.4	18.7	22.7	26.6	29.1	31.6	33.9	37.6	45.1	46.0	0.17	15
16	600	0.0	0.17		4.4	9.6	15.8	19.1	23.0	25.2	27.8	28.9	31.3	43.1	44.0	0.17	16
17	597	0.0	0.17		2.7	7.2	12.5	15.2	18.5	20.2	22.2	23.9	25.8	28.1	29.0	0.17	17
18	593	0.0	0.67		1.0	4.4	8.7	11.2	13.9	15.9	18.1	19.8	22.5	28.1	29.0	0.17	18
19	562	0.0	3.02			2.1	5.8	7.6	9.9	11.6	13.3	16.6	18.8	23.2	24.0	0.18	19
20	500	0.0	6.60			0.8	3.9	5.7	7.5	8.8	11.0	13.3	17.0	22.3	23.0	0.20	20
21	414	0.0	12.32			0.2	2.6	4.2	6.5	7.4	8.8	10.9	12.4	18.4	19.0	0.24	21
22	368	0.0	15.76			0.0	1.8	3.0	5.2	5.9	6.9	8.7	10.1	11.7	12.0	0.54	22
23	304	0.0	15.79			0.0	1.8	3.4	5.3	6.3	7.7	9.0	10.4	15.5	16.0	0.33	23
24	296	0.0	20.27				1.6	3.2	5.5	6.8	8.6	10.1	13.5	16.6	17.0	0.34	24
25	305	0.0	17.38				1.8	4.1	7.2	9.2	10.6	12.3	12.9	19.5	20.0	0.33	25
26	343	0.0	12.24			0.2	2.6	4.7	7.7	10.7	13.9	16.5	20.5	28.5	29.0	0.29	26
27	386	0.0	9.33			0.4	3.2	5.8	9.5	11.6	14.9	18.7	22.0	24.4	25.0	0.26	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-6 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MAY

STATION ELEVATION: 125 feet or 38.1 meters MSL.

SANTA MONICA, CALIFORNIA

MAY

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of W'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	422	0.0	21.56				2.0	3.3	4.8	5.5	6.6	8.3	10.7	15.4	16.0	0.24	sfc
1	343	0.0	27.41				0.9	1.9	3.3	4.3	5.2	6.3	7.1	7.8	8.0	1.17	1
2	437	0.0	11.21			0.3	2.8	4.3	6.1	7.0	9.0	11.0	12.2	13.7	14.0	0.46	2
3	435	0.0	7.59			0.9	5.1	7.7	10.4	11.8	14.0	15.6	18.6	20.4	21.0	0.23	3
4	493	0.0	4.46			2.0	6.5	9.4	13.5	15.6	19.2	21.5	23.0	36.3	37.0	0.20	4
5	545	0.0	4.40			2.1	7.9	11.0	15.7	18.6	22.8	27.8	31.5	35.2	36.0	0.18	5
6	563	0.0	3.02			2.9	9.9	13.0	18.4	21.8	27.4	34.5	38.1	42.2	43.0	0.18	6
7	572	0.0	2.10		0.0	4.2	11.6	15.6	21.2	24.7	31.2	38.9	42.7	48.2	49.0	0.17	7
8	577	0.0	1.73		0.2	4.9	13.7	18.0	24.2	28.4	34.5	41.9	48.0	57.2	58.0	0.17	8
9	589	0.0	1.70		0.2	6.3	15.2	20.3	26.0	30.8	37.8	44.3	48.5	51.6	52.0	0.34	9
10	602	0.0	0.50		1.1	7.7	17.3	22.7	28.7	33.6	40.6	47.8	50.9	57.1	58.0	0.17	10
11	612	0.0	0.49		1.8	8.9	19.6	24.8	31.9	35.2	41.3	48.7	53.9	61.1	62.0	0.16	11
12	615	0.0	0.16		2.7	10.9	21.1	24.9	32.2	35.9	41.6	48.3	55.8	64.1	65.0	0.16	12
13	620	2.0	0.32		4.2	11.4	19.8	24.5	30.8	34.4	39.7	45.2	50.8	61.1	62.0	0.16	13
14	620	1.0	0.32		4.6	10.5	18.3	22.1	27.4	30.5	34.6	38.6	44.9	49.5	50.0	0.32	14
15	620	2.0	0.65		4.0	9.0	15.2	18.8	23.2	25.5	28.5	32.2	37.9	46.1	47.0	0.16	15
16	618	0.0	0.49		2.5	6.3	11.7	15.0	18.5	20.7	24.0	27.5	30.8	38.1	39.0	0.16	16
17	603	0.0	1.00		0.4	3.5	8.5	11.0	14.1	16.2	18.7	22.0	24.9	30.5	31.0	0.33	17
18	553	0.0	7.59			0.9	4.9	7.1	10.0	11.5	13.5	15.9	19.4	25.6	26.0	0.36	18
19	420	0.0	9.05			0.5	2.9	4.6	6.5	7.6	9.5	11.4	15.4	19.4	20.0	0.24	19
20	281	0.0	19.93				1.4	2.5	4.1	5.2	6.7	9.1	9.8	10.8	11.0	0.71	20
21	183	0.0	19.67				1.4	2.3	3.7	4.5	5.3	5.9	7.1	10.7	11.0	0.55	21
22	142	0.0	28.17				0.8	1.9	2.9	3.5	4.3	5.2	5.8	6.8	7.0	0.70	22
23	128	0.0	25.00				1.2	2.1	3.6	4.7	5.6	6.3	6.9	7.8	8.0	0.78	23
24	119	0.0	30.25				1.2	2.4	4.4	5.3	7.0	8.7	9.8	15.8	16.0	0.84	24
25	131	0.0	23.66				1.1	2.1	4.4	5.4	6.4	9.5	10.6	11.8	12.0	0.76	25
26	146	0.0	23.97				1.1	2.5	4.9	5.9	7.5	9.8	10.7	11.8	12.0	0.68	26
27	185	0.0	20.54				1.5	2.9	5.2	6.3	8.1	10.7	12.1	13.7	14.0	0.54	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-7 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

JUNE

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 21, 1962

UNITS: meters/second

Alt. (MSL) km	No. of Wly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY												Max Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865				
sfc	438	0.0	24.66				1.4	2.8	4.2	4.8	5.5	6.1	6.6	7.4		8.0	0.23	sfc
1	340	0.0	27.06				0.8	1.8	3.2	4.1	5.2	5.9	8.3	11.5		12.0	0.29	1
2	432	0.0	11.57			0.3	2.8	4.4	6.3	7.7	9.2	10.5	11.5	12.7		13.0	0.46	2
3	417	0.0	9.11			0.6	4.4	7.0	10.2	11.4	12.8	14.8	15.9	19.4		20.0	0.24	3
4	447	0.0	8.95			0.6	4.9	8.3	11.6	13.3	15.4	17.1	17.9	20.3		21.0	0.22	4
5	464	0.0	9.05			0.6	5.6	8.9	12.3	13.7	16.6	18.9	20.3	28.3		29.0	0.22	5
6	471	0.0	5.31			1.6	6.6	10.0	14.2	16.2	19.3	21.7	24.6	29.3		30.0	0.21	6
7	497	0.0	5.03			1.8	7.1	10.8	15.5	17.7	20.8	24.4	27.0	32.3		33.0	0.20	7
8	503	0.0	2.78			2.9	8.5	12.4	17.6	20.3	23.2	26.2	30.9	39.3		40.0	0.20	8
9	504	0.0	3.37			4.0	10.6	15.0	19.0	21.4	24.5	27.5	31.6	35.3		36.0	0.20	9
10	508	0.0	2.17		0.0	5.2	12.9	17.2	22.4	25.0	28.5	31.5	32.9	42.3		43.0	0.20	10
11	515	0.0	0.97		0.6	6.4	15.3	19.6	25.6	27.5	30.3	32.4	38.8	43.6		44.0	0.39	11
12	530	0.0	0.94		1.2	7.7	16.6	21.4	26.3	28.2	30.9	35.9	42.2	45.2		46.0	0.19	12
13	556	0.0	1.80		0.3	7.2	16.6	20.6	25.6	28.2	31.9	36.4	41.2	54.2		55.0	0.18	13
14	581	0.0	1.20		1.1	6.4	15.0	18.2	22.7	25.2	29.0	32.9	36.0	41.2		42.0	0.17	14
15	583	0.0	1.72		0.3	5.4	11.6	14.4	18.0	20.2	22.6	25.2	28.1	32.2		33.0	0.17	15
16	564	0.0	1.24		0.5	3.5	7.5	9.7	12.3	14.9	17.8	20.8	22.5	27.2		28.0	0.18	16
17	498	0.0	7.83			0.8	3.7	5.5	7.8	8.9	11.0	13.6	17.5	21.3		22.0	0.20	17
18	295	0.0	25.42				1.6	2.8	4.8	5.9	7.2	10.6	12.0	16.6		17.0	0.34	18
19	104	0.0	32.69				0.6	1.5	3.0	4.1	4.8	5.5	5.9	6.8		7.0	0.96	19
20	34	0.0	47.06				0.1	1.1	1.9	2.8	5.1	5.6	5.8	5.9		6.0	5.88	20
21	11	0.0	27.27				0.8	1.7	4.2	4.8	9.4	9.7	9.8	9.9		10.0	9.09	21
22	10	0.0	30.00				0.6	2.8	5.4	6.0	11.5	11.7	11.8	11.9		12.0	10.00	22
23	6	0.0	16.67				1.0	5.0	11.0	11.3	11.6	11.8	11.9	11.9		12.0	16.67	23
24	2	0.0	100.00													0.0	100.00	24

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-8 DISTRIBUTION OF WESTERLY WINDS

STATION:	SANTA MONICA, CALIFORNIA
REFERENCE PERIOD:	JULY
STATION ELEVATION:	125 feet or 38.1 meters MSL
STATION COORDINATES:	34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION:	Long Beach California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE:	National Weather Records Center U. S. Weather Bureau Asheville, North Carolina
PREPARED BY:	National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962

WESTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

JULY

NO. OF OBS. FOR EACH LEVEL: 620

UNITS: meters/second

Alt. (MSL) km	No. of Wly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	478	0.0	22.59				1.4	2.6	3.8	4.4	4.9	5.5	5.9	8.3	9.0	0.21	sfc
1	345	0.0	35.65				0.4	1.2	2.4	3.2	3.8	5.0	6.2	7.7	8.0	0.58	1
2	446	0.0	15.25			0.0	2.1	3.0	4.8	5.7	6.9	7.7	8.5	11.3	12.0	0.22	2
3	403	0.0	14.39			0.1	3.3	4.9	7.0	8.1	9.2	10.7	11.6	13.4	14.0	0.25	3
4	394	0.0	10.91			0.5	3.6	5.6	8.3	9.6	10.7	12.2	13.3	17.4	18.0	0.25	4
5	396	0.0	12.63			0.4	4.2	6.0	8.9	10.5	11.8	13.2	14.5	20.4	21.0	0.25	5
6	413	0.0	6.54			0.8	4.7	7.1	10.1	11.5	13.2	16.1	20.8	24.4	25.0	0.24	6
7	424	0.0	7.31			1.4	6.0	9.0	12.2	13.9	15.6	18.7	23.8	27.4	28.0	0.24	7
8	447	0.0	5.82			1.7	6.9	10.1	13.9	16.4	18.7	21.9	24.7	29.3	30.0	0.22	8
9	478	0.0	2.93			2.1	8.0	12.1	16.4	18.7	20.6	23.5	26.1	29.3	30.0	0.21	9
10	496	0.0	3.02			2.9	8.8	13.2	18.6	21.3	24.2	27.6	29.6	30.7	31.0	0.60	10
11	509	0.0	2.75			3.4	10.2	15.4	20.7	23.3	25.9	29.1	30.9	34.3	35.0	0.20	11
12	522	0.0	3.07			3.6	10.9	16.7	21.9	24.4	27.3	29.5	32.5	37.2	38.0	0.19	12
13	527	0.0	3.23			3.1	10.4	16.0	21.4	23.8	27.4	28.9	31.2	34.2	35.0	0.19	13
14	524	0.0	4.39			2.5	8.9	13.1	18.8	21.6	23.6	25.4	26.7	30.2	31.0	0.19	14
15	490	0.0	6.53			1.4	6.3	9.3	14.0	16.0	17.5	18.8	21.0	26.3	27.0	0.20	15
16	391	0.0	8.70			0.6	3.9	6.5	9.3	10.8	13.8	15.4	16.5	18.4	19.0	0.26	16
17	224	0.0	17.41				2.0	3.7	5.5	7.1	7.9	9.9	10.9	17.6	18.0	0.45	17
18	87	0.0	20.69				1.3	2.1	3.0	4.2	4.9	6.5	8.1	8.8	9.0	1.15	18
19	25	0.0	44.00				0.2	0.8	1.6	1.9	2.7	7.4	7.7	7.9	8.0	4.00	19
20	5	0.0	20.00				0.7	1.2	1.6	1.7	1.8	1.9	1.9	1.9	2.0	40.00	20
21																	21
22																	22
23																	23
24																	24
25																	25
26																	26
27	2	7.0	50.00					8.3	8.6	8.7	8.8	8.9	8.9	8.9	9.0	50.00	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-9 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: AUGUST

SANTA MONICA, CALIFORNIA

AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of Wly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	475	0.0	22.74				1.3	2.5	3.8	4.4	5.0	5.6	5.9	6.7	7.0	0.63	sfc
1	314	0.0	31.53				0.6	1.4	2.6	3.3	4.1	4.8	5.7	7.5	8.0	0.32	1
2	425	0.0	18.12				1.5	2.6	3.8	4.7	6.2	8.3	9.6	11.4	12.0	0.24	2
3	397	0.0	15.37			0.0	2.7	4.0	6.1	7.0	8.6	9.8	13.0	14.8	15.0	0.76	3
4	412	0.0	14.08			0.1	3.3	5.4	7.8	9.2	10.7	11.8	12.7	16.4	17.0	0.24	4
5	424	0.0	9.67			0.5	3.7	5.7	9.2	10.1	12.1	13.6	14.7	15.8	16.0	0.71	5
6	443	0.0	7.90			1.0	4.4	6.7	9.8	11.9	13.5	15.4	16.8	24.4	25.0	0.23	6
7	463	0.0	6.70			1.1	5.2	8.0	11.5	13.0	16.1	17.7	18.8	22.3	23.0	0.22	7
8	482	0.0	6.02			1.5	6.3	9.6	13.3	15.1	16.8	19.2	20.7	24.3	25.0	0.21	8
9	500	0.0	4.60			2.0	7.0	11.1	15.7	18.0	21.0	22.7	25.0	29.3	30.0	0.20	9
10	514	0.0	4.28			2.7	8.2	12.5	17.9	19.9	23.1	26.2	27.6	35.3	36.0	0.19	10
11	527	0.0	2.85			2.8	10.1	14.5	20.0	22.3	25.8	28.9	30.5	36.2	37.0	0.19	11
12	533	0.0	3.56			3.4	10.5	15.4	22.7	25.8	29.4	32.7	34.4	38.2	39.0	0.19	12
13	537	0.0	2.23		0.0	3.5	10.8	15.7	22.3	25.6	29.5	32.1	34.8	38.6	39.0	0.37	13
14	542	0.0	3.14			2.6	9.4	13.2	18.1	20.7	24.3	26.6	28.3	30.2	31.0	0.18	14
15	521	0.0	6.53			1.5	6.8	10.0	13.6	15.3	17.9	20.5	22.7	24.8	25.0	0.77	15
16	457	0.0	10.94			0.5	3.8	6.1	8.8	10.3	13.3	16.3	19.2	22.3	23.0	0.22	16
17	280	0.0	22.14				1.6	3.0	5.3	6.7	9.5	12.3	15.2	16.8	17.0	0.71	17
18	109	0.0	35.78				0.6	1.6	3.4	5.5	9.1	10.5	11.9	15.8	16.0	0.92	18
19	30	0.0	30.00				1.5	2.4	3.2	5.0	7.5	8.3	8.7	8.9	9.0	3.33	19
20	12	0.0	50.00					0.7	1.5	1.8	3.4	3.7	3.8	3.9	4.0	8.33	20
21																	21
22	1	0.0	100.00												0.0	100.00	22

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-10 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

SANTA MONICA, CALIFORNIA

SEPTEMBER

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of W'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	384	0.0	30.47				1.2	2.6	3.7	4.2	4.8	5.6	6.4	7.4	8.0	0.26	sfc
1	321	0.0	30.22				0.8	1.6	2.7	3.3	4.0	4.8	5.9	6.8	7.0	0.93	1
2	378	0.0	15.34			0.0	2.3	3.6	5.5	6.4	7.3	8.7	9.8	14.4	15.0	0.26	2
3	375	0.0	12.00			0.4	3.3	5.1	7.6	8.8	10.5	11.9	13.6	15.4	16.0	0.27	3
4	407	0.0	10.81			0.4	3.6	5.8	9.1	10.7	13.1	16.2	17.7	23.4	24.0	0.25	4
5	431	0.0	8.35			0.8	5.0	6.9	16.1	11.8	14.6	17.5	20.3	26.4	27.0	0.23	5
6	456	0.0	6.14			1.7	6.1	8.6	11.9	14.3	17.2	21.1	24.7	32.3	33.0	0.22	6
7	474	0.0	3.59			2.2	7.9	10.7	14.2	17.2	21.2	23.1	31.6	34.3	35.0	0.21	7
8	493	0.0	3.45			3.1	9.6	12.8	17.1	20.7	25.5	31.7	35.6	45.3	46.0	0.20	8
9	502	0.0	1.59		0.2	4.2	10.9	15.1	21.1	24.7	28.7	32.8	36.9	43.3	44.0	0.20	9
10	512	0.0	1.56		0.5	4.8	13.5	18.3	25.0	27.9	31.6	36.3	39.9	48.3	49.0	0.20	10
11	535	0.0	2.24		0.0	5.5	15.5	19.8	28.6	31.5	35.3	37.9	42.8	57.2	58.0	0.19	11
12	551	0.0	0.73		0.8	6.7	18.2	22.2	30.4	33.8	36.3	39.3	41.6	46.2	47.0	0.18	12
13	569	0.0	1.23		0.9	6.8	18.7	23.0	29.0	31.7	35.6	39.6	41.8	48.2	49.0	0.18	13
14	572	0.0	0.17		1.2	7.1	16.5	20.6	24.9	27.7	31.4	34.6	39.2	44.2	45.0	0.17	14
15	566	0.0	0.35		0.8	5.3	12.8	16.2	20.2	22.3	24.6	27.5	30.1	36.6	37.0	0.35	15
16	561	0.0	3.21			2.9	8.3	11.2	14.8	16.5	18.4	22.4	24.3	28.2	29.0	0.18	16
17	486	0.0	6.79			1.1	4.6	6.8	9.6	11.3	13.7	16.7	19.3	21.3	22.0	0.21	17
18	360	0.0	18.89				2.3	3.8	6.0	7.5	10.0	10.9	13.4	18.7	19.0	0.56	18
19	219	0.0	19.63				1.5	2.8	4.3	5.4	6.7	8.2	8.7	14.7	15.0	0.46	19
20	116	0.0	30.17				1.2	1.9	3.0	3.8	5.0	5.8	6.8	11.8	12.0	0.86	20
21	64	0.0	25.00				0.7	1.5	2.4	2.8	4.4	5.2	5.6	5.9	6.0	3.13	21
22	44	0.0	40.91				0.3	0.9	2.2	2.6	2.9	3.9	5.5	5.9	6.0	2.27	22
23	35	0.0	28.57				1.0	1.6	2.3	2.8	4.6	5.2	5.6	5.9	6.0	2.86	23
24	28	0.0	21.43				1.6	2.5	4.2	6.1	8.6	9.3	9.7	9.9	10.0	3.57	24
25	28	0.0	17.86				1.6	3.0	4.5	5.0	5.8	8.3	8.7	8.9	9.0	3.57	25
26	28	0.0	17.86				1.6	4.0	5.3	5.7	6.6	10.3	10.7	10.9	11.0	3.57	26
27	42	0.0	16.67				2.1	3.3	6.0	6.5	6.9	10.0	10.5	10.9	11.0	2.38	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-11 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

SANTA MONICA, CALIFORNIA

STATION ELEVATION: 125 feet or 38.1 meters MSL

OCTOBER

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of Wly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	348	0.0	29.89				1.2	2.4	3.6	4.0	4.7	5.4	5.9	9.5	10.0	0.29	sfc
1	290	0.0	37.24				0.4	1.0	2.1	2.9	3.7	4.8	6.1	10.6	11.0	0.34	1
2	278	0.0	15.11			0.0	1.9	3.6	5.4	6.3	7.6	8.8	10.1	13.6	14.0	0.36	2
3	298	0.0	9.73			0.6	3.9	6.0	8.7	11.1	12.6	15.4	17.0	23.5	24.0	0.34	3
4	378	0.0	7.94			0.9	4.7	7.6	11.5	14.0	17.5	19.5	22.2	27.4	28.0	0.26	4
5	431	0.0	6.26			1.3	6.2	8.7	13.2	15.7	21.1	24.3	27.6	45.4	46.0	0.23	5
6	458	0.0	5.68			1.6	6.5	9.8	15.0	18.3	24.0	27.5	33.4	47.3	48.0	0.22	6
7	476	0.0	4.20			2.0	7.9	11.0	16.2	20.1	26.0	29.8	38.2	51.3	52.0	0.21	7
8	482	0.0	2.70			3.1	9.3	13.3	18.2	22.4	27.9	34.0	38.1	63.3	64.0	0.21	8
9	502	0.0	2.79			3.8	11.0	14.7	20.5	25.1	29.5	34.2	38.9	59.3	60.0	0.20	9
10	507	0.0	1.97		0.1	5.3	12.9	16.8	21.7	26.0	32.3	34.7	42.9	47.3	48.0	0.20	10
11	520	0.0	2.12		0.0	6.4	14.3	18.8	23.9	26.2	31.6	37.7	38.9	44.6	45.0	0.38	11
12	536	0.0	0.93		0.8	7.2	15.2	19.4	24.2	27.2	31.5	34.3	39.1	41.2	42.0	0.19	12
13	561	0.0	0.89		1.2	6.5	15.2	19.4	23.8	26.2	29.4	33.0	34.8	38.2	39.0	0.18	13
14	573	0.0	0.70		1.1	6.3	14.7	18.3	22.0	24.6	27.2	29.3	33.0	38.2	39.0	0.17	14
15	578	0.0	0.69		0.9	5.9	12.6	16.0	19.6	21.5	24.2	26.5	28.4	31.2	32.0	0.17	15
16	580	0.0	1.21		0.7	4.5	10.1	13.2	16.4	18.2	20.4	23.6	27.0	29.2	30.0	0.17	16
17	573	0.0	3.66			2.2	7.4	9.7	12.8	14.2	16.5	18.9	22.0	30.2	31.0	0.17	17
18	528	0.0	4.17			1.4	4.9	6.8	9.0	10.5	12.7	14.7	16.5	22.2	23.0	0.19	18
19	479	0.0	9.81			0.5	3.0	4.3	6.5	7.8	9.4	12.2	15.0	15.8	16.0	1.04	19
20	418	0.0	17.94				2.0	3.4	5.3	6.6	8.1	10.1	11.4	16.4	17.0	0.24	20
21	372	0.0	19.89				1.5	2.7	4.9	5.8	7.0	8.5	10.4	11.7	12.0	0.54	21
22	350	0.0	18.00				1.9	3.0	4.7	5.6	6.6	8.2	9.1	9.8	10.0	1.14	22
23	371	0.0	14.02			0.0	1.9	3.2	5.0	6.1	7.7	8.9	9.5	9.9	10.0	2.16	23
24	367	0.0	10.35			0.3	2.8	4.4	6.2	7.3	9.4	11.3	13.3	18.5	19.0	0.27	24
25	397	0.0	12.34			0.2	2.9	5.0	7.2	8.6	10.6	12.4	14.6	17.4	18.0	0.25	25
26	417	0.0	7.91			0.7	3.9	6.0	9.0	10.6	13.0	14.6	16.4	18.4	19.0	0.24	26
27	444	0.0	7.21			0.9	5.1	7.6	10.8	12.8	15.6	18.9	19.9	24.4	25.0	0.23	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE V-12 DISTRIBUTION OF WESTERLY WINDS

STATION:	SANTA MONICA, CALIFORNIA
REFERENCE PERIOD:	NOVEMBER
STATION ELEVATION:	125 feet or 38.1 meters MSL
STATION COORDINATES:	34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION:	Long Beach California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE:	National Weather Records Center U. S. Weather Bureau Asheville, North Carolina
PREPARED BY:	National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962

WESTERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

NOVEMBER

NO. OF OBS. FOR EACH LEVEL

600

UNITS:

meters/second

Alt. (MSL) km	No. of Wly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	252	0.0	31.75				1.1	2.1	3.2	3.9	4.6	5.5	6.4	14.6	15.0	0.40	sfc
1	289	0.0	31.83				0.6	1.4	2.4	3.1	4.7	7.7	10.1	15.6	16.0	0.35	1
2	293	0.0	20.48				1.7	3.2	5.0	6.4	8.6	11.4	14.0	20.6	21.0	0.34	2
3	351	0.0	10.83			0.4	3.7	5.7	8.9	10.3	13.2	16.2	17.4	21.5	22.0	0.28	3
4	391	0.0	8.18			0.9	5.3	8.4	11.8	14.1	17.4	20.5	23.3	29.4	30.0	0.26	4
5	410	0.0	5.12			1.4	7.1	10.3	14.6	17.0	21.5	25.3	29.9	42.4	43.0	0.24	5
6	440	0.0	5.00			2.2	8.4	12.3	17.1	20.1	27.0	30.4	33.6	51.4	52.0	0.23	6
7	469	0.0	3.84			2.5	9.8	14.1	20.3	24.0	28.9	36.1	42.3	45.6	46.0	0.43	7
8	484	0.0	3.10			3.1	11.7	15.6	23.5	28.2	33.1	37.9	41.7	52.3	53.0	0.21	8
9	492	0.0	2.24		0.0	3.9	13.1	18.3	25.5	30.3	36.8	39.9	44.0	49.3	50.0	0.20	9
10	501	0.0	1.80		0.2	4.6	14.9	21.1	29.8	33.7	38.6	41.9	45.3	52.3	53.0	0.20	10
11	527	0.0	1.71		0.3	5.1	16.3	22.5	31.1	34.4	40.3	43.9	53.1	60.2	61.0	0.19	11
12	544	0.0	1.47		0.3	5.5	16.1	23.3	30.6	33.8	38.9	44.5	52.5	64.2	65.0	0.18	12
13	555	0.0	1.26		0.5	5.8	16.2	22.3	28.8	31.8	36.2	40.3	43.4	54.2	55.0	0.18	13
14	545	0.0	0.73		0.9	6.0	15.5	21.3	28.4	31.1	34.3	36.6	37.9	54.2	55.0	0.18	14
15	549	0.0	0.91		0.6	5.4	14.7	18.9	23.9	27.1	29.9	31.8	35.5	43.2	44.0	0.18	15
16	545	0.0	1.28		0.4	4.8	12.9	16.6	20.6	22.4	24.5	27.4	28.8	36.2	37.0	0.18	16
17	533	0.0	2.06		0.0	3.7	10.2	13.6	17.1	18.7	20.8	23.2	24.8	29.2	30.0	0.19	17
18	512	0.0	3.52			2.4	7.7	10.0	14.3	16.0	18.3	20.6	22.6	27.6	28.0	0.39	18
19	474	0.0	5.91			1.5	6.0	8.3	11.4	13.3	15.5	18.3	21.1	25.3	26.0	0.21	19
20	430	0.0	7.44			1.2	5.1	7.2	10.2	11.6	14.2	16.7	18.2	22.4	23.0	0.23	20
21	421	0.0	9.98			0.5	4.6	7.0	9.6	11.2	13.3	15.2	15.9	18.4	19.0	0.24	21
22	407	0.0	8.85			0.7	4.8	6.8	9.6	10.8	13.5	15.3	16.3	18.4	19.0	0.25	22
23	402	0.0	6.72			1.0	5.4	7.9	10.5	12.6	14.9	18.4	20.6	22.7	23.0	0.50	23
24	410	0.0	6.83			1.4	5.9	8.6	11.9	14.6	17.7	19.7	22.9	25.7	26.0	0.49	24
25	424	0.0	5.90			1.7	7.0	10.1	14.2	16.7	19.2	22.2	24.7	32.4	33.0	0.24	25
26	444	0.0	4.28			2.1	8.6	11.9	16.0	19.1	22.1	25.3	27.5	32.7	33.0	0.45	26
27	446	0.0	2.69			3.3	10.3	14.5	19.1	22.0	25.6	28.2	30.8	34.3	35.0	0.22	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined

TABLE V-13 DISTRIBUTION OF WESTERLY WINDS

WESTERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

SANTA MONICA, CALIFORNIA

DECEMBER

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of Wly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	234	0.0	29.49				0.9	1.6	2.4	2.8	3.8	4.9	5.8	7.6	8.0	0.43	sfc
1	244	0.0	32.38				0.7	1.6	3.0	4.1	5.6	8.1	8.8	10.6	11.0	0.41	1
2	282	0.0	17.73				2.0	3.8	6.8	8.1	9.4	10.9	15.0	16.6	17.0	0.35	2
3	353	0.0	12.46			0.2	3.4	5.4	9.4	11.1	13.6	16.9	21.4	23.5	24.0	0.28	3
4	401	0.0	7.23			1.0	5.1	7.7	12.1	14.5	18.3	21.8	26.9	45.4	46.0	0.25	4
5	439	0.0	4.56			1.8	6.7	9.7	14.3	17.4	21.6	25.4	30.8	46.4	47.0	0.23	5
6	459	0.0	4.58			2.0	8.2	11.4	16.5	20.6	26.0	29.7	35.4	55.3	56.0	0.22	6
7	470	0.0	3.83			2.8	10.0	13.8	19.1	23.2	29.3	33.4	37.3	51.3	52.0	0.21	7
8	469	0.0	2.35			3.5	11.6	16.1	22.9	26.0	31.8	39.1	41.7	54.6	55.0	0.43	8
9	484	0.0	1.24		0.4	4.2	13.0	18.0	27.0	30.5	36.2	43.9	53.1	60.3	61.0	0.21	9
10	502	0.0	1.79		0.2	5.0	14.8	20.6	29.8	34.3	38.7	46.7	59.9	74.3	75.0	0.20	10
11	513	0.0	1.36		0.4	6.5	17.6	24.8	33.2	37.4	44.5	51.3	64.8	71.6	72.0	0.39	11
12	540	0.0	0.37		1.1	7.9	18.6	24.6	33.1	38.0	44.7	54.6	57.8	75.2	76.0	0.19	12
13	575	0.0	1.74		0.2	7.6	17.3	23.4	30.7	35.0	42.1	47.8	53.0	61.2	62.0	0.17	13
14	592	0.0	1.69		0.2	6.7	16.9	21.6	27.9	31.3	35.2	38.1	42.6	49.2	50.0	0.17	14
15	590	0.0	0.68		1.0	6.3	15.4	19.8	24.4	26.8	31.0	33.7	36.5	41.6	42.0	0.34	15
16	591	0.0	2.88			5.1	13.1	17.0	21.0	24.2	27.3	29.7	32.0	35.2	36.0	0.17	16
17	569	0.0	2.46			4.0	10.5	13.7	17.5	19.6	22.3	27.0	29.1	31.2	32.0	0.18	17
18	539	0.0	3.71			2.6	8.0	10.7	14.1	16.1	19.7	22.9	26.5	28.7	29.0	0.56	18
19	493	0.0	6.09			1.0	5.7	8.1	11.0	12.8	16.7	19.2	20.6	26.3	27.0	0.20	19
20	417	0.0	10.55			0.4	3.7	6.1	9.1	10.8	13.0	14.6	16.9	20.4	21.0	0.24	20
21	356	0.0	12.08			0.2	2.9	5.3	8.4	10.2	12.2	14.9	16.4	18.5	19.0	0.28	21
22	308	0.0	16.88				2.7	4.8	8.0	10.1	11.7	13.9	16.4	19.5	20.0	0.32	22
23	294	0.0	9.86			0.3	3.1	4.9	7.5	9.3	11.9	16.1	20.0	23.6	24.0	0.34	23
24	306	0.0	11.76			0.3	3.1	5.2	7.7	10.1	13.4	17.0	19.4	25.5	26.0	0.33	24
25	334	0.0	9.58			0.4	3.5	5.8	8.9	10.6	13.4	16.1	19.3	28.5	29.0	0.30	25
26	358	0.0	7.26			1.1	5.2	7.8	11.2	13.0	15.6	19.4	21.6	29.5	30.0	0.28	26
27	380	0.0	5.79			1.5	6.3	9.7	13.5	15.6	18.4	22.1	25.4	29.4	30.0	0.26	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI Page

Distribution of Northerly Winds

(Component from the north semiplane)

Unit: meters per second

TABLE VI-1 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	2829	0.0	39.91				0.3	1.0	1.9	2.7	3.9	5.9	7.7	12.3	15.0	0.07	sfc
1	3645	0.0	31.93				0.7	1.8	4.0	5.4	7.3	9.4	12.0	16.0	22.0	0.03	1
2	3698	0.0	18.58				1.9	3.5	5.8	7.4	9.6	12.2	14.8	22.0	27.0	0.03	2
3	3643	0.0	12.38			0.2	3.4	5.5	8.6	10.7	13.7	16.7	19.9	27.0	38.0	0.03	3
4	3639	0.0	10.47			0.5	4.2	7.0	10.7	12.8	16.6	20.2	23.1	32.5	47.0	0.03	4
5	3533	0.0	9.14			0.7	5.0	8.4	12.8	15.4	19.7	23.7	26.8	42.2	56.0	0.03	5
6	3519	0.0	7.67			0.9	5.7	9.6	14.7	18.2	22.5	26.6	32.3	56.2	64.0	0.03	6
7	3483	0.0	7.44			1.1	6.6	10.6	16.6	20.6	25.9	30.9	38.0	53.7	76.0	0.03	7
8	3421	0.0	6.20			1.4	7.5	12.0	19.2	23.7	29.4	36.3	41.8	58.6	79.0	0.03	8
9	3374	0.0	6.14			1.6	8.2	13.4	21.4	26.4	32.9	40.0	46.8	63.4	73.0	0.03	9
10	3308	0.0	5.17			1.7	9.0	14.7	23.6	28.4	35.5	40.8	46.8	56.5	63.0	0.03	10
11	3282	0.0	4.94			1.8	9.3	15.2	23.7	28.3	35.2	41.6	46.9	56.5	68.0	0.03	11
12	3146	0.0	4.67			1.8	8.6	13.6	21.8	26.2	32.5	38.4	43.8	54.7	63.0	0.03	12
13	3026	0.0	5.58			1.5	7.2	11.5	18.1	22.6	29.3	35.8	40.7	47.9	63.0	0.03	13
14	2927	0.0	6.29			1.2	6.0	9.4	15.5	19.5	25.1	30.4	35.8	44.0	46.0	0.07	14
15	2884	0.0	8.04			0.8	5.0	8.2	12.9	15.7	19.7	24.6	28.2	34.7	39.0	0.03	15
16	2984	0.0	10.02			0.5	3.8	6.6	10.5	13.1	16.3	20.2	24.2	29.4	32.0	0.07	16
17	3194	0.0	11.37			0.3	2.8	4.9	7.9	10.2	12.8	15.8	18.3	23.5	26.0	0.03	17
18	3451	0.0	15.94				2.2	3.9	6.5	8.0	10.5	13.0	15.2	18.6	23.0	0.03	18
19	3774	0.0	18.57				1.7	3.2	5.3	6.6	8.4	10.5	12.3	15.6	19.0	0.03	19
20	3978	0.0	20.97				1.4	2.6	4.4	5.4	6.8	8.6	10.3	14.9	21.0	0.03	20
21	4063	0.0	23.09				1.1	2.2	3.9	5.0	6.4	8.2	9.7	13.2	21.0	0.02	21
22	4178	0.0	23.26				1.1	2.2	3.8	4.9	6.3	7.9	9.8	13.8	20.0	0.02	22
23	4190	0.0	22.10				1.1	2.1	3.7	4.8	6.2	7.8	9.4	12.6	15.0	0.05	23
24	4228	0.0	23.46				1.0	2.1	3.9	4.9	6.3	8.0	9.7	14.6	16.0	0.12	24
25	4107	0.0	21.11				1.2	2.3	4.0	5.2	6.7	8.6	10.2	14.7	20.0	0.02	25
26	4153	0.0	19.34				1.4	2.6	4.4	5.6	7.6	9.3	11.0	16.6	24.0	0.02	26
27	4123	0.0	16.91				1.5	2.8	4.8	6.1	7.9	9.9	12.5	20.7	27.0	0.02	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-2 DISTRIBUTION OF NORTHERLY WINDS

STATION:	SANTA MONICA, CALIFORNIA
REFERENCE PERIOD:	JANUARY
STATION ELEVATION:	125 feet or 38.1 meters MSL
STATION COORDINATES:	34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION:	Long Beach, California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE:	National Weather Records Center U. S. Weather Bureau Asheville, North Carolina
PREPARED BY:	National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962

NORTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

JANUARY

NO. OF OBS. FOR EACH LEVEL: 620

UNITS: meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	380	0.0	35.26				0.5	1.3	2.4	3.2	5.0	7.2	8.0	9.4	10.0	0.26	sfc
1	312	0.0	33.33				0.8	2.4	4.4	5.7	7.6	10.4	12.4	15.5	16.0	0.32	1
2	334	0.0	9.88			0.5	2.9	4.7	7.7	8.9	10.7	12.3	14.3	18.5	19.0	0.30	2
3	348	0.0	6.61			1.4	5.7	8.4	11.3	12.9	15.2	18.0	20.7	30.5	31.0	0.29	3
4	347	0.0	4.90			1.9	7.6	10.6	13.6	16.4	19.3	21.7	24.7	32.5	33.0	0.29	4
5	344	0.0	4.65			2.6	8.3	12.4	16.8	20.1	24.2	26.2	29.5	38.5	39.0	0.29	5
6	345	0.0	3.77			2.4	9.4	13.9	19.3	22.7	25.6	30.5	37.2	43.5	44.0	0.29	6
7	328	0.0	4.27			2.5	10.5	15.6	23.3	27.3	31.8	36.2	39.9	53.5	54.0	0.30	7
8	315	0.0	3.49			3.7	12.4	18.2	26.6	31.8	35.8	38.6	41.8	49.5	50.0	0.32	8
9	305	0.0	2.30			4.5	14.5	22.4	31.1	34.2	38.7	44.0	47.4	64.5	65.0	0.33	9
10	296	0.0	1.69		0.5	4.4	16.2	24.5	33.9	37.8	40.0	45.2	51.0	54.8	55.0	0.68	10
11	309	0.0	1.29		0.3	3.8	15.1	23.7	32.7	38.5	43.5	46.9	50.9	67.5	68.0	0.32	11
12	313	0.0	1.28		0.3	3.2	11.5	21.9	31.1	36.8	42.4	48.6	50.9	57.5	58.0	0.32	12
13	314	0.0	3.18			2.8	10.8	16.5	26.7	32.1	39.4	42.4	44.8	50.5	51.0	0.32	13
14	315	0.0	5.71			1.7	7.8	14.4	22.7	26.9	31.1	39.4	41.9	44.5	45.0	0.32	14
15	315	0.0	4.13			1.6	6.5	11.5	19.4	22.9	28.3	30.8	33.9	34.8	35.0	0.95	15
16	321	0.0	4.36			1.2	5.5	8.4	15.1	17.7	23.9	25.8	29.3	31.5	32.0	0.31	16
17	340	0.0	4.41			1.1	4.2	6.5	11.5	13.7	17.0	21.1	23.3	25.5	26.0	0.29	17
18	369	0.0	8.40			0.7	4.0	5.9	9.4	11.7	14.5	17.2	18.5	21.5	22.0	0.27	18
19	413	0.0	8.72			0.5	3.0	5.0	7.8	9.4	11.7	13.3	14.6	17.4	18.0	0.24	19
20	438	0.0	10.50			0.3	2.5	3.9	6.0	7.1	9.6	11.4	13.6	16.4	17.0	0.23	20
21	447	0.0	12.53			0.2	2.5	4.2	6.3	7.6	8.7	10.5	11.3	12.6	13.0	0.45	21
22	454	0.0	9.91			0.3	2.6	4.4	6.4	7.7	9.9	11.1	12.4	16.3	17.0	0.22	22
23	464	0.0	8.19			0.6	2.7	4.3	6.4	7.8	9.3	10.8	12.3	14.3	15.0	0.22	23
24	467	0.0	10.06			0.3	2.7	4.5	6.3	7.5	9.5	11.7	15.0	15.8	16.0	1.07	24
25	445	0.0	9.66			0.5	3.0	4.6	6.8	8.4	9.9	11.9	15.5	19.3	20.0	0.22	25
26	436	0.0	9.17			0.5	3.3	5.2	7.7	8.9	10.6	14.6	19.6	23.4	24.0	0.23	26
27	433	0.0	9.47			0.6	3.5	5.6	7.9	9.5	12.6	17.1	21.6	26.4	27.0	0.23	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-3 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

FEBRUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of Nly Winds	Min. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	272	0.0	41.54				0.3	1.1	2.0	2.7	4.0	5.9	7.0	7.8	8.0	1.10	sfc
1	304	0.0	32.89				0.9	2.2	4.5	5.6	7.5	9.0	13.9	21.5	22.6	0.33	1
2	357	0.0	10.36			0.5	2.9	4.7	7.1	8.4	10.6	13.9	15.4	19.5	20.0	0.28	2
3	361	0.0	5.82			1.0	5.2	7.4	11.3	13.4	16.2	18.2	20.3	21.5	22.0	0.28	3
4	347	0.0	4.32			1.4	6.3	9.1	13.9	16.8	19.7	21.3	22.5	36.5	37.0	0.29	4
5	337	0.0	5.04			1.7	7.2	11.3	16.9	19.6	22.5	26.1	30.5	47.5	48.0	0.30	5
6	329	0.0	4.26			2.2	7.7	13.0	18.9	23.0	25.9	32.4	37.3	48.5	49.0	0.30	6
7	325	0.0	3.69			2.1	9.0	14.8	21.4	24.0	30.5	38.5	45.7	63.5	64.0	0.31	7
8	314	0.0	3.18			3.2	11.5	18.4	24.5	28.5	35.4	39.9	47.8	73.5	74.0	0.32	8
9	312	0.0	2.24		0.0	3.4	12.9	19.8	28.0	31.5	38.2	43.9	53.8	65.5	66.0	0.32	9
10	311	0.0	1.93		0.1	3.8	14.6	22.0	31.8	35.6	40.4	44.9	50.9	57.5	58.0	0.32	10
11	314	0.0	3.82			3.7	14.2	21.6	31.6	37.5	44.3	48.9	54.8	60.5	61.0	0.32	11
12	305	0.0	1.31		0.4	3.7	13.2	20.9	28.3	33.5	40.2	48.0	54.9	62.5	63.0	0.33	12
13	305	0.0	1.97		0.2	3.5	11.2	15.9	26.1	31.3	39.7	43.3	46.9	62.5	63.0	0.33	13
14	300	0.0	2.67			2.8	9.9	15.0	22.5	27.6	35.0	42.0	44.0	45.7	46.0	0.67	14
15	299	0.0	1.67		0.2	2.5	8.8	12.5	18.0	20.5	25.2	27.7	32.0	37.5	38.0	0.33	15
16	301	0.0	2.33			1.8	7.1	10.2	15.1	17.7	19.9	25.0	27.4	31.5	32.0	0.33	16
17	304	0.0	2.96			1.3	5.6	8.4	11.6	13.4	16.2	18.0	19.9	24.5	25.0	0.33	17
18	310	0.0	9.35			0.6	3.9	6.7	9.4	11.3	13.4	15.4	16.9	22.5	23.0	0.32	18
19	339	0.0	11.80			0.2	2.8	4.8	6.8	8.5	10.6	12.1	14.3	18.5	19.0	0.29	19
20	362	0.0	13.26			0.1	2.5	3.8	5.4	6.4	7.6	8.9	14.3	20.5	21.0	0.28	20
21	365	0.0	15.07			0.0	1.9	3.2	4.8	5.7	6.9	9.8	13.3	20.5	21.0	0.27	21
22	372	0.0	18.01				1.5	2.8	4.5	5.4	6.8	8.8	12.2	19.4	20.0	0.27	22
23	372	0.0	18.55				1.4	2.4	4.4	5.4	6.5	7.7	8.8	14.4	15.0	0.27	23
24	371	0.0	20.49				1.2	2.2	4.3	5.2	6.5	8.0	8.8	10.8	11.0	0.81	24
25	386	0.0	16.32				1.5	2.8	4.6	5.7	7.1	9.0	10.5	12.4	13.0	0.26	25
26	387	0.0	10.59			0.3	2.2	3.5	5.4	6.8	8.3	9.3	10.3	11.7	12.0	0.52	26
27	386	0.0	11.14			0.3	2.6	4.1	5.7	6.8	8.4	11.0	13.5	16.4	17.0	0.26	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-4 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION
SANTA MONICA, CALIFORNIA
MARCH

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	279	0.0	41.94				0.3	1.2	2.4	3.3	5.0	7.1	9.2	12.6	13.0	0.36	sfc
1	358	0.0	27.09				1.3	2.9	6.0	7.6	9.6	11.2	13.1	15.5	16.0	0.28	1
2	397	0.0	12.59			0.2	2.8	4.4	6.7	8.7	11.5	13.9	17.0	22.4	23.0	0.25	2
3	403	0.0	8.68			0.7	4.4	6.6	9.6	11.9	15.5	18.8	21.9	37.4	38.0	0.25	3
4	415	0.0	6.99			1.2	4.9	8.1	11.8	13.8	17.7	22.1	23.9	31.4	32.0	0.24	4
5	395	0.0	4.81			1.6	6.4	9.0	12.5	15.9	20.3	23.9	26.5	31.4	32.0	0.25	5
6	390	0.0	6.67			1.5	6.9	10.5	14.9	18.1	21.6	26.2	27.5	39.4	40.0	0.26	6
7	376	0.0	4.79			1.8	7.8	11.7	17.4	19.3	24.5	29.4	37.2	44.4	45.0	0.27	7
8	375	0.0	4.53			1.9	8.3	13.4	18.8	23.0	25.7	34.2	41.2	47.4	48.0	0.27	8
9	372	0.0	2.69			2.0	8.2	13.7	21.1	25.6	30.4	36.5	44.2	49.4	50.0	0.27	9
10	338	0.0	2.66			2.1	9.7	15.7	22.0	27.7	33.0	40.1	43.8	62.5	63.0	0.30	10
11	327	0.0	5.81			2.1	11.0	16.0	23.7	27.4	30.6	35.5	42.3	49.5	50.0	0.31	11
12	310	0.0	2.90			2.5	9.3	14.1	21.4	24.7	27.3	33.4	36.4	42.5	43.0	0.32	12
13	302	0.0	3.64			1.8	6.8	12.0	17.2	19.5	23.9	28.5	31.9	43.5	44.0	0.33	13
14	287	0.0	2.79			2.0	5.9	9.1	14.6	16.8	20.6	22.8	26.0	27.6	28.0	0.35	14
15	291	0.0	5.84			1.2	5.3	8.1	11.9	13.9	16.1	17.1	18.5	24.6	25.0	0.34	15
16	310	0.0	6.77			0.9	4.2	6.5	9.9	11.8	13.9	15.2	15.8	18.5	19.0	0.32	16
17	319	0.0	7.21			0.6	3.3	5.5	7.5	8.9	11.3	13.1	14.8	20.5	21.0	0.31	17
18	353	0.0	14.16			0.1	2.4	3.9	5.9	7.2	8.7	10.6	13.3	16.5	17.0	0.28	18
19	387	0.0	13.44			0.1	1.9	3.3	5.3	6.2	7.6	9.0	10.1	16.4	17.0	0.26	19
20	396	0.0	15.15			0.0	1.6	2.7	4.2	5.2	5.8	6.8	8.0	10.4	11.0	0.25	20
21	404	0.0	14.85			0.0	1.4	2.4	3.6	4.2	4.9	5.8	6.9	12.4	13.0	0.25	21
22	412	0.0	19.90				1.2	2.3	3.6	4.4	5.6	6.4	6.9	11.4	12.0	0.24	22
23	413	0.0	16.95				1.2	2.1	3.5	4.3	5.5	7.0	7.9	10.4	11.0	0.24	23
24	385	0.0	17.66				1.1	2.2	3.4	4.1	4.9	7.0	10.1	11.8	12.0	0.78	24
25	342	0.0	17.25				1.2	2.2	3.6	4.6	6.1	7.4	8.8	11.5	12.0	0.29	25
26	379	0.0	17.68				1.3	2.3	4.1	5.0	7.0	8.5	9.6	11.4	12.0	0.26	26
27	380	0.0	14.74			0.0	1.4	2.4	4.1	5.6	7.2	8.9	9.7	12.4	13.0	0.26	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-5 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

APRIL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max Speed	Pct. Freq	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	184	0.0	41.30				0.3	1.1	2.1	2.8	6.2	7.9	12.0	12.8	13.0	1.09	sfc
1	338	0.0	28.70				1.0	2.2	4.7	6.4	8.7	11.1	14.5	19.5	20.0	0.30	1
2	350	0.0	17.14				2.2	3.6	5.6	7.4	10.3	14.0	15.5	20.5	21.0	0.29	2
3	371	0.0	9.16			0.6	3.6	5.3	7.8	10.2	12.8	16.2	20.2	27.4	28.0	0.27	3
4	374	0.0	7.75			1.0	4.5	6.9	10.2	11.7	14.1	18.4	23.6	40.4	41.0	0.27	4
5	376	0.0	7.18			1.1	5.4	8.6	11.8	14.2	17.4	22.1	26.6	49.4	50.0	0.27	5
6	373	0.0	5.63			1.3	6.3	9.6	13.3	15.6	21.0	24.8	29.2	45.4	46.0	0.27	6
7	368	0.0	6.52			1.7	7.2	10.6	15.2	19.1	25.3	30.3	35.3	49.5	50.0	0.27	7
8	370	0.0	5.41			1.9	7.9	11.4	18.0	21.8	27.5	34.7	46.3	54.5	55.0	0.27	8
9	354	0.0	5.65			2.6	8.4	13.7	21.1	24.9	29.8	35.9	49.4	59.5	60.0	0.28	9
10	358	0.0	5.03			2.4	9.0	13.8	20.8	25.0	32.0	39.4	46.4	57.5	58.0	0.28	10
11	352	0.0	4.55			2.2	9.7	15.1	22.0	25.7	31.7	37.9	40.4	45.5	46.0	0.28	11
12	331	0.0	3.63			2.0	9.1	13.2	21.2	23.9	29.4	33.1	34.6	45.5	46.0	0.30	12
13	314	0.0	5.73			1.6	7.1	10.5	18.3	22.3	26.6	30.9	32.9	36.5	37.0	0.32	13
14	282	0.0	3.55			1.6	6.3	9.2	16.5	21.1	24.4	28.5	32.1	34.8	35.0	0.71	14
15	275	0.0	9.09			0.6	4.6	7.4	13.3	17.7	21.7	25.8	28.1	31.6	32.0	0.36	15
16	284	0.0	8.10			0.5	3.7	6.0	10.8	13.4	18.4	21.9	26.0	27.6	28.0	0.35	16
17	287	0.0	13.59			0.1	2.7	4.3	8.4	11.5	13.7	16.8	19.0	20.6	21.0	0.35	17
18	290	0.0	15.86			0.0	1.9	3.6	7.0	9.1	10.8	13.1	15.1	16.8	17.0	0.69	18
19	295	0.0	17.63				1.7	3.0	5.5	6.5	8.2	9.8	11.5	12.8	13.0	0.68	19
20	312	0.0	22.44				1.3	2.4	4.0	4.8	5.8	6.7	7.9	9.5	10.0	0.32	20
21	318	0.0	26.10				1.0	1.8	3.3	4.4	5.3	5.9	6.9	9.5	10.0	0.31	21
22	316	0.0	21.52				1.1	2.0	3.3	4.0	5.4	6.1	6.6	8.5	9.0	0.32	22
23	318	0.0	18.55				1.1	2.0	3.2	3.9	5.1	6.2	6.9	8.5	9.0	0.31	23
24	347	0.0	24.78				0.8	1.8	3.2	3.9	5.1	5.8	7.5	8.8	9.0	0.86	24
25	344	0.0	20.64				1.0	1.9	3.0	3.8	5.3	6.5	7.5	9.5	10.0	0.29	25
26	312	0.0	26.60				1.1	2.2	3.7	4.6	5.8	7.6	8.9	13.5	14.0	0.32	26
27	325	0.0	26.77				1.0	1.9	3.5	4.6	6.1	8.7	12.7	17.5	18.0	0.31	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-6 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MAY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Max Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	149	0.0	45.64				0.1	0.7	1.5	1.8	2.5	2.9	4.5	5.7	6.0	0.67	sfc
1	309	0.0	30.74				0.7	1.6	3.4	4.6	6.2	8.3	9.9	15.5	16.0	0.32	1
2	326	0.0	17.79				1.7	3.2	5.4	6.5	8.2	10.3	11.3	15.5	16.0	0.31	2
3	302	0.0	13.58			0.1	2.6	4.4	6.4	7.9	10.2	12.0	13.3	14.5	15.0	0.33	3
4	297	0.0	7.74			0.6	4.0	6.3	9.1	10.4	13.5	17.0	20.0	22.5	23.0	0.34	4
5	290	0.0	8.28			0.6	5.1	7.9	11.4	12.9	14.9	20.1	23.3	24.6	25.0	0.34	5
6	294	0.0	8.84			0.6	5.6	9.5	13.5	16.6	20.6	23.4	27.0	28.8	29.0	0.68	6
7	294	0.0	5.78			1.1	6.7	11.0	15.3	18.9	23.1	26.6	30.0	34.6	35.0	0.34	7
8	289	0.0	4.50			1.5	7.5	12.0	18.3	21.2	24.5	32.4	38.1	40.6	41.0	0.35	8
9	278	0.0	5.76			1.7	8.4	13.4	18.7	22.5	29.5	34.2	40.2	42.6	43.0	0.36	9
10	281	0.0	5.69			1.5	9.6	14.3	20.4	25.4	29.4	35.5	37.1	45.8	46.0	0.71	10
11	278	0.0	6.12			1.7	8.9	15.3	21.5	24.8	29.1	34.6	37.2	40.6	41.0	0.36	11
12	272	0.0	5.51			1.5	8.0	12.3	17.9	22.1	26.1	29.8	33.2	34.8	35.0	0.74	12
13	262	0.0	7.63			1.1	6.6	9.4	14.0	16.2	20.1	24.3	25.6	26.8	27.0	0.76	13
14	252	0.0	6.75			1.0	5.0	8.0	11.1	12.6	15.4	17.0	19.4	25.6	26.0	0.40	14
15	237	0.0	8.02			0.5	3.5	5.7	9.0	10.8	12.5	13.8	15.6	17.6	18.0	0.42	15
16	213	0.0	15.49			0.0	2.6	4.5	6.9	8.7	9.9	10.8	12.8	14.7	15.0	0.47	16
17	195	0.0	16.92				1.6	2.8	4.7	5.5	7.0	8.2	9.5	11.7	12.0	0.51	17
18	214	0.0	28.50				0.8	1.7	3.1	3.8	5.1	8.0	8.9	10.8	11.0	0.93	18
19	231	0.0	32.03				0.7	1.7	3.0	3.9	4.8	6.5	8.8	11.6	12.0	0.43	19
20	280	0.0	32.14				0.6	1.3	2.4	3.0	4.1	5.6	7.7	10.6	11.0	0.36	20
21	267	0.0	35.96				0.4	1.1	2.1	3.0	4.4	5.5	6.6	7.8	8.0	0.75	21
22	296	0.0	33.11				0.5	1.2	2.3	3.0	4.2	5.0	5.8	12.6	13.0	0.34	22
23	318	0.0	34.91				0.5	1.2	2.3	2.8	3.7	4.9	5.7	6.7	7.0	0.63	23
24	337	0.0	35.61				0.5	1.4	2.7	3.6	4.6	5.6	6.5	8.5	9.0	0.30	24
25	338	0.0	32.54				0.7	1.7	2.9	3.7	4.8	5.6	6.3	10.5	11.0	0.30	25
26	355	0.0	28.73				0.9	1.8	2.9	3.6	4.5	5.5	6.4	14.5	15.0	0.28	26
27	370	0.0	23.78				0.9	1.7	2.9	3.8	4.7	5.9	7.1	8.5	9.0	0.27	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-7 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

JUNE

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL.

STATION COORDINATES: 34.01 deg N. 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	132	0.0	59.09					0.2	0.7	0.8	1.2	1.7	1.9	2.8	3.0	0.76	sfc
1	325	0.0	29.54				0.7	1.6	3.0	4.0	5.6	7.1	8.3	9.7	10.0	0.62	1
2	264	0.0	27.65				1.2	2.6	4.7	6.0	7.4	8.7	12.3	15.6	16.0	0.38	2
3	224	0.0	20.98				1.8	3.6	5.7	7.4	8.8	9.6	9.9	11.8	12.0	0.89	3
4	217	0.0	21.20				2.0	3.5	6.0	6.8	8.5	10.0	11.6	12.7	13.0	0.46	4
5	212	0.0	18.87				2.3	4.0	6.3	8.6	11.0	12.0	12.7	13.7	14.0	0.47	5
6	220	0.0	11.82			0.3	2.9	4.9	8.1	10.5	12.7	14.9	15.9	23.7	24.0	0.45	6
7	236	0.0	13.14			0.2	3.5	5.7	8.9	10.5	12.5	15.8	25.6	28.6	29.0	0.42	7
8	231	0.0	8.66			0.9	4.5	6.6	10.2	11.8	14.4	17.7	35.6	41.6	42.0	0.43	8
9	231	0.0	7.79			0.9	4.5	7.6	11.9	14.7	18.3	22.7	41.6	47.6	48.0	0.43	9
10	223	0.0	8.52			0.9	5.4	8.3	13.5	15.3	20.8	30.4	34.8	49.6	50.0	0.45	10
11	215	0.0	7.91			1.1	5.9	9.7	14.9	17.8	24.2	30.6	39.8	52.7	53.0	0.47	11
12	201	0.0	6.47			1.1	6.3	9.1	14.3	17.8	23.7	27.4	41.9	48.7	49.0	0.50	12
13	173	0.0	6.94			1.0	4.8	7.6	11.6	15.5	20.3	31.0	36.2	37.7	38.0	0.58	13
14	154	0.0	9.74			0.4	3.5	6.1	8.9	12.5	16.3	22.1	22.8	24.7	25.0	0.65	14
15	134	0.0	20.90				2.7	4.5	7.1	8.8	12.6	14.4	16.6	18.8	19.0	0.75	15
16	129	0.0	21.71				1.7	3.2	4.9	6.3	8.7	11.0	12.7	13.8	14.0	0.78	16
17	149	0.0	22.15				1.2	1.9	3.4	4.8	5.9	7.5	8.2	8.8	9.0	1.34	17
18	163	0.0	23.31				1.0	1.8	2.8	3.9	4.7	6.1	7.1	7.8	8.0	1.23	18
19	179	0.0	32.40				0.5	1.2	2.3	2.8	3.7	4.9	5.7	6.7	7.0	0.56	19
20	215	0.0	30.23				0.5	1.1	1.8	2.3	2.9	3.5	3.9	4.8	5.0	0.93	20
21	236	0.0	40.68				0.2	0.8	1.7	2.2	3.4	4.3	5.8	8.6	9.0	0.42	21
22	268	0.0	39.18				0.3	0.9	1.7	2.2	2.8	3.9	4.6	8.6	9.0	0.37	22
23	274	0.0	34.67				0.4	1.1	1.8	2.3	2.9	4.3	8.2	10.8	11.0	0.73	23
24	274	0.0	35.40				0.4	1.1	2.0	2.6	3.5	4.4	6.2	8.6	9.0	0.36	24
25	284	0.0	26.41				0.7	1.5	2.4	2.9	3.7	4.4	5.1	9.6	10.0	0.35	25
26	283	0.0	29.68				0.7	1.5	2.5	3.1	3.8	4.7	6.0	6.8	7.0	1.06	26
27	266	0.0	15.41			0.0	0.9	1.6	2.6	3.1	4.4	5.7	6.7	7.8	8.0	0.75	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-8 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY (1)											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	109	0.0	61.47					0.1	0.6	0.8	1.1	1.7	1.9	2.8	3.0	0.92	sfc
1	233	0.0	47.64				0.0	0.8	2.2	2.9	3.9	5.4	6.6	9.8	10.0	0.86	1
2	213	0.0	29.58				0.6	1.4	2.5	3.2	4.2	4.8	5.4	10.7	11.0	0.47	2
3	132	0.0	36.36				0.5	1.3	2.6	3.6	4.7	6.3	6.8	7.8	8.0	0.76	3
4	103	0.0	36.89				0.5	1.4	2.8	3.7	4.5	4.9	5.9	7.8	8.0	0.97	4
5	85	0.0	34.12				0.7	1.9	3.0	3.6	4.2	5.0	5.5	5.9	6.0	2.35	5
6	86	0.0	31.40				0.7	1.6	2.8	3.6	4.4	4.8	6.1	6.8	7.0	1.16	6
7	104	0.0	27.88				0.8	1.9	3.1	3.8	5.6	8.3	8.9	10.8	11.0	0.96	7
8	99	0.0	22.22				1.3	2.6	5.0	6.1	6.8	7.5	9.0	9.8	10.0	1.01	8
9	102	0.0	27.45				0.8	2.7	6.8	8.2	9.9	11.6	12.9	14.8	15.0	0.98	9
10	93	0.0	24.73				1.4	3.1	7.7	8.9	11.3	11.9	13.5	13.9	14.0	2.15	10
11	91	0.0	14.29			0.0	1.9	4.9	8.1	9.7	12.4	13.9	15.5	15.9	16.0	2.20	11
12	89	0.0	7.87			0.6	2.8	5.2	8.9	12.1	12.7	13.3	13.7	13.9	14.0	3.37	12
13	104	0.0	11.54			0.1	2.7	5.0	8.3	9.1	10.4	11.5	11.9	14.8	15.0	0.96	13
14	100	0.0	16.00				2.4	3.8	6.1	7.3	9.0	10.7	12.0	12.8	13.0	1.00	14
15	103	0.0	23.30				1.2	2.3	4.2	5.1	5.8	6.8	8.9	9.8	10.0	0.97	15
16	102	0.0	34.31				0.8	1.6	2.9	3.8	5.4	6.5	6.9	7.8	8.0	0.98	16
17	141	0.0	24.82				1.1	1.9	2.9	3.5	4.1	4.9	6.2	6.9	7.0	1.42	17
18	163	0.0	31.90				0.7	1.5	2.4	2.8	3.5	4.0	4.5	4.9	5.0	2.45	18
19	189	0.0	38.10				0.3	0.8	1.9	2.6	3.4	3.8	4.3	4.9	5.0	1.59	19
20	214	0.0	46.26				0.1	0.9	1.6	1.9	2.7	3.4	3.8	4.7	5.0	0.47	20
21	218	0.0	42.20				0.2	0.8	1.7	2.1	2.7	3.0	3.9	5.7	6.0	0.46	21
22	214	0.0	43.93				0.1	0.7	1.5	1.9	2.5	3.0	3.7	4.7	5.0	0.47	22
23	227	0.0	40.97				0.2	0.7	1.5	1.8	2.4	2.9	3.4	3.9	4.0	1.76	23
24	239	0.0	34.31				0.4	0.9	1.6	2.0	2.8	3.5	3.9	4.8	5.0	0.84	24
25	236	0.0	27.97				0.5	1.1	1.9	2.5	3.1	3.9	4.6	5.6	6.0	0.42	25
26	219	0.0	25.11				0.6	1.1	1.9	2.6	3.6	5.6	6.9	8.8	9.0	0.91	26
27	235	0.0	20.85				0.7	1.4	2.3	2.9	4.2	4.7	6.3	12.6	13.0	0.43	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-9 DISTRIBUTION OF NORTHERLY WINDS

STATION:	SANTA MONICA, CALIFORNIA
REFERENCE PERIOD:	AUGUST
STATION ELEVATION:	125 feet or 38.1 meters MSL
STATION COORDINATES:	34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION:	Long Beach California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE:	National Weather Records Center U. S. Weather Bureau Asheville, North Carolina
PREPARED BY:	National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962

NORTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

AUGUST

NO. OF OBS. FOR EACH LEVEL

620

UNITS:

meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Max Speed	Pct. Freq	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	127	0.0	66.93					0.0	0.6	0.9	1.7	2.7	3.3	3.9	4.0	1.57	sfc
1	230	0.0	50.43					0.6	1.4	1.9	2.8	4.9	5.9	7.6	8.0	0.43	1
2	163	0.0	41.72				0.2	0.9	2.4	3.4	5.9	7.6	8.3	9.7	10.0	0.61	2
3	132	0.0	29.55				0.9	1.7	3.6	4.5	5.6	6.4	6.9	7.8	8.0	0.76	3
4	136	0.0	36.76				0.6	1.6	2.9	3.7	4.7	5.9	6.8	8.8	9.0	0.74	4
5	138	0.0	31.16				0.8	1.7	2.7	3.3	4.0	5.9	8.6	9.8	10.0	0.72	5
6	153	0.0	20.26				0.9	2.0	3.0	3.6	4.5	5.7	11.4	12.7	13.0	0.65	6
7	131	0.0	20.61				1.2	2.3	3.7	4.6	6.1	9.0	11.6	12.8	13.0	0.76	7
8	135	0.0	21.48				1.4	2.5	4.3	5.9	7.8	9.4	10.6	11.8	12.0	0.74	8
9	126	0.0	24.60				1.5	2.6	4.9	6.5	8.3	9.1	10.7	12.8	13.0	0.79	9
10	105	0.0	15.24			0.0	2.2	3.9	6.4	7.3	9.5	10.8	13.9	15.8	16.0	0.95	10
11	106	0.0	12.26			0.2	3.1	6.0	7.8	9.5	10.9	12.7	14.9	16.8	17.0	0.94	11
12	90	0.0	12.22			0.1	2.8	5.5	8.5	9.6	11.3	11.9	16.1	16.8	17.0	1.11	12
13	80	0.0	17.50				2.6	4.4	6.8	7.8	10.0	12.1	13.2	13.8	14.0	1.25	13
14	70	0.0	21.43				2.0	3.8	6.4	7.1	7.9	8.4	8.7	8.9	9.0	4.29	14
15	70	0.0	20.00				1.7	2.8	5.7	6.6	7.7	8.7	16.3	16.9	17.0	1.43	15
16	100	0.0	29.00				1.0	2.0	3.3	4.2	5.5	7.3	8.0	8.8	9.0	1.00	16
17	133	0.0	27.82				0.7	1.6	2.5	2.9	3.6	4.3	4.8	5.8	6.0	0.75	17
18	168	0.0	35.71				0.4	0.9	1.8	2.3	2.8	3.5	4.3	5.7	6.0	0.60	18
19	224	0.0	44.20				0.2	0.8	1.9	2.5	3.4	4.2	4.9	6.6	7.0	0.45	19
20	207	0.0	44.93				0.1	0.8	1.6	1.9	3.5	4.8	5.9	9.7	10.0	0.48	20
21	244	0.0	38.93				0.2	0.7	1.5	2.0	2.8	4.1	4.8	5.8	6.0	0.82	21
22	277	0.0	35.74				0.4	0.9	1.8	2.4	3.4	4.7	6.0	6.8	7.0	1.08	22
23	256	0.0	30.08				0.5	0.9	1.9	2.4	3.1	3.9	4.6	7.6	8.0	0.39	23
24	265	0.0	29.06				0.6	1.2	1.9	2.5	3.4	3.9	5.1	5.8	6.0	1.13	24
25	263	0.0	26.62				0.6	1.3	2.3	2.8	3.4	3.9	4.7	5.8	6.0	0.76	25
26	270	0.0	23.70				0.6	1.2	2.1	2.7	3.6	4.5	5.4	6.6	7.0	0.37	26
27	270	0.0	20.00				1.0	1.7	2.6	2.9	3.6	4.2	4.6	4.9	5.0	2.96	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-10 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: SEPTEMBER

SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	171	0.0	60.23				0.1	0.2	0.8	1.2	1.7	2.0	2.5	2.9	3.0	2.34	sfc
1	232	0.0	45.26				0.1	0.8	2.1	2.7	4.3	5.1	5.7	6.6	7.0	0.43	1
2	194	0.0	27.32				1.1	2.3	3.8	4.7	6.1	8.7	10.0	13.7	14.0	0.52	2
3	187	0.0	20.86				1.7	3.7	5.1	6.1	8.1	8.9	13.1	15.7	16.0	0.53	3
4	183	0.0	15.30			0.0	2.9	5.0	6.9	8.9	11.7	13.6	18.1	19.7	20.0	0.55	4
5	165	0.0	12.12			0.2	3.5	6.2	9.9	11.6	13.7	16.4	17.3	21.7	22.0	0.61	5
6	182	0.0	12.64			0.2	3.2	6.1	11.0	13.5	15.9	18.8	23.0	23.8	24.0	1.10	6
7	187	0.0	10.70			0.4	3.6	6.8	10.7	13.4	17.1	20.7	25.1	28.7	29.0	0.53	7
8	180	0.0	11.11			0.4	4.1	8.1	11.6	13.7	19.0	22.4	25.1	25.8	26.0	1.11	8
9	178	0.0	11.24			0.4	4.8	7.9	12.3	14.6	17.7	20.6	25.2	26.7	27.0	0.56	9
10	183	0.0	14.21			0.1	4.2	7.1	11.6	14.7	18.9	20.9	21.7	24.7	25.0	0.55	10
11	188	0.0	7.45			0.6	4.0	7.3	10.5	12.4	16.3	18.8	24.1	28.7	29.0	0.53	11
12	181	0.0	11.60			0.3	3.3	5.6	8.7	9.7	12.4	16.8	23.1	28.7	29.0	0.55	12
13	151	0.0	7.95			0.6	3.3	5.3	8.2	9.6	11.6	13.2	15.4	23.7	24.0	0.66	13
14	156	0.0	15.38			0.0	2.4	4.0	6.7	9.0	11.4	12.6	14.4	16.7	17.0	0.64	14
15	149	0.0	16.78				1.8	3.1	4.7	6.0	8.9	10.8	12.5	16.7	17.0	0.67	15
16	172	0.0	15.70			0.0	1.5	2.7	3.9	4.8	6.2	9.5	11.1	11.8	12.0	1.16	16
17	223	0.0	21.08				1.3	2.2	3.7	4.3	5.4	6.8	8.3	9.6	10.0	0.45	17
18	286	0.0	26.92				0.9	1.8	3.0	3.9	4.6	5.2	6.0	8.6	9.0	0.35	18
19	304	0.0	28.62				0.7	1.5	2.7	3.4	4.0	4.9	5.7	11.5	12.0	0.33	19
20	304	0.0	34.54				0.5	1.1	1.9	2.6	3.4	3.9	4.7	7.5	8.0	0.33	20
21	312	0.0	38.46				0.3	1.0	1.9	2.4	3.1	3.8	4.9	11.5	12.0	0.32	21
22	317	0.0	39.12				0.3	0.9	1.8	2.3	3.0	3.9	4.7	6.5	7.0	0.32	22
23	323	0.0	38.08				0.4	1.0	1.8	2.3	2.9	3.7	4.7	6.7	7.0	0.62	23
24	318	0.0	39.31				0.3	0.9	1.7	2.1	2.7	3.3	3.9	4.8	5.0	0.94	24
25	294	0.0	39.12				0.4	1.1	1.8	2.3	2.9	3.5	3.9	5.6	6.0	0.34	25
26	298	0.0	28.52				0.6	1.3	2.1	2.7	3.4	3.9	5.2	5.8	6.0	1.34	26
27	290	0.0	31.03				0.6	1.4	2.4	3.0	4.0	4.9	6.1	7.8	8.0	0.69	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-11 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

SANTA MONICA, CALIFORNIA

OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	263	0.0	38.78				0.3	0.9	1.7	2.1	3.2	4.0	6.3	10.6	11.0	0.38	sfc
1	291	0.0	27.49				1.0	2.3	4.4	5.4	7.6	9.8	13.3	19.6	20.0	0.34	1
2	320	0.0	18.12				1.6	3.2	5.6	7.1	9.3	11.5	12.7	15.5	16.0	0.31	2
3	363	0.0	14.33			0.1	2.7	4.6	7.4	9.4	11.7	14.4	15.7	18.5	19.0	0.28	3
4	380	0.0	9.21			0.7	3.6	5.8	9.3	11.1	14.3	17.1	18.7	24.4	25.0	0.26	4
5	365	0.0	7.40			1.0	4.9	7.5	11.4	14.7	17.9	21.8	23.7	30.5	31.0	0.27	5
6	361	0.0	6.09			1.7	5.6	9.0	13.9	18.3	21.8	25.9	31.3	48.5	49.0	0.28	6
7	367	0.0	7.90			1.1	6.5	9.7	16.1	20.5	25.7	28.4	30.3	46.5	47.0	0.27	7
8	353	0.0	6.23			1.7	7.2	11.2	18.3	24.1	28.3	34.9	39.4	48.5	49.0	0.28	8
9	349	0.0	4.87			2.0	7.7	12.0	20.6	25.6	32.2	40.0	47.2	51.5	52.0	0.29	9
10	347	0.0	2.59			2.0	8.1	13.5	23.1	27.8	35.4	40.6	44.5	56.5	57.0	0.29	10
11	340	0.0	4.71			2.0	8.2	14.3	23.3	26.5	35.0	42.2	48.6	52.5	53.0	0.29	11
12	319	0.0	4.39			1.6	8.3	13.6	20.4	27.2	33.3	38.3	43.8	49.5	50.0	0.31	12
13	296	0.0	6.08			1.4	7.2	11.4	19.2	22.4	30.1	35.4	37.0	40.6	41.0	0.34	13
14	289	0.0	6.57			1.0	5.6	9.2	15.8	18.5	21.8	28.4	32.5	39.6	40.0	0.35	14
15	279	0.0	11.47			0.3	5.2	8.1	12.9	15.2	18.0	21.3	25.2	29.6	30.0	0.36	15
16	288	0.0	12.15			0.3	3.8	6.3	9.4	12.0	14.6	16.4	19.5	22.6	23.0	0.35	16
17	299	0.0	13.71			0.1	2.8	4.9	6.9	8.7	10.6	11.7	14.0	15.5	16.0	0.33	17
18	306	0.0	13.07			0.1	2.5	4.0	5.2	6.1	7.4	8.5	9.4	12.7	13.0	0.65	18
19	349	0.0	15.19			0.0	1.5	2.8	4.6	5.4	6.2	7.5	9.5	15.5	16.0	0.29	19
20	366	0.0	19.67				1.3	2.4	3.8	4.7	6.1	7.2	7.7	11.5	12.0	0.27	20
21	370	0.0	20.54				1.3	2.2	3.6	4.5	6.1	7.8	9.1	11.5	12.0	0.27	21
22	359	0.0	22.84				1.1	2.1	3.5	4.3	5.4	6.6	7.4	13.5	14.0	0.28	22
23	348	0.0	25.29				0.9	1.8	3.1	3.8	4.9	5.8	7.2	10.5	11.0	0.29	23
24	339	0.0	26.55				0.9	1.9	3.4	4.2	5.3	6.7	8.6	12.5	13.0	0.29	24
25	311	0.0	26.69				0.7	1.6	3.0	3.9	5.3	6.1	6.9	8.8	9.0	0.96	25
26	321	0.0	27.10				0.8	1.6	2.6	3.2	4.0	4.8	5.6	8.5	9.0	0.31	26
27	311	0.0	23.47				0.9	1.8	3.1	3.9	4.8	5.6	6.4	9.5	10.0	0.32	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

D-1569

TABLE VI-12 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

NOVEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N. 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	353	0.0	26.35				0.8	1.6	2.5	3.1	4.2	6.9	8.8	11.5	12.0	0.28	sfc
1	343	0.0	23.95				1.1	2.4	4.7	5.8	7.2	10.5	12.7	13.8	14.0	0.87	1
2	383	0.0	15.93				1.9	3.7	6.0	7.5	9.8	12.2	15.3	18.4	19.0	0.26	2
3	412	0.0	9.95			0.5	4.0	6.4	9.0	10.7	13.4	17.3	19.9	26.4	27.0	0.24	3
4	426	0.0	9.39			0.6	5.2	7.9	11.3	13.7	16.2	18.5	21.2	25.4	26.0	0.23	4
5	432	0.0	7.64			0.9	6.0	8.9	13.3	15.5	19.4	24.0	28.6	32.4	33.0	0.23	5
6	414	0.0	5.80			1.5	7.3	10.5	14.8	18.9	21.6	26.2	28.8	60.4	61.0	0.24	6
7	392	0.0	4.85			1.7	8.1	12.2	17.3	21.3	26.2	31.0	36.0	50.4	51.0	0.26	7
8	377	0.0	3.45			2.3	9.4	14.2	19.1	24.6	28.6	33.7	41.6	58.4	59.0	0.27	8
9	378	0.0	4.76			2.5	10.3	15.0	21.5	26.7	33.0	39.3	49.2	56.4	57.0	0.26	9
10	372	0.0	3.23			3.0	11.2	16.4	24.6	29.2	34.8	39.7	48.2	53.4	54.0	0.27	10
11	368	0.0	2.99			2.9	11.8	17.0	25.7	31.1	37.0	39.6	44.1	46.5	47.0	0.27	11
12	364	0.0	5.22			2.4	11.1	15.6	23.2	28.7	35.6	39.9	41.8	46.5	47.0	0.27	12
13	356	0.0	5.06			1.8	9.6	13.9	20.5	27.3	31.5	37.8	40.2	46.5	47.0	0.28	13
14	358	0.0	5.87			1.4	7.2	11.3	18.3	23.3	29.3	31.4	37.4	41.5	42.0	0.28	14
15	365	0.0	5.21			1.5	6.6	9.7	14.7	17.0	20.7	23.7	27.6	38.5	39.0	0.27	15
16	385	0.0	6.75			0.9	5.2	8.1	11.8	14.7	17.3	20.6	22.1	26.4	27.0	0.26	16
17	411	0.0	7.30			0.8	3.9	5.8	9.4	12.0	14.6	16.5	18.4	23.4	24.0	0.24	17
18	424	0.0	9.43			0.5	3.5	5.2	7.5	9.4	11.9	13.8	15.3	16.8	17.0	0.71	18
19	427	0.0	9.84			0.4	2.9	4.2	6.2	7.3	8.4	10.0	11.3	13.4	14.0	0.23	19
20	412	0.0	9.22			0.3	2.4	3.8	5.4	6.3	8.0	9.5	10.4	12.4	13.0	0.24	20
21	398	0.0	12.86			0.1	1.8	2.9	4.5	5.4	6.4	7.4	8.7	14.4	15.0	0.25	21
22	387	0.0	15.25			0.0	1.7	2.9	4.5	5.1	6.3	7.6	9.0	13.4	14.0	0.26	22
23	378	0.0	15.47			0.0	1.6	2.7	4.0	5.0	6.3	7.6	9.2	10.8	11.0	0.80	23
24	376	0.0	16.76				1.6	2.8	4.4	5.3	6.3	6.9	8.7	11.4	12.0	0.27	24
25	372	0.0	14.78			0.0	1.7	3.0	4.7	5.7	6.8	8.4	9.6	11.4	12.0	0.27	25
26	389	0.0	12.85			0.1	2.0	3.3	4.9	5.9	7.3	8.7	10.0	11.4	12.0	0.26	26
27	373	0.0	10.99			0.2	2.5	4.1	5.7	6.7	8.1	9.3	9.9	12.4	13.0	0.27	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VI-13 DISTRIBUTION OF NORTHERLY WINDS

NORTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

DECEMBER

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of N'ly Winds	Min. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	413	0.0	23.24				1.1	1.7	2.6	3.4	5.2	6.8	7.8	14.7	15.0	0.48	sfc
1	372	0.0	22.31				1.2	2.5	5.4	6.9	8.3	11.5	13.2	17.4	18.0	0.27	1
2	398	0.0	18.59				2.2	3.8	6.6	8.2	11.0	16.9	22.0	26.4	27.0	0.25	2
3	410	0.0	8.05			0.6	3.8	6.1	10.5	13.8	17.7	20.2	23.9	27.4	28.0	0.24	3
4	416	0.0	7.93			0.9	5.5	8.5	12.7	15.8	21.0	24.3	27.8	46.4	47.0	0.24	4
5	395	0.0	7.34			1.2	6.3	9.9	14.7	17.5	22.8	27.4	36.0	55.4	56.0	0.25	5
6	373	0.0	4.83			1.7	7.6	11.7	17.5	19.9	26.1	37.2	56.2	63.4	64.0	0.27	6
7	376	0.0	5.32			2.2	8.7	13.2	19.4	24.5	31.0	45.1	53.2	75.4	76.0	0.27	7
8	383	0.0	3.92			1.8	9.1	15.1	23.1	28.8	35.9	49.2	53.5	78.4	79.0	0.26	8
9	389	0.0	3.86			2.6	10.1	16.5	24.7	28.8	36.8	46.5	55.1	72.4	73.0	0.26	9
10	401	0.0	2.99			2.5	10.8	17.4	26.6	29.7	38.9	45.8	51.9	56.4	57.0	0.25	10
11	394	0.0	2.54			2.7	11.3	17.4	26.2	30.2	34.8	45.5	51.4	53.4	54.0	0.25	11
12	371	0.0	4.85			2.4	10.6	15.7	22.0	25.5	30.8	33.3	37.1	40.4	41.0	0.27	12
13	369	0.0	4.88			2.1	8.5	12.4	18.2	21.1	25.8	29.5	33.3	38.7	39.0	0.54	13
14	364	0.0	3.57			1.8	7.5	10.7	14.5	18.5	21.6	27.5	29.8	34.5	35.0	0.27	14
15	367	0.0	3.00			2.2	6.3	9.4	12.8	15.1	17.9	22.6	25.6	31.5	32.0	0.27	15
16	379	0.0	5.54			1.4	5.8	8.7	11.8	13.2	16.7	19.4	21.6	25.7	26.0	0.53	16
17	394	0.0	5.58			1.0	4.5	6.7	9.4	11.3	12.6	14.0	18.0	22.4	23.0	0.25	17
18	405	0.0	6.42			0.8	4.2	6.0	8.0	9.5	10.9	12.9	13.9	17.4	18.0	0.25	18
19	440	0.0	8.86			0.5	3.2	4.9	7.1	8.2	9.7	11.6	13.5	14.8	15.0	0.68	19
20	475	0.0	10.74			0.3	2.5	4.2	5.9	7.1	8.8	10.2	11.7	14.7	15.0	0.63	20
21	486	0.0	12.55			0.2	2.3	3.6	5.6	6.7	8.2	9.3	10.7	13.3	14.0	0.21	21
22	509	0.0	10.22			0.3	2.3	3.6	5.5	6.7	8.0	8.9	10.6	14.3	15.0	0.20	22
23	504	0.0	9.33			0.4	2.3	3.9	5.6	6.4	7.7	9.2	10.3	13.3	14.0	0.20	23
24	511	0.0	12.13			0.2	2.7	4.2	5.8	6.8	8.4	9.7	10.5	13.3	14.0	0.20	24
25	494	0.0	11.94			0.2	2.7	4.5	6.1	7.2	8.7	10.2	11.3	13.6	14.0	0.40	25
26	507	0.0	9.47			0.5	3.1	4.7	6.9	8.1	10.1	11.5	12.5	14.3	15.0	0.20	26
27	486	0.0	7.41			0.7	3.3	5.2	7.5	8.9	10.5	11.8	13.3	16.3	17.0	0.21	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII

Page

Distribution of Southerly Winds

(Component from the south semiplane)

Unit: meters per second

TABLE VII-1 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: ANNUAL

SANTA MONICA, CALIFORNIA

STATION ELEVATION: 125 feet or 38.1 meters MSL

ANNUAL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	4479	0.0	43.47				0.2	0.9	1.9	2.4	2.9	3.6	4.2	6.7	15.0	0.02	sfc
1	3663	0.0	36.17				0.4	1.2	2.3	2.9	4.4	6.4	8.9	14.2	18.0	0.03	1
2	3610	0.0	21.69				1.5	2.8	4.8	6.0	7.7	9.9	11.8	18.1	23.0	0.06	2
3	3665	0.0	14.65			0.0	2.8	4.6	7.3	8.8	11.2	14.0	15.8	23.0	27.0	0.03	3
4	3669	0.0	11.61			0.4	3.6	5.8	8.9	10.9	13.9	17.0	19.7	29.0	33.0	0.03	4
5	3775	0.0	11.39			0.4	3.9	6.4	9.9	12.5	16.2	19.6	22.6	27.9	39.0	0.03	5
6	3789	0.0	10.19			0.6	4.4	7.2	11.2	13.7	18.5	22.2	25.3	32.9	37.0	0.03	6
7	3825	0.0	9.62			0.8	5.0	8.1	12.5	15.6	20.7	25.7	29.5	40.8	51.0	0.03	7
8	3887	0.0	8.41			1.0	5.7	9.2	14.5	18.4	23.4	28.7	32.5	43.5	55.0	0.03	8
9	3934	0.0	8.08			1.1	6.7	10.5	16.6	20.5	25.9	31.1	36.1	44.9	54.0	0.03	9
10	4000	0.0	7.57			1.2	7.5	11.9	18.1	21.9	27.3	31.8	37.0	52.6	64.0	0.02	10
11	4026	0.0	7.95			1.6	8.5	13.0	19.7	23.1	28.2	32.6	36.6	47.5	57.0	0.02	11
12	4162	0.0	7.23			1.5	8.3	13.0	19.1	23.1	27.2	31.6	36.1	45.4	57.0	0.02	12
13	4282	0.0	7.45			1.5	7.9	12.1	17.9	21.0	25.2	28.5	32.5	40.2	49.0	0.02	13
14	4381	0.0	8.17			1.2	6.7	10.3	15.5	18.3	21.7	24.8	27.9	37.0	40.0	0.07	14
15	4424	0.0	9.45			0.8	5.3	8.2	12.2	14.8	18.0	21.1	23.9	31.5	36.0	0.02	15
16	4324	0.0	10.68			0.6	4.1	6.4	9.4	11.3	13.9	16.4	19.1	24.1	30.0	0.02	16
17	4114	0.0	14.49			0.1	2.9	4.7	6.9	8.5	10.5	12.4	14.7	21.4	31.0	0.02	17
18	3857	0.0	19.50				1.8	3.2	5.1	6.4	7.9	9.6	12.1	17.9	32.0	0.03	18
19	3534	0.0	24.65				1.2	2.3	3.8	4.8	6.1	7.6	9.3	17.6	30.0	0.03	19
20	3330	0.0	29.76				0.8	1.7	3.0	3.8	5.2	6.6	8.3	13.6	17.0	0.03	20
21	3245	0.0	34.45				0.5	1.3	2.5	3.2	4.4	5.8	7.2	12.2	14.0	0.06	21
22	3130	0.0	37.09				0.4	1.2	2.4	3.2	4.4	5.8	7.5	11.9	14.0	0.03	22
23	3118	0.0	37.84				0.4	1.2	2.4	3.2	4.7	6.4	8.3	13.2	18.0	0.03	23
24	3080	0.0	38.02				0.4	1.2	2.5	3.5	5.3	7.5	9.5	12.5	16.0	0.03	24
25	3201	0.0	37.14				0.5	1.3	2.6	3.6	5.1	7.4	9.7	12.8	15.0	0.03	25
26	3155	0.0	34.64				0.6	1.5	3.0	4.0	5.8	7.9	10.1	13.5	17.0	0.03	26
27	3185	0.0	33.19				0.7	1.8	3.4	4.6	6.7	9.5	11.7	16.5	20.0	0.03	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-2 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

JANUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL.

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of Sly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	240	0.0	61.67					0.3	1.2	1.7	2.5	3.8	4.8	8.6	9.0	0.42	sfc
1	308	0.0	28.90				0.8	1.8	4.0	5.4	7.5	9.4	11.9	17.5	18.0	0.32	1
2	286	0.0	18.53				2.1	4.0	6.0	7.2	9.7	12.1	14.1	20.6	21.0	0.35	2
3	272	0.0	11.76			0.3	3.7	5.5	8.5	10.1	13.1	16.2	17.6	25.6	26.0	0.37	3
4	273	0.0	11.36			0.5	4.8	7.5	11.1	12.9	17.1	19.4	24.2	30.6	31.0	0.37	4
5	276	0.0	9.42			0.8	6.0	8.9	13.0	16.1	19.7	23.1	24.2	27.6	28.0	0.36	5
6	275	0.0	8.00			1.3	6.7	9.9	14.4	18.3	21.7	24.7	29.2	33.6	34.0	0.36	6
7	292	0.0	8.22			1.3	6.8	10.5	15.5	20.4	26.2	29.4	31.5	33.6	34.0	0.34	7
8	305	0.0	6.23			1.8	7.6	11.7	17.9	25.1	29.9	32.5	33.9	37.5	38.0	0.33	8
9	315	0.0	5.40			2.4	8.7	13.6	20.9	26.7	32.7	36.4	37.9	44.5	45.0	0.32	9
10	324	0.0	6.17			2.1	8.1	13.9	23.3	27.2	30.3	33.6	37.7	40.5	41.0	0.31	10
11	311	0.0	6.43			2.3	10.2	16.2	24.1	27.1	31.2	33.4	36.6	38.5	39.0	0.32	11
12	307	0.0	7.49			1.8	9.8	15.3	22.0	24.5	26.8	30.0	33.4	36.5	37.0	0.33	12
13	306	0.0	10.46			1.1	9.2	13.8	18.8	21.1	25.2	27.2	28.3	32.5	33.0	0.33	13
14	305	0.0	8.85			1.3	7.8	11.4	17.3	19.2	22.1	24.6	25.9	28.7	29.0	0.66	14
15	305	0.0	10.82			0.9	6.3	9.0	14.2	17.4	19.4	21.2	23.9	25.7	26.0	0.66	15
16	299	0.0	11.37			0.9	4.7	7.4	11.5	13.5	15.2	18.5	22.0	29.5	30.0	0.33	16
17	280	0.0	8.21			0.7	3.6	5.8	9.2	10.5	12.0	13.8	16.1	30.6	31.0	0.36	17
18	251	0.0	19.52				1.9	3.9	6.8	8.2	9.4	11.1	13.4	31.6	32.0	0.40	18
19	207	0.0	18.36				1.6	3.1	5.5	6.4	7.5	8.8	9.9	29.7	30.0	0.48	19
20	182	0.0	28.57				1.1	2.5	4.2	4.9	6.5	7.7	8.5	15.7	16.0	0.55	20
21	173	0.0	31.21				0.8	1.8	3.4	4.5	5.5	6.5	8.2	9.7	10.0	0.58	21
22	166	0.0	36.14				0.5	1.5	2.7	3.3	4.2	4.8	5.6	6.7	7.0	0.60	22
23	156	0.0	33.33				0.6	1.5	2.7	3.4	4.4	5.2	7.2	7.8	8.0	1.28	23
24	153	0.0	40.52				0.4	1.3	2.7	3.9	5.3	6.5	7.2	7.8	8.0	1.31	24
25	175	0.0	26.29				0.8	1.8	3.3	3.9	5.0	7.5	8.4	8.9	9.0	1.71	25
26	184	0.0	28.26				1.0	2.7	4.3	5.5	6.8	8.6	9.5	10.7	11.0	0.54	26
27	187	0.0	24.60				2.2	3.9	5.8	7.2	8.9	10.6	11.4	12.7	13.0	0.53	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-3 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION
SANTA MONICA, CALIFORNIA
FEBRUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of S'ly Winds.	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	296	0.0	57.09					0.4	1.4	1.8	2.7	3.6	4.3	6.6	7.0	0.34	sfc
1	264	0.0	38.26				0.5	1.6	3.6	5.6	8.6	11.4	14.1	16.6	17.0	0.38	1
2	211	0.0	19.91				2.7	5.0	8.0	10.2	12.0	13.3	19.8	22.8	23.0	0.95	2
3	207	0.0	13.04			0.2	3.9	6.3	9.4	13.8	15.8	18.2	24.9	26.7	27.0	0.48	3
4	221	0.0	10.86			0.6	5.0	8.0	12.9	15.3	18.7	20.9	24.2	24.9	25.0	1.36	4
5	231	0.0	9.52			1.1	5.6	8.5	14.5	16.7	19.6	21.9	23.8	26.6	27.0	0.43	5
6	239	0.0	9.62			1.0	6.0	9.9	14.7	17.7	20.5	23.5	25.8	36.6	37.0	0.42	6
7	243	0.0	9.88			1.2	7.3	11.6	16.9	18.5	22.7	27.7	29.1	29.8	30.0	1.23	7
8	254	0.0	7.87			1.8	7.6	11.3	20.1	21.9	25.6	30.7	31.8	38.6	39.0	0.39	8
9	256	0.0	8.20			1.6	8.8	12.0	21.4	24.0	26.7	35.0	36.7	37.8	38.0	0.78	9
10	257	0.0	6.23			1.9	9.2	14.1	21.4	24.4	29.7	33.5	36.4	45.6	46.0	0.39	10
11	254	0.0	7.09			2.9	9.8	13.9	21.0	23.9	29.6	32.6	36.4	38.8	39.0	0.79	11
12	263	0.0	8.37			2.0	8.8	13.5	19.3	21.6	25.4	29.5	32.3	36.8	37.0	0.76	12
13	263	0.0	6.84			2.0	8.2	12.4	17.3	20.5	22.8	25.0	26.3	33.6	34.0	0.38	13
14	268	0.0	8.21			1.9	7.1	10.5	14.2	16.5	19.8	21.9	24.6	29.8	30.0	0.75	14
15	269	0.0	10.41			1.1	5.9	8.4	12.6	14.3	16.7	19.4	24.3	31.6	32.0	0.37	15
16	267	0.0	10.11			0.8	4.8	6.8	10.0	12.1	14.0	14.8	17.4	18.6	19.0	0.37	16
17	264	0.0	13.64			0.2	3.5	5.7	8.4	9.7	11.9	13.6	15.3	17.6	18.0	0.38	17
18	258	0.0	19.77				2.4	4.3	6.2	7.6	9.8	12.4	13.4	25.6	26.0	0.39	18
19	229	0.0	19.65				2.0	3.6	5.0	6.5	8.1	9.9	11.3	18.6	19.0	0.44	19
20	206	0.0	23.30				1.5	2.8	5.2	6.1	7.1	8.6	10.9	12.7	13.0	0.49	20
21	203	0.0	19.21				1.4	2.7	4.7	5.7	6.9	9.1	10.4	12.7	13.0	0.49	21
22	196	0.0	24.49				1.2	2.6	4.9	6.6	8.7	10.7	12.0	13.7	14.0	0.51	22
23	196	0.0	27.04				1.2	2.7	5.9	7.9	10.0	12.3	13.0	13.8	14.0	1.02	23
24	197	0.0	31.98				1.0	3.4	6.6	9.0	10.8	12.3	13.0	15.7	16.0	0.51	24
25	182	0.0	24.73				1.7	4.5	8.6	10.3	12.1	12.7	13.0	13.8	14.0	1.10	25
26	181	0.0	20.44				2.2	5.8	9.2	10.3	11.8	13.6	15.5	16.7	17.0	0.55	26
27	182	0.0	17.58				3.4	7.4	10.6	12.3	14.3	16.4	18.1	19.7	20.0	0.55	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-4 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

MARCH

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	341	0.0	50.73					1.0	1.9	2.5	3.1	3.7	3.9	5.5	6.0	0.29	sfc
1	262	0.0	35.88				0.6	1.5	2.9	4.1	4.9	6.3	8.6	14.6	15.0	0.38	1
2	223	0.0	23.77				1.7	2.9	4.8	5.8	7.3	8.9	10.3	12.6	13.0	0.45	2
3	217	0.0	20.74				2.5	4.3	7.8	9.2	10.5	11.6	15.8	18.7	19.0	0.46	3
4	205	0.0	12.20			0.2	2.8	4.8	7.7	10.3	13.7	16.3	16.9	28.7	29.0	0.49	4
5	225	0.0	15.56			0.0	3.3	5.7	9.5	12.7	15.5	18.2	19.7	26.6	27.0	0.44	5
6	230	0.0	14.35			0.1	3.6	6.5	10.8	12.7	17.7	21.5	23.3	29.6	30.0	0.43	6
7	244	0.0	15.98				3.9	7.0	11.3	14.9	19.9	24.4	30.5	32.6	33.0	0.41	7
8	245	0.0	14.29			0.1	5.0	7.7	12.7	15.5	21.8	30.4	32.5	33.6	34.0	0.41	8
9	248	0.0	15.73			0.0	5.1	8.6	14.2	18.6	25.6	30.7	33.5	35.6	36.0	0.40	9
10	282	0.0	19.86				5.3	8.4	13.7	16.7	22.2	29.5	34.5	36.6	37.0	0.35	10
11	293	0.0	19.80				5.3	8.8	15.4	18.7	23.1	28.3	32.0	46.6	47.0	0.34	11
12	310	0.0	16.77				5.1	8.5	13.3	16.2	21.2	24.9	30.9	41.5	42.0	0.32	12
13	318	0.0	13.52			0.3	4.6	7.4	10.8	13.4	17.1	21.2	25.2	33.5	34.0	0.31	13
14	333	0.0	19.22				3.9	6.7	10.0	11.8	13.9	17.8	20.3	24.5	25.0	0.30	14
15	329	0.0	23.40				3.3	5.3	7.8	9.7	11.7	15.4	18.8	22.5	23.0	0.30	15
16	310	0.0	21.94				2.8	4.7	7.3	8.6	9.8	11.9	15.9	17.5	18.0	0.32	16
17	301	0.0	27.57				1.6	3.4	5.5	6.4	8.3	10.2	10.9	12.5	13.0	0.33	17
18	267	0.0	27.72				1.4	2.6	4.2	5.3	7.1	7.9	8.8	13.6	14.0	0.37	18
19	233	0.0	28.76				1.0	2.1	3.3	4.2	5.7	6.9	7.8	8.8	9.0	0.86	19
20	224	0.0	25.00				1.2	2.1	3.4	3.8	4.8	5.9	6.9	7.8	8.0	0.89	20
21	216	0.0	27.78				0.9	1.8	3.2	4.0	4.8	6.0	6.5	6.9	7.0	2.31	21
22	208	0.0	28.85				0.7	1.7	3.6	4.5	5.7	6.5	6.9	8.7	9.0	0.48	22
23	207	0.0	34.30				0.6	1.9	4.0	5.0	6.7	8.0	8.9	11.7	12.0	0.48	23
24	235	0.0	32.77				0.7	2.0	3.9	5.1	6.3	7.9	8.8	9.8	10.0	0.85	24
25	278	0.0	32.73				0.7	1.9	3.0	4.1	5.4	6.6	8.6	11.6	12.0	0.36	25
26	241	0.0	31.54				0.9	2.0	3.5	4.6	5.7	6.6	8.2	10.6	11.0	0.41	26
27	240	0.0	32.50				0.9	2.3	3.8	4.9	6.2	8.2	10.3	12.6	13.0	0.42	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-5 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

APRIL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	416	0.0	43.75				0.3	1.3	2.3	2.8	3.5	4.5	5.9	7.7	8.0	0.48	sfc
1	262	0.0	29.39				0.7	1.6	3.0	4.2	5.9	9.0	9.8	14.6	15.0	0.38	1
2	250	0.0	24.00				1.5	3.4	6.0	7.7	9.4	11.1	13.5	18.6	19.0	0.40	2
3	229	0.0	14.85			0.1	3.1	5.3	8.9	11.0	12.1	14.6	16.7	17.8	18.0	0.87	3
4	226	0.0	13.27			0.3	3.9	6.6	10.9	13.5	15.5	17.9	19.7	23.6	24.0	0.44	4
5	224	0.0	12.50			0.3	4.2	7.2	14.0	16.1	19.9	22.2	24.3	25.6	26.0	0.45	5
6	227	0.0	10.57			0.5	4.5	8.3	16.1	19.3	24.1	25.9	31.7	32.8	33.0	0.88	6
7	232	0.0	14.22			0.2	4.6	8.7	17.7	21.6	26.4	30.7	33.6	42.6	43.0	0.43	7
8	230	0.0	9.13			0.6	5.3	10.1	21.4	23.8	30.5	38.3	39.8	44.6	45.0	0.43	8
9	246	0.0	12.60			0.3	5.1	9.0	20.5	24.8	30.9	38.3	46.5	53.6	54.0	0.41	9
10	242	0.0	12.81			0.3	6.0	10.3	21.4	26.7	29.9	42.4	61.5	63.6	64.0	0.41	10
11	248	0.0	12.10			0.4	6.1	10.4	20.5	27.0	34.3	39.3	44.5	55.6	56.0	0.40	11
12	269	0.0	15.99				4.8	8.7	16.1	23.7	29.8	36.8	46.3	56.6	57.0	0.37	12
13	286	0.0	10.84			0.6	4.6	8.0	14.3	18.7	23.7	31.7	37.5	42.8	43.0	0.70	13
14	318	0.0	16.04				4.3	6.9	10.5	13.4	19.7	24.2	30.4	35.5	36.0	0.31	14
15	325	0.0	14.46			0.1	3.6	5.8	9.0	11.8	16.8	22.5	26.8	30.7	31.0	0.62	15
16	316	0.0	18.04				2.9	5.2	7.6	9.6	12.6	15.8	20.8	23.5	24.0	0.32	16
17	313	0.0	19.49				2.7	4.3	6.6	7.8	10.5	13.9	18.8	21.7	22.0	0.64	17
18	310	0.0	19.68				1.9	3.8	5.9	7.5	9.5	11.4	14.4	17.7	18.0	0.65	18
19	305	0.0	23.61				1.6	3.1	4.7	5.9	7.6	10.2	13.9	15.8	16.0	0.98	19
20	288	0.0	24.65				1.3	2.2	3.8	4.8	7.5	11.2	13.3	14.6	15.0	0.35	20
21	282	0.0	32.27				0.7	1.8	3.2	4.3	5.8	9.2	11.5	12.8	13.0	0.71	21
22	284	0.0	30.99				0.8	1.6	2.7	3.6	4.8	9.7	11.5	12.8	13.0	0.70	22
23	282	0.0	33.33				0.6	1.4	2.8	4.0	5.7	7.7	12.0	14.6	15.0	0.35	23
24	253	0.0	29.25				0.9	2.0	3.6	4.8	7.0	9.0	9.8	10.8	11.0	0.79	24
25	256	0.0	27.34				1.0	2.3	3.6	4.5	6.7	9.0	10.2	11.6	12.0	0.39	25
26	288	0.0	23.61				1.1	2.3	4.4	5.7	7.1	9.2	10.7	11.8	12.0	0.69	26
27	275	0.0	24.36				1.5	3.1	5.0	6.0	7.3	8.9	10.2	16.6	17.0	0.36	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-6 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

MAY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MAY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of Sly Winds	Min. Speed	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	471	0.0	33.12				0.6	1.4	2.3	2.7	3.2	3.8	4.4	8.3	9.0	0.21	sfc
1	311	0.0	35.69				0.5	1.2	2.3	2.7	3.6	4.7	6.8	7.8	8.0	0.96	1
2	294	0.0	15.99				1.8	3.4	5.7	6.6	7.8	8.8	9.7	10.8	11.0	0.68	2
3	318	0.0	15.41			0.0	3.5	6.0	8.9	10.5	14.0	15.3	16.4	19.5	20.0	0.31	3
4	323	0.0	13.00			0.2	4.2	7.6	12.4	14.7	17.1	18.6	20.3	22.5	23.0	0.31	4
5	330	0.0	10.91			0.4	5.0	8.4	14.5	17.4	20.1	22.6	24.3	31.5	32.0	0.30	5
6	326	0.0	8.59			0.8	5.9	9.5	16.6	20.0	23.1	26.2	29.7	33.5	34.0	0.31	6
7	326	0.0	7.06			1.4	7.1	10.9	18.8	21.6	26.1	29.4	33.7	42.7	43.0	0.61	7
8	331	0.0	7.85			1.3	7.0	12.1	21.0	23.2	26.1	29.4	37.3	54.5	55.0	0.30	8
9	342	0.0	8.19			1.1	7.9	13.9	20.1	24.5	29.4	33.6	38.5	52.5	53.0	0.29	9
10	339	0.0	6.49			1.2	8.5	13.6	21.0	24.5	30.0	37.4	44.6	53.5	54.0	0.29	10
11	342	0.0	8.19			1.5	9.0	14.2	21.4	26.2	32.4	38.2	44.5	52.5	53.0	0.29	11
12	348	0.0	5.46			1.4	8.3	13.7	21.9	25.5	30.3	35.0	41.7	42.8	43.0	0.86	12
13	358	0.0	9.22			1.6	7.9	12.6	20.3	24.2	27.6	30.4	35.2	40.5	41.0	0.28	13
14	368	0.0	6.79			1.2	6.3	10.6	17.2	21.2	22.9	25.4	28.1	38.5	39.0	0.27	14
15	383	0.0	9.40			0.9	5.3	8.9	13.8	15.9	18.7	21.4	22.7	32.4	33.0	0.26	15
16	407	0.0	9.58			0.6	4.4	7.2	10.3	11.7	13.8	17.3	19.6	23.4	24.0	0.25	16
17	425	0.0	16.47				3.2	5.1	7.8	9.5	10.8	12.8	14.8	21.4	22.0	0.24	17
18	406	0.0	17.49				2.2	3.9	6.0	7.4	8.7	9.8	12.4	18.4	19.0	0.25	18
19	389	0.0	24.16				1.4	2.6	4.1	5.0	6.0	7.5	9.1	13.4	14.0	0.26	19
20	340	0.0	21.47				1.0	1.8	3.0	3.9	4.9	5.9	8.6	10.5	11.0	0.29	20
21	353	0.0	32.58				0.5	1.2	2.0	2.7	3.4	3.9	5.4	7.7	8.0	0.57	21
22	324	0.0	40.12				0.4	1.2	2.5	3.1	3.9	5.0	5.6	7.5	8.0	0.31	22
23	302	0.0	37.42				0.4	1.1	2.2	2.8	3.7	5.0	5.9	11.5	12.0	0.33	23
24	283	0.0	36.75				0.4	0.9	2.1	2.9	3.7	5.1	6.3	10.6	11.0	0.35	24
25	282	0.0	39.72				0.3	1.0	2.0	2.8	3.8	4.6	5.3	6.6	7.0	0.35	25
26	265	0.0	30.57				0.7	1.5	2.6	3.5	4.8	5.7	6.4	7.6	8.0	0.38	26
27	250	0.0	31.60				0.6	1.6	2.9	3.8	5.1	5.9	8.2	9.6	10.0	0.40	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-7 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

JUNE

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	468	0.0	36.32				0.5	1.2	2.1	2.6	3.2	3.8	4.3	6.3	7.0	0.21	sfc
1	275	0.0	42.55				0.3	1.0	1.9	2.5	3.5	4.4	4.9	5.8	6.0	0.73	1
2	336	0.0	26.49				0.9	2.2	3.6	4.3	5.6	6.9	7.7	12.5	13.0	0.30	2
3	376	0.0	15.16			0.0	2.5	4.2	6.4	8.0	10.0	11.4	12.6	15.7	16.0	0.53	3
4	383	0.0	11.23			0.5	3.7	6.0	9.0	10.9	12.6	14.7	16.5	17.8	18.0	0.78	4
5	388	0.0	12.11			0.4	4.3	6.7	10.3	12.0	14.6	17.3	20.5	29.4	30.0	0.26	5
6	380	0.0	10.00			0.6	4.8	7.5	10.6	12.7	16.0	20.7	23.0	27.4	28.0	0.26	6
7	364	0.0	7.14			1.4	6.2	8.7	12.1	14.2	17.3	21.2	26.3	30.5	31.0	0.27	7
8	369	0.0	6.78			1.5	7.0	10.5	14.4	16.6	20.0	24.1	26.6	37.5	38.0	0.27	8
9	369	0.0	6.23			2.0	8.7	12.6	17.6	19.5	23.0	25.5	27.6	39.5	40.0	0.27	9
10	377	0.0	5.31			2.4	10.5	13.9	18.9	21.0	24.4	28.7	29.8	28.4	39.0	0.27	10
11	385	0.0	6.23			2.8	11.5	15.9	20.9	23.5	26.7	30.6	33.0	33.8	34.8	1.04	11
12	399	0.0	3.51			3.1	11.8	16.4	23.6	26.6	29.0	31.6	37.0	40.4	41.0	0.25	12
13	427	0.0	4.45			2.6	10.7	16.6	22.2	25.7	28.6	31.1	34.9	37.7	38.0	0.47	13
14	446	0.0	5.83			1.9	9.9	15.1	20.8	23.2	25.5	26.9	29.5	39.3	40.0	0.22	14
15	466	0.0	8.37			1.3	7.7	11.9	16.4	18.0	20.1	22.2	23.6	27.6	28.0	0.43	15
16	471	0.0	9.34			0.8	5.6	8.5	11.6	13.1	15.3	18.3	20.6	24.3	25.0	0.21	16
17	451	0.0	11.31			0.5	4.0	5.7	8.3	9.9	11.7	13.9	16.4	25.3	26.0	0.22	17
18	437	0.0	14.87			0.0	2.2	3.5	5.7	7.0	8.2	9.8	11.6	15.4	16.0	0.23	18
19	421	0.0	22.57				1.1	2.1	3.5	4.4	5.8	6.9	8.2	11.4	12.0	0.24	19
20	385	0.0	31.95				0.6	1.4	2.6	3.3	4.1	5.7	6.6	9.4	10.0	0.26	20
21	364	0.0	39.29				0.3	0.8	1.9	2.5	3.4	4.4	7.1	8.7	9.0	0.55	21
22	332	0.0	43.37				0.2	0.8	1.7	2.2	3.2	4.1	6.6	7.8	8.0	0.90	22
23	326	0.0	43.87				0.2	0.7	1.8	2.3	2.9	3.9	4.9	6.5	7.0	0.31	23
24	326	0.0	45.09				0.1	0.8	1.7	2.3	2.9	4.7	9.2	11.5	12.0	0.31	24
25	316	0.0	41.77				0.3	1.0	1.7	2.1	3.1	3.8	4.9	8.5	9.0	0.32	25
26	317	0.0	43.22				0.2	0.8	1.7	2.1	3.1	3.8	5.2	6.5	7.0	0.32	26
27	334	0.0	41.32				0.3	1.0	1.9	2.5	3.3	3.9	4.8	5.8	6.0	0.90	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-8 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JULY

STATION ELEVATION: 125 feet or 38 meters MSL

SANTA MONICA, CALIFORNIA

JULY

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	511	0.0	35.62				0.8	1.2	1.9	2.4	2.8	3.4	3.9	4.8	5.0	0.78	sfc
1	387	0.0	36.18				0.4	1.1	1.8	2.2	2.9	3.8	4.7	6.4	7.0	0.26	1
2	407	0.0	19.41				1.6	2.8	4.5	5.4	6.5	7.7	8.7	10.4	11.0	0.25	2
3	488	0.0	14.14			0.1	2.6	4.4	7.2	8.4	10.5	11.9	13.0	17.3	18.0	0.20	3
4	517	0.0	8.51			0.7	3.9	5.6	8.2	9.5	11.3	13.1	14.4	16.6	17.0	0.39	4
5	535	0.0	10.65			0.5	3.9	5.9	9.0	10.3	11.5	12.9	14.3	17.2	18.0	0.19	5
6	534	0.0	8.43			0.8	4.3	6.6	9.9	11.5	13.0	13.9	16.3	20.2	21.0	0.19	6
7	514	0.0	7.36			1.2	5.0	7.4	10.5	12.7	14.7	17.0	20.9	24.3	25.0	0.19	7
8	521	0.0	7.29			1.3	5.9	8.5	11.9	14.1	17.3	20.3	23.3	29.2	30.0	0.19	8
9	518	0.0	6.18			1.6	6.9	9.7	13.8	15.9	20.0	23.2	25.8	34.3	35.0	0.19	9
10	527	0.0	5.50			2.2	8.2	11.0	15.7	18.3	21.6	26.3	28.5	33.6	34.0	0.38	10
11	529	0.0	4.73			3.0	9.6	12.9	17.7	20.0	23.7	26.9	31.8	38.2	39.0	0.19	11
12	531	0.0	3.39			2.8	10.1	13.4	18.5	20.5	25.2	28.6	32.8	40.6	41.0	0.38	12
13	516	0.0	3.88			2.9	10.2	13.3	18.0	21.1	24.4	27.8	31.9	35.3	36.0	0.19	13
14	520	0.0	3.27			2.5	8.5	11.7	15.7	17.4	20.6	23.1	25.9	31.2	32.0	0.19	14
15	517	0.0	3.68			2.3	6.1	8.7	11.7	13.6	15.6	18.0	19.9	24.3	25.0	0.19	15
16	518	0.0	4.83			1.2	4.0	6.0	8.3	9.6	11.4	12.9	14.6	17.6	18.0	0.39	16
17	479	0.0	10.02			0.4	2.7	4.0	5.9	6.7	7.6	9.1	10.0	12.3	13.0	0.21	17
18	457	0.0	15.54			0.0	1.7	2.7	3.9	4.7	5.4	5.9	6.7	9.3	10.0	0.22	18
19	431	0.0	23.43				1.0	1.9	2.8	3.5	4.4	5.0	5.6	6.4	7.0	0.23	19
20	406	0.0	33.00				0.6	1.4	2.1	2.7	3.5	4.4	5.4	7.4	8.0	0.25	20
21	402	0.0	34.08				0.5	1.1	1.9	2.4	3.2	4.3	5.4	6.8	7.0	0.75	21
22	406	0.0	40.64				0.3	1.0	2.0	2.6	3.3	3.8	4.4	6.4	7.0	0.25	22
23	393	0.0	40.46				0.3	0.9	1.8	2.3	3.0	3.7	4.4	6.4	7.0	0.25	23
24	381	0.0	41.73				0.3	0.9	1.8	2.3	3.3	3.9	5.0	6.7	7.0	0.52	24
25	384	0.0	43.75				0.2	0.8	1.8	2.5	3.2	4.1	4.6	6.4	7.0	0.26	25
26	401	0.0	44.64				0.1	0.8	2.1	2.7	3.5	4.4	5.3	9.4	10.0	0.25	26
27	385	0.0	37.40				0.5	1.3	2.4	2.9	3.9	4.8	8.1	14.7	15.0	0.52	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-9 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

AUGUST

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY										Max. Speed	Pct. Freq	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	493	0.0	35.29				0.5	1.1	1.9	2.3	2.8	3.3	4.0	5.3	6.0	0.20	sfc
1	390	0.0	37.18				0.3	0.9	1.8	2.4	2.9	3.6	4.2	5.4	6.0	0.26	1
2	457	0.0	21.01				1.4	2.4	3.8	4.4	5.5	6.6	7.2	11.3	12.0	0.22	2
3	488	0.0	10.45			0.4	2.8	4.0	5.5	6.3	7.7	9.1	9.8	13.3	14.0	0.20	3
4	484	0.0	10.33			0.5	3.5	5.2	7.2	8.0	9.0	10.4	11.6	14.3	15.0	0.21	4
5	482	0.0	11.20			0.3	3.5	5.5	7.9	9.3	10.5	12.1	12.8	14.7	15.0	0.62	5
6	467	0.0	12.63			0.3	3.7	6.0	8.4	9.6	12.5	14.2	15.3	16.3	17.0	0.21	6
7	489	0.0	11.04			0.5	3.9	6.3	8.9	10.7	12.7	15.6	18.1	21.3	22.0	0.20	7
8	485	0.0	9.28			0.8	4.6	6.8	10.7	12.6	15.5	19.6	21.6	22.7	23.0	0.62	8
9	494	0.0	9.11			1.0	5.6	8.7	13.6	15.9	19.5	22.8	24.5	28.3	29.0	0.20	9
10	515	0.0	4.27			1.5	6.9	10.7	15.8	18.7	23.4	26.3	27.4	36.3	37.0	0.19	10
11	514	0.0	5.45			2.3	9.1	12.5	18.2	20.4	24.3	27.8	30.9	37.3	38.0	0.19	11
12	530	0.0	4.15			2.5	10.2	14.1	18.8	22.1	25.5	27.9	30.6	39.2	40.0	0.19	12
13	540	0.0	4.63			3.5	10.1	13.7	18.6	20.7	24.4	26.8	28.8	33.2	34.0	0.19	13
14	550	0.0	1.82		0.1	2.8	8.5	11.6	15.3	17.1	20.0	22.1	23.1	31.2	32.0	0.18	14
15	550	0.0	4.00			1.5	6.4	8.6	11.0	12.7	15.1	16.9	18.7	23.2	24.0	0.18	15
16	520	0.0	6.35			1.2	4.4	6.2	8.3	9.5	11.0	13.0	15.6	17.2	18.0	0.19	16
17	487	0.0	13.35			0.1	2.3	3.9	5.7	6.5	7.8	9.1	10.3	18.3	19.0	0.21	17
18	492	0.0	23.01				1.2	2.2	3.4	3.9	5.0	6.3	7.1	9.6	10.0	0.44	18
19	396	0.0	30.05				0.7	1.5	2.4	2.9	3.8	4.7	5.6	8.4	9.0	0.25	19
20	413	0.0	39.47				0.3	1.0	1.9	2.5	3.2	3.7	4.4	6.4	7.0	0.24	20
21	376	0.0	39.63				0.3	0.9	1.9	2.4	2.9	3.8	4.6	5.7	6.0	0.53	21
22	343	0.0	37.03				0.4	1.1	2.0	2.5	3.0	3.9	4.7	7.5	8.0	0.29	22
23	364	0.0	42.03				0.3	1.1	1.9	2.5	3.3	4.3	6.1	13.5	14.0	0.27	23
24	355	0.0	45.92				0.1	0.8	1.7	2.4	3.3	3.9	5.1	5.8	6.0	1.13	24
25	357	0.0	48.46				0.0	0.8	1.8	2.5	3.3	3.9	4.8	5.8	6.0	0.84	25
26	350	0.0	42.00				0.2	0.8	2.0	3.0	4.0	4.6	4.9	6.7	7.0	0.57	26
27	350	0.0	38.29				0.4	1.2	2.4	3.2	4.2	4.8	5.7	7.5	8.0	0.29	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-10 DISTRIBUTION OF SOUTHERLY WINDS

STATION:	SANTA MONICA, CALIFORNIA
REFERENCE PERIOD:	SEPTEMBER
STATION ELEVATION:	125 feet or 38.1 meters MSL
STATION COORDINATES:	34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION:	Long Beach California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE:	National Weather Records Center U. S. Weather Bureau Asheville, North Carolina
PREPARED BY:	National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

SEPTEMBER

NO. OF OBS. FOR EACH LEVEL: 600

UNITS: meters/second

Alt. (MSL) km	No. of Sly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	429	0.0	42.89				0.2	0.9	1.8	2.3	2.8	3.2	3.7	4.4	5.0	0.23	sfc
1	368	0.0	34.24				0.4	1.0	1.9	2.4	2.9	3.8	4.4	5.5	6.0	0.27	1
2	406	0.0	17.73				1.8	3.0	4.9	5.9	7.1	8.2	9.4	11.4	12.0	0.25	2
3	413	0.0	13.32			0.2	3.3	5.3	7.6	8.7	10.8	13.6	15.2	21.4	22.0	0.24	3
4	417	0.0	8.63			0.7	3.7	5.7	8.4	10.1	12.7	15.8	20.8	24.4	25.0	0.24	4
5	435	0.0	10.34			0.5	3.5	5.4	8.1	10.1	13.9	16.0	19.6	24.4	25.0	0.23	5
6	418	0.0	6.94			1.2	4.4	6.6	10.3	12.5	16.5	20.1	21.9	24.7	25.0	0.48	6
7	413	0.0	6.54			0.9	4.7	8.2	11.6	14.0	19.4	23.1	25.4	28.4	29.0	0.24	7
8	420	0.0	8.57			1.0	5.7	9.4	13.8	16.0	21.3	26.0	26.9	30.4	31.0	0.24	8
9	422	0.0	4.74			1.3	6.1	10.4	15.8	18.9	25.6	29.1	32.6	36.4	37.0	0.24	9
10	417	0.0	7.67			1.1	6.9	11.7	17.3	21.0	28.0	31.1	32.9	41.4	42.0	0.24	10
11	412	0.0	7.52			1.4	8.0	12.8	19.4	23.2	29.1	32.8	35.9	42.4	43.0	0.24	11
12	419	0.0	6.21			1.4	8.5	13.2	18.5	24.3	30.6	35.6	38.8	45.4	46.0	0.24	12
13	449	0.0	6.90			1.4	7.7	12.8	17.6	22.1	28.1	34.9	37.5	48.3	49.0	0.22	13
14	444	0.0	7.88			1.2	6.8	11.0	16.4	20.0	24.9	29.2	33.5	39.7	40.0	0.45	14
15	451	0.0	7.76			0.8	5.1	8.5	13.6	17.5	22.4	25.3	28.7	34.6	35.0	0.44	15
16	428	0.0	9.58			0.6	3.7	6.2	10.3	13.4	16.8	19.0	21.7	26.7	27.0	0.47	16
17	377	0.0	12.20			0.2	2.5	4.3	6.8	8.4	11.0	12.7	15.1	20.4	21.0	0.27	17
18	314	0.0	22.29				1.2	2.5	4.2	5.9	7.4	8.7	10.9	13.5	14.0	0.32	18
19	296	0.0	33.45				0.7	1.7	3.1	4.0	5.1	5.9	7.0	9.6	10.0	0.34	19
20	296	0.0	37.50				0.4	1.2	2.2	2.7	3.8	5.7	7.3	8.6	9.0	0.34	20
21	288	0.0	47.57				0.0	0.8	1.6	2.0	2.9	3.9	5.1	7.8	8.0	0.69	21
22	283	0.0	50.53					0.6	1.4	1.9	2.6	3.8	4.7	7.6	8.0	0.35	22
23	277	0.0	51.99					0.6	1.5	1.9	2.8	3.7	4.6	6.6	7.0	0.36	23
24	282	0.0	44.68				0.1	0.8	1.8	2.5	3.4	4.7	7.1	8.8	9.0	0.71	24
25	306	0.0	42.48				0.2	0.9	1.8	2.3	2.8	3.8	4.7	7.5	8.0	0.33	25
26	302	0.0	44.70				0.2	0.9	1.7	2.2	2.9	3.6	4.2	4.8	5.0	1.32	26
27	310	0.0	45.81				0.1	0.8	1.8	2.5	3.3	4.1	4.8	6.7	7.0	0.65	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-11 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

OCTOBER

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL
620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS:
meters/second

Alt. (MSL) km	No. of Sly Winds	Min. Speed.	Pct. Freq	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	357	0.0	48.74				0.0	0.7	1.6	1.9	2.6	2.9	3.7	5.5	6.0	0.28	sfc
1	329	0.0	37.69				0.4	1.0	2.0	2.7	3.5	4.3	4.8	6.7	7.0	0.61	1
2	300	0.0	24.33				1.2	2.2	3.9	5.0	7.0	8.8	10.3	11.5	12.0	0.33	2
3	257	0.0	18.29				2.3	3.6	5.7	7.4	9.2	12.0	12.6	14.6	15.0	0.39	3
4	240	0.0	12.50			0.2	3.1	4.7	7.3	8.8	11.2	11.9	13.8	16.6	17.0	0.42	4
5	255	0.0	14.12			0.1	3.1	5.3	7.8	9.1	12.4	15.7	19.4	22.6	23.0	0.39	5
6	259	0.0	10.81			0.4	3.4	6.2	8.9	11.5	13.7	19.0	22.1	22.8	23.0	1.16	6
7	253	0.0	10.67			0.6	4.3	6.5	11.4	13.9	18.1	24.1	26.4	31.6	32.0	0.40	7
8	267	0.0	7.49			0.8	4.3	7.2	13.1	16.0	20.8	23.9	27.6	37.6	38.0	0.37	8
9	271	0.0	6.27			0.9	5.8	8.9	15.2	17.9	25.2	30.2	31.2	44.6	45.0	0.37	9
10	273	0.0	8.42			1.1	6.2	9.5	16.6	19.8	26.5	31.7	38.1	41.6	42.0	0.37	10
11	280	0.0	9.64			0.9	6.0	10.4	17.4	21.6	25.6	29.8	35.1	42.6	43.0	0.36	11
12	301	0.0	6.98			0.9	5.5	9.1	16.0	18.5	22.2	26.6	27.9	46.5	47.0	0.33	12
13	324	0.0	8.33			0.8	5.3	8.7	13.4	17.3	19.7	22.5	25.3	28.5	29.0	0.31	13
14	331	0.0	9.37			0.8	5.3	7.8	11.9	14.4	17.8	20.2	22.6	26.5	27.0	0.30	14
15	341	0.0	9.97			0.7	4.2	6.6	9.3	10.9	13.7	16.2	18.8	20.5	21.0	0.29	15
16	332	0.0	12.05			0.4	3.9	5.9	8.0	9.0	11.8	14.2	15.5	20.5	21.0	0.30	16
17	321	0.0	14.64			0.1	2.9	4.6	6.2	7.1	8.5	10.3	11.9	12.8	13.0	0.93	17
18	314	0.0	18.79				1.6	3.1	4.8	5.8	6.7	8.2	9.2	9.8	10.0	1.27	18
19	271	0.0	19.19				1.4	2.4	3.8	4.6	5.6	6.6	7.8	8.8	9.0	0.74	19
20	254	0.0	28.74				0.9	1.8	3.0	3.8	4.7	5.6	6.7	9.6	10.0	0.39	20
21	250	0.0	35.60				0.5	1.4	2.6	3.3	4.3	5.2	5.9	7.6	8.0	0.40	21
22	261	0.0	36.40				0.4	1.2	2.4	3.0	4.4	5.7	7.3	8.8	9.0	0.77	22
23	272	0.0	31.99				0.6	1.3	2.3	3.3	4.6	5.5	6.4	8.6	9.0	0.37	23
24	281	0.0	34.52				0.6	1.4	2.3	2.9	3.7	4.7	5.5	6.6	7.0	0.36	24
25	309	0.0	31.39				0.7	1.5	2.5	3.2	4.4	5.6	6.3	7.5	8.0	0.32	25
26	299	0.0	30.10				0.8	1.6	2.8	3.5	4.6	6.2	8.0	9.5	10.0	0.33	26
27	309	0.0	31.72				0.9	1.8	3.2	3.7	4.7	5.7	7.4	8.7	9.0	0.65	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-12 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION
SANTA MONICA, CALIFORNIA
NOVEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed.	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	247	0.0	51.82					0.6	1.4	1.8	2.5	3.1	4.2	14.6	15.0	0.40	sfc
1	257	0.0	40.47				0.2	0.8	1.9	2.7	3.9	7.5	8.8	11.6	12.0	0.39	1
2	217	0.0	32.72				0.9	1.9	4.5	6.3	9.1	12.0	13.9	16.7	17.0	0.46	2
3	188	0.0	20.74				1.3	2.7	7.2	9.8	13.1	14.8	21.1	23.7	24.0	0.53	3
4	174	0.0	23.56				1.6	3.4	10.4	13.9	20.3	29.0	30.2	32.7	33.0	0.57	4
5	168	0.0	11.90			0.3	3.2	5.0	13.2	17.5	22.5	27.1	33.3	38.7	39.0	0.60	5
6	186	0.0	13.98			0.1	3.2	5.8	13.4	20.7	25.7	29.7	33.1	34.7	35.0	0.54	6
7	208	0.0	15.38			0.0	3.2	6.5	13.5	19.5	27.6	38.1	40.9	50.7	51.0	0.48	7
8	223	0.0	12.56			0.3	4.1	7.4	14.5	22.8	30.4	34.9	43.3	45.6	46.0	0.45	8
9	222	0.0	8.56			0.7	5.0	9.7	18.7	25.4	34.2	36.9	40.7	44.7	45.0	0.45	9
10	228	0.0	9.21			0.7	4.9	11.3	20.2	25.2	32.6	37.8	44.8	47.8	48.0	0.88	10
11	232	0.0	4.74			1.6	5.5	11.7	22.2	26.2	30.7	35.2	36.6	41.6	42.0	0.43	11
12	236	0.0	7.20			0.9	6.0	10.3	20.6	25.3	28.0	30.6	33.6	35.6	36.0	0.42	12
13	244	0.0	5.74			1.5	5.8	10.1	18.0	22.5	26.3	27.8	30.5	32.6	33.0	0.41	13
14	242	0.0	12.81			0.5	4.9	8.5	16.1	19.9	23.9	27.2	30.2	35.6	36.0	0.41	14
15	235	0.0	9.79			0.4	4.2	7.0	14.7	17.6	21.6	24.8	30.6	35.6	36.0	0.43	15
16	215	0.0	14.42			0.1	3.3	6.5	13.2	15.3	16.8	21.6	23.8	26.7	27.0	0.47	16
17	189	0.0	16.93				3.0	6.2	9.3	10.8	12.7	14.6	19.1	26.7	27.0	0.53	17
18	176	0.0	21.02				2.5	4.7	7.0	7.8	11.1	15.9	17.2	18.7	19.0	0.57	18
19	173	0.0	21.39				1.9	3.7	5.7	6.9	8.8	14.0	17.6	20.7	21.0	0.58	19
20	188	0.0	22.87				1.3	2.7	4.5	5.6	7.8	9.7	13.1	16.7	17.0	0.53	20
21	202	0.0	28.22				0.9	2.1	3.3	4.2	5.6	7.1	7.9	13.8	14.0	0.99	21
22	213	0.0	27.70				0.8	1.7	3.1	4.3	5.5	6.7	7.9	8.8	9.0	0.94	22
23	225	0.0	30.22				0.8	1.7	3.9	4.7	5.7	6.6	7.7	17.6	18.0	0.44	23
24	224	0.0	30.80				0.7	1.8	4.3	5.9	7.9	9.3	9.9	12.6	13.0	0.45	24
25	228	0.0	30.70				0.8	2.0	5.0	6.1	7.7	9.5	12.2	12.8	13.0	1.32	25
26	211	0.0	22.27				1.6	2.9	5.1	6.2	8.1	10.5	11.9	12.8	13.0	0.95	26
27	227	0.0	22.03				1.6	3.0	4.9	7.7	9.7	11.4	11.9	15.6	16.0	0.44	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VII-13 DISTRIBUTION OF SOUTHERLY WINDS

SOUTHERLY WIND DISTRIBUTION

SANTA MONICA, CALIFORNIA

DECEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N. 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: meters/second

Alt. (MSL) km	No. of S'ly Winds	Min. Speed	Pct. Freq.	CUMULATIVE PERCENTAGE FREQUENCY											Max. Speed	Pct. Freq.	Alt. (MSL) km
				0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc	207	0.0	50.24					0.7	1.5	1.8	2.3	2.8	3.9	4.8	5.0	0.97	sfc
1	248	0.0	38.31				0.4	1.0	2.2	2.8	5.5	9.0	9.8	13.6	14.0	0.40	1
2	222	0.0	21.17				1.4	2.6	4.8	6.3	8.6	11.4	13.3	15.7	16.0	0.45	2
3	210	0.0	14.29			0.0	2.2	4.0	6.5	8.6	12.2	14.7	15.9	19.8	20.0	0.95	3
4	204	0.0	13.73			0.1	3.2	4.9	8.7	10.5	12.9	17.1	20.9	26.7	27.0	0.49	4
5	225	0.0	10.22			0.3	3.4	6.3	9.4	12.2	15.6	18.9	21.3	24.6	25.0	0.44	5
6	247	0.0	12.15			0.3	3.9	6.8	10.7	13.1	16.1	17.8	25.2	30.6	31.0	0.40	6
7	244	0.0	8.20			0.7	5.0	7.8	12.6	15.1	19.9	25.4	27.7	38.6	39.0	0.41	7
8	237	0.0	5.91			0.9	5.8	9.6	15.5	20.0	25.7	30.2	33.6	37.6	38.0	0.42	8
9	231	0.0	11.26			0.6	7.2	11.6	18.5	21.8	29.2	36.2	37.6	43.6	44.0	0.43	9
10	219	0.0	5.02			1.4	8.3	13.4	20.7	26.0	33.0	37.0	42.8	52.7	53.0	0.46	10
11	226	0.0	8.85			1.7	8.9	12.9	21.3	25.3	31.6	38.9	45.8	56.6	57.0	0.44	11
12	249	0.0	9.64			0.7	7.6	12.0	18.7	23.7	31.7	36.6	43.7	45.8	46.0	0.80	12
13	251	0.0	10.36			0.7	6.5	10.7	16.2	20.1	24.1	29.2	31.4	36.6	37.0	0.40	13
14	256	0.0	7.42			1.0	5.3	9.3	13.8	17.4	19.9	23.0	25.4	29.6	30.0	0.39	14
15	253	0.0	9.88			0.6	5.1	8.3	11.8	13.7	16.1	20.1	22.4	26.6	27.0	0.40	15
16	241	0.0	9.54			0.6	4.2	6.6	9.6	11.2	13.4	14.9	20.7	21.8	22.0	0.83	16
17	226	0.0	14.60			0.1	3.5	5.2	7.6	9.0	11.1	12.9	16.7	23.6	24.0	0.44	17
18	215	0.0	18.60				2.1	3.9	5.5	6.7	7.9	11.0	13.8	15.7	16.0	0.47	18
19	180	0.0	27.22				1.2	2.5	4.1	4.9	7.0	7.9	9.6	16.7	17.0	0.56	19
20	145	0.0	28.28				0.8	1.7	3.6	4.4	5.5	6.4	6.8	7.8	8.0	0.69	20
21	134	0.0	33.58				0.7	1.6	2.6	3.2	4.3	4.8	6.6	7.8	8.0	0.75	21
22	111	0.0	35.14				0.4	1.0	2.8	3.5	4.2	4.8	5.4	5.9	6.0	1.80	22
23	116	0.0	35.34				0.4	0.9	2.3	3.2	4.4	5.1	5.6	5.9	6.0	2.59	23
24	109	0.0	26.61				0.7	1.4	2.4	3.2	4.6	7.5	8.9	9.8	10.0	0.92	24
25	126	0.0	42.06				0.3	1.2	2.4	3.0	3.9	5.5	6.7	14.8	15.0	0.79	25
26	113	0.0	36.28				0.5	1.3	2.3	3.1	3.9	5.4	6.4	6.9	7.0	1.77	26
27	134	0.0	35.07				0.6	1.4	2.4	3.0	4.1	5.3	5.8	7.8	8.0	0.75	27

NOTE: (1) When the percent frequency of minimum speed exceeded 2.28 and/or 0.135 cumulative percentage frequency, the speed associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII Page

Distribution of Vector Wind Shears

Unit: inverse second (sec^{-1}) per 1000 meter layer of altitude

TABLE VIII-1 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

ANNUAL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: Inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0003	.0020	.0041	.0052	.0070	.0080	.0095	.0113	.0132	.0178	.0239	0.01	sfc- 1.0
1.0- 2.0		.0008	.0021	.0045	.0059	.0079	.0090	.0105	.0123	.0143	.0198	.0219	0.01	1.0- 2.0
2.0- 3.0		.0008	.0020	.0043	.0057	.0075	.0087	.0103	.0127	.0150	.0224	.0308	0.01	2.0- 3.0
3.0- 4.0		.0006	.0019	.0039	.0051	.0070	.0082	.0099	.0121	.0150	.0236	.0342	0.01	3.0- 4.0
4.0- 5.0		.0006	.0018	.0037	.0049	.0066	.0079	.0095	.0119	.0148	.0224	.0356	0.01	4.0- 5.0
5.0- 6.0		.0005	.0017	.0036	.0049	.0066	.0077	.0094	.0119	.0150	.0259	.0357	0.01	5.0- 6.0
6.0- 7.0		.0004	.0017	.0035	.0049	.0067	.0080	.0100	.0127	.0161	.0261	.0388	0.01	6.0- 7.0
7.0- 8.0		.0004	.0017	.0038	.0051	.0070	.0082	.0102	.0131	.0168	.0250	.0371	0.01	7.0- 8.0
8.0- 9.0		.0005	.0017	.0039	.0052	.0073	.0089	.0111	.0138	.0161	.0254	.0352	0.01	8.0- 9.0
9.0-10.0		.0006	.0019	.0041	.0059	.0081	.0098	.0123	.0157	.0196	.0293	.0358	0.01	9.0-10.0
10.0-11.0		.0006	.0020	.0044	.0061	.0087	.0104	.0132	.0162	.0201	.0299	.0380	0.01	10.0-11.0
11.0-12.0		.0006	.0020	.0046	.0063	.0091	.0108	.0136	.0167	.0199	.0271	.0397	0.01	11.0-12.0
12.0-13.0		.0009	.0021	.0049	.0067	.0094	.0112	.0139	.0168	.0205	.0282	.0387	0.01	12.0-13.0
13.0-14.0		.0008	.0021	.0049	.0066	.0091	.0108	.0133	.0160	.0194	.0288	.0414	0.01	13.0-14.0
14.0-15.0		.0009	.0021	.0047	.0063	.0089	.0101	.0123	.0148	.0173	.0256	.0380	0.01	14.0-15.0
15.0-16.0		.0008	.0020	.0044	.0060	.0080	.0095	.0114	.0136	.0157	.0220	.0305	0.01	15.0-16.0
16.0-17.0		.0008	.0020	.0045	.0060	.0080	.0093	.0111	.0133	.0159	.0216	.0288	0.01	16.0-17.0
17.0-18.0		.0008	.0020	.0042	.0056	.0073	.0085	.0102	.0126	.0153	.0215	.0270	0.01	17.0-18.0
18.0-19.0		.0006	.0019	.0038	.0050	.0066	.0076	.0091	.0112	.0139	.0201	.0252	0.01	18.0-19.0
19.0-20.0		.0003	.0013	.0031	.0042	.0057	.0067	.0082	.0101	.0122	.0200	.0321	0.01	19.0-20.0
20.0-21.0		.0002	.0011	.0028	.0037	.0050	.0059	.0073	.0090	.0109	.0176	.0379	0.01	20.0-21.0
21.0-22.0		.0001	.0012	.0026	.0035	.0048	.0055	.0069	.0082	.0100	.0172	.0214	0.01	21.0-22.0
22.0-23.0			.0010	.0023	.0032	.0045	.0052	.0063	.0078	.0094	.0152	.0246	0.01	22.0-23.0
23.0-24.0			.0011	.0024	.0033	.0045	.0052	.0065	.0081	.0102	.0171	.0296	0.01	23.0-24.0
24.0-25.0			.0011	.0024	.0033	.0045	.0052	.0064	.0078	.0099	.0148	.0257	0.01	24.0-25.0
25.0-26.0			.0011	.0024	.0033	.0048	.0056	.0070	.0088	.0107	.0153	.0214	0.01	25.0-26.0
26.0-27.0			.0011	.0024	.0034	.0047	.0055	.0068	.0081	.0098	.0169	.0283	0.01	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-2 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JANUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0020	.0042	.0059	.0074	.0091	.0107	.0135	.0158	.0179	.0179	0.32	sfc- 1.0
1.0- 2.0		.0009	.0023	.0051	.0066	.0090	.0102	.0120	.0131	.0144	.0203	.0204	0.16	1.0- 2.0
2.0- 3.0		.0009	.0025	.0054	.0070	.0099	.0109	.0130	.0148	.0169	.0307	.0308	0.16	2.0- 3.0
3.0- 4.0		.0009	.0021	.0046	.0061	.0085	.0098	.0123	.0149	.0164	.0279	.0280	0.16	3.0- 4.0
4.0- 5.0		.0009	.0022	.0046	.0061	.0080	.0099	.0119	.0147	.0155	.0289	.0290	0.16	4.0- 5.0
5.0- 6.0		.0008	.0020	.0043	.0060	.0079	.0095	.0122	.0150	.0186	.0239	.0240	0.16	5.0- 6.0
6.0- 7.0		.0005	.0020	.0043	.0062	.0081	.0100	.0129	.0161	.0205	.0279	.0280	0.16	6.0- 7.0
7.0- 8.0		.0004	.0021	.0046	.0064	.0087	.0102	.0131	.0171	.0194	.0250	.0251	0.16	7.0- 8.0
8.0- 9.0		.0006	.0021	.0048	.0065	.0096	.0110	.0135	.0158	.0188	.0351	.0352	0.16	8.0- 9.0
9.0-10.0		.0008	.0022	.0051	.0070	.0100	.0121	.0159	.0186	.0225	.0299	.0300	0.16	9.0-10.0
10.0-11.0		.0009	.0023	.0055	.0077	.0107	.0129	.0157	.0201	.0264	.0326	.0327	0.16	10.0-11.0
11.0-12.0		.0002	.0025	.0059	.0080	.0112	.0135	.0177	.0209	.0238	.0329	.0330	0.16	11.0-12.0
12.0-13.0		.0010	.0030	.0062	.0090	.0119	.0144	.0178	.0225	.0247	.0291	.0292	0.16	12.0-13.0
13.0-14.0		.0009	.0029	.0061	.0081	.0109	.0127	.0154	.0195	.0231	.0287	.0288	0.16	13.0-14.0
14.0-15.0		.0008	.0024	.0057	.0079	.0102	.0120	.0148	.0190	.0234	.0339	.0340	0.16	14.0-15.0
15.0-16.0		.0008	.0022	.0050	.0072	.0100	.0116	.0139	.0159	.0199	.0249	.0250	0.16	15.0-16.0
16.0-17.0		.0009	.0023	.0050	.0067	.0091	.0103	.0125	.0143	.0169	.0287	.0288	0.16	16.0-17.0
17.0-18.0		.0008	.0020	.0051	.0068	.0087	.0104	.0140	.0160	.0181	.0223	.0224	0.16	17.0-18.0
18.0-19.0		.0009	.0021	.0045	.0062	.0080	.0091	.0115	.0148	.0191	.0240	.0241	0.16	18.0-19.0
19.0-20.0		.0007	.0016	.0039	.0051	.0070	.0082	.0105	.0125	.0152	.0200	.0201	0.16	19.0-20.0
20.0-21.0		.0002	.0016	.0031	.0042	.0058	.0068	.0086	.0102	.0123	.0174	.0175	0.16	20.0-21.0
21.0-22.0			.0011	.0025	.0037	.0050	.0059	.0074	.0091	.0108	.0134	.0135	0.16	21.0-22.0
22.0-23.0			.0011	.0026	.0037	.0051	.0060	.0073	.0092	.0115	.0207	.0208	0.16	22.0-23.0
23.0-24.0			.0010	.0026	.0035	.0048	.0056	.0072	.0088	.0098	.0123	.0124	0.16	23.0-24.0
24.0-25.0			.0010	.0027	.0039	.0051	.0057	.0066	.0084	.0114	.0164	.0165	0.16	24.0-25.0
25.0-26.0			.0011	.0029	.0040	.0055	.0067	.0083	.0099	.0113	.0156	.0157	0.16	25.0-26.0
26.0-27.0			.0011	.0030	.0040	.0052	.0061	.0072	.0088	.0095	.0176	.0177	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-3 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

FEBRUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: Inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0017	.0041	.0055	.0080	.0092	.0113	.0137	.0161	.0210	.0211	0.18	sfc- 1.0
1.0- 2.0		.0009	.0022	.0050	.0067	.0089	.0100	.0119	.0145	.0173	.0217	.0218	0.18	1.0- 2.0
2.0- 3.0		.0009	.0026	.0054	.0069	.0089	.0100	.0123	.0145	.0162	.0272	.0273	0.18	2.0- 3.0
3.0- 4.0		.0008	.0023	.0046	.0060	.0082	.0095	.0120	.0149	.0168	.0224	.0225	0.18	3.0- 4.0
4.0- 5.0		.0005	.0020	.0047	.0060	.0081	.0092	.0115	.0150	.0188	.0240	.0241	0.18	4.0- 5.0
5.0- 6.0		.0006	.0020	.0044	.0059	.0080	.0098	.0129	.0155	.0207	.0293	.0294	0.18	5.0- 6.0
6.0- 7.0		.0004	.0019	.0043	.0061	.0084	.0100	.0129	.0164	.0189	.0261	.0262	0.18.	6.0- 7.0
7.0- 8.0		.0009	.0021	.0049	.0068	.0088	.0104	.0134	.0174	.0224	.0270	.0271	0.18	7.0- 8.0
8.0- 9.0		.0001	.0020	.0050	.0069	.0096	.0119	.0135	.0170	.0193	.0229	.0230	0.18	8.0- 9.0
9.0-10.0		.0003	.0020	.0050	.0071	.0104	.0132	.0167	.0220	.0244	.0318	.0319	0.18	9.0-10.0
10.0-11.0		.0009	.0025	.0059	.0083	.0126	.0148	.0180	.0227	.0252	.0335	.0336	0.18	10.0-11.0
11.0-12.0		.0008	.0027	.0067	.0087	.0119	.0137	.0164	.0209	.0242	.0333	.0334	0.18	11.0-12.0
12.0-13.0		.0009	.0028	.0063	.0088	.0120	.0140	.0164	.0194	.0230	.0386	.0387	0.18	12.0-13.0
13.0-14.0		.0009	.0029	.0059	.0081	.0112	.0133	.0153	.0189	.0217	.0413	.0414	0.18	13.0-14.0
14.0-15.0		.0009	.0021	.0055	.0077	.0108	.0130	.0151	.0176	.0221	.0346	.0347	0.18	14.0-15.0
15.0-16.0		.0003	.0021	.0051	.0072	.0101	.0120	.0140	.0171	.0209	.0304	.0305	0.18	15.0-16.0
16.0-17.0		.0009	.0022	.0050	.0067	.0088	.0104	.0129	.0163	.0181	.0212	.0213	0.18	16.0-17.0
17.0-18.0		.0009	.0022	.0050	.0068	.0090	.0102	.0126	.0160	.0184	.0259	.0260	0.18	17.0-18.0
18.0-19.0		.0003	.0021	.0048	.0059	.0080	.0090	.0109	.0131	.0151	.0209	.0210	0.18	18.0-19.0
19.0-20.0		.0003	.0019	.0036	.0050	.0072	.0083	.0098	.0121	.0133	.0288	.0289	0.18	19.0-20.0
20.0-21.0			.0013	.0030	.0043	.0061	.0073	.0094	.0119	.0179	.0378	.0379	0.18	20.0-21.0
21.0-22.0		.0001	.0011	.0029	.0038	.0053	.0062	.0074	.0091	.0100	.0172	.0173	0.18	21.0-22.0
22.0-23.0			.0010	.0024	.0033	.0048	.0056	.0066	.0081	.0106	.0245	.0246	0.18	22.0-23.0
23.0-24.0			.0010	.0025	.0035	.0047	.0059	.0074	.0091	.0120	.0250	.0251	0.18	23.0-24.0
24.0-25.0			.0010	.0027	.0037	.0050	.0058	.0071	.0092	.0116	.0221	.0222	0.18	24.0-25.0
25.0-26.0			.0010	.0029	.0039	.0054	.0064	.0090	.0108	.0135	.0154	.0155	0.18	25.0-26.0
26.0-27.0			.0011	.0030	.0040	.0057	.0071	.0089	.0101	.0122	.0181	.0182	0.18	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-4 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

SANTA MONICA, CALIFORNIA

MARCH

NO. OF OBS. FOR EACH LEVEL: 620

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0020	.0043	.0060	.0080	.0094	.0113	.0125	.0143	.0234	.0235	0.16	sfc- 1.0
1.0- 2.0		.0009	.0021	.0046	.0060	.0085	.0100	.0116	.0144	.0167	.0215	.0216	0.16	1.0- 2.0
2.0- 3.0		.0007	.0021	.0049	.0063	.0083	.0096	.0119	.0139	.0185	.0244	.0245	0.16	2.0- 3.0
3.0- 4.0		.0006	.0021	.0042	.0054	.0072	.0083	.0100	.0120	.0144	.0232	.0233	0.16	3.0- 4.0
4.0- 5.0		.0004	.0019	.0037	.0050	.0064	.0076	.0091	.0110	.0130	.0213	.0214	0.16	4.0- 5.0
5.0- 6.0		.0007	.0019	.0038	.0051	.0069	.0080	.0097	.0110	.0154	.0343	.0344	0.16	5.0- 6.0
6.0- 7.0			.0015	.0034	.0049	.0065	.0077	.0092	.0121	.0162	.0320	.0321	0.16	6.0- 7.0
7.0- 8.0		.0005	.0019	.0041	.0056	.0077	.0086	.0110	.0130	.0169	.0229	.0230	0.16	7.0- 8.0
8.0- 9.0		.0006	.0019	.0040	.0058	.0081	.0100	.0120	.0152	.0192	.0301	.0302	0.16	8.0- 9.0
9.0-10.0		.0006	.0020	.0050	.0069	.0100	.0129	.0174	.0220	.0270	.0340	.0341	0.16	9.0-10.0
10.0-11.0		.0009	.0023	.0053	.0075	.0112	.0139	.0174	.0210	.0241	.0379	.0380	0.16	10.0-11.0
11.0-12.0		.0009	.0022	.0052	.0075	.0103	.0120	.0152	.0173	.0190	.0310	.0311	0.16	11.0-12.0
12.0-13.0		.0009	.0024	.0056	.0077	.0105	.0121	.0151	.0181	.0217	.0312	.0313	0.16	12.0-13.0
13.0-14.0		.0007	.0021	.0050	.0069	.0095	.0110	.0137	.0183	.0234	.0303	.0304	0.16	13.0-14.0
14.0-15.0		.0009	.0020	.0049	.0062	.0080	.0097	.0110	.0132	.0170	.0224	.0225	0.16	14.0-15.0
15.0-16.0		.0002	.0020	.0042	.0057	.0074	.0090	.0106	.0120	.0138	.0190	.0191	0.16	15.0-16.0
16.0-17.0		.0007	.0020	.0045	.0060	.0082	.0094	.0120	.0139	.0171	.0190	.0191	0.16	16.0-17.0
17.0-18.0		.0010	.0022	.0048	.0060	.0079	.0090	.0102	.0122	.0134	.0257	.0258	0.16	17.0-18.0
18.0-19.0		.0009	.0022	.0044	.0059	.0073	.0081	.0095	.0108	.0130	.0251	.0252	0.16	18.0-19.0
19.0-20.0		.0003	.0019	.0040	.0050	.0065	.0072	.0087	.0110	.0139	.0170	.0171	0.16	19.0-20.0
20.0-21.0		.0001	.0014	.0031	.0042	.0057	.0067	.0080	.0097	.0116	.0150	.0151	0.16	20.0-21.0
21.0-22.0			.0010	.0025	.0036	.0050	.0059	.0072	.0089	.0100	.01686	.01695	0.16	21.0-22.0
22.0-23.0		.0001	.0010	.0023	.0033	.0046	.0053	.0067	.0087	.0103	.01526	.01535	0.16	22.0-23.0
23.0-24.0		.0001	.0010	.0022	.0032	.0048	.0057	.0069	.0077	.0085	.01716	.01725	0.16	23.0-24.0
24.0-25.0			.0010	.0024	.0034	.0047	.0054	.0068	.0081	.0092	.01116	.01125	0.16	24.0-25.0
25.0-26.0			.0010	.0022	.0032	.0049	.0059	.0072	.0093	.0131	.01996	.02005	0.16	25.0-26.0
26.0-27.0			.0010	.0022	.0030	.0042	.0051	.0069	.0084	.0094	.01656	.01665	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-5 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

APRIL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0002	.0020	.0042	.0058	.0077	.0087	.0104	.0122	.0134	.0180	.0181	0.17	sfc- 1.0
1.0- 2.0		.0008	.0023	.0049	.0064	.0082	.0095	.0109	.0133	.0149	.0218	.0219	0.17	1.0- 2.0
2.0- 3.0		.0009	.0020	.0047	.0060	.0078	.0090	.0105	.0131	.0164	.0262	.0263	0.17	2.0- 3.0
3.0- 4.0		.0008	.0020	.0040	.0053	.0072	.0082	.0100	.0119	.0165	.0295	.0296	0.17	3.0- 4.0
4.0- 5.0		.0009	.0021	.0042	.0056	.0073	.0083	.0103	.0129	.0170	.0302	.0303	0.17	4.0- 5.0
5.0- 6.0		.0003	.0017	.0038	.0051	.0070	.0083	.0104	.0135	.0175	.0265	.0266	0.17	5.0- 6.0
6.0- 7.0		.0005	.0019	.0039	.0051	.0069	.0080	.0109	.0142	.0200	.0326	.0327	0.17	6.0- 7.0
7.0- 8.0		.0004	.0015	.0037	.0050	.0072	.0090	.0114	.0151	.0179	.0370	.0371	0.17	7.0- 8.0
8.0- 9.0		.0004	.0015	.0039	.0052	.0072	.0085	.0110	.0136	.0150	.0182	.0183	0.17	8.0- 9.0
9.0-10.0		.0005	.0020	.0041	.0059	.0081	.0096	.0116	.0134	.0182	.0298	.0299	0.17	9.0-10.0
10.0-11.0		.0003	.0019	.0041	.0058	.0082	.0099	.0128	.0148	.0177	.0273	.0274	0.17	10.0-11.0
11.0-12.0		.0003	.0021	.0045	.0063	.0089	.0103	.0121	.0144	.0173	.0322	.0323	0.17	11.0-12.0
12.0-13.0		.0009	.0022	.0055	.0072	.0100	.0118	.0144	.0160	.0212	.0259	.0260	0.17	12.0-13.0
13.0-14.0		.0006	.0020	.0049	.0068	.0094	.0110	.0148	.0172	.0202	.0343	.0344	0.17	13.0-14.0
14.0-15.0		.0009	.0020	.0043	.0061	.0087	.0098	.0115	.0134	.0149	.0171	.0172	0.17	14.0-15.0
15.0-16.0		.0006	.0019	.0040	.0052	.0070	.0082	.0100	.0122	.0154	.0250	.0251	0.17	15.0-16.0
16.0-17.0		.0005	.0019	.0042	.0059	.0080	.0091	.0111	.0159	.0198	.0259	.0260	0.17	16.0-17.0
17.0-18.0		.0007	.0021	.0043	.0059	.0075	.0090	.0105	.0123	.0149	.0230	.0231	0.17	17.0-18.0
18.0-19.0		.0008	.0020	.0040	.0052	.0071	.0080	.0093	.0110	.0135	.0201	.0202	0.17	18.0-19.0
19.0-20.0		.0003	.0014	.0033	.0042	.0059	.0066	.0086	.0102	.0113	.0141	.0142	0.17	19.0-20.0
20.0-21.0		.0002	.0012	.0030	.0042	.0058	.0065	.0077	.0089	.0103	.0179	.0180	0.17	20.0-21.0
21.0-22.0		.0002	.0011	.0026	.0037	.0052	.0062	.0079	.0101	.0149	.0199	.0200	0.17	21.0-22.0
22.0-23.0			.0010	.0024	.0036	.0050	.0058	.0071	.0086	.0119	.0145	.0146	0.17	22.0-23.0
23.0-24.0			.0010	.0024	.0033	.0047	.0059	.0080	.0102	.0122	.0169	.0170	0.17	23.0-24.0
24.0-25.0			.0009	.0021	.0031	.0046	.0056	.0069	.0081	.0103	.0146	.0147	0.17	24.0-25.0
25.0-26.0			.0009	.0021	.0031	.0048	.0056	.0076	.0094	.0117	.0143	.0144	0.17	25.0-26.0
26.0-27.0			.0009	.0022	.0033	.0050	.0061	.0078	.0100	.0124	.0185	.0186	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-6 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

MAY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MAY

STATION ELEVATION: 185 feet or 56.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aerobalistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY										Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0020	.0042	.0053	.0069	.0078	.0089	.0107	.0126	.0176	.0177	0.16	sfc- 1.0
1.0- 2.0	.0001	.0008	.0024	.0052	.0067	.0083	.0098	.0108	.0122	.0136	.0192	.0193	0.16	1.0- 2.0
2.0- 3.0	.0001	.0009	.0021	.0046	.0059	.0074	.0087	.0100	.0121	.0135	.0183	.0184	0.16	2.0- 3.0
3.0- 4.0		.0004	.0020	.0041	.0053	.0074	.0086	.0103	.0120	.0145	.0213	.0214	0.16	3.0- 4.0
4.0- 5.0		.0006	.0019	.0038	.0050	.0069	.0081	.0098	.0117	.0158	.0214	.0215	0.16	4.0- 5.0
5.0- 6.0		.0005	.0017	.0036	.0049	.0065	.0079	.0098	.0117	.0157	.0266	.0267	0.16	5.0- 6.0
6.0- 7.0		.0006	.0016	.0035	.0047	.0065	.0077	.0102	.0126	.0162	.0276	.0277	0.16	6.0- 7.0
7.0- 8.0		.0003	.0015	.0038	.0050	.0065	.0073	.0090	.0113	.0134	.0299	.0300	0.16	7.0- 8.0
8.0- 9.0		.0006	.0016	.0036	.0051	.0075	.0089	.0103	.0128	.0165	.0305	.0306	0.16	8.0- 9.0
9.0-10.0		.0009	.0019	.0040	.0057	.0078	.0089	.0112	.0140	.0170	.0228	.0229	0.16	9.0-10.0
10.0-11.0		.0009	.0019	.0041	.0056	.0076	.0088	.0124	.0141	.0161	.0314	.0315	0.16	10.0-11.0
11.0-12.0		.0006	.0020	.0042	.0059	.0085	.0102	.0130	.0151	.0189	.0396	.0397	0.16	11.0-12.0
12.0-13.0		.0009	.0023	.0049	.0066	.0088	.0108	.0131	.0151	.0180	.0329	.0330	0.16	12.0-13.0
13.0-14.0		.0009	.0022	.0047	.0068	.0090	.0103	.0131	.0146	.0173	.0332	.0333	0.16	13.0-14.0
14.0-15.0		.0005	.0021	.0046	.0062	.0082	.0099	.0120	.0140	.0150	.0179	.0180	0.16	14.0-15.0
15.0-16.0		.0007	.0020	.0045	.0059	.0079	.0094	.0110	.0131	.0152	.0189	.0190	0.16	15.0-16.0
16.0-17.0		.0009	.0020	.0046	.0059	.0080	.0090	.0103	.0127	.0150	.0172	.0173	0.16	16.0-17.0
17.0-18.0		.0009	.0022	.0044	.0056	.0074	.0086	.0106	.0128	.0156	.0221	.0222	0.16	17.0-18.0
18.0-19.0		.0006	.0020	.0041	.0055	.0073	.0088	.0100	.0131	.0153	.0206	.0207	0.16	18.0-19.0
19.0-20.0	.0001	.0005	.0014	.0034	.0046	.0063	.0074	.0100	.0129	.0283	.0281	.0282	0.16	19,0-20.0
20.0-21.0		.0002	.0010	.0026	.0036	.0049	.0055	.0073	.0087	.0098	.0142	.0143	0.16	20.0-21.0
21.0-22.0		.0001	.0010	.0021	.0030	.0041	.0049	.0059	.0073	.0088	.0199	.0200	0.16	21.0-22.0
22.0-23.0			.0010	.0020	.0030	.0042	.0052	.0061	.0076	.0095	.0124	.0124	0.32	22.0-23.0
23.0-24.0			.0009	.0020	.0030	.0042	.0052	.0064	.0080	.0096	.0143	.0144	0.16	23.0-24.0
24.0-25.0			.0009	.0020	.0029	.0040	.0047	.0064	.0076	.0090	.0179	.0180	0.16	24.0-25.0
25.0-26.0			.0009	.0020	.0030	.0041	.0058	.0063	.0072	.0084	.0104	.0105	0.16	25.0-26.0
26.0-27.0			.0009	.0020	.0029	.0040	.0047	.0060	.0069	.0076	.0132	.0133	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-7 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JUNE

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0008	.0020	.0041	.0051	.0071	.0080	.0093	.0108	.0108	.0138	.0139	0.17	sfc- 1.0
1.0- 2.0	.0001	.0007	.0021	.0048	.0059	.0079	.0089	.0104	.0118	.0135	.0158	.0159	0.17	1.0- 2.0
2.0- 3.0	.0002	.0009	.0029	.0042	.0055	.0073	.0081	.0093	.0102	.0109	.0130	.0131	0.17	2.0- 3.0
3.0- 4.0		.0007	.0030	.0040	.0050	.0065	.0075	.0085	.0093	.0112	.0141	.0142	0.17	3.0- 4.0
4.0- 5.0		.0005	.0015	.0034	.0044	.0059	.0070	.0084	.0094	.0116	.0161	.0162	0.17	4.0- 5.0
5.0- 6.0		.0005	.0017	.0032	.0042	.0060	.0069	.0080	.0097	.0114	.0313	.0314	0.17	5.0- 6.0
6.0- 7.0		.0004	.0014	.0031	.0041	.0057	.0067	.0078	.0087	.0120	.0174	.0175	0.17	6.0- 7.0
7.0- 8.0	.0002	.0005	.0014	.0033	.0044	.0059	.0069	.0082	.0095	.0120	.0175	.0176	0.17	7.0- 8.0
8.0- 9.0		.0003	.0013	.0032	.0042	.0059	.0069	.0080	.0093	.0119	.0143	.0144	0.17	8.0- 9.0
9.0-10.0		.0005	.0017	.0037	.0051	.0070	.0079	.0095	.0120	.0147	.0170	.0171	0.17	9.0-10.0
10.0-11.0		.0005	.0019	.0040	.0051	.0070	.0081	.0100	.0114	.0122	.0164	.0165	0.17	10.0-11.0
11.0-12.0		.0007	.0019	.0040	.0052	.0072	.0089	.0109	.0130	.0158	.0205	.0206	0.17	11.0-12.0
12.0-13.0		.0004	.0021	.0043	.0058	.0082	.0093	.0110	.0132	.0159	.0281	.0282	0.17	12.0-13.0
13.0-14.0		.0009	.0021	.0048	.0063	.0087	.0100	.0124	.0149	.0160	.0231	.0232	0.17	13.0-14.0
14.0-15.0		.0008	.0021	.0047	.0065	.0089	.0102	.0120	.0143	.0172	.0259	.0260	0.17	14.0-15.0
15.0-16.0		.0009	.0022	.0047	.0063	.0086	.0102	.0119	.0130	.0153	.0202	.0203	0.17	15.0-16.0
16.0-17.0		.0009	.0023	.0050	.0068	.0090	.0105	.0120	.0137	.0145	.0164	.0165	0.17	16.0-17.0
17.0-18.0		.0007	.0023	.0047	.0059	.0077	.0085	.0104	.0123	.0149	.0205	.0206	0.17	17.0-18.0
18.0-19.0	.0001	.0006	.0019	.0040	.0051	.0066	.0076	.0094	.0118	.0146	.0193	.0194	0.17	18.0-19.0
19.0-20.0		.0002	.0023	.0031	.0040	.0053	.0063	.0074	.0089	.0098	.0150	.0151	0.17	19.0-20.0
20.0-21.0		.0002	.0012	.0025	.0034	.0045	.0051	.0066	.0076	.0084	.0125	.0126	0.17	20.0-21.0
21.0-22.0			.0010	.0022	.0031	.0042	.0048	.0057	.0068	.0081	.0101	.0102	0.17	21.0-22.0
22.0-23.0			.0009	.0021	.0030	.0040	.0048	.0058	.0069	.0082	.0128	.0129	0.17	22.0-23.0
23.0-24.0			.0009	.0020	.0030	.0040	.0046	.0058	.0070	.0110	.0295	.0296	0.17	23.0-24.0
24.0-25.0			.0009	.0020	.0029	.0040	.0048	.0055	.0071	.0105	.0142	.0143	0.17	24.0-25.0
25.0-26.0			.0009	.0020	.0026	.0039	.0047	.0057	.0070	.0085	.0134	.0135	0.17	25.0-26.0
26.0-27.0			.0009	.0020	.0030	.0040	.0045	.0054	.0064	.0070	.0104	.0105	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-8 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JULY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0008	.0020	.0037	.0048	.0062	.0071	.0082	.0098	.0111	.0164	.0165	0.16	sfc- 1.0
1.0- 2.0		.0008	.0019	.0040	.0055	.0069	.0078	.0091	.0103	.0116	.0161	.0162	0.16	1.0- 2.0
2.0- 3.0		.0003	.0019	.0036	.0047	.0061	.0070	.0082	.0093	.0111	.0130	.0131	0.16	2.0- 3.0
3.0- 4.0		.0003	.0016	.0034	.0044	.0059	.0068	.0079	.0093	.0102	.0140	.0140	0.32	3.0- 4.0
4.0- 5.0		.0005	.0015	.0031	.0041	.0054	.0061	.0072	.0086	.0105	.0164	.0165	0.16	4.0- 5.0
5.0- 6.0		.0003	.0014	.0033	.0043	.0056	.0063	.0072	.0087	.0100	.0127	.0128	0.16	5.0- 6.0
6.0- 7.0		.0005	.0015	.0030	.0041	.0057	.0068	.0081	.0092	.0110	.0155	.0156	0.16	6.0- 7.0
7.0- 8.0		.0002	.0013	.0030	.0040	.0055	.0063	.0080	.0096	.0115	.0157	.0158	0.16	7.0- 8.0
8.0- 9.0		.0005	.0013	.0030	.0040	.0059	.0069	.0081	.0092	.0107	.0139	.0140	0.16	8.0- 9.0
9.0-10.0		.0005	.0016	.0033	.0044	.0061	.0072	.0086	.0100	.0119	.0161	.0162	0.16	9.0-10.0
10.0-11.0		.0005	.0015	.0037	.0050	.0066	.0075	.0090	.0110	.0119	.0272	.0273	0.16	10.0-11.0
11.0-12.0		.0005	.0014	.0033	.0043	.0059	.0069	.0087	.0111	.0139	.0250	.0251	0.16	11.0-12.0
12.0-13.0		.0005	.0019	.0034	.0046	.0062	.0072	.0089	.0107	.0131	.0198	.0199	0.16	12.0-13.0
13.0-14.0		.0005	.0019	.0040	.0053	.0070	.0080	.0098	.0119	.0140	.0193	.0194	0.16	13.0-14.0
14.0-15.0		.0010	.0023	.0048	.0062	.0088	.0100	.0114	.0131	.0146	.0354	.0355	0.16	14.0-15.0
15.0-16.0		.0009	.0021	.0050	.0062	.0079	.0090	.0108	.0119	.0137	.0213	.0214	0.16	15.0-16.0
16.0-17.0	.0003	.0009	.0023	.0048	.0058	.0079	.0091	.0108	.0125	.0137	.0152	.0152	0.32	16.0-17.0
17.0-18.0	.0001	.0007	.0021	.0040	.0049	.0065	.0075	.0088	.0102	.0121	.0166	.0167	0.16	17.0-18.0
18.0-19.0		.0006	.0014	.0032	.0042	.0058	.0064	.0073	.0081	.0092	.0118	.0119	0.16	18.0-19.0
19.0-20.0		.0006	.0014	.0030	.0039	.0049	.0054	.0064	.0074	.0087	.0113	.0114	0.16	19.0-20.0
20.0-21.0		.0001	.0011	.0027	.0033	.0045	.0051	.0059	.0068	.0090	.0134	.0135	0.16	20.0-21.0
21.0-22.0		.0001	.0010	.0023	.0031	.0041	.0049	.0055	.0064	.0071	.0121	.0122	0.16	21.0-22.0
22.0-23.0			.0010	.0022	.0030	.0040	.0047	.0056	.0068	.0070	.0081	.0082	0.16	22.0-23.0
23.0-24.0			.0010	.0021	.0030	.0040	.0045	.0051	.0060	.0068	.0097	.0098	0.16	23.0-24.0
24.0-25.0			.0010	.0022	.0029	.0039	.0042	.0051	.0065	.0076	.0101	.0102	0.16	24.0-25.0
25.0-26.0			.0011	.0023	.0033	.0041	.0045	.0059	.0071	.0080	.0100	.0101	0.16	25.0-26.0
26.0-27.0			.0010	.0024	.0032	.0043	.0050	.0060	.0070	.0082	.0282	.0283	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-9 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

AUGUST

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 17, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) Km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0008	.0020	.0036	.0047	.0059	.0066	.0075	.0083	.0100	.0106	.0106	0.32	sfc- 1.0
1.0- 2.0		.0004	.0020	.0039	.0053	.0067	.0076	.0090	.0101	.0115	.0153	.0154	0.16	1.0- 2.0
2.0- 3.0		.0005	.0017	.0034	.0045	.0059	.0065	.0081	.0093	.0102	.0136	.0137	0.16	2.0- 3.0
3.0- 4.0		.0002	.0014	.0031	.0040	.0055	.0062	.0071	.0084	.0098	.0134	.0135	0.16	3.0- 4.0
4.0- 5.0		.0003	.0014	.0030	.0040	.0049	.0056	.0065	.0077	.0084	.0101	.0102	0.16	4.0- 5.0
5.0- 6.0		.0005	.0014	.0030	.0040	.0050	.0059	.0069	.0081	.0092	.0255	.0256	0.16	5.0- 6.0
6.0- 7.0	.0001	.0003	.0012	.0029	.0037	.0050	.0058	.0067	.0075	.0086	.0266	.0267	0.16	6.0- 7.0
7.0- 8.0		.0003	.0014	.0031	.0040	.0052	.0060	.0070	.0083	.0092	.0116	.0117	0.16	7.0- 8.0
8.0- 9.0		.0005	.0015	.0032	.0043	.0060	.0069	.0080	.0098	.0111	.0143	.0144	0.16	8.0- 9.0
9.0-10.0		.0004	.0015	.0034	.0046	.0062	.0070	.0085	.0098	.0112	.0140	.0141	0.16	9.0-10.0
10.0-11.0		.0003	.0018	.0037	.0050	.0062	.0077	.0097	.0113	.0137	.0210	.0211	0.16	10.0-11.0
11.0-12.0		.0006	.0017	.0035	.0049	.0071	.0082	.0100	.0117	.0142	.0192	.0193	0.16	11.0-12.0
12.0-13.0		.0006	.0017	.0035	.0048	.0064	.0073	.0090	.0108	.0144	.0291	.0292	0.16	12.0-13.0
13.0-14.0		.0007	.0020	.0043	.0060	.0081	.0092	.0112	.0137	.0148	.0271	.0272	0.16	13.0-14.0
14.0-15.0		.0009	.0022	.0049	.0063	.0088	.0100	.0112	.0140	.0155	.0379	.0380	0.16	14.0-15.0
15.0-16.0		.0009	.0024	.0049	.0061	.0080	.0091	.0103	.0123	.0146	.0289	.0290	0.16	15.0-16.0
16.0-17.0		.0006	.0021	.0048	.0061	.0080	.0093	.0106	.0122	.0137	.0195	.0196	0.16	16.0-17.0
17.0-18.0		.0005	.0019	.0037	.0049	.0064	.0074	.0091	.0113	.0126	.0169	.0170	0.16	17.0-18.0
18.0-19.0		.0004	.0015	.0031	.0041	.0056	.0063	.0076	.0096	.0132	.0153	.0154	0.16	18.0-19.0
19.0-20.0		.0002	.0013	.0028	.0037	.0049	.0054	.0064	.0075	.0081	.0145	.0146	0.16	19.0-20.0
20.0-21.0		.0003	.0012	.0028	.0033	.0043	.0049	.0060	.0070	.0088	.0117	.0118	0.16	20.0-21.0
21.0-22.0		.0001	.0011	.0025	.0033	.0042	.0049	.0055	.0065	.0080	.0099	.0100	0.16	21.0-22.0
22.0-23.0		.0002	.0010	.0023	.0031	.0041	.0047	.0052	.0061	.0070	.0197	.0198	0.16	22.0-23.0
23.0-24.0			.0010	.0023	.0031	.0040	.0045	.0053	.0062	.0067	.0243	.0244	0.16	23.0-24.0
24.0-25.0			.0010	.0021	.0029	.0039	.0042	.0051	.0060	.0069	.0089	.0090	0.16	24.0-25.0
25.0-26.0			.0010	.0020	.0028	.0039	.0042	.0053	.0061	.0075	.0120	.0121	0.16	25.0-26.0
26.0-27.0			.0010	.0021	.0030	.0040	.0044	.0051	.0061	.0078	.0126	.0127	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-10 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

SEPTEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 16, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0009	.0018	.0035	.0047	.0060	.0068	.0076	.0083	.0096	.0119	.0120	0.17	sfc- 1.0
1.0- 2.0	.0001	.0010	.0022	.0042	.0059	.0071	.0082	.0097	.0106	.0124	.0199	.0200	0.17	1.0- 2.0
2.0- 3.0	.0001	.0006	.0018	.0039	.0051	.0068	.0079	.0090	.0103	.0116	.0194	.0195	0.17	2.0- 3.0
3.0- 4.0		.0005	.0016	.0034	.0048	.0063	.0075	.0090	.0110	.0120	.0189	.0190	0.17	3.0- 4.0
4.0- 5.0		.0009	.0016	.0035	.0044	.0059	.0068	.0079	.0091	.0114	.0168	.0169	0.17	4.0- 5.0
5.0- 6.0		.0007	.0016	.0033	.0043	.0059	.0068	.0078	.0091	.0111	.0142	.0143	0.17	5.0- 6.0
6.0- 7.0		.0004	.0017	.0035	.0045	.0060	.0069	.0085	.0098	.0118	.0151	.0152	0.17	6.0- 7.0
7.0- 8.0		.0005	.0016	.0034	.0050	.0064	.0075	.0095	.0123	.0158	.0194	.0195	0.17	7.0- 8.0
8.0- 9.0		.0003	.0017	.0038	.0050	.0066	.0076	.0089	.0109	.0137	.0190	.0191	0.17	8.0- 9.0
9.0-10.0		.0007	.0020	.0040	.0054	.0070	.0083	.0101	.0120	.0143	.0241	.0242	0.17	9.0-10.0
10.0-11.0		.0006	.0020	.0040	.0056	.0077	.0089	.0101	.0120	.0154	.0209	.0210	0.17	10.0-11.0
11.0-12.0		.0007	.0020	.0042	.0060	.0080	.0099	.0123	.0160	.0180	.0257	.0258	0.17	11.0-12.0
12.0-13.0		.0007	.0020	.0042	.0059	.0082	.0100	.0120	.0137	.0159	.0302	.0303	0.17	12.0-13.0
13.0-14.0		.0008	.0020	.0045	.0061	.0085	.0098	.0114	.0145	.0176	.0239	.0240	0.17	13.0-14.0
14.0-15.0		.0007	.0020	.0045	.0063	.0086	.0099	.0119	.0149	.0185	.0226	.0227	0.17	14.0-15.0
15.0-16.0	.0002	.0010	.0023	.0053	.0069	.0091	.0102	.0120	.0139	.0152	.0193	.0194	0.17	15.0-16.0
16.0-17.0		.0009	.0025	.0051	.0068	.0086	.0095	.0114	.0139	.0164	.0229	.0230	0.17	16.0-17.0
17.0-18.0		.0004	.0022	.0043	.0058	.0073	.0084	.0103	.0122	.0164	.0188	.0189	0.17	17.0-18.0
18.0-19.0		.0003	.0015	.0033	.0042	.0057	.0066	.0079	.0096	.0113	.0172	.0173	0.17	18.0-19.0
19.0-20.0		.0002	.0011	.0027	.0038	.0051	.0059	.0076	.0090	.0119	.0230	.0231	0.17	19.0-20.0
20.0-21.0		.0001	.0011	.0024	.0034	.0048	.0053	.0063	.0087	.0109	.0123	.0124	0.17	20.0-21.0
21.0-22.0		.0001	.0010	.0022	.0031	.0042	.0048	.0058	.0072	.0088	.0169	.0170	0.17	21.0-22.0
22.0-23.0		.0001	.0010	.0022	.0030	.0040	.0044	.0055	.0070	.0079	.0111	.0112	0.17	22.0-23.0
23.0-24.0			.0009	.0020	.0029	.0038	.0041	.0051	.0063	.0101	.0158	.0159	0.17	23.0-24.0
24.0-25.0			.0009	.0020	.0027	.0034	.0041	.0050	.0060	.0074	.0206	.0207	0.17	24.0-25.0
25.0-26.0			.0009	.0020	.0028	.0036	.0041	.0052	.0060	.0069	.0135	.0136	0.17	25.0-26.0
26.0-27.0			.0009	.0019	.0025	.0036	.0041	.0051	.0065	.0083	.0209	.0210	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency was not determined.

TABLE VIII-11 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

SANTA MONICA, CALIFORNIA

OCTOBER

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 27, 1956
Santa Monica, California April 11, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.3	90.9	95.0	97.72	99.6	99.865			
sfc- 1.0	.0004	.0009	.0020	.0040	.0051	.0066	.0073	.0086	.0102	.0120	.0161	.0162	0.16	sfc- 1.0
1.0- 2.0		.0009	.0020	.0042	.0054	.0074	.0085	.0098	.0100	.0139	.0159	.0160	0.16	1.0- 2.0
2.0- 3.0		.0007	.0019	.0040	.0050	.0069	.0077	.0091	.0109	.0130	.0283	.0284	0.16	2.0- 3.0
3.0- 4.0		.0007	.0019	.0039	.0052	.0074	.0086	.0101	.0118	.0131	.0285	.0286	0.16	3.0- 4.0
4.0- 5.0		.0004	.0017	.0034	.0048	.0064	.0080	.0100	.0126	.0159	.0355	.0356	0.16	4.0- 5.0
5.0- 6.0		.0007	.0017	.0033	.0048	.0061	.0075	.0094	.0116	.0156	.0339	.0340	0.16	5.0- 6.0
6.0- 7.0		.0005	.0017	.0035	.0046	.0065	.0080	.0094	.0113	.0142	.0387	.0388	0.16	6.0- 7.0
7.0- 8.0		.0004	.0016	.0035	.0049	.0067	.0079	.0095	.0117	.0157	.0311	.0312	0.16	7.0- 8.0
8.0- 9.0		.0004	.0018	.0038	.0051	.0075	.0090	.0117	.0140	.0157	.0281	.0282	0.16	8.0- 9.0
9.0-10.0		.0007	.0018	.0040	.0054	.0079	.0093	.0110	.0126	.0166	.0295	.0296	0.16	9.0-10.0
10.0-11.0		.0007	.0019	.0042	.0058	.0083	.0097	.0121	.0147	.0196	.0295	.0296	0.16	10.0-11.0
11.0-12.0		.0005	.0020	.0045	.0061	.0085	.0099	.0122	.0143	.0181	.0241	.0242	0.16	11.0-12.0
12.0-13.0		.0009	.0021	.0048	.0065	.0089	.0102	.0136	.0152	.0180	.0260	.0261	0.16	12.0-13.0
13.0-14.0		.0005	.0020	.0044	.0062	.0085	.0102	.0128	.0155	.0183	.0291	.0292	0.16	13.0-14.0
14.0-15.0		.0007	.0019	.0039	.0053	.0073	.0087	.0109	.0124	.0140	.0230	.0231	0.16	14.0-15.0
15.0-16.0		.0009	.0018	.0038	.0052	.0070	.0081	.0094	.0128	.0136	.0179	.0180	0.16	15.0-16.0
16.0-17.0		.0009	.0019	.0040	.0051	.0071	.0082	.0099	.0118	.0130	.0238	.0239	0.16	16.0-17.0
17.0-18.0		.0004	.0020	.0040	.0050	.0068	.0071	.0089	.0104	.0132	.0186	.0187	0.16	17.0-18.0
18.0-19.0		.0005	.0017	.0033	.0043	.0055	.0064	.0076	.0093	.0112	.0198	.0199	0.16	18.0-19.0
19.0-20.0		.0001	.0010	.0028	.0038	.0052	.0060	.0070	.0087	.0103	.0320	.0321	0.16	19.0-20.0
20.0-21.0		.0001	.0008	.0023	.0032	.0047	.0055	.0070	.0079	.0113	.0196	.0197	0.16	20.0-21.0
21.0-22.0		.0002	.0010	.0022	.0033	.0045	.0053	.0061	.0072	.0089	.0114	.0115	0.16	21.0-22.0
22.0-23.0		.0001	.0010	.0023	.0031	.0046	.0053	.0065	.0078	.0086	.0137	.0138	0.16	22.0-23.0
23.0-24.0		.0002	.0010	.0022	.0032	.0043	.0050	.0060	.0072	.0086	.0145	.0146	0.16	23.0-24.0
24.0-25.0			.0010	.0022	.0030	.0043	.0050	.0060	.0069	.0085	.0110	.0111	0.16	24.0-25.0
25.0-26.0			.0009	.0021	.0031	.0043	.0051	.0062	.0080	.0100	.0148	.0149	0.16	25.0-26.0
26.0-27.0			.0009	.0021	.0030	.0042	.0051	.0062	.0073	.0085	.0121	.0122	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-12 DISTRIBUTION OF VECTOR WIND SHEARS

VECTOR WIND SHEAR DISTRIBUTION

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

SANTA MONICA, CALIFORNIA

NOVEMBER

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0005	.0020	.0041	.0052	.0068	.0081	.0092	.0121	.0134	.0238	.0239	0.17	sfc- 1.0
1.0- 2.0		.0005	.0019	.0040	.0053	.0069	.0081	.0101	.0118	.0130	.0151	.0152	0.17	1.0- 2.0
2.0- 3.0		.0009	.0020	.0040	.0055	.0075	.0088	.0105	.0132	.0159	.0273	.0274	0.17	2.0- 3.0
3.0- 4.0		.0004	.0019	.0036	.0049	.0070	.0085	.0113	.0133	.0190	.0300	.0301	0.17	3.0- 4.0
4.0- 5.0		.0008	.0018	.0035	.0049	.0069	.0080	.0092	.0121	.0153	.0230	.0231	0.17	4.0- 5.0
5.0- 6.0		.0006	.0018	.0035	.0049	.0068	.0083	.0097	.0117	.0144	.0356	.0357	0.17	5.0- 6.0
6.0- 7.0		.0006	.0019	.0040	.0053	.0073	.0089	.0112	.0139	.0161	.0226	.0227	0.17	6.0- 7.0
7.0- 8.0		.0005	.0017	.0040	.0055	.0077	.0090	.0121	.0149	.0174	.0219	.0220	0.17	7.0- 8.0
8.0- 9.0		.0006	.0019	.0040	.0055	.0077	.0090	.0112	.0147	.0186	.0333	.0334	0.17	8.0- 9.0
9.0-10.0		.0005	.0020	.0046	.0063	.0090	.0105	.0126	.0148	.0181	.0357	.0358	0.17	9.0-10.0
10.0-11.0		.0005	.0020	.0045	.0062	.0090	.0107	.0132	.0150	.0189	.0247	.0248	0.17	10.0-11.0
11.0-12.0	.0001	.0009	.0024	.0049	.0067	.0092	.0107	.0125	.0152	.0161	.0212	.0213	0.17	11.0-12.0
12.0-13.0		.0009	.0023	.0051	.0070	.0101	.0125	.0145	.0173	.0209	.0370	.0371	0.17	12.0-13.0
13.0-14.0		.0009	.0021	.0046	.0061	.0089	.0103	.0123	.0152	.0176	.0291	.0292	0.17	13.0-14.0
14.0-15.0		.0009	.0020	.0043	.0056	.0078	.0093	.0122	.0150	.0181	.0248	.0249	0.17	14.0-15.0
15.0-16.0		.0005	.0016	.0040	.0054	.0071	.0083	.0102	.0131	.0151	.0200	.0201	0.17	15.0-16.0
16.0-17.0		.0004	.0018	.0040	.0051	.0068	.0079	.0091	.0116	.0150	.0199	.0200	0.17	16.0-17.0
17.0-18.0		.0009	.0017	.0036	.0050	.0062	.0070	.0082	.0096	.0112	.0175	.0176	0.17	17.0-18.0
18.0-19.0		.0005	.0014	.0030	.0040	.0054	.0063	.0074	.0091	.0138	.0230	.0231	0.17	18.0-19.0
19.0-20.0		.0002	.0011	.0027	.0037	.0050	.0059	.0074	.0088	.0099	.0121	.0122	0.17	19.0-20.0
20.0-21.0		.0001	.0010	.0026	.0032	.0045	.0055	.0069	.0093	.0108	.0166	.0167	0.17	20.0-21.0
21.0-22.0		.0002	.0010	.0023	.0032	.0044	.0052	.0071	.0088	.0128	.0213	.0214	0.17	21.0-22.0
22.0-23.0		.0002	.0011	.0024	.0034	.0048	.0053	.0063	.0079	.0100	.0155	.0156	0.17	22.0-23.0
23.0-24.0		.0002	.0011	.0025	.0035	.0049	.0057	.0069	.0081	.0104	.0206	.0207	0.17	23.0-24.0
24.0-25.0		.0001	.0011	.0027	.0039	.0050	.0057	.0069	.0081	.0102	.0149	.0150	0.17	24.0-25.0
25.0-26.0		.0001	.0010	.0029	.0038	.0052	.0061	.0076	.0092	.0109	.0213	.0214	0.17	25.0-26.0
26.0-27.0			.0012	.0030	.0040	.0054	.0062	.0073	.0085	.0098	.0150	.0151	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE VIII-13 DISTRIBUTION OF VECTOR WIND SHEARS

STATION:	SANTA MONICA, CALIFORNIA
REFERENCE PERIOD:	DECEMBER
STATION ELEVATION:	125 feet or 38.1 meters MSL
STATION COORDINATES:	34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION:	Long Beach, California January 1, 1956-April 17, 1956 Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE:	National Weather Records Center U. S. Weather Bureau Asheville, North Carolina
PREPARED BY:	National Aeronautics and Space Administration Marshall Space Flight Center, Aeroballistics Division Aerophysics and Astrophysics Branch, Huntsville, Alabama February 23, 1962

VECTOR WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

DECEMBER

NO. OF OBS. FOR EACH LEVEL: 620

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0	.0001	.0008	.0020	.0044	.0058	.0073	.0083	.0100	.0115	.0136	.0170	.0171	0.16	sfc- 1.0
1.0- 2.0	.0001	.0009	.0020	.0043	.0059	.0079	.0089	.0103	.0125	.0150	.0193	.0194	0.16	1.0- 2.0
2.0- 3.0		.0009	.0020	.0040	.0056	.0075	.0089	.0113	.0150	.0174	.0224	.0225	0.16	2.0- 3.0
3.0- 4.0		.0009	.0020	.0040	.0053	.0074	.0088	.0102	.0145	.0201	.0341	.0342	0.16	3.0- 4.0
4.0- 5.0		.0005	.0020	.0040	.0054	.0072	.0084	.0107	.0126	.0141	.0301	.0302	0.16	4.0- 5.0
5.0- 6.0		.0008	.0017	.0037	.0050	.0068	.0077	.0095	.0120	.0151	.0263	.0264	0.16	5.0- 6.0
6.0- 7.0		.0007	.0020	.0039	.0053	.0071	.0089	.0112	.0150	.0168	.0247	.0248	0.16	6.0- 7.0
7.0- 8.0		.0004	.0019	.0040	.0052	.0072	.0086	.0104	.0128	.0162	.0267	.0268	0.16	7.0- 8.0
8.0- 9.0		.0008	.0020	.0041	.0057	.0082	.0100	.0122	.0144	.0170	.0299	.0300	0.16	8.0- 9.0
9.0-10.0		.0007	.0020	.0050	.0067	.0094	.0111	.0138	.0157	.0219	.0308	.0309	0.16	9.0-10.0
10.0-11.0		.0009	.0026	.0053	.0073	.0095	.0114	.0140	.0172	.0206	.0339	.0340	0.16	10.0-11.0
11.0-12.0		.0009	.0029	.0057	.0077	.0110	.0135	.0165	.0200	.0219	.0262	.0263	0.16	11.0-12.0
12.0-13.0		.0010	.0026	.0059	.0079	.0108	.0125	.0151	.0192	.0225	.0301	.0302	0.16	12.0-13.0
13.0-14.0		.0007	.0025	.0051	.0073	.0102	.0121	.0149	.0182	.0210	.0274	.0275	0.16	13.0-14.0
14.0-15.0		.0009	.0020	.0045	.0060	.0084	.0101	.0121	.0141	.0177	.0217	.0218	0.16	14.0-15.0
15.0-16.0		.0008	.0020	.0040	.0055	.0071	.0081	.0098	.0129	.0150	.0215	.0216	0.16	15.0-16.0
16.0-17.0		.0009	.0021	.0041	.0057	.0074	.0085	.0098	.0127	.0161	.0238	.0239	0.16	16.0-17.0
17.0-18.0		.0009	.0020	.0040	.0053	.0070	.0081	.0098	.0120	.0139	.0214	.0215	0.16	17.0-18.0
18.0-19.0		.0006	.0017	.0036	.0049	.0065	.0073	.0088	.0110	.0135	.0187	.0188	0.16	18.0-19.0
19.0-20.0		.0006	.0016	.0033	.0047	.0060	.0070	.0081	.0097	.0125	.0167	.0168	0.16	19.0-20.0
20.0-21.0		.0001	.0010	.0028	.0039	.0054	.0062	.0077	.0088	.0114	.0238	.0239	0.16	20.0-21.0
21.0-22.0		.0001	.0010	.0027	.0037	.0052	.0061	.0075	.0085	.0111	.0169	.0170	0.16	21.0-22.0
22.0-23.0		.0001	.0012	.0026	.0036	.0050	.0057	.0069	.0079	.0091	.0188	.0189	0.16	22.0-23.0
23.0-24.0		.0001	.0010	.0024	.0034	.0046	.0055	.0069	.0080	.0090	.0279	.0280	0.16	23.0-24.0
24.0-25.0			.0010	.0027	.0037	.0049	.0055	.0069	.0081	.0108	.0256	.0257	0.16	24.0-25.0
25.0-26.0			.0010	.0029	.0040	.0053	.0060	.0070	.0086	.0110	.0205	.0206	0.16	25.0-26.0
26.0-27.0			.0011	.0029	.0037	.0050	.0057	.0069	.0080	.0092	.0169	.0170	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX

Distribution of Zonal Wind Shears

Unit: Inverse second (sec^{-1}) per 1000 meter layer of altitude

TABLE IX-1 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

ANNUAL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

NO. OF OBS. FOR EACH LEVEL: 7308

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0023	.0035	.0051	.0060	.0073	.0085	.0101	.0135	.0231	0.01	sfc- 1.0
1.0- 2.0			.0008	.0029	.0043	.0062	.0075	.0090	.0103	.0123	.0170	.0215	0.01	1.0- 2.0
2.0- 3.0			.0008	.0027	.0040	.0058	.0068	.0084	.0100	.0122	.0179	.0269	0.01	2.0- 3.0
3.0- 4.0			.0007	.0024	.0036	.0053	.0064	.0080	.0100	.0121	.0197	.0339	0.01	3.0- 4.0
4.0- 5.0			.0006	.0023	.0034	.0051	.0060	.0076	.0095	.0119	.0175	.0350	0.01	4.0- 5.0
5.0- 6.0			.0006	.0021	.0033	.0049	.0059	.0075	.0095	.0120	.0216	.0283	0.01	5.0- 6.0
6.0- 7.0			.0006	.0021	.0033	.0050	.0061	.0078	.0099	.0128	.0236	.0282	0.01	6.0- 7.0
7.0- 8.0			.0006	.0022	.0035	.0052	.0063	.0081	.0105	.0133	.0206	.0270	0.01	7.0- 8.0
8.0- 9.0			.0006	.0023	.0036	.0056	.0068	.0087	.0109	.0132	.0191	.0302	0.01	8.0- 9.0
9.0-10.0			.0007	.0026	.0040	.0061	.0077	.0099	.0122	.0157	.0243	.0297	0.01	9.0-10.0
10.0-11.0			.0008	.0028	.0042	.0064	.0079	.0102	.0131	.0164	.0263	.0372	0.01	10.0-11.0
11.0-12.0			.0008	.0028	.0042	.0065	.0079	.0103	.0129	.0151	.0226	.0381	0.01	11.0-12.0
12.0-13.0			.0008	.0029	.0044	.0068	.0083	.0104	.0132	.0159	.0239	.0385	0.01	12.0-13.0
13.0-14.0			.0008	.0029	.0044	.0067	.0083	.0104	.0132	.0161	.0261	.0344	0.01	13.0-14.0
14.0-15.0			.0009	.0030	.0046	.0067	.0081	.0100	.0122	.0145	.0200	.0319	0.01	14.0-15.0
15.0-16.0			.0009	.0031	.0047	.0066	.0079	.0098	.0115	.0138	.0177	.0299	0.01	15.0-16.0
16.0-17.0			.0010	.0034	.0049	.0069	.0080	.0096	.0117	.0138	.0185	.0254	0.01	16.0-17.0
17.0-18.0		.0001	.0010	.0032	.0046	.0063	.0074	.0090	.0113	.0133	.0181	.0386	0.01	17.0-18.0
18.0-19.0			.0009	.0028	.0040	.0057	.0065	.0080	.0097	.0119	.0186	.0216	0.01	18.0-19.0
19.0-20.0			.0007	.0022	.0032	.0048	.0057	.0070	.0087	.0106	.0176	.0280	0.01	19.0-20.0
20.0-21.0			.0005	.0018	.0028	.0040	.0049	.0061	.0078	.0092	.0152	.0313	0.01	20.0-21.0
21.0-22.0			.0003	.0016	.0023	.0036	.0043	.0055	.0069	.0085	.0143	.0197	0.01	21.0-22.0
22.0-23.0			.0003	.0015	.0022	.0035	.0041	.0052	.0064	.0078	.0127	.0201	0.01	22.0-23.0
23.0-24.0			.0002	.0015	.0023	.0034	.0041	.0051	.0066	.0083	.0142	.0233	0.01	23.0-24.0
24.0-25.0			.0002	.0016	.0022	.0034	.0041	.0052	.0064	.0079	.0118	.0206	0.01	24.0-25.0
25.0-26.0			.0002	.0017	.0024	.0038	.0045	.0058	.0072	.0095	.0142	.0203	0.01	25.0-26.0
26.0-27.0			.0002	.0017	.0025	.0037	.0044	.0056	.0069	.0082	.0152	.0270	0.01	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-2 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION
SANTA MONICA, CALIFORNIA
JANUARY

STATION: SANTA MONICA, CALIFORNIA
REFERENCE PERIOD: JANUARY
STATION ELEVATION: 125 feet or 38.1 meters MSL
STATION COORDINATES: 34.01 deg N, 118.27 deg W
PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960
DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina
PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962
NO. OF OBS. FOR EACH LEVEL: 620
UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0007	.0023	.0036	.0051	.0062	.0078	.0103	.0120	.0153	.0154	0.16	sfc- 1.0
1.0- 2.0			.0010	.0034	.0050	.0073	.0086	.0100	.0119	.0134	.0203	.0204	0.16	1.0- 2.0
2.0- 3.0		.0001	.0012	.0041	.0057	.0077	.0088	.0107	.0125	.0139	.0181	.0182	0.16	2.0- 3.0
3.0- 4.0		.0001	.0009	.0029	.0045	.0062	.0076	.0095	.0121	.0137	.0279	.0280	0.16	3.0- 4.0
4.0- 5.0			.0009	.0028	.0044	.0062	.0076	.0098	.0120	.0135	.0265	.0266	0.16	4.0- 5.0
5.0- 6.0			.0007	.0026	.0040	.0060	.0070	.0090	.0129	.0157	.0224	.0225	0.16	5.0- 6.0
6.0- 7.0			.0009	.0026	.0043	.0063	.0075	.0095	.0131	.0165	.0276	.0277	0.16	6.0- 7.0
7.0- 8.0			.0008	.0028	.0043	.0064	.0079	.0101	.0133	.0156	.0232	.0233	0.16	7.0- 8.0
8.0- 9.0			.0007	.0030	.0046	.0069	.0081	.0105	.0132	.0144	.0225	.0226	0.16	8.0- 9.0
9.0-10.0		.0001	.0009	.0030	.0047	.0077	.0092	.0119	.0159	.0191	.0276	.0277	0.16	9.0-10.0
10.0-11.0		.0001	.0009	.0030	.0049	.0077	.0092	.0112	.0155	.0242	.0326	.0327	0.16	10.0-11.0
11.0-12.0			.0010	.0032	.0049	.0076	.0092	.0114	.0170	.0205	.0324	.0325	0.16	11.0-12.0
12.0-13.0		.0001	.0010	.0033	.0051	.0078	.0094	.0121	.0148	.0179	.0241	.0242	0.16	12.0-13.0
13.0-14.0		.0001	.0010	.0036	.0052	.0078	.0091	.0127	.0176	.0209	.0271	.0272	0.16	13.0-14.0
14.0-15.0			.0010	.0035	.0054	.0082	.0095	.0119	.0141	.0188	.0318	.0319	0.16	14.0-15.0
15.0-16.0			.0009	.0033	.0052	.0079	.0094	.0119	.0143	.0160	.0245	.0246	0.16	15.0-16.0
16.0-17.0		.0001	.0010	.0035	.0052	.0072	.0088	.0107	.0123	.0139	.0206	.0207	0.16	16.0-17.0
17.0-18.0			.0011	.0038	.0055	.0076	.0090	.0119	.0137	.0159	.0215	.0216	0.16	17.0-18.0
18.0-19.0		.0001	.0011	.0035	.0051	.0070	.0080	.0102	.0128	.0181	.0215	.0216	0.16	18.0-19.0
19.0-20.0			.0008	.0028	.0041	.0058	.0068	.0093	.0107	.0128	.0157	.0158	0.16	19.0-20.0
20.0-21.0			.0006	.0021	.0031	.0046	.0055	.0070	.0094	.0104	.0150	.0151	0.16	20.0-21.0
21.0-22.0			.0004	.0018	.0026	.0039	.0049	.0062	.0079	.0099	.0128	.0129	0.16	21.0-22.0
22.0-23.0			.0005	.0018	.0029	.0041	.0050	.0060	.0082	.0098	.0200	.0201	0.16	22.0-23.0
23.0-24.0			.0004	.0017	.0025	.0036	.0043	.0055	.0074	.0085	.0116	.0117	0.16	23.0-24.0
24.0-25.0			.0004	.0016	.0025	.0039	.0048	.0057	.0079	.0105	.0150	.0151	0.16	24.0-25.0
25.0-26.0			.0005	.0019	.0030	.0044	.0055	.0069	.0090	.0110	.0146	.0147	0.16	25.0-26.0
26.0-27.0			.0005	.0019	.0029	.0041	.0051	.0062	.0071	.0080	.0172	.0173	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-3 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

FEBRUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0005	.0024	.0036	.0053	.0063	.0077	.0092	.0112	.0155	.0156	0.18	sfc- 1.0
1.0- 2.0			.0010	.0033	.0047	.0070	.0083	.0098	.0128	.0151	.0198	.0199	0.18	1.0- 2.0
2.0- 3.0		.0001	.0010	.0035	.0050	.0069	.0081	.0096	.0120	.0150	.0268	.0269	0.18	2.0- 3.0
3.0- 4.0			.0008	.0031	.0045	.0068	.0083	.0101	.0126	.0147	.0195	.0196	0.18	3.0- 4.0
4.0- 5.0			.0008	.0029	.0046	.0064	.0077	.0095	.0130	.0163	.0231	.0232	0.18	4.0- 5.0
5.0- 6.0			.0008	.0029	.0044	.0062	.0082	.0101	.0132	.0182	.0232	.0283	0.18	5.0- 6.0
6.0- 7.0			.0007	.0027	.0042	.0063	.0076	.0099	.0131	.0178	.0256	.0257	0.18	6.0- 7.0
7.0- 8.0			.0009	.0032	.0048	.0066	.0079	.0104	.0147	.0198	.0269	.0270	0.18	7.0- 8.0
8.0- 9.0			.0007	.0030	.0048	.0072	.0092	.0114	.0138	.0169	.0199	.0200	0.18	8.0- 9.0
9.0-10.0			.0007	.0029	.0051	.0079	.0102	.0126	.0158	.0180	.0296	.0297	0.18	9.0-10.0
10.0-11.0			.0009	.0038	.0058	.0094	.0113	.0135	.0179	.0208	.0279	.0280	0.18	10.0-11.0
11.0-12.0		.0001	.0011	.0041	.0060	.0085	.0106	.0132	.0152	.0193	.0271	.0272	0.18	11.0-12.0
12.0-13.0			.0011	.0038	.0062	.0094	.0112	.0134	.0149	.0191	.0384	.0385	0.18	12.0-13.0
13.0-14.0		.0001	.0012	.0038	.0060	.0089	.0107	.0132	.0149	.0181	.0290	.0291	0.18	13.0-14.0
14.0-15.0		.00012	.0011	.0037	.0056	.0084	.0099	.0125	.0148	.0176	.0252	.0253	0.18	14.0-15.0
15.0-16.0			.0010	.0037	.0057	.0085	.0106	.0123	.0145	.0157	.0298	.0299	0.18	15.0-16.0
16.0-17.0		.0001	.0011	.0039	.0057	.0078	.0088	.0114	.0138	.0169	.0207	.0208	0.18	16.0-17.0
17.0-18.0		.0001	.0015	.0039	.0055	.0079	.0091	.0112	.0151	.0171	.0227	.0228	0.18	17.0-18.0
18.0-19.0			.0011	.0038	.0049	.0066	.0079	.0096	.0116	.0132	.0179	.0180	0.18	18.0-19.0
19.0-20.0			.0008	.0028	.0041	.0060	.0073	.0086	.0111	.0127	.0176	.0177	0.18	19.0-20.0
20.0-21.0			.0007	.0022	.0035	.0053	.0064	.0078	.0101	.0159	.0312	.0313	0.18	20.0-21.0
21.0-22.0			.0005	.0018	.0030	.0045	.0051	.0067	.0083	.0090	.0172	.0173	0.18	21.0-22.0
22.0-23.0			.0003	.0015	.0024	.0036	.0042	.0056	.0074	.0083	.0146	.0147	0.18	22.0-23.0
23.0-24.0			.0004	.0016	.0026	.0037	.0045	.0057	.0079	.0102	.0178	.0179	0.18	23.0-24.0
24.0-25.0			.0003	.0015	.0025	.0039	.0047	.0056	.0072	.0087	.0108	.0109	0.18	24.0-25.0
25.0-26.0			.0005	.0019	.0029	.0046	.0056	.0074	.0096	.0111	.0152	.0153	0.18	25.0-26.0
26.0-27.0			.0004	.0019	.0028	.0041	.0050	.0070	.0087	.0111	.0178	.0179	0.18	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

D-1569

TABLE IX-4 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

MARCH

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0023	.0034	.0051	.0063	.0075	.0091	.0101	.0230	.0231	0.16	sfc- 1.0
1.0- 2.0			.0009	.0030	.0047	.0069	.0085	.0098	.0117	.0150	.0214	.0215	0.16	1.0- 2.0
2.0- 3.0		.0001	.0009	.0031	.0049	.0068	.0079	.0096	.0117	.0129	.0196	.0197	0.16	2.0- 3.0
3.0- 4.0			.0009	.0028	.0042	.0059	.0069	.0081	.0101	.0113	.0175	.0176	0.16	3.0- 4.0
4.0- 5.0			.0008	.0024	.0036	.0051	.0061	.0076	.0090	.0101	.0175	.0176	0.16	4.0- 5.0
5.0- 6.0			.0007	.0023	.0036	.0054	.0062	.0074	.0092	.0105	.0224	.0225	0.16	5.0- 6.0
6.0- 7.0			.0006	.0020	.0032	.0052	.0063	.0077	.0099	.0133	.0234	.0235	0.16	6.0- 7.0
7.0- 8.0			.0007	.0025	.0039	.0059	.0071	.0088	.0112	.0139	.0198	.0199	0.16	7.0- 8.0
8.0- 9.0			.0007	.0028	.0040	.0062	.0078	.0102	.0132	.0165	.0301	.0302	0.16	8.0- 9.0
9.0-10.0			.0009	.0033	.0050	.0084	.0112	.0153	.0200	.0233	.0295	.0296	0.16	9.0-10.0
10.0-11.0		.0001	.0010	.0037	.0056	.0085	.0111	.0154	.0181	.0221	.0371	.0372	0.16	10.0-11.0
11.0-12.0			.0010	.0033	.0048	.0078	.0093	.0123	.0142	.0165	.0242	.0243	0.16	11.0-12.0
12.0-13.0			.0010	.0034	.0054	.0078	.0091	.0118	.0160	.0184	.0312	.0313	0.16	12.0-13.0
13.0-14.0			.0009	.0031	.0049	.0071	.0088	.0110	.0146	.0190	.0303	.0304	0.16	13.0-14.0
14.0-15.0			.0009	.0031	.0047	.0067	.0079	.0102	.0119	.0140	.0170	.0170	0.32	14.0-15.0
15.0-16.0			.0009	.0032	.0047	.0061	.0074	.0096	.0106	.0121	.0186	.0187	0.16	15.0-16.0
16.0-17.0			.0009	.0037	.0050	.0074	.0086	.0106	.0125	.0158	.0185	.0186	0.16	16.0-17.0
17.0-18.0		.0001	.0013	.0039	.0051	.0071	.0084	.0099	.0119	.0130	.0221	.0222	0.16	17.0-18.0
18.0-19.0		.0001	.0014	.0037	.0051	.0065	.0073	.0087	.0101	.0122	.0192	.0193	0.16	18.0-19.0
19.0-20.0			.0010	.0031	.0043	.0059	.0069	.0080	.0092	.0111	.0170	.0171	0.16	19.0-20.0
20.0-21.0			.0007	.0023	.0035	.0048	.0058	.0075	.0087	.0112	.0148	.0149	0.16	20.0-21.0
21.0-22.0			.0004	.0018	.0027	.0040	.0049	.0063	.0077	.0096	.0168	.0169	0.16	21.0-22.0
22.0-23.0			.0004	.0017	.0023	.0038	.0045	.0056	.0076	.0092	.0139	.0140	0.16	22.0-23.0
23.0-24.0			.0004	.0015	.0023	.0037	.0045	.0056	.0065	.0072	.0123	.0124	0.16	23.0-24.0
24.0-25.0			.0006	.0017	.0026	.0036	.0044	.0053	.0067	.0079	.0111	.0112	0.16	24.0-25.0
25.0-26.0			.0004	.0017	.0023	.0037	.0045	.0055	.0069	.0086	.0194	.0195	0.16	25.0-26.0
26.0-27.0			.0003	.0015	.0022	.0032	.0041	.0049	.0066	.0080	.0146	.0147	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-5 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

APRIL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: Inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0022	.0036	.0053	.0065	.0078	.0091	.0104	.0135	.0136	0.17	sfc- 1.0
1.0- 2.0			.0010	.0031	.0047	.0069	.0080	.0096	.0110	.0134	.0208	.0209	0.17	1.0- 2.0
2.0- 3.0		.0001	.0010	.0029	.0045	.0061	.0069	.0085	.0100	.0126	.0214	.0215	0.17	2.0- 3.0
3.0- 4.0			.0007	.0028	.0039	.0054	.0062	.0079	.0104	.0130	.0198	.0199	0.17	3.0- 4.0
4.0- 5.0			.0007	.0028	.0042	.0059	.0071	.0083	.0109	.0131	.0156	.0157	0.17	4.0- 5.0
5.0- 6.0			.0007	.0024	.0038	.0054	.0069	.0088	.0107	.0140	.0233	.0234	0.17	5.0- 6.0
6.0- 7.0			.0008	.0024	.0038	.0054	.0065	.0080	.0110	.0144	.0281	.0282	0.17	6.0- 7.0
7.0- 8.0			.0006	.0023	.0038	.0057	.0069	.0100	.0123	.0152	.0205	.0206	0.17	7.0- 8.0
8.0- 9.0			.0006	.0026	.0040	.0059	.0069	.0088	.0110	.0129	.0170	.0171	0.17	8.0- 9.0
9.0-10.0			.0008	.0028	.0042	.0066	.0078	.0097	.0109	.0127	.0215	.0216	0.17	9.0-10.0
10.0-11.0			.0007	.0024	.0039	.0059	.0072	.0094	.0130	.0148	.0214	.0215	0.17	10.0-11.0
11.0-12.0			.0008	.0029	.0044	.0064	.0079	.0097	.0114	.0143	.0253	.0254	0.17	11.0-12.0
12.0-13.0			.0009	.0034	.0050	.0072	.0086	.0110	.0133	.0186	.0258	.0259	0.17	12.0-13.0
13.0-14.0			.0009	.0032	.0045	.0071	.0089	.0107	.0155	.0172	.0343	.0344	0.17	13.0-14.0
14.0-15.0			.0008	.0030	.0044	.0065	.0079	.0099	.0118	.0140	.0168	.0169	0.17	14.0-15.0
15.0-16.0			.0009	.0029	.0039	.0058	.0069	.0087	.0109	.0136	.0215	.0216	0.17	15.0-16.0
16.0-17.0			.0010	.0032	.0048	.0067	.0081	.0097	.0122	.0159	.0253	.0254	0.17	16.0-17.0
17.0-18.0			.0012	.0034	.0049	.0066	.0076	.0089	.0117	.0125	.0385	.0386	0.17	17.0-18.0
18.0-19.0		.0001	.0011	.0032	.0046	.0061	.0071	.0082	.0096	.0109	.0154	.0155	0.17	18.0-19.0
19.0-20.0			.0008	.0025	.0034	.0047	.0056	.0069	.0087	.0100	.0127	.0128	0.17	19.0-20.0
20.0-21.0			.0006	.0020	.0031	.0047	.0054	.0065	.0076	.0086	.0128	.0129	0.17	20.0-21.0
21.0-22.0			.0004	.0017	.0025	.0042	.0050	.0069	.0085	.0121	.0196	.0197	0.17	21.0-22.0
22.0-23.0			.0003	.0015	.0023	.0037	.0045	.0057	.0069	.0088	.0129	.0130	0.17	22.0-23.0
23.0-24.0			.0003	.0014	.0022	.0037	.0044	.0062	.0087	.0109	.0143	.0144	0.17	23.0-24.0
24.0-25.0			.0003	.0014	.0021	.0034	.0044	.0057	.0067	.0100	.0139	.0140	0.17	24.0-25.0
25.0-26.0			.0002	.0012	.0022	.0036	.0047	.0059	.0081	.0111	.0139	.0140	0.17	25.0-26.0
26.0-27.0			.0002	.0014	.0023	.0039	.0048	.0063	.0087	.0111	.0185	.0186	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-6 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

MAY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MAY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: Inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0026	.0038	.0052	.0061	.0072	.0087	.0103	.0151	.0152	0.16	sfc- 1.0
1.0- 2.0			.0009	.0031	.0046	.0067	.0077	.0089	.0104	.0122	.0155	.0156	0.16	1.0- 2.0
2.0- 3.0		.0001	.0009	.0029	.0041	.0056	.0067	.0082	.0094	.0109	.0157	.0158	0.16	2.0- 3.0
3.0- 4.0		.0001	.0009	.0026	.0039	.0057	.0071	.0082	.0100	.0115	.0204	.0205	0.16	3.0- 4.0
4.0- 5.0			.0008	.0024	.0035	.0052	.0064	.0079	.0097	.0121	.0198	.0199	0.16	4.0- 5.0
5.0- 6.0			.0008	.0022	.0034	.0050	.0063	.0076	.0093	.0113	.0219	.0220	0.16	5.0- 6.0
6.0- 7.0			.0006	.0020	.0031	.0050	.0062	.0083	.0098	.0127	.0227	.0228	0.16	6.0- 7.0
7.0- 8.0			.0006	.0022	.0034	.0050	.0060	.0072	.0089	.0111	.0191	.0192	0.16	7.0- 8.0
8.0- 9.0		.0001	.0007	.0021	.0035	.0054	.0068	.0083	.0096	.0107	.0200	.0201	0.16	8.0- 9.0
9.0-10.0			.0007	.0025	.0041	.0060	.0070	.0089	.0117	.0140	.0184	.0185	0.16	9.0-10.0
10.0-11.0		.0001	.0009	.0027	.0039	.0059	.0073	.0095	.0130	.0154	.0267	.0268	0.16	10.0-11.0
11.0-12.0			.0006	.0027	.0040	.0059	.0071	.0093	.0117	.0132	.0380	.0381	0.16	11.0-12.0
12.0-13.0			.0008	.0029	.0041	.0063	.0078	.0098	.0117	.0155	.0281	.0282	0.16	12.0-13.0
13.0-14.0		.0001	.0009	.0028	.0042	.0066	.0083	.0102	.0122	.0142	.0287	.0288	0.16	13.0-14.0
14.0-15.0			.0010	.0031	.0048	.0068	.0081	.0099	.0124	.0143	.0179	.0180	0.16	14.0-15.0
15.0-16.0		.0001	.0011	.0033	.0048	.0069	.0083	.0100	.0120	.0135	.0170	.0171	0.16	15.0-16.0
16.0-17.0		.0001	.0011	.0036	.0049	.0068	.0080	.0095	.0111	.0135	.0147	.0147	0.32	16.0-17.0
17.0-18.0		.0002	.0014	.0038	.0049	.0066	.0076	.0094	.0116	.0146	.0212	.0213	0.16	17.0-18.0
18.0-19.0		.0001	.0011	.0031	.0047	.0061	.0073	.0088	.0114	.0131	.0190	.0191	0.16	18.0-19.0
19.0-20.0		.0001	.0008	.0024	.0036	.0053	.0064	.0090	.0115	.0183	.0279	.0280	0.16	19.0-20.0
20.0-21.0			.0004	.0017	.0025	.0036	.0047	.0061	.0074	.0086	.0125	.0126	0.16	20.0-21.0
21.0-22.0			.0002	.0013	.0020	.0030	.0038	.0049	.0061	.0074	.0195	.0196	0.16	21.0-22.0
22.0-23.0			.0003	.0013	.0020	.0032	.0040	.0052	.0062	.0076	.0114	.0115	0.16	22.0-23.0
23.0-24.0			.0001	.0010	.0019	.0031	.0039	.0050	.0065	.0079	.0141	.0142	0.16	23.0-24.0
24.0-25.0			.0002	.0012	.0019	.0030	.0037	.0047	.0059	.0069	.0105	.0106	0.16	24.0-25.0
25.0-26.0			.0002	.0011	.0019	.0030	.0038	.0046	.0059	.0071	.0104	.0105	0.16	25.0-26.0
26.0-27.0			.0002	.0011	.0019	.0031	.0038	.0047	.0057	.0062	.0128	.0129	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-7 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JUNE

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0005	.0023	.0034	.0050	.0061	.0079	.0087	.0100	.0107	.0108	0.17	sfc- 1.0
1.0- 2.0			.0008	.0010	.0045	.0064	.0075	.0091	.0102	.0109	.0139	.0140	0.17	1.0- 2.0
2.0- 3.0		.0001	.0008	.0026	.0039	.0056	.0067	.0077	.0088	.0099	.0129	.0130	0.17	2.0- 3.0
3.0- 4.0			.0007	.0023	.0033	.0049	.0057	.0069	.0078	.0090	.0113	.0114	0.17	3.0- 4.0
4.0- 5.0		.0001	.0006	.0019	.0030	.0043	.0053	.0065	.0080	.0092	.0103	.0104	0.17	4.0- 5.0
5.0- 6.0			.0006	.0020	.0030	.0042	.0052	.0064	.0084	.0094	.0210	.0211	0.17	5.0- 6.0
6.0- 7.0			.0005	.0018	.0028	.0039	.0049	.0062	.0075	.0086	.0127	.0128	0.17	6.0- 7.0
7.0- 8.0			.0005	.0020	.0030	.0044	.0052	.0061	.0074	.0079	.0115	.0116	0.17	7.0- 8.0
8.0- 9.0			.0005	.0019	.0029	.0041	.0049	.0063	.0068	.0091	.0132	.0133	0.17	8.0- 9.0
9.0-10.0			.0008	.0023	.0037	.0055	.0068	.0081	.0098	.0121	.0134	.0135	0.17	9.0-10.0
10.0-11.0			.0008	.0026	.0036	.0055	.0063	.0078	.0094	.0111	.0159	.0160	0.17	10.0-11.0
11.0-12.0			.0006	.0022	.0035	.0052	.0063	.0081	.0099	.0115	.0141	.0142	0.17	11.0-12.0
12.0-13.0			.0007	.0026	.0039	.0056	.0071	.0086	.0101	.0112	.0210	.0211	0.17	12.0-13.0
13.0-14.0			.0009	.0030	.0044	.0064	.0077	.0096	.0121	.0139	.0197	.0198	0.17	13.0-14.0
14.0-15.0		.0001	.0008	.0030	.0048	.0069	.0082	.0101	.0123	.0144	.0195	.0196	0.17	14.0-15.0
15.0-16.0		.0001	.0011	.0026	.0052	.0069	.0082	.0096	.0110	.0131	.0177	.0178	0.17	15.0-16.0
16.0-17.0		.0002	.0014	.0040	.0057	.0076	.0087	.0106	.0118	.0141	.0152	.0153	0.17	16.0-17.0
17.0-18.0		.0002	.0014	.0037	.0049	.0067	.0075	.0087	.0101	.0128	.0185	.0186	0.17	17.0-18.0
18.0-19.0		.0001	.0010	.0029	.0042	.0056	.0063	.0083	.0106	.0126	.0193	.0194	0.17	18.0-19.0
19.0-20.0			.0006	.0021	.0030	.0044	.0052	.0065	.0079	.0091	.0115	.0116	0.17	19.0-20.0
20.0-21.0			.0006	.0018	.0026	.0037	.0042	.0053	.0070	.0078	.0125	.0126	0.17	20.0-21.0
21.0-22.0			.0002	.0016	.0022	.0032	.0039	.0044	.0058	.0067	.0098	.0099	0.17	21.0-22.0
22.0-23.0			.0001	.0011	.0020	.0030	.0038	.0047	.0059	.0073	.0124	.0125	0.17	22.0-23.0
23.0-24.0			.0001	.0010	.0020	.0030	.0035	.0045	.0059	.0082	.0232	.0233	0.17	23.0-24.0
24.0-25.0			.0001	.0011	.0020	.0029	.0037	.0049	.0058	.0071	.0120	.0121	0.17	24.0-25.0
25.0-26.0			.0001	.0010	.0019	.0029	.0033	.0048	.0056	.0069	.0100	.0101	0.17	25.0-26.0
26.0-27.0			.0001	.0011	.0020	.0030	.0037	.0046	.0055	.0068	.0073	.0074	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-8 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JULY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km.
	0.135	2.28	15.9	50.0	68.8	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0001	.0008	.0024	.0037	.0051	.0062	.0075	.0083	.0100	.0154	.0155	0.16	sfc- 1.0
1.0- 2.0		.0001	.0007	.0027	.0040	.0057	.0067	.0080	.0098	.0114	.0157	.0158	0.16	1.0- 2.0
2.0- 3.0			.0006	.0020	.0030	.0041	.0052	.0062	.0070	.0081	.0117	.0118	0.16	2.0- 3.0
3.0- 4.0			.0005	.0019	.0029	.0041	.0048	.0062	.0072	.0083	.0098	.0099	0.16	3.0- 4.0
4.0- 5.0			.0005	.0019	.0029	.0041	.0049	.0057	.0068	.0078	.0155	.0156	0.16	4.0- 5.0
5.0- 6.0			.0005	.0019	.0028	.0041	.0050	.0060	.0071	.0092	.0126	.0127	0.16	5.0- 6.0
6.0- 7.0			.0005	.0018	.0027	.0039	.0048	.0062	.0071	.0080	.0135	.0136	0.16	6.0- 7.0
7.0- 8.0			.0005	.0018	.0026	.0038	.0046	.0058	.0069	.0078	.0103	.0104	0.16	7.0- 8.0
8.0- 9.0			.0005	.0017	.0028	.0042	.0051	.0060	.0074	.0082	.0121	.0122	0.16	8.0- 9.0
9.0-10.0			.0006	.0020	.0029	.0044	.0053	.0067	.0084	.0100	.0149	.0150	0.16	9.0-10.0
10.0-11.0			.0005	.0020	.0033	.0047	.0058	.0068	.0085	.0105	.0122	.0123	0.16	10.0-11.0
11.0-12.0			.0005	.0018	.0028	.0042	.0051	.0063	.0082	.0113	.0178	.0179	0.16	11.0-12.0
12.0-13.0			.0006	.0020	.0030	.0045	.0055	.0068	.0080	.0098	.0147	.0148	0.16	12.0-13.0
13.0-14.0			.0006	.0021	.0034	.0051	.0062	.0078	.0095	.0108	.0155	.0156	0.16	13.0-14.0
14.0-15.0		.0001	.0010	.0031	.0045	.0067	.0077	.0092	.0104	.0115	.0195	.0196	0.16	14.0-15.0
15.0-16.0		.0001	.0010	.0036	.0049	.0064	.0073	.0087	.0103	.0110	.0142	.0143	0.16	15.0-16.0
16.0-17.0			.0011	.0035	.0048	.0066	.0078	.0093	.0105	.0126	.0151	.0152	0.16	16.0-17.0
17.0-18.0		.0001	.0010	.0028	.0040	.0053	.0062	.0072	.0085	.0102	.0166	.0167	0.16	17.0-18.0
18.0-19.0			.0007	.0023	.0032	.0048	.0057	.0065	.0073	.0079	.0107	.0108	0.16	18.0-19.0
19.0-20.0			.0007	.0020	.0030	.0040	.0046	.0053	.0065	.0072	.0113	.0114	0.16	19.0-20.0
20.0-21.0			.0006	.0019	.0028	.0039	.0043	.0051	.0062	.0080	.0099	.0100	0.16	20.0-21.0
21.0-22.0			.0004	.0015	.0021	.0032	.0039	.0049	.0055	.0065	.0107	.0108	0.16	21.0-22.0
22.0-23.0			.0002	.0013	.0020	.0031	.0039	.0050	.0060	.0069	.0080	.0081	0.16	22.0-23.0
23.0-24.0			.0001	.0011	.0020	.0030	.0039	.0041	.0050	.0060	.0083	.0084	0.16	23.0-24.0
24.0-25.0			.0002	.0012	.0020	.0029	.0031	.0040	.0049	.0060	.0094	.0095	0.16	24.0-25.0
25.0-26.0			.0002	.0015	.0021	.0030	.0039	.0046	.0056	.0060	.0071	.0072	0.16	25.0-26.0
26.0-27.0			.0003	.0015	.0021	.0032	.0040	.0049	.0059	.0072	.0269	.0270	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-9 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

AUGUST

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0007	.0024	.0038	.0052	.0058	.0068	.0079	.0088	.0101	.0102	0.16	sfc- 1.0
1.0- 2.0			.0008	.0025	.0037	.0056	.0066	.0081	.0094	.0100	.0152	.0153	0.16	1.0- 2.0
2.0- 3.0			.0006	.0021	.0031	.0045	.0052	.0064	.0074	.0089	.0122	.0123	0.16	2.0- 3.0
3.0- 4.0			.0005	.0018	.0027	.0039	.0046	.0058	.0070	.0081	.0098	.0099	0.16	3.0- 4.0
4.0- 5.0			.0005	.0018	.0027	.0038	.0043	.0052	.0059	.0069	.0085	.0086	0.16	4.0- 5.0
5.0- 6.0			.0005	.0018	.0027	.0038	.0045	.0055	.0067	.0079	.0253	.0254	0.16	5.0- 6.0
6.0- 7.0			.0004	.0016	.0025	.0038	.0043	.0052	.0065	.0071	.0264	.0265	0.16	6.0- 7.0
7.0- 8.0			.0005	.0018	.0026	.0038	.0046	.0058	.0070	.0081	.0112	.0113	0.16	7.0- 8.0
8.0- 9.0		.0001	.0007	.0020	.0029	.0041	.0052	.0065	.0078	.0089	.0129	.0130	0.16	8.0- 9.0
9.0-10.0			.0005	.0019	.0029	.0042	.0050	.0061	.0074	.0086	.0114	.0115	0.16	9.0-10.0
10.0-11.0			.0005	.0020	.0032	.0047	.0055	.0070	.0088	.0103	.0164	.0165	0.16	10.0-11.0
11.0-12.0			.0007	.0020	.0031	.0049	.0060	.0081	.0099	.0117	.0189	.0190	0.16	11.0-12.0
12.0-13.0			.0006	.0019	.0029	.0042	.0054	.0070	.0082	.0094	.0260	.0261	0.16	12.0-13.0
13.0-14.0		.0001	.0008	.0024	.0037	.0056	.0071	.0091	.0113	.0133	.0227	.0228	0.16	13.0-14.0
14.0-15.0			.0008	.0030	.0044	.0064	.0077	.0096	.0117	.0140	.0279	.0280	0.16	14.0-15.0
15.0-16.0		.0001	.0010	.0034	.0048	.0066	.0077	.0093	.0104	.0129	.0153	.0154	0.16	15.0-16.0
16.0-17.0			.0010	.0035	.0048	.0063	.0076	.0095	.0112	.0126	.0194	.0195	0.16	16.0-17.0
17.0-18.0			.0007	.0025	.0039	.0053	.0063	.0080	.0095	.0113	.0156	.0157	0.16	17.0-18.0
18.0-19.0			.0008	.0022	.0033	.0047	.0054	.0065	.0077	.0106	.0129	.0130	0.16	18.0-19.0
19.0-20.0			.0005	.0020	.0029	.0040	.0048	.0055	.0066	.0072	.0137	.0138	0.16	19.0-20.0
20.0-21.0			.0008	.0019	.0028	.0039	.0042	.0050	.0058	.0077	.0089	.0090	0.16	20.0-21.0
21.0-22.0			.0005	.0018	.0028	.0037	.0041	.0050	.0060	.0071	.0098	.0099	0.16	21.0-22.0
22.0-23.0			.0004	.0016	.0021	.0030	.0038	.0043	.0051	.0060	.0128	.0129	0.16	22.0-23.0
23.0-24.0			.0004	.0015	.0021	.0030	.0036	.0046	.0056	.0061	.0175	.0176	0.16	23.0-24.0
24.0-25.0			.0002	.0011	.0019	.0029	.0033	.0041	.0051	.0062	.0088	.0089	0.16	24.0-25.0
25.0-26.0			.0002	.0011	.0020	.0029	.0037	.0041	.0050	.0060	.0092	.0093	0.16	25.0-26.0
26.0-27.0			.0001	.0010	.0019	.0029	.0033	.0040	.0050	.0059	.0124	.0125	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-10 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

SEPTEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: Inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0007	.0023	.0034	.0049	.0057	.0068	.0078	.0085	.0115	.0116	0.17	sfc- 1.0
1.0- 2.0			.0008	.0027	.0041	.0059	.0068	.0082	.0097	.0109	.0174	.0175	0.17	1.0- 2.0
2.0- 3.0			.0006	.0022	.0035	.0049	.0060	.0072	.0086	.0095	.0178	.0179	0.17	2.0- 3.0
3.0- 4.0			.0006	.0020	.0029	.0045	.0054	.0075	.0097	.0110	.0188	.0189	0.17	3.0- 4.0
4.0- 5.0			.0006	.0021	.0030	.0043	.0053	.0063	.0078	.0090	.0109	.0110	0.17	4.0- 5.0
5.0- 6.0		.0001	.0007	.0020	.0030	.0042	.0050	.0065	.0077	.0100	.0137	.0138	0.17	5.0- 6.0
6.0- 7.0			.0006	.0022	.0033	.0045	.0053	.0068	.0089	.0103	.0147	.0148	0.17	6.0- 7.0
7.0- 8.0			.0006	.0021	.0035	.0052	.0061	.0078	.0105	.0128	.0176	.0177	0.17	7.0- 8.0
8.0- 9.0			.0005	.0022	.0034	.0051	.0062	.0077	.0095	.0108	.0139	.0140	0.17	8.0- 9.0
9.0-10.0			.0007	.0026	.0039	.0058	.0070	.0088	.0098	.0124	.0241	.0242	0.17	9.0-10.0
10.0-11.0			.0008	.0029	.0042	.0060	.0073	.0088	.0106	.0126	.0164	.0165	0.17	10.0-11.0
11.0-12.0		.0001	.0009	.0030	.0043	.0065	.0076	.0099	.0129	.0177	.0217	.0218	0.17	11.0-12.0
12.0-13.0			.0006	.0029	.0043	.0066	.0081	.0101	.0131	.0158	.0290	.0291	0.17	12.0-13.0
13.0-14.0		.0001	.0009	.0027	.0043	.0066	.0078	.0098	.0129	.0165	.0232	.0233	0.17	13.0-14.0
14.0-15.0			.0008	.0031	.0050	.0071	.0086	.0102	.0125	.0146	.0185	.0186	0.17	14.0-15.0
15.0-16.0		.0001	.0012	.0040	.0054	.0074	.0089	.0105	.0120	.0140	.0162	.0163	0.17	15.0-16.0
16.0-17.0		.0001	.0014	.0040	.0058	.0074	.0085	.0099	.0119	.0143	.0183	.0184	0.17	16.0-17.0
17.0-18.0			.0009	.0032	.0045	.0065	.0076	.0094	.0113	.0123	.0168	.0168	0.33	17.0-18.0
18.0-19.0			.0006	.0022	.0032	.0044	.0056	.0066	.0080	.0098	.0118	.0119	0.17	18.0-19.0
19.0-20.0			.0006	.0019	.0027	.0040	.0046	.0062	.0077	.0091	.0197	.0188	0.17	19.0-20.0
20.0-21.0			.0004	.0016	.0023	.0037	.0045	.0054	.0068	.0087	.0120	.0121	0.17	20.0-21.0
21.0-22.0			.0003	.0014	.0021	.0032	.0039	.0044	.0057	.0065	.0152	.0153	0.17	21.0-22.0
22.0-23.0			.0003	.0012	.0021	.0030	.0038	.0046	.0055	.0067	.0100	.0101	0.17	22.0-23.0
23.0-24.0			.0001	.0011	.0020	.0029	.0035	.0040	.0049	.0071	.0158	.0159	0.17	23.0-24.0
24.0-25.0			.0002	.0010	.0019	.0028	.0030	.0039	.0050	.0059	.0105	.0206	0.17	24.0-25.0
25.0-26.0			.0002	.0011	.0019	.0029	.0031	.0040	.0050	.0057	.0072	.0073	0.17	25.0-26.0
26.0-27.0			.0001	.0010	.0019	.0028	.0033	.0041	.0055	.0076	.0171	.0172	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-11 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

OCTOBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center,
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc - 1.0		.0001	.0007	.0024	.0034	.0048	.0057	.0067	.0078	.0094	.0113	0114	0.16	sfc - 1.0
1.0- 2.0			.0006	.0026	.0041	.0057	.0068	.0085	.0097	.0107	.0158	.0159	0.16	1.0- 2.0
2.0- 3.0			.0007	.0025	.0037	.0055	.0064	.0077	.0093	.0108	.0187	.0188	0.16	2.0- 3.0
3.0- 4.0			.0006	.0025	.0038	.0057	.0068	.0081	.0099	.0121	.0197	.0198	0.16	3.0- 4.0
4.0- 5.0			.0005	.0019	.0031	.0048	.0058	.0074	.0101	.0130	.0349	.0350	0.16	4.0- 5.0
5.0- 6.0		.0001	.0006	.0019	.0029	.0042	.0051	.0066	.0091	.0118	.0183	.0184	0.16	5.0- 6.0
6.0- 7.0			.0006	.0020	.0030	.0044	.0058	.0076	.0098	.0113	.0187	.0188	0.16	6.0- 7.0
7.0- 8.0			.0006	.0022	.0033	.0049	.0060	.0073	.0094	.0120	.0209	.0210	0.16	7.0- 8.0
8.0- 9.0			.0006	.0022	.0035	.0055	.0067	.0087	.0105	.0123	.0159	.0160	0.16	8.0- 9.0
9.0-10.0			.0007	.0025	.0037	.0057	.0069	.0087	.0106	.0119	.0195	.0196	0.16	9.0-10.0
10.0-11.0			.0008	.0025	.0039	.0060	.0071	.0086	.0115	.0129	.0253	.0254	0.16	10.0-11.0
11.0-12.0			.0007	.0028	.0040	.0060	.0070	.0094	.0122	.0140	.0187	.0188	0.16	11.0-12.0
12.0-13.0		.0001	.0009	.0028	.0043	.0062	.0080	.0096	.0115	.0132	.0234	.0235	0.16	12.0-13.0
13.0-14.0			.0008	.0028	.0042	.0062	.0072	.0095	.0110	.0136	.0255	.0256	0.16	13.0-14.0
14.0-15.0			.0006	.0023	.0037	.0053	.0064	.0082	.0096	.0109	.0145	.0146	0.16	14.0-15.0
15.0-16.0			.0007	.0025	.0038	.0053	.0063	.0080	.0093	.0115	.0152	.0153	0.16	15.0-16.0
16.0-17.0		.0001	.0008	.0028	.0040	.0058	.0068	.0083	.0099	.0114	.0139	.0139	0.32	16.0-17.0
17.0-18.0			.0008	.0028	.0039	.0053	.0061	.0070	.0089	.0118	.0158	.0159	0.16	17.0-18.0
18.0-19.0			.0008	.0023	.0033	.0045	.0054	.0063	.0076	.0089	.0125	.0126	0.16	18.0-19.0
19.0-20.0			.0004	.0018	.0026	.0039	.0048	.0059	.0069	.0084	.0229	.0230	0.16	19.0-20.0
20.0-21.0			.0003	.0013	.0021	.0034	.0042	.0054	.0067	.0094	.0188	.0189	0.16	20.0-21.0
21.0-22.0			.0003	.0013	.0021	.0033	.0040	.0050	.0060	.0069	.0081	.0081	0.32	21.0-22.0
22.0-23.0			.0003	.0013	.0020	.0032	.0038	.0047	.0057	.0068	.0074	.0075	0.16	22.0-23.0
23.0-24.0			.0003	.0014	.0021	.0031	.0039	.0047	.0057	.0070	.0122	.0123	0.16	23.0-24.0
24.0-25.0			.0003	.0013	.0020	.0030	.0037	.0044	.0056	.0064	.0091	.0092	0.16	24.0-25.0
25.0-26.0			.0002	.0014	.0023	.0035	.0041	.0050	.0062	.0088	.0141	.0142	0.16	25.0-26.0
26.0-27.0			.0003	.0013	.0021	.0032	.0040	.0051	.0060	.0069	.0101	.0102	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-12 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

NOVEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1954-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc - 1.0			.0006	.0021	.0033	.0047	.0055	.0068	.0084	.0107	.0146	.0147	0.17	sfc - 1.0
1.0- 2.0			.0007	.0024	.0036	.0054	.0064	.0081	.0098	.0108	.0137	.0138	0.17	1.0- 2.0
2.0- 3.0		.0001	.0007	.0026	.0038	.0056	.0064	.0074	.0092	.0105	.0154	.0155	0.17	2.0- 3.0
3.0- 4.0			.0006	.0022	.0035	.0053	.0063	.0078	.0107	.0124	.0268	.0269	0.17	3.0- 4.0
4.0- 5.0			.0006	.0021	.0033	.0049	.0060	.0073	.0090	.0124	.0200	.0201	0.17	4.0- 5.0
5.0- 6.0			.0006	.0020	.0033	.0052	.0064	.0080	.0100	.0124	.0216	.0217	0.17	5.0- 6.0
6.0- 7.0		.0001	.0008	.0026	.0040	.0055	.0067	.0083	.0116	.0132	.0164	.0165	0.17	6.0- 7.0
7.0- 8.0			.0006	.0023	.0035	.0054	.0074	.0096	.0124	.0155	.0207	.0208	0.17	7.0- 8.0
8.0- 9.0			.0007	.0024	.0040	.0058	.0071	.0088	.0106	.0143	.0281	.0282	0.17	8.0- 9.0
9.0-10.0			.0006	.0026	.0043	.0066	.0080	.0101	.0115	.0143	.0221	.0222	0.17	9.0-10.0
10.0-11.0			.0007	.0029	.0042	.0070	.0085	.0104	.0126	.0140	.0176	.0177	0.17	10.0-11.0
11.0-12.0		.0001	.0008	.0031	.0043	.0067	.0079	.0097	.0118	.0140	.0193	.0194	0.17	11.0-12.0
12.0-13.0			.0008	.0029	.0047	.0073	.0088	.0115	.0133	.0158	.0217	.0218	0.17	12.0-13.0
13.0-14.0			.0007	.0027	.0039	.0059	.0072	.0078	.0111	.0137	.0207	.0208	0.17	13.0-14.0
14.0-15.0			.0007	.0026	.0039	.0059	.0071	.0094	.0113	.0137	.0183	.0184	0.17	14.0-15.0
15.0-16.0			.0006	.0024	.0038	.0055	.0068	.0085	.0099	.0126	.0169	.0170	0.17	15.0-16.0
16.0-17.0			.0007	.0026	.0036	.0052	.0065	.0076	.0090	.0121	.0161	.0162	0.17	16.0-17.0
17.0-18.0		.0001	.0008	.0024	.0037	.0052	.0060	.0071	.0085	.0095	.0150	.0151	0.17	17.0-18.0
18.0-19.0			.0006	.0020	.0029	.0042	.0050	.0059	.0074	.0105	.0143	.0144	0.17	18.0-19.0
19.0-20.0			.0004	.0016	.0025	.0038	.0048	.0059	.0073	.0081	.0120	.0121	0.17	19.0-20.0
20.0-21.0			.0003	.0014	.0021	.0031	.0038	.0049	.0056	.0068	.0138	.0139	0.17	20.0-21.0
21.0-22.0			.0003	.0013	.0020	.0031	.0039	.0050	.0063	.0080	.0144	.0145	0.17	21.0-22.0
22.0-23.0			.0004	.0016	.0024	.0035	.0044	.0053	.0067	.0079	.0138	.0139	0.17	22.0-23.0
23.0-24.0			.0003	.0015	.0023	.0038	.0045	.0052	.0065	.0083	.0183	.0184	0.17	23.0-24.0
24.0-25.0			.0004	.0018	.0026	.0040	.0048	.0059	.0072	.0083	.0117	.0118	0.17	24.0-25.0
25.0-26.0			.0004	.0018	.0029	.0044	.0052	.0063	.0076	.0109	.0202	.0203	0.17	25.0-26.0
26.0-27.0			.0004	.0019	.0030	.0044	.0052	.0063	.0076	.0084	.0150	.0151	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE IX-13 DISTRIBUTION OF ZONAL WIND SHEARS

ZONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

DECEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc - 1.0		.0001	.0006	.0021	.0033	.0050	.0058	.0073	.0088	.0093	.0128	.0129	0.16	sfc - 1.0
1.0- 2.0		.0001	.0008	.0027	.0043	.0059	.0070	.0086	.0105	.0119	.0167	.0168	0.16	1.0- 2.0
2.0- 3.0		.0001	.0008	.0025	.0038	.0057	.0065	.0087	.0109	.0130	.0196	.0197	0.16	2.0- 3.0
3.0- 4.0		.0001	.0007	.0023	.0036	.0056	.0067	.0089	.0115	.0158	.0338	.0339	0.16	3.0- 4.0
4.0- 5.0			.0006	.0024	.0035	.0053	.0061	.0077	.0103	.0131	.0150	.0151	0.16	4.0- 5.0
5.0- 6.0			.0006	.0023	.0035	.0049	.0056	.0068	.0080	.0106	.0158	.0159	0.16	5.0- 6.0
6.0- 7.0			.0007	.0023	.0035	.0053	.0064	.0081	.0104	.0125	.0196	.0197	0.16	6.0- 7.0
7.0- 8.0			.0007	.0024	.0037	.0053	.0064	.0083	.0094	.0113	.0167	.0168	0.16	7.0- 8.0
8.0- 9.0			.0007	.0025	.0040	.0062	.0074	.0100	.0119	.0147	.0191	.0192	0.16	8.0- 9.0
9.0-10.0			.0007	.0032	.0049	.0070	.0086	.0106	.0122	.0154	.0267	.0268	0.16	9.0-10.0
10.0-11.0			.0009	.0032	.0051	.0077	.0090	.0106	.0138	.0187	.0300	.0301	0.16	10.0-11.0
11.0-12.0			.0009	.0034	.0051	.0080	.0096	.0122	.0142	.0161	.0183	.0184	0.16	11.0-12.0
12.0-13.0		.0001	.0010	.0033	.0050	.0072	.0086	.0109	.0137	.0162	.0239	.0240	0.16	12.0-13.0
13.0-14.0			.0008	.0033	.0047	.0072	.0090	.0115	.0145	.0158	.0273	.0274	0.16	13.0-14.0
14.0-15.0		.0001	.0008	.0028	.0041	.0058	.0072	.0099	.0114	.0138	.0202	.0203	0.16	14.0-15.0
15.0-16.0			.0007	.0025	.0038	.0055	.0066	.0080	.0098	.0112	.0146	.0147	0.16	15.0-16.0
16.0-17.0			.0008	.0030	.0041	.0063	.0073	.0086	.0097	.0125	.0217	.0218	0.16	16.0-17.0
17.0-18.0		.0001	.0009	.0028	.0041	.0059	.0066	.0080	.0099	.0130	.0173	.0174	0.16	17.0-18.0
18.0-19.0		.0001	.0007	.0027	.0039	.0055	.0062	.0074	.0088	.0120	.0174	.0175	0.16	18.0-19.0
19.0-20.0		.0001	.0006	.0023	.0035	.0050	.0059	.0068	.0077	.0096	.0139	.0140	0.16	19.0-20.0
20.0-21.0			.0004	.0016	.0026	.0040	.0049	.0063	.0074	.0085	.0224	.0225	0.16	20.0-21.0
21.0-22.0			.0004	.0016	.0024	.0039	.0050	.0060	.0074	.0090	.0168	.0169	0.16	21.0-22.0
22.0-23.0			.0004	.0016	.0024	.0037	.0044	.0053	.0064	.0073	.0152	.0153	0.16	22.0-23.0
23.0-24.0			.0003	.0014	.0023	.0036	.0042	.0055	.0065	.0075	.0227	.0228	0.16	23.0-24.0
24.0-25.0			.0004	.0017	.0025	.0037	.0045	.0056	.0068	.0082	.0127	.0128	0.16	24.0-25.0
25.0-26.0			.0003	.0018	.0028	.0043	.0051	.0062	.0080	.0110	.0186	.0187	0.16	25.0-26.0
26.0-27.0			.0005	.0019	.0028	.0040	.0048	.0057	.0069	.0081	.0166	.0167	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X Page

Distribution of Meridional Wind Shears

Unit: Inverse second (sec^{-1}) per 1000 meter layer of altitude

TABLE X-1 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNI

ANNUAL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: ANNUAL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 7308

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: Inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0005	.0021	.0032	.0049	.0059	.0075	.0097	.0118	.0164	.0205	0.01	sfc- 1.0
1.0- 2.0			.0006	.0022	.0034	.0049	.0059	.0073	.0089	.0105	.0146	.0194	0.01	1.0- 2.0
2.0- 3.0			.0006	.0022	.0033	.0050	.0060	.0076	.0095	.0119	.0179	.0304	0.01	2.0- 3.0
3.0- 4.0			.0006	.0020	.0031	.0046	.0056	.0071	.0089	.0108	.0190	.0258	0.01	3.0- 4.0
4.0- 5.0			.0006	.0020	.0030	.0044	.0054	.0069	.0088	.0108	.0175	.0269	0.01	4.0- 5.0
5.0- 6.0			.0005	.0019	.0029	.0044	.0053	.0067	.0084	.0107	.0228	.0336	0.01	5.0- 6.0
6.0- 7.0			.0005	.0019	.0029	.0045	.0055	.0071	.0090	.0119	.0181	.0345	0.01	6.0- 7.0
7.0- 8.0			.0005	.0020	.0030	.0047	.0058	.0073	.0092	.0118	.0188	.0370	0.01	7.0- 8.0
8.0- 9.0			.0005	.0020	.0031	.0048	.0060	.0078	.0100	.0126	.0186	.0348	0.01	8.0- 9.0
9.0-10.0			.0006	.0022	.0034	.0053	.0065	.0084	.0110	.0140	.0243	.0358	0.01	9.0-10.0
10.0-11.0			.0006	.0023	.0036	.0056	.0071	.0093	.0120	.0148	.0221	.0333	0.01	10.0-11.0
11.0-12.0			.0006	.0025	.0039	.0061	.0077	.0100	.0128	.0163	.0227	.0334	0.01	11.0-12.0
12.0-13.0			.0007	.0027	.0042	.0064	.0079	.0103	.0131	.0157	.0239	.0371	0.01	12.0-13.0
13.0-14.0			.0007	.0026	.0040	.0062	.0075	.0096	.0120	.0146	.0216	.0320	0.01	13.0-14.0
14.0-15.0			.0006	.0023	.0036	.0055	.0068	.0085	.0108	.0131	.0224	.0307	0.03	14.0-15.0
15.0-16.0			.0005	.0020	.0032	.0049	.0059	.0075	.0091	.0112	.0177	.0251	0.01	15.0-16.0
16.0-17.0			.0005	.0019	.0030	.0045	.0056	.0070	.0088	.0109	.0159	.0224	0.01	16.0-17.0
17.0-18.0			.0005	.0018	.0027	.0041	.0050	.0061	.0078	.0098	.0150	.0249	0.01	17.0-18.0
18.0-19.0			.0004	.0016	.0024	.0036	.0044	.0056	.0072	.0090	.0157	.0196	0.01	18.0-19.0
19.0-20.0			.0003	.0014	.0022	.0033	.0040	.0052	.0065	.0081	.0130	.0278	0.01	19.0-20.0
20.0-21.0			.0003	.0013	.0020	.0031	.0038	.0048	.0060	.0080	.0118	.0213	0.01	20.0-21.0
21.0-22.0			.0003	.0012	.0019	.0030	.0037	.0046	.0058	.0070	.0117	.0176	0.01	21.0-22.0
22.0-23.0			.0002	.0012	.0018	.0029	.0035	.0045	.0057	.0069	.0119	.0244	0.01	22.0-23.0
23.0-24.0			.0002	.0011	.0018	.0029	.0036	.0045	.0056	.0073	.0138	.0238	0.01	23.0-24.0
24.0-25.0			.0002	.0011	.0018	.0029	.0035	.0044	.0056	.0070	.0112	.0254	0.01	24.0-25.0
25.0-26.0			.0002	.0011	.0018	.0028	.0035	.0045	.0058	.0070	.0105	.0147	0.01	25.0-26.0
26.0-27.0			.0002	.0011	.0018	.0029	.0035	.0046	.0057	.0070	.0108	.0146	0.01	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-2 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JANUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JANUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0024	.0038	.0059	.0070	.0089	.0105	.0126	.0171	.0171	0.32	sfc- 1.0
1.0- 2.0			.0005	.0024	.0036	.0056	.0066	.0083	.0096	.0106	.0132	.0133	0.16	1.0- 2.0
2.0- 3.0			.0005	.0024	.0038	.0054	.0071	.0090	.0108	.0150	.0303	.0304	0.16	2.0- 3.0
3.0- 4.0			.0006	.0022	.0036	.0056	.0067	.0085	.0107	.0133	.0241	.0242	0.16	3.0- 4.0
4.0- 5.0			.0007	.0026	.0038	.0053	.0063	.0082	.0107	.0131	.0176	.0177	0.16	4.0- 5.0
5.0- 6.0			.0007	.0023	.0036	.0054	.0067	.0085	.0106	.0137	.0238	.0239	0.16	5.0- 6.0
6.0- 7.0			.0005	.0021	.0034	.0056	.0068	.0088	.0117	.0138	.0182	.0183	0.16	6.0- 7.0
7.0- 8.0			.0007	.0025	.0040	.0061	.0071	.0089	.0129	.0147	.0188	.0189	0.16	7.0- 8.0
8.0- 9.0			.0006	.0025	.0039	.0061	.0076	.0101	.0127	.0150	.0347	.0348	0.16	8.0- 9.0
9.0-10.0			.0006	.0029	.0044	.0068	.0084	.0110	.0138	.0173	.0196	.0197	0.16	9.0-10.0
10.0-11.0			.0008	.0030	.0046	.0077	.0097	.0120	.0139	.0184	.0268	.0269	0.16	10.0-11.0
11.0-12.0			.0008	.0035	.0054	.0085	.0104	.0137	.0162	.0183	.0266	.0267	0.16	11.0-12.0
12.0-13.0		.0002	.0010	.0039	.0059	.0090	.0115	.0144	.0190	.0221	.0274	.0275	0.16	12.0-13.0
13.0-14.0			.0010	.0034	.0053	.0074	.0088	.0113	.0130	.0141	.0219	.0220	0.16	13.0-14.0
14.0-15.0			.0009	.0030	.0048	.0067	.0083	.0105	.0131	.0168	.0306	.0307	0.16	14.0-15.0
15.0-16.0			.0006	.0025	.0039	.0062	.0075	.0089	.0111	.0146	.0198	.0199	0.16	15.0-16.0
16.0-17.0			.0006	.0023	.0035	.0057	.0066	.0080	.0103	.0131	.0202	.0203	0.16	16.0-17.0
17.0-18.0			.0006	.0021	.0034	.0050	.0059	.0077	.0096	.0129	.0184	.0185	0.16	17.0-18.0
18.0-19.0			.0005	.0018	.0028	.0044	.0050	.0062	.0076	.0089	.0145	.0146	0.16	18.0-19.0
19.0-20.0			.0004	.0017	.0025	.0040	.0048	.0059	.0075	.0092	.0196	.0197	0.16	19.0-20.0
20.0-21.0			.0003	.0016	.0024	.0036	.0044	.0053	.0068	.0088	.0107	.0108	0.16	20.0-21.0
21.0-22.0			.0003	.0012	.0020	.0033	.0039	.0048	.0060	.0074	.0100	.0101	0.16	21.0-22.0
22.0-23.0			.0003	.0013	.0020	.0030	.0037	.0050	.0064	.0076	.0111	.0112	0.16	22.0-23.0
23.0-24.0			.0003	.0013	.0022	.0033	.0039	.0049	.0060	.0073	.0097	.0098	0.16	23.0-24.0
24.0-25.0			.0003	.0012	.0020	.0032	.0038	.0047	.0055	.0065	.0114	.0115	0.16	24.0-25.0
25.0-26.0			.0003	.0014	.0021	.0031	.0037	.0050	.0065	.0073	.0100	.0101	0.16	25.0-26.0
26.0-27.0			.0002	.0013	.0021	.0032	.0040	.0051	.0061	.0068	.0117	.0118	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-3 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

FEBRUARY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: FEBRUARY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 568

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0003	.0022	.0036	.0057	.0071	.0092	.0125	.0149	.0204	.0205	0.18	sfc- 1.0
1.0- 2.0			.0008	.0025	.0039	.0056	.0068	.0080	.0106	.0135	.0193	.0194	0.18	1.0- 2.0
2.0- 3.0			.0007	.0026	.0040	.0060	.0072	.0090	.0114	.0127	.0140	.0140	0.35	2.0- 3.0
3.0- 4.0			.0005	.0021	.0032	.0049	.0060	.0076	.0091	.0104	.0173	.0174	0.18	3.0- 4.0
4.0- 5.0			.0006	.0023	.0035	.0051	.0062	.0080	.0101	.0112	.0147	.0148	0.18	4.0- 5.0
5.0- 6.0			.0005	.0022	.0034	.0050	.0061	.0077	.0099	.0127	.0227	.0228	0.18	5.0- 6.0
6.0- 7.0			.0007	.0023	.0037	.0058	.0069	.0084	.0092	.0130	.0181	.0182	0.18	6.0- 7.0
7.0- 8.0			.0007	.0024	.0038	.0059	.0075	.0088	.0110	.0145	.0186	.0187	0.18	7.0- 8.0
8.0- 9.0			.0006	.0026	.0042	.0061	.0070	.0096	.0128	.0147	.0187	.0188	0.18	8.0- 9.0
9.0-10.0			.0007	.0027	.0045	.0068	.0084	.0113	.0161	.0184	.0292	.0293	0.18	9.0-10.0
10.0-11.0			.0008	.0031	.0048	.0075	.0097	.0139	.0172	.0195	.0332	.0333	0.18	10.0-11.0
11.0-12.0			.0008	.0033	.0054	.0080	.0097	.0123	.0152	.0195	.0333	.0334	0.18	11.0-12.0
12.0-13.0			.0009	.0030	.0049	.0076	.0093	.0121	.0140	.0178	.0246	.0247	0.18	12.0-13.0
13.0-14.0			.0007	.0029	.0045	.0068	.0086	.0112	.0143	.0163	.0319	.0320	0.18	13.0-14.0
14.0-15.0			.0006	.0024	.0038	.0063	.0082	.0118	.0147	.0170	.0306	.0307	0.18	14.0-15.0
15.0-16.0			.0006	.0022	.0034	.0058	.0069	.0087	.0108	.0145	.0213	.0214	0.18	15.0-16.0
16.0-17.0			.0005	.0020	.0031	.0046	.0058	.0072	.0105	.0119	.0147	.0148	0.18	16.0-17.0
17.0-18.0			.0004	.0018	.0028	.0044	.0054	.0070	.0096	.0124	.0143	.0144	0.18	17.0-18.0
18.0-19.0			.0005	.0018	.0026	.0040	.0050	.0071	.0089	.0108	.0189	.0190	0.18	18.0-19.0
19.0-20.0			.0003	.0014	.0023	.0035	.0044	.0059	.0071	.0084	.0277	.0278	0.18	19.0-20.0
20.0-21.0			.0003	.0014	.0021	.0033	.0040	.0051	.0081	.0117	.0212	.0213	0.18	20.0-21.0
21.0-22.0			.0003	.0013	.0020	.0030	.0036	.0047	.0060	.0069	.0119	.0120	0.18	21.0-22.0
22.0-23.0			.0002	.0012	.0018	.0030	.0039	.0051	.0060	.0072	.0243	.0244	0.18	22.0-23.0
23.0-24.0			.0003	.0011	.0019	.0031	.0037	.0049	.0064	.0083	.0176	.0177	0.18	23.0-24.0
24.0-25.0			.0002	.0013	.0021	.0031	.0041	.0053	.0069	.0085	.0218	.0219	0.18	24.0-25.0
25.0-26.0			.0003	.0012	.0019	.0032	.0038	.0050	.0064	.0092	.0118	.0119	0.18	25.0-26.0
26.0-27.0			.0003	.0015	.0024	.0040	.0048	.0061	.0071	.0079	.0103	.0104	0.18	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-4 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

MARCH

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MARCH

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0005	.0024	.0039	.0059	.0078	.0099	.0116	.0133	.0175	.0176	0.16	sfc- 1.0
1.0- 2.0			.0006	.0021	.0034	.0050	.0061	.0078	.0099	.0107	.0176	.0177	0.16	1.0- 2.0
2.0- 3.0			.0005	.0021	.0034	.0050	.0061	.0082	.0112	.0143	.0192	.0193	0.16	2.0- 3.0
3.0- 4.0			.0006	.0019	.0031	.0045	.0056	.0075	.0089	.0119	.0229	.0230	0.16	3.0- 4.0
4.0- 5.0			.0004	.0018	.0027	.0041	.0052	.0066	.0087	.0100	.0208	.0209	0.16	4.0- 5.0
5.0- 6.0			.0005	.0020	.0029	.0044	.0053	.0070	.0086	.0102	.0335	.0336	0.16	5.0- 6.0
6.0- 7.0			.0005	.0018	.0029	.0043	.0051	.0063	.0089	.0122	.0265	.0266	0.16	6.0- 7.0
7.0- 8.0			.0005	.0020	.0032	.0050	.0064	.0077	.0093	.0109	.0189	.0190	0.16	7.0- 8.0
8.0- 9.0			.0004	.0019	.0030	.0048	.0060	.0080	.0103	.0150	.0289	.0290	0.16	8.0- 9.0
9.0-10.0			.0005	.0023	.0036	.0057	.0067	.0089	.0105	.0132	.0340	.0341	0.16	9.0-10.0
10.0-11.0			.0005	.0023	.0036	.0062	.0079	.0114	.0141	.0165	.0228	.0229	0.16	10.0-11.0
11.0-12.0			.0006	.0028	.0044	.0067	.0089	.0112	.0139	.0166	.0300	.0301	0.16	11.0-12.0
12.0-13.0			.0005	.0029	.0045	.0069	.0082	.0108	.0133	.0161	.0264	.0265	0.16	12.0-13.0
13.0-14.0			.0005	.0024	.0039	.0060	.0072	.0093	.0119	.0162	.0236	.0237	0.16	13.0-14.0
14.0-15.0			.0005	.0023	.0035	.0049	.0057	.0080	.0089	.0109	.0175	.0176	0.16	14.0-15.0
15.0-16.0			.0004	.0017	.0027	.0041	.0049	.0064	.0082	.0102	.0140	.0141	0.16	15.0-16.0
16.0-17.0			.0003	.0016	.0026	.0039	.0048	.0062	.0079	.0094	.0134	.0135	0.16	16.0-17.0
17.0-18.0			.0004	.0017	.0026	.0037	.0045	.0055	.0064	.0072	.0130	.0131	0.16	17.0-18.0
18.0-19.0			.0004	.0015	.0023	.0033	.0041	.0052	.0070	.0091	.0161	.0162	0.16	18.0-19.0
19.0-20.0			.0003	.0014	.0022	.0033	.0040	.0049	.0058	.0072	.0152	.0153	0.16	19.0-20.0
20.0-21.0			.0003	.0013	.0021	.0030	.0036	.0044	.0054	.0068	.0104	.0105	0.16	20.0-21.0
21.0-22.0			.0003	.0010	.0018	.0031	.0037	.0045	.0054	.0066	.0112	.0113	0.16	21.0-22.0
22.0-23.0			.0003	.0011	.0018	.0027	.0033	.0042	.0054	.0071	.0138	.0139	0.16	22.0-23.0
23.0-24.0			.0002	.0010	.0016	.0029	.0037	.0046	.0059	.0069	.0138	.0139	0.16	23.0-24.0
24.0-25.0			.0002	.0010	.0017	.0030	.0036	.0047	.0056	.0070	.0110	.0111	0.16	24.0-25.0
25.0-26.0			.0002	.0009	.0017	.0028	.0037	.0049	.0062	.0081	.0146	.0147	0.16	25.0-26.0
26.0-27.0			.0002	.0010	.0017	.0026	.0034	.0045	.0058	.0070	.0112	.0113	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-5 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

APRIL

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: APRIL

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118 27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY										Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0023	.0037	.0056	.0065	.0084	.0113	.0127	.0176	.0176	0.33	sfc- 1.0
1.0- 2.0			.0006	.0023	.0035	.0050	.0060	.0075	.0096	.0119	.0148	.0149	0.17	1.0- 2.0
2.0- 3.0			.0006	.0022	.0035	.0053	.0063	.0074	.0098	.0130	.0248	.0249	0.17	2.0- 3.0
3.0- 4.0			.0005	.0020	.0030	.0047	.0056	.0074	.0092	.0134	.0218	.0219	0.17	3.0- 4.0
4.0- 5.0		.0001	.0006	.0022	.0031	.0046	.0054	.0075	.0092	.0162	.0267	.0268	0.17	4.0- 5.0
5.0- 6.0			.0005	.0019	.0029	.0042	.0051	.0067	.0094	.0108	.0227	.0228	0.17	5.0- 6.0
6.0- 7.0			.0005	.0018	.0030	.0044	.0053	.0073	.0093	.0131	.0326	.0327	0.17	6.0- 7.0
7.0- 8.0			.0004	.0017	.0028	.0043	.0055	.0074	.0096	.0154	.0369	.0370	0.17	7.0- 8.0
8.0- 9.0			.0004	.0018	.0028	.0046	.0058	.0072	.0096	.0116	.0149	.0150	0.17	8.0- 9.0
9.0-10.0			.0005	.0021	.0032	.0050	.0060	.0077	.0106	.0157	.0294	.0295	0.17	9.0-10.0
10.0-11.0			.0005	.0022	.0033	.0055	.0068	.0096	.0113	.0141	.0256	.0257	0.17	10.0-11.0
11.0-12.0			.0005	.0023	.0036	.0058	.0070	.0090	.0117	.0139	.0227	.0228	0.17	11.0-12.0
12.0-13.0			.0007	.0027	.0045	.0068	.0084	.0111	.0126	.0137	.0209	.0210	0.17	12.0-13.0
13.0-14.0			.0005	.0025	.0039	.0064	.0075	.0096	.0122	.0151	.0218	.0219	0.17	13.0-14.0
14.0-15.0			.0006	.0021	.0032	.0053	.0064	.0080	.0087	.0102	.0148	.0149	0.17	14.0-15.0
15.0-16.0			.0004	.0017	.0026	.0039	.0047	.0062	.0082	.0111	.0209	.0210	0.17	15.0-16.0
16.0-17.0			.0004	.0015	.0026	.0040	.0048	.0069	.0093	.0133	.0184	.0185	0.17	16.0-17.0
17.0-18.0			.0004	.0016	.0025	.0041	.0051	.0061	.0080	.0103	.0248	.0249	0.17	17.0-18.0
18.0-19.0			.0004	.0013	.0021	.0034	.0043	.0055	.0072	.0099	.0183	.0184	0.17	18.0-19.0
19.0-20.0			.0003	.0016	.0023	.0034	.0040	.0054	.0067	.0099	.0139	.0140	0.17	19.0-20.0
20.0-21.0			.0003	.0014	.0022	.0033	.0041	.0054	.0068	.0085	.0125	.0126	0.17	20.0-21.0
21.0-22.0			.0002	.0013	.0021	.0034	.0041	.0051	.0065	.0090	.0154	.0155	0.17	21.0-22.0
22.0-23.0			.0003	.0013	.0020	.0031	.0038	.0050	.0070	.0080	.0137	.0138	0.17	22.0-23.0
23.0-24.0			.0003	.0012	.0019	.0030	.0038	.0049	.0069	.0082	.0138	.0139	0.17	23.0-24.0
24.0-25.0			.0002	.0011	.0018	.0029	.0037	.0045	.0055	.0067	.0084	.0085	0.17	24.0-25.0
25.0-26.0			.0001	.0011	.0018	.0030	.0036	.0047	.0058	.0068	.0091	.0092	0.17	25.0-26.0
26.0-27.0			.0002	.0010	.0018	.0029	.0036	.0048	.0064	.0076	.0129	.0130	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-6 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

MAY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: MAY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0021	.0031	.0048	.0055	.0071	.0084	.0108	.0174	.0175	0.16	sfc- 1.0
1.0- 2.0		.0001	.0009	.0027	.0041	.0057	.0067	.0079	.0090	.0104	.0167	.0168	0.16	1.0- 2.0
2.0- 3.0		.0001	.0007	.0023	.0036	.0051	.0061	.0076	.0092	.0110	.0154	.0155	0.16	2.0- 3.0
3.0- 4.0		.0001	.0006	.0021	.0032	.0045	.0053	.0072	.0099	.0109	.0158	.0159	0.16	3.0- 4.0
4.0- 5.0			.0006	.0019	.0031	.0048	.0056	.0068	.0089	.0111	.0199	.0200	0.16	4.0- 5.0
5.0- 6.0			.0005	.0018	.0028	.0042	.0053	.0065	.0090	.0114	.0212	.0213	0.16	5.0- 6.0
6.0- 7.0			.0005	.0018	.0028	.0044	.0054	.0068	.0085	.0121	.0206	.0207	0.16	6.0- 7.0
7.0- 8.0			.0005	.0018	.0028	.0043	.0054	.0067	.0092	.0112	.0230	.0231	0.16	7.0- 8.0
8.0- 9.0			.0005	.0019	.0030	.0048	.0060	.0081	.0097	.0128	.0302	.0303	0.16	8.0- 9.0
9.0-10.0			.0006	.0021	.0033	.0049	.0059	.0074	.0102	.0124	.0224	.0225	0.16	9.0-10.0
10.0-11.0			.0005	.0021	.0033	.0050	.0058	.0073	.0087	.0108	.0314	.0315	0.16	10.0-11.0
11.0-12.0			.0006	.0023	.0036	.0059	.0074	.0100	.0128	.0163	.0187	.0188	0.16	11.0-12.0
12.0-13.0			.0007	.0028	.0043	.0068	.0077	.0094	.0121	.0147	.0214	.0215	0.16	12.0-13.0
13.0-14.0		.0001	.0008	.0026	.0041	.0062	.0076	.0092	.0124	.0143	.0203	.0204	0.16	13.0-14.0
14.0-15.0			.0006	.0021	.0033	.0049	.0058	.0076	.0098	.0115	.0147	.0148	0.16	14.0-15.0
15.0-16.0			.0006	.0018	.0030	.0045	.0051	.0061	.0073	.0083	.0140	.0141	0.16	15.0-16.0
16.0-17.0			.0005	.0017	.0027	.0040	.0049	.0063	.0074	.0092	.0151	.0152	0.16	16.0-17.0
17.0-18.0			.0004	.0015	.0025	.0037	.0046	.0056	.0077	.0095	.0175	.0176	0.16	17.0-18.0
18.0-19.0			.0004	.0016	.0025	.0039	.0047	.0060	.0086	.0099	.0187	.0188	0.16	18.0-19.0
19.0-20.0			.0003	.0014	.0023	.0033	.0041	.0050	.0065	.0090	.0150	.0151	0.16	19.0-20.0
20.0-21.0			.0003	.0012	.0020	.0032	.0038	.0047	.0057	.0082	.0118	.0119	0.16	20.0-21.0
21.0-22.0			.0002	.0010	.0018	.0028	.0035	.0041	.0053	.0061	.0113	.0114	0.16	21.0-22.0
22.0-23.0			.0002	.0010	.0017	.0027	.0034	.0044	.0056	.0073	.0098	.0099	0.16	22.0-23.0
23.0-24.0			.0002	.0010	.0017	.0029	.0035	.0045	.0055	.0071	.0123	.0124	0.16	23.0-24.0
24.0-25.0			.0002	.0010	.0017	.0027	.0033	.0043	.0059	.0077	.0176	.0177	0.16	24.0-25.0
25.0-26.0			.0002	.0010	.0017	0028	.0034	.0044	.0056	.0066	.0089	.0090	0.16	25.0-26.0
26.0-27.0			.0002	.0009	.0016	.0024	.0031	.0044	.0052	.0066	.0098	.0099	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-7 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JUNE

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JUNE

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

NO. OF OBS. FOR EACH LEVEL: 600

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0006	.0022	.0032	.0047	.0056	.0070	.0084	.0099	.0135	.0136	0.17	sfc- 1.0
1.0- 2.0		.0001	.0006	.0021	.0033	.0051	.0060	.0073	.0088	.0107	.0150	.0151	0.17	1.0- 2.0
2.0- 3.0		.0001	.0007	.0023	.0034	.0048	.0057	.0070	.0079	.0091	.0112	.0113	0.17	2.0- 3.0
3.0- 4.0		.0001	.0006	.0023	.0034	.0048	.0056	.0067	.0080	.0090	.0122	.0123	0.17	3.0- 4.0
4.0- 5.0			.0005	.0020	.0029	.0040	.0049	.0058	.0081	.0097	.0160	.0161	0.17	4.0- 5.0
5.0- 6.0		.0001	.0005	.0019	.0028	.0041	.0050	.0064	.0073	.0088	.0302	.0303	0.17	5.0- 6.0
6.0- 7.0			.0005	.0018	.0027	.0040	.0050	.0060	.0071	.0083	.0132	.0133	0.17	6.0- 7.0
7.0- 8.0			.0005	.0018	.0028	.0041	.0051	.0064	.0081	.0104	.0167	.0168	0.17	7.0- 8.0
8.0- 9.0			.0005	.0018	.0027	.0040	.0051	.0065	.0078	.0083	.0123	.0124	0.17	8.0- 9.0
9.0-10.0		.0001	.0005	.0019	.0028	.0043	.0052	.0063	.0086	.0104	.0160	.0161	0.17	9.0-10.0
10.0-11.0			.0005	.0019	.0030	.0045	.0056	.0071	.0087	.0100	.0124	.0125	0.17	10.0-11.0
11.0-12.0			.0005	.0021	.0034	.0051	.0063	.0086	.0100	.0134	.0191	.0192	0.17	11.0-12.0
12.0-13.0			.0006	.0025	.0038	.0057	.0067	.0084	.0106	.0139	.0279	.0280	0.17	12.0-13.0
13.0-14.0			.0007	.0024	.0037	.0059	.0072	.0095	.0112	.0148	.0163	.0164	0.17	13.0-14.0
14.0-15.0			.0007	.0024	.0036	.0055	.0069	.0082	.0098	.0115	.0173	.0174	0.17	14.0-15.0
15.0-16.0			.0006	.0021	.0033	.0050	.0062	.0081	.0092	.0108	.0170	.0171	0.17	15.0-16.0
16.0-17.0			.0006	.0021	.0031	.0050	.0058	.0072	.0095	.0108	.0137	.0138	0.17	16.0-17.0
17.0-18.0		.0001	.0005	.0018	.0028	.0042	.0051	.0062	.0083	.0104	.0152	.0153	0.17	17.0-18.0
18.0-19.0			.0005	.0017	.0026	.0037	.0045	.0056	.0076	.0091	.0140	.0141	0.17	18.0-19.0
19.0-20.0			.0003	.0014	.0023	.0033	.0039	.0047	.0056	.0070	.0109	.0110	0.17	19.0-20.0
20.0-21.0			.0003	.0012	.0018	.0029	.0034	.0045	.0052	.0064	.0080	.0081	0.17	20.0-21.0
21.0-22.0			.0002	.0010	.0016	.0027	.0032	.0043	.0054	.0068	.0083	.0084	0.17	21.0-22.0
22.0-23.0			.0002	.0011	.0017	.0029	.0033	.0041	.0050	.0062	.0116	.0117	0.17	22.0-23.0
23.0-24.0			.0002	.0010	.0017	.0028	.0035	.0043	.0052	.0076	.0237	.0238	0.17	23.0-24.0
24.0-25.0			.0001	.0010	.0016	.0025	.0031	.0039	.0050	.0076	.0142	.0143	0.17	24.0-25.0
25.0-26.0			.0001	.0009	.0015	.0024	.0030	.0042	.0051	.0062	.0132	.0133	0.17	25.0-26.0
26.0-27.0			.0001	.0010	.0015	.0025	.0030	.0038	.0047	.0052	.0073	.0074	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-8 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

JULY

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: JULY

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0004	.0017	.0025	.0037	.0045	.0055	.0064	.0078	.0117	.0118	0.16	sfc- 1.0
1.0- 2.0			.0006	.0020	.0031	.0044	.0057	.0069	.0068	.0076	.0095	.0096	0.16	1.0- 2.0
2.0- 3.0			.0006	.0021	.0032	.0045	.0054	.0065	.0060	.0101	.0134	.0125	0.16	2.0- 3.0
3.0- 4.0			.0005	.0018	.0030	.0045	.0052	.0061	.0070	.0085	.0133	.0135	0.16	3.0- 4.0
4.0- 5.0			.0005	.0018	.0025	.0039	.0045	.0058	.0070	.0072	.0104	.0105	0.16	4.0- 5.0
5.0- 6.0			.0004	.0018	.0028	.0040	.0048	.0057	.0064	.0070	.0110	.0111	0.16	5.0- 6.0
6.0- 7.0			.0004	.0017	.0027	.0041	.0051	.0064	.0079	.0093	.0135	.0136	0.16	6.0- 7.0
7.0- 8.0			.0004	.0017	.0026	.0038	.0049	.0064	.0080	.0100	.0144	.0145	0.16	7.0- 8.0
8.0- 9.0			.0004	.0018	.0027	.0038	.0046	.0063	.0075	.0082	.0125	.0126	0.16	8.0- 9.0
9.0-10.0			.0005	.0019	.0030	.0044	.0054	.0063	.0076	.0090	.0129	.0130	0.16	9.0-10.0
10.0-11.0			.0006	.0020	.0031	.0046	.0057	.0069	.0089	.0107	.0249	.0250	0.16	10.0-11.0
11.0-12.0		.0001	.0006	.0019	.0029	.0044	.0052	.0067	.0090	.0109	.0174	.0175	0.16	11.0-12.0
12.0-13.0			.0005	.0022	.0030	.0043	.0052	.0069	.0084	.0099	.0186	.0187	0.16	12.0-13.0
13.0-14.0			.0005	.0023	.0034	.0051	.0059	.0074	.0094	.0112	.0138	.0139	0.16	13.0-14.0
14.0-15.0		.0001	.0007	.0024	.0038	.0059	.0072	.0094	.0111	.0118	.0295	.0296	0.16	14.0-15.0
15.0-16.0			.0005	.0022	.0034	.0052	.0061	.0073	.0091	.0107	.0197	.0198	0.16	15.0-16.0
16.0-17.0			.0005	.0020	.0032	.0047	.0054	.0069	.0078	.0090	.0132	.0133	0.16	16.0-17.0
17.0-18.0			.0004	.0018	.0028	.0040	.0050	.0061	.0075	.0083	.0117	.0118	0.16	17.0-18.0
18.0-19.0			.0004	.0014	.0023	.0033	.0039	.0049	.0057	.0067	.0111	.0112	0.16	18.0-19.0
19.0-20.0			.0004	.0013	.0020	.0030	.0034	.0044	.0056	.0069	.0098	.0099	0.16	19.0-20.0
20.0-21.0			.0002	.0011	.0018	.0027	.0032	.0039	.0046	.0055	.0093	.0094	0.16	20.0-21.0
21.0-22.0			.0002	.0011	.0018	.0026	.0031	.0039	.0047	.0055	.0074	.0075	0.16	21.0-22.0
22.0-23.0			.0002	.0011	.0017	.0026	.0029	.0035	.0043	.0046	.0064	.0065	0.16	22.0-23.0
23.0-24.0			.0002	.0010	.0016	.0024	.0030	.0038	.0048	.0055	.0073	.0074	0.16	23.0-24.0
24.0-25.0			.0002	.0011	.0016	.0026	.0032	.0039	.0050	.0060	.0084	.0085	0.16	24.0-25.0
25.0-26.0			.0002	.0012	.0018	.0029	.0033	.0042	.0053	.0075	.0099	.0100	0.16	25.0-26.0
26.0-27.0			.0002	.0013	.0018	.0029	.0035	.0044	.0053	.0063	.0128	.0129	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-9 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

AUGUST

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: AUGUST

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0005	.0017	.0023	.0034	.0040	.0047	.0058	.0064	.0084	.0084	0.32	sfc- 1.0
1.0- 2.0			.0005	.0019	.0029	.0043	.0049	.0060	.0068	.0089	.0114	.0115	0.16	1.0- 2.0
2.0- 3.0			.0005	.0020	.0030	.0040	.0049	.0056	.0071	.0078	.0094	.0095	0.16	2.0- 3.0
3.0- 4.0			.0005	.0018	.0027	.0039	.0044	.0057	.0065	.0077	.0107	.0108	0.16	3.0- 4.0
4.0- 5.0			.0004	.0017	.0026	.0036	.0042	.0050	.0060	.0071	.0083	.0084	0.16	4.0- 5.0
5.0- 6.0			.0005	.0016	.0024	.0036	.0043	.0053	.0063	.0072	.0083	.0084	0.16	5.0- 6.0
6.0- 7.0			.0004	.0015	.0023	.0034	.0042	.0053	.0061	.0069	.0111	.0112	0.16	6.0- 7.0
7.0- 8.0			.0004	.0017	.0025	.0038	.0044	.0052	.0062	.0075	.0092	.0093	0.16	7.0- 8.0
8.0- 9.0			.0006	.0017	.0026	.0041	.0052	.0065	.0079	.0094	.0143	.0144	0.16	8.0- 9.0
9.0-10.0			.0005	.0019	.0031	.0044	.0057	.0068	.0082	.0093	.0134	.0135	0.16	9.0-10.0
10.0-11.0			.0006	.0021	.0033	.0048	.0058	.0073	.0095	.0119	.0131	.0132	0.16	10.0-11.0
11.0-12.0			.0006	.0020	.0031	.0049	.0058	.0076	.0093	.0107	.0177	.0178	0.16	11.0-12.0
12.0-13.0			.0006	.0020	.0031	.0047	.0056	.0072	.0093	.0113	.0153	.0154	0.16	12.0-13.0
13.0-14.0			.0006	.0024	.0040	.0058	.0070	.0082	.0105	.0114	.0147	.0148	0.16	13.0-14.0
14.0-15.0			.0007	.0026	.0040	.0056	.0069	.0084	.0105	.0124	.0256	.0257	0.16	14.0-15.0
15.0-16.0			.0007	.0022	.0033	.0050	.0060	.0074	.0087	.0110	.0250	.0251	0.16	15.0-16.0
16.0-17.0			.0005	.0020	.0032	.0050	.0060	.0072	.0089	.0094	.0135	.0136	0.16	16.0-17.0
17.0-18.0			.0006	.0018	.0027	.0039	.0047	.0058	.0072	.0095	.0133	.0134	0.16	17.0-18.0
18.0-19.0			.0004	.0014	.0022	.0032	.0038	.0049	.0065	.0086	.0139	.0140	0.16	18.0-19.0
19.0-20.0			.0003	.0012	.0018	.0027	.0034	.0042	.0054	.0066	.0123	.0124	0.16	19.0-20.0
20.0-21.0			.0003	.0011	.0017	.0027	.0031	.0038	.0048	.0057	.0114	.0115	0.16	20.0-21.0
21.0-22.0			.0002	.0011	.0017	.0027	.0032	.0038	.0042	.0055	.0063	.0064	0.16	21.0-22.0
22.0-23.0			.0002	.0010	.0018	.0027	.0033	.0039	.0046	.0055	.0166	.0167	0.16	22.0-23.0
23.0-24.0			.0002	.0011	.0017	.0025	.0030	.0040	.0049	.0057	.0168	.0169	0.16	23.0-24.0
24.0-25.0			.0002	.0010	.0016	.0025	.0031	.0036	.0043	.0052	.0064	.0065	0.16	24.0-25.0
25.0-26.0			.0001	.0010	.0016	.0023	.0029	.0040	.0053	.0063	.0090	.0091	0.16	25.0-26.0
26.0-27.0			.0001	.0012	.0017	.0027	.0032	.0040	.0049	.0064	.0117	.0118	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-10 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

SEPTEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: SEPTEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0004	.0017	.0025	.0037	.0044	.0052	.0065	.0077	.0100	.0101	0.17	sfc- 1.0
1.0- 2.0			.0007	.0022	.0034	.0047	.0058	.0067	.0078	.0096	.0141	.0142	0.17	1.0- 2.0
2.0- 3.0			.0006	.0021	.0032	.0050	.0058	.0070	.0080	.0089	.0113	.0114	0.17	2.0- 3.0
3.0- 4.0			.0005	.0019	.0030	.0046	.0055	.0063	.0074	.0092	.0139	.0140	0.17	3.0- 4.0
4.0- 5.0			.0006	.0019	.0029	.0038	.0051	.0062	.0072	.0093	.0127	.0128	0.17	4.0- 5.0
5.0- 6.0			.0005	.0017	.0028	.0040	.0047	.0058	.0068	.0084	.0124	.0125	0.17	5.0- 6.0
6.0- 7.0			.0005	.0017	.0028	.0041	.0047	.0060	.0077	.0081	.0099	.0100	0.17	6.0- 7.0
7.0- 8.0			.0004	.0019	.0028	.0042	.0053	.0062	.0074	.0105	.0152	.0153	0.17	7.0-8.0
8.0- 9.0			.0005	.0019	.0029	.0044	.0051	.0061	.0078	.0090	.0186	.0187	0.17	8.0- 9.0
9.0-10.0		.0001	.0006	.0019	.0028	.0043	.0052	.0063	.0081	.0107	.0209	.0210	0.17	9.0-10.0
10.0-11.0			.0006	.0019	.0030	.0047	.0058	.0074	.0092	.0117	.0177	.0178	0.17	10.0-11.0
11.0-12.0			.0005	.0021	.0033	.0049	.0065	.0084	.0110	.0140	.0184	.0185	0.17	11.0-12.0
12.0-13.0		.0001	.0006	.0022	.0033	.0049	.0059	.0078	.0091	.0105	.0123	.0124	0.17	12.0-13.0
13.0-14.0			.0006	.0022	.0035	.0052	.0063	.0077	.0093	.0109	.0174	.0175	0.17	13.0-14.0
14.0-15.0			.0005	.0020	.0032	.0048	.0058	.0078	.0102	.0118	.0216	.0217	0.17	14.0-15.0
15.0-16.0			.0005	.0023	.0034	.0051	.0058	.0076	.0098	.0123	.0175	.0176	0.17	15.0-16.0
16.0-17.0			.0006	.0020	.0030	.0045	.0056	.0077	.0086	.0114	.0174	.0175	0.17	16.0-17.0
17.0-18.0			.0005	.0020	.0029	.0041	.0050	.0058	.0075	.0100	.0164	.0165	0.17	17.0-18.0
18.0-19.0			.0004	.0015	.0024	.0035	.0041	.0051	.0068	.0084	.0168	.0169	0.17	18.0-19.0
19.0-20.0			.0004	.0013	.0021	.0031	.0039	.0053	.0060	.0087	.0133	.0134	0.17	19.0-20.0
20.0-21.0			.0002	.0012	.0020	.0031	.0036	.0044	.0054	.0077	.0096	.0097	0.17	20.0-21.0
21.0-22.0			.0002	.0011	.0018	.0029	.0034	.0044	.0059	.0070	.0144	.0145	0.17	21.0-22.0
22.0-23.0			.0002	.0010	.0017	.0025	.0033	.0038	.0053	.0063	.0071	.0072	0.17	22.0-23.0
23.0-24.0			.0002	.0009	.0015	.0025	.0029	.0039	.0048	.0054	.0102	.0103	0.17	23.0-24.0
24.0-25.0			.0002	.0010	.0015	.0023	.0029	.0035	.0046	.0056	.0098	.0099	0.17	24.0-25.0
25.0-26.0			.0002	.0009	.0014	.0023	.0028	.0035	.0045	.0054	.0135	.0136	0.17	25.0-26.0
26.0-27.0			.0001	.0009	.0014	.0023	.0028	.0036	.0043	.0072	.0145	.0146	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-II DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

OCTOBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: OCTOBER

STATION ELEVATION: 135 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U.S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aerobalistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc - 1.0			.0005	.0020	.0031	.0049	.0057	.0071	.0085	.0104	.0150	.0151	0.16	sfc- 1.0
1.0- 2.0			.0007	.0022	.0031	.0044	.0052	.0070	.0080	.0093	.0156	.0157	0.16	1.0- 2.0
2.0- 3.0			.0006	.0021	.0030	.0043	.0051	.0063	.0078	.0092	.0146	.0147	0.16	2.0- 3.0
3.0- 4.0			.0005	.0021	.0031	.0044	.0054	.0073	.0090	.0100	.0115	.0116	0.16	3.0- 4.0
4.0- 5.0			.0006	.0021	.0030	.0045	.0056	.0074	.0093	.0118	.0233	.0233	0.16	4.0- 5.0
5.0- 6.0			.0006	.0020	.0030	.0046	.0057	.0071	.0086	.0103	.0284	.0285	0.16	5.0- 6.0
6.0- 7.0			.0006	.0020	.0029	.0044	.0052	.0067	.0088	.0109	.0344	.0345	0.16	6.0- 7.0
7.0- 8.0			.0005	.0019	.0028	.0044	.0054	.0069	.0087	.0100	.0310	.0311	0.16	7.0- 8.0
8.0- 9.0		.0001	.0005	.0019	.0031	.0047	.0062	.0084	.0109	.0124	.0187	.0188	0.16	8.0- 9.0
9.0-10.0			.0006	.0021	.0032	.0051	.0066	.0085	.0105	.0134	.0279	.0280	0.16	9.0-10.0
10.0-11.0		.0001	.0007	.0022	.0035	.0056	.0071	.0092	.0113	.0137	.0188	.0259	0.16	10.0-11.0
11.0-12.0			.0006	.0024	.0037	.0059	.0072	.0090	.0106	.0129	.0199	.0200	0.16	11.0-12.0
12.0-13.0		.0001	.0007	.0027	.0041	.0062	.0076	.0100	.0135	.0147	.0246	.0246	0.16	12.0-13.0
13.0-14.0			.0006	.0025	.0037	.0058	.0075	.0101	.0138	.0140	.0220	.0221	0.16	13.0-14.0
14.0-15.0			.0005	.0021	.0033	.0050	.0060	.0077	.0099	.0118	.0226	.0227	0.16	14.0-15.0
15.0-16.0			.0006	.0019	.0028	.0044	.0056	.0070	.0090	.0106	.0131	.0132	0.16	15.0-16.0
16.0-17.0			.0005	.0019	.0028	.0041	.0051	.0068	.0077	.0099	.0223	.0224	0.16	16.0-17.0
17.0-18.0			.0005	.0017	.0027	.0040	.0047	.0062	.0078	.0092	.0143	.0144	0.16	17.0-18.0
18.0-19.0			.0004	.0015	.0024	.0036	.0041	.0052	.0062	.0073	.0195	.0196	0.16	18.0-19.0
19.0-20.0			.0003	.0014	.0022	.0035	.0041	.0051	.0065	.0074	.0223	.0224	0.16	19.0-20.0
20.0-21.0			.0003	.0012	.0020	.0032	.0039	.0051	.0060	.0073	.0093	.0094	0.16	20.0-21.0
21.0-22.0			.0003	.0011	.0018	.0032	.0038	.0046	.0060	.0070	.0110	.0111	0.16	21.0-22.0
22.0-23.0			.0003	.0012	.0020	.0031	.0040	.0053	.0064	.0079	.0118	.0119	0.16	22.0-23.0
23.0-24.0			.0003	.0011	.0018	.0029	.0036	.0047	.0055	.0074	.0140	.0141	0.16	23.0-24.0
24.0-25.0			.0003	.0011	.0020	.0031	.0038	.0045	.0057	.0072	.0108	.0109	0.16	24.0-25.0
25.0-26.0			.0002	.0011	.0017	.0028	.0035	.0047	.0060	.0070	.0094	.0095	0.16	25.0-26.0
26.0-27.0			.0002	.0010	.0017	.0025	.0032	.0040	.0054	.0069	.0085	.0086	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-12 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

NOVEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: NOVEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 600

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aeroballistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: Inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0			.0007	.0025	.0038	.0051	.0063	.0075	.0101	.0131	.0188	.0189	0.17	sfc- 1.0
1.0- 2.0			.0005	.0020	.0030	.0048	.0059	.0072	.0089	.0109	.0136	.0137	0.17	1.0- 2.0
2.0- 3.0			.0007	.0023	.0032	.0050	.0062	.0085	.0122	.0153	.0225	.0226	0.17	2.0- 3.0
3.0- 4.0			.0006	.0021	.0029	.0046	.0059	.0080	.0097	.0133	.0257	.0258	0.17	3.0- 4.0
4.0- 5.0		.0001	.0006	.0020	.0030	.0044	.0055	.0072	.0085	.0109	.0222	.0223	0.17	4.0- 5.0
5.0- 6.0			.0006	.0020	.0031	.0047	.0055	.0068	.0081	.0104	.0283	.0284	0.17	5.0- 6.0
6.0- 7.0			.0005	.0019	.0029	.0048	.0059	.0084	.0104	.0129	.0183	.0184	0.17	6.0- 7.0
7.0- 8.0			.0006	.0022	.0034	.0051	.0059	.0076	.0095	.0136	.0165	.0166	0.17	7.0- 8.0
8.0- 9.0			.0006	.0020	.0031	.0051	.0066	.0081	.0113	.0136	.0331	.0332	0.17	8.0- 9.0
9.0-10.0			.0007	.0024	.0037	.0061	.0071	.0101	.0123	.0141	.0357	.0358	0.17	9.0-10.0
10.0-11.0			.0005	.0024	.0036	.0058	.0074	.0093	.0123	.0145	.0190	.0191	0.17	10.0-11.0
11.0-12.0		.0001	.0008	.0027	.0041	.0063	.0078	.0096	.0114	.0144	.0157	.0158	0.17	11.0-12.0
12.0-13.0			.0008	.0028	.0044	.0067	.0083	.0109	.0135	.0157	.0370	.0371	0.17	12.0-13.0
13.0-14.0			.0007	.0027	.0042	.0063	.0078	.0101	.0123	.0156	.0263	.0264	0.17	13.0-14.0
14.0-15.0		.0001	.0006	.0023	.0035	.0051	.0066	.0082	.0123	.0147	.0242	.0243	0.17	14.0-15.0
15.0-16.0			.0006	.0020	.0030	.0048	.0058	.0074	.0087	.0124	.0188	.0189	0.17	15.0-16.0
16.0-17.0			.0005	.0018	.0030	.0044	.0055	.0066	.0084	.0115	.0166	.0167	0.17	16.0-17.0
17.0-18.0			.0005	.0016	.0025	.0038	.0046	.0055	.0071	.0093	.0161	.0162	0.17	17.0-18.0
18.0-19.0			.0004	.0016	.0024	.0034	.0040	.0054	.0073	.0086	.0189	.0190	0.17	18.0-19.0
19.0-20.0			.0003	.0015	.0022	.0033	.0041	.0051	.0067	.0081	.0101	.0102	0.17	19.0-20.0
20.0-21.0			.0004	.0015	.0023	.0033	.0042	.0057	.0079	.0094	.0156	.0157	0.17	20.0-21.0
21.0-22.0			.0004	.0014	.0022	.0033	.0041	.0052	.0071	.0106	.0175	.0176	0.17	21.0-22.0
22.0-23.0			.0003	.0012	.0019	.0030	.0036	.0044	.0051	.0064	.0124	.0125	0.17	22.0-23.0
23.0-24.0			.0003	.0013	.0020	.0032	.0039	.0051	.0060	.0081	.0168	.0169	0.17	23.0-24.0
24.0-25.0			.0004	.0013	.0021	.0030	.0037	.0051	.0064	.0076	.0092	.0093	0.17	24.0-25.0
25.0-26.0			.0003	.0012	.0020	.0029	.0035	.0047	.0062	.0070	.0131	.0132	0.17	25.0-26.0
26.0-27.0			.0003	.0013	.0020	.0031	.0039	.0047	.0059	.0071	.0108	.0109	0.17	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

TABLE X-13 DISTRIBUTION OF MERIDIONAL WIND SHEARS

MERIDIONAL WIND SHEAR DISTRIBUTION

SANTA MONICA, CALIFORNIA

DECEMBER

STATION: SANTA MONICA, CALIFORNIA

REFERENCE PERIOD: DECEMBER

STATION ELEVATION: 125 feet or 38.1 meters MSL

STATION COORDINATES: 34.01 deg N, 118.27 deg W

PERIOD OF OBSERVATION: Long Beach, California January 1, 1956-April 17, 1956
Santa Monica, California April 18, 1956-December 31, 1960

DATA SOURCE: National Weather Records Center
U. S. Weather Bureau
Asheville, North Carolina

NO. OF OBS. FOR EACH LEVEL: 620

PREPARED BY: National Aeronautics and Space Administration
Marshall Space Flight Center, Aerobellistics Division
Aerophysics and Astrophysics Branch, Huntsville, Alabama
February 23, 1962

UNITS: inverse second (sec^{-1})

Alt. Layer (MSL) km	CUMULATIVE PERCENTAGE FREQUENCY											Maximum Shear	Pct. Freq.	Alt. Layer (MSL) km
	0.135	2.28	15.9	50.0	68.0	84.1	90.0	95.0	97.72	99.0	99.865			
sfc- 1.0		.0001	.0007	.0027	.0040	.0057	.0067	.0085	.0104	.0117	.0154	.0155	0.16	sfc- 1.0
1.0- 2.0		.0001	.0006	.0021	.0032	.0049	.0057	.0068	.0089	.0113	.0191	.0192	0.16	1.0- 2.0
2.0- 3.0			.0006	.0021	.0033	.0051	.0068	.0090	.0114	.0143	.0212	.0213	0.16	2.0- 3.0
3.0- 4.0		.0001	.0007	.0021	.0032	.0046	.0060	.0078	.0091	.0127	.0235	.0236	0.16	3.0- 4.0
4.0- 5.0			.0006	.0022	.0034	.0051	.0060	.0078	.0108	.0123	.0268	.0269	0.16	4.0- 5.0
5.0- 6.0		.0001	.0006	.0020	.0030	.0046	.0057	.0073	.0099	.0145	.0255	.0256	0.16	5.0- 6.0
6.0- 7.0			.0005	.0019	.0033	.0052	.0069	.0087	.0115	.0146	.0206	.0207	0.16	6.0- 7.0
7.0- 8.0			.0006	.0022	.0033	.0050	.0064	.0078	.0092	.0126	.0242	.0243	0.16	7.0- 8.0
8.0- 9.0		.0001	.0007	.0023	.0033	.0050	.0063	.0083	.0111	.0138	.0281	.0282	0.16	8.0- 9.0
9.0-10.0			.0006	.0025	.0040	.0059	.0072	.0098	.0132	.0146	.0293	.0294	0.16	9.0-10.0
10.0-11.0		.0001	.0008	.0029	.0043	.0067	.0078	.0103	.0133	.0149	.0245	.0246	0.16	10.0-11.0
11.0-12.0			.0008	.0031	.0047	.0074	.0091	.0128	.0165	.0210	.0260	.0261	0.16	11.0-12.0
12.0-13.0		.0001	.0009	.0032	.0051	.0076	.0095	.0126	.0155	.0187	.0281	.0282	0.16	12.0-13.0
13.0-14.0			.0008	.0030	.0045	.0071	.0087	.0100	.0138	.0164	.0211	.0212	0.16	13.0-14.0
14.0-15.0		.0001	.0006	.0023	.0039	.0059	.0070	.0090	.0114	.0143	.0217	.0218	0.16	14.0-15.0
15.0-16.0			.0005	.0020	.0032	.0048	.0059	.0074	.0088	.0118	.0192	.0193	0.16	15.0-16.0
16.0-17.0			.0005	.0021	.0031	.0046	.0056	.0066	.0087	.0123	.0190	.0191	0.16	16.0-17.0
17.0-18.0			.0005	.0019	.0029	.0044	.0054	.0065	.0077	.0100	.0195	.0196	0.16	17.0-18.0
18.0-19.0			.0004	.0016	.0024	.0038	.0047	.0060	.0072	.0089	.0108	.0109	0.16	18.0-19.0
19.0-20.0			.0004	.0016	.0023	.0037	.0044	.0060	.0079	.0096	.0132	.0133	0.16	19.0-20.0
20.0-21.0			.0003	.0013	.0022	.0034	.0041	.0051	.0067	.0080	.0101	.0102	0.16	20.0-21.0
21.0-22.0			.0003	.0014	.0022	.0032	.0041	.0052	.0066	.0079	.0140	.0141	0.16	21.0-22.0
22.0-23.0			.0004	.0013	.0020	.0032	.0042	.0054	.0066	.0075	.0185	.0186	0.16	22.0-23.0
23.0-24.0			.0003	.0012	.0021	.0031	.0037	.0047	.0061	.0080	.0161	.0162	0.16	23.0-24.0
24.0-25.0			.0003	.0012	.0020	.0031	.0038	.0047	.0059	.0078	.0253	.0254	0.16	24.0-25.0
25.0-26.0			.0003	.0013	.0021	.0032	.0039	.0048	.0060	.0070	.0102	.0103	0.16	25.0-26.0
26.0-27.0			.0002	.0012	.0019	.0030	.0037	.0048	.0056	.0065	.0109	.0110	0.16	26.0-27.0

NOTE: (1) When the percent frequency of minimum shear exceeded 2.28 and/or 0.135 cumulative percentage frequency, the shear associated with the cumulative percentage frequency exceeded was not determined.

REFERENCES

1. Scoggins, J. R., and W. W. Vaughan, Cape Canaveral Wind and Wind Shear Data (1 through 80 km) for Use in Vehicle Design and Performance Studies, NASA TN D-1274, 1962.

2. Pitchford, K. L., Analysis of Upper-Level Winds for Vandenberg AFB, Air Weather Service Publication, October 1961.

3. Salmela, H. A., and N. Sissenwine, Additional Note ---- Strong Vertical Wind Profiles and Upper-Level Maximum Wind Speeds over Vandenberg Air Force Base, AFCRC-TN-60-411, May 1960.

4. Essenwanger, O. M., R. E. Bradford, and W. W. Vaughan, On Verification of Upper Air Winds by Vertical Shears and Extreme Winds, Mo. Wea. Review, June 1961.

5. Smith, J. W., and W. W. Vaughan, Monthly and Annual Wind Distribution as a Function of Altitude for Patrick Air Force Base, Cape Canaveral, Florida, NASA TN D-610, July 1961.

6. ----Air Weather Service, Accuracies of Radiosonde Data, TR-105-133, Hdq. AWS MATS, USAF, Sept. 1955.

7. Leviton, R., Height Errors in a Rawin System, Air Force Survey in Geophysics No. 60, AFCRC TN-54-26, December 1954.

8. Charles, B. N., On Some Limitations of Upper Wind Records, Journal of Geophysical Research, Vol. 64, No. 3, 1959.

9. ----Radiosonde AN-AMT-4A, 4B, and 4c, Army-Air Force TM 11-2432A, dated June 1958.

10. deJong, H. M., Errors in Upper-Level Wind Computations, Journal of Meteorology, Vo. 15, pp. 131-137, 1958.

11. Smith, J. W., Cape Canaveral Wind Summary Surface to 84 km, MSFC MTP-AERO-62-3, January 17, 1962.

12. Dvoskin, N. and N. Sissenwine, Evaluation of AN/GMD-2 Wind Shear Data for Development of Missile Design Criteria, AFCRC-TN-58-259, April 1958 (ASTIA Document No. AD 152495).

REFERENCES (Cont'd)

13. ----Study of Single Station Atmospheric Sounding System, TM No. M-1341, Vol. 1, Signal Corps Eng. Lab., November 30, 1950.

14. Salmela, H. A., and N. Sissenwine, A Note Comparing 1 km Vertical Wind Shears Derived from Simultaneous GMD/1A and GMD-2 Winds-Aloft Observations, AFCRC-TN-59-496, November 1959.

15. Alfuth, W. H., W. W. Vaughan, and O. E. Smith, Statistical Evaluation of Winds Aloft Data, ABMA Report DA-TM-76-58, November 5, 1958.

16. Chiu, W., S. Hellerman, and R. S. Greenfield, Mean Monthly Temperature, Pressure, and Wind Fields in the Lower Stratosphere and Upper Troposphere Over North America, Signal Corps Contract No. DA-36-039-SC-64673, Dept. of the Army Project No. 3-17-02-001, Signal Task No. 1052A.

NASA-Langley, 1963 D-1569