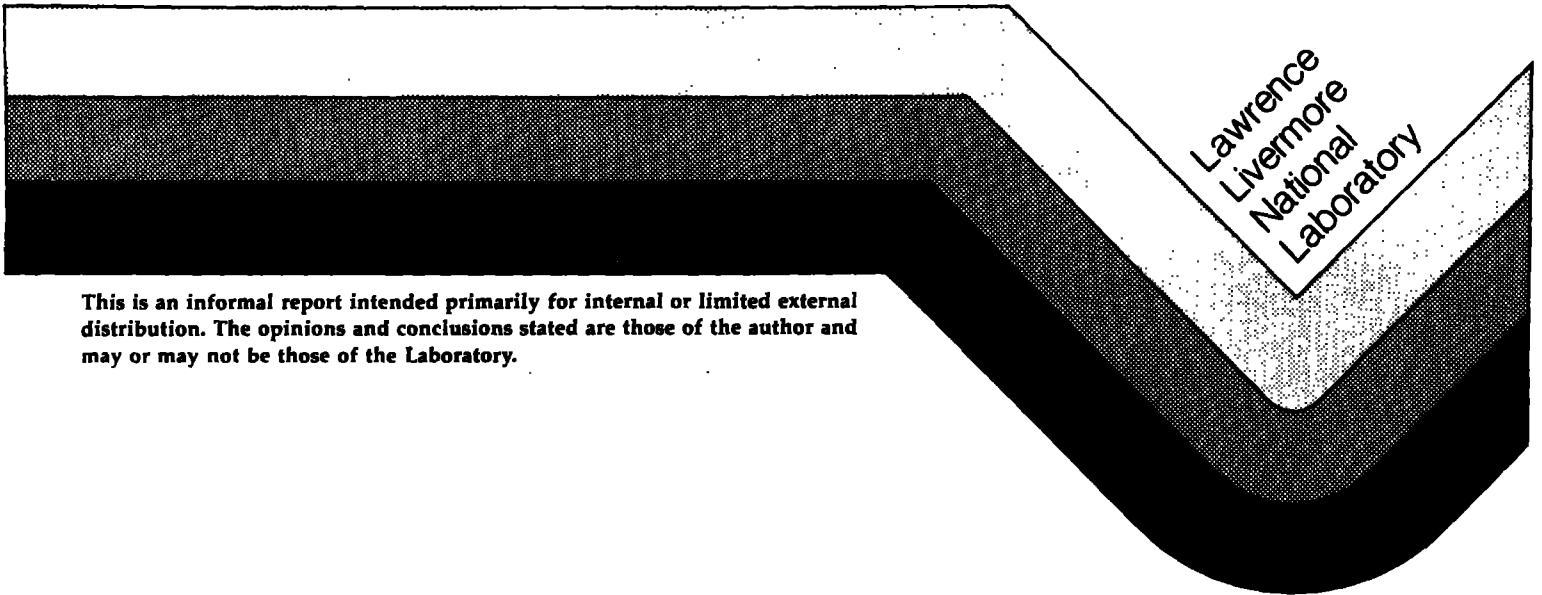


CLIMATOLOGY OF  
LAWRENCE LIVERMORE NATIONAL LABORATORY

FRANK J. GOUVEIA AND K. RENEE CHAPMAN

September 1989



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**Climatology of Lawrence Livermore  
National Laboratory**

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CLIMATOLOGY OF LAWRENCE LIVERMORE  
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ABSTRACT

Meteorological data collected from 1979 to 1987 at Lawrence Livermore National Laboratory are analyzed in this report. These data are 15-min averages of wind speed, wind direction, standard deviation of the wind direction, temperature, and relative humidity. Calculated values include crosswind turbulence, absolute humidity, and stability class. Hourly averages were computed and used for most of the analysis. Frequency distributions of wind speed and horizontal wind fluctuations as well as joint frequency distributions of wind speed, wind direction, and stability are presented. The data show a marked seasonal variability and this phenomenon is explored in depth. An example is presented to show how the data set may be queried to find the probability of a specific set of meteorological conditions. In addition, a comparison is made of these data and data from another tower located nearby. The data are very similar despite slight differences, which may be explained by differences between the sampling locations in surface roughness and proximity to buildings.

INTRODUCTION

Meteorological data have been collected at the Lawrence Livermore National Laboratory (LLNL) since January 1979. Data were collected from a 40-m tower maintained by the Plant Engineering Department (1979 to 1984) and by the Environmental Protection Department (1985 to present). The tower's location was near the northeast corner of the laboratory (Figure 1). Meteorological data can be used to establish a climatology for LLNL, which is useful for planning and modeling purposes. Data were also collected from a weather station located on the exhaust stack of Building 222 during February and March 1988; these data were compared to the data from the LLNL tower to verify the applicability of the climatology established from the LLNL tower data to other portions of the laboratory.

TOPOGRAPHIC AND LARGE-SCALE INFLUENCES

Figure 2 shows the local topography that influences wind flow in Livermore, California. Because LLNL is in a region of coastal influence, prevailing winds would be expected to come from the west (the direction of the Pacific Ocean). However, LLNL lies in the southeastern portion of a bowl-shaped valley. As air enters the basin from the Dublin Gap to the west of LLNL, it diverges north and south until it encounters an obstruction to its flow. To the north, it encounters Mt. Diablo and the Altamont Hills, which turn the flow toward the southeast. To the south of the Dublin Gap, it

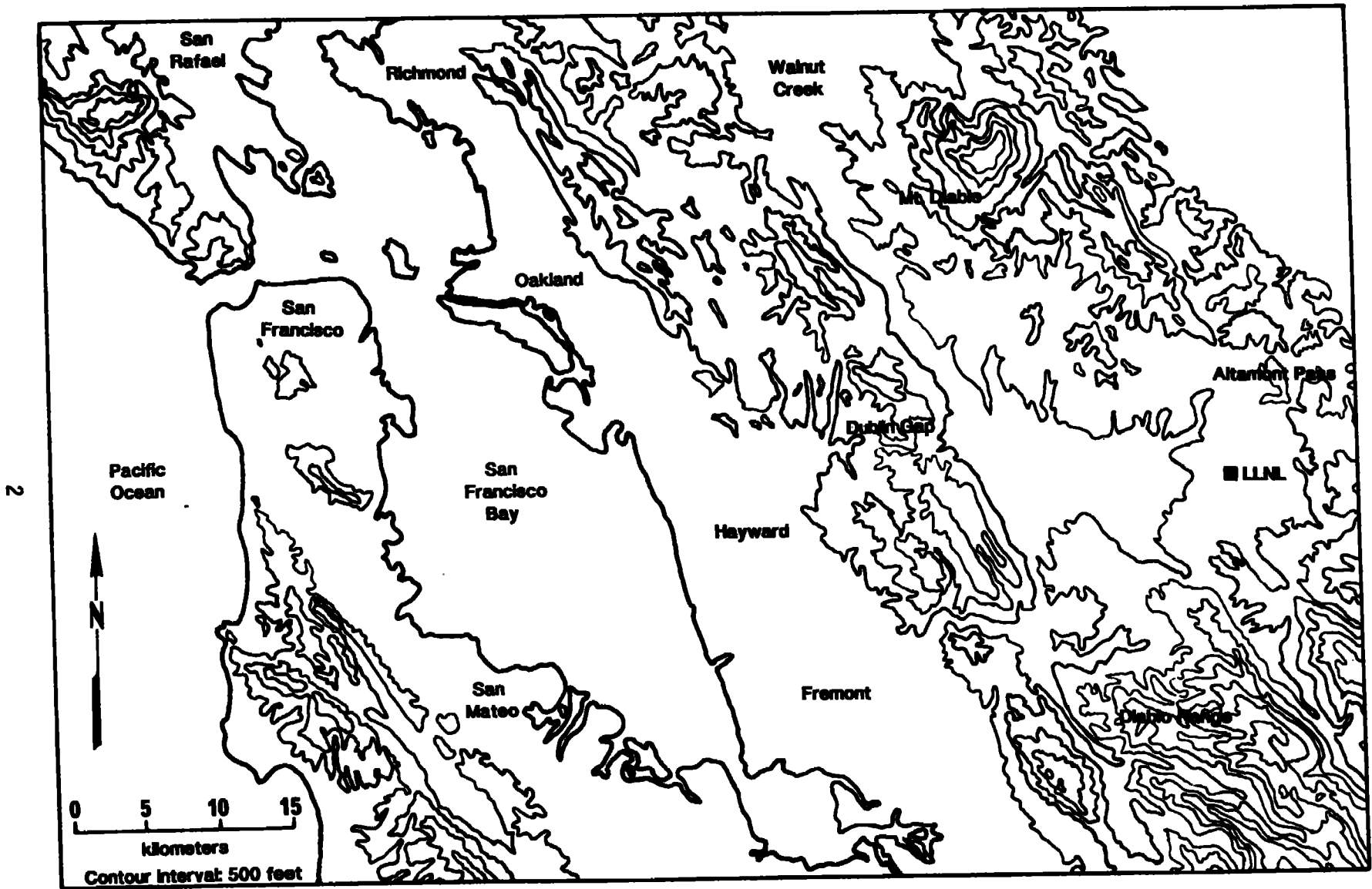


Figure 1. Topography of the San Francisco Bay Area.

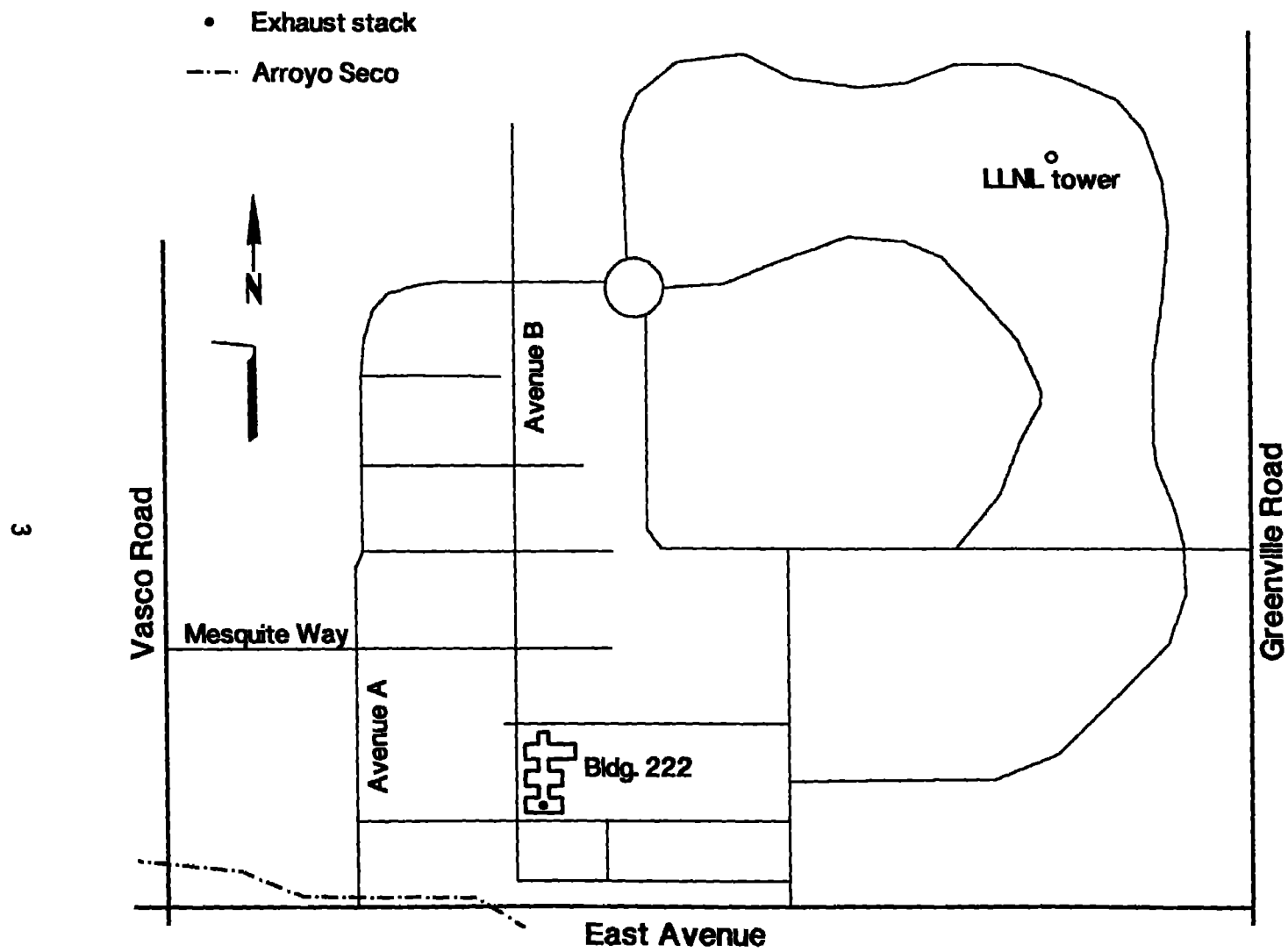


Figure 2. Lawrence Livermore National Laboratory.

encounters the foothills of the Diablo Range and the Altamont Hills, which turn the flow southwesterly (toward the northeast). The flow then exits the Livermore Valley through Altamont Pass just to the northeast of LLNL. This surface-flow pattern can be enhanced or weakened by large-scale upper-air influences.

During the summer months, afternoon wind speeds are generally higher than morning and night wind speeds due to differential surface heating. Solar heating throughout the day causes air near the land surface to heat more rapidly than air over water and to rise and be replaced with air that was once over the cooler body of water, the Pacific Ocean. It is during this period of replacement that wind speeds increase. The increased speeds usually occur around 1400 to 1600 PST. This phenomenon is commonly called a sea breeze.

Sea-breeze activity is seldom seen during the winter months because differential heating is not as strong. Rather, the passage of winter storms has a more significant impact upon surface winds. As a result, the wind direction can become more evenly distributed.

#### TOWER INSTRUMENTATION

Since 1979, meteorological data have been collected at LLNL. MET ONE instruments and an LSI-11 logger were used until January 1985, when they were replaced with HANDAR equipment. The instruments were polled every second and 15-min averages were computed by the logger. Horizontal wind speed and direction, standard deviation of wind direction, and temperature were measured at 10 and 40 m. Relative humidity was measured at 10 m. Table 1 lists the instruments used and their specifications.

Table 1. Instruments used at the LLNL tower.

Parameter	Instrument	Threshold	Accuracy	Other
Wind Speed	Three-cup anemometer	0.5 m s <sup>-1</sup>	±0.15 m s <sup>-1</sup> or ±2%	-
Wind Direction (1979 - 1984)	MET-ONE Bivane	0.3 m s <sup>-1</sup>	±3°	Distance constant 1.0 m
Wind Direction (1985 to present)	HANDAR Wind Vane	0.5 m s <sup>-1</sup>	±3°	Distance constant 4.5 m
Temperature	Thermistors	-	±0.1°C	-
Relative Humidity	Thin-film capacitor	-	0-80% ±2% 80-100% ±5%	Response time < 30 s to 90% change at 20°C



## DATA ANALYSIS

### INTRODUCTION

Fifteen-minute-interval data at the 10-m level of the LLNL tower were collected between January 1979 and December 1987. These data were checked for values out of range or times where all instruments did not report. The time periods when these problems occurred were small in number and were removed from the data set. The remaining 15-minute-interval data were summarized into hourly averages. Wind speed, temperature, and relative humidity were scalar averaged. Wind direction was weighted with the wind speed and polar averaged. The hourly value of sigma theta ( $\sigma_\theta$ ) was computed by the root-mean-square method. These hourly data were used to construct seasonal diurnal averages and frequency distributions. From analysis of monthly data (presented in tabular form in appendices), we grouped the data into four seasons. Summer was defined as the months showing the most sea-breeze influence (June, July, and August); winter, the months showing synoptic-scale influence (December, January and February); and spring (March, April, and May) and fall (September, October, and November), as the transition months. The standard deviation of the horizontal crosswind component, the Pasquill-Gifford (P-G) stability, and the absolute humidity were also calculated and analyzed seasonally. Appendices A through H present the data analyzed in this report.

### DATA CAPTURE

Data are missing for 10 months of the nine-year data set. The missing months are February 1980; February 1982; June, August, and September 1983; November and December 1984; August 1985; July 1986; and May 1987. There are also other shorter periods of missing data. The percent of data recovered in each month from 1979 to 1987 is summarized in Table 2.

In addition, there were a few months (January through May) in 1986 when the 10-m temperature was not available. During these months the 40-m temperature was used.

Because collection of relative humidity data began in June 1986 and the comparatively few data in the relative humidity data set, data from December 1987 to March 1988 and November to December 1988 were added to the analysis during preparation of this report. The relative humidity data are missing for April to October 1988, as well as July 1986, and January, February, April, and May 1987.

### RESULTS

#### Wind Speed, u

Figure 3 shows the frequency distribution of wind speed for spring, fall and annual, and Figure 4 shows summer, winter and annual. (From this point forward, the figures are presented at the end of the report to facilitate comparison.) Spring and summer distributions are shifted toward higher speeds because there are more moderate and high speeds ( $>3 \text{ m s}^{-1}$ ) during spring and summer due to sea-breeze activity.

Table 2. Percent of data recovered for LLNL tower data set (1979-1987).

Month	79	80	81	82	Year 83	84	85	86	87	Total
Jan	50.3	44.1	95.4	97.6	39.0	62.2	77.3	100.0	77.3	71.5
Feb	88.7	0.0	93.9	0.0	95.7	70.7	99.3	100.0	96.4	71.9
Mar	85.8	79.7	34.7	90.6	95.6	19.2	89.7	100.0	100.0	77.2
Apr	97.2	98.3	61.0	99.0	99.4	59.0	93.3	92.9	100.0	88.9
May	94.4	97.4	88.0	99.1	84.8	82.8	96.6	70.2	0.0	79.3
Jun	61.5	93.6	88.5	97.5	0.0	71.5	100.0	58.1	99.3	74.4
Jul	77.0	68.0	31.7	88.3	53.0	87.0	100.0	0.0	100.0	67.2
Aug	82.1	95.8	90.9	43.5	0.0	90.3	0.0	100.0	100.0	67.0
Sep	33.5	97.4	94.3	30.6	0.0	78.1	100.0	100.0	100.0	70.4
Oct	88.2	69.6	90.6	94.2	65.6	45.2	100.0	96.8	96.4	82.9
Nov	99.6	85.1	96.5	61.5	85.0	0.0	99.7	100.0	92.9	80.0
Dec	90.5	75.5	99.9	66.0	40.1	0.0	100.0	100.0	100.0	74.7
Total	79.0	75.6	80.3	72.9	54.6	55.5	87.8	84.7	88.4	75.4

Wind speed frequency distributions typically fit a Weibull distribution. The cumulative probability function of the Weibull distribution is

$$p(V < V_x) = 1 - \exp[-(V_x/c)^k] \quad (1)$$

where  $V$  is the wind speed,  $V_x$  is the maximum of each wind speed category,  $c$  is the scale factor, and  $k$  is the shape factor. Each distribution in Figures 3 and 4 was fit with a Weibull distribution following Justus et al. (1978). The resulting values of  $c$  and  $k$  are given on the figures themselves.

Figures 5 through 9 show the diurnal variation of wind speed for each season and the entire year. The 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup> and 90<sup>th</sup> percentiles were used to give an idea of the shape of the distribution. Although the median value of the diurnal pattern over an extended period such as a season or year does not reflect the daily wind speed, it does shed light on the driving forces that determine wind speed when short-term, transient fluctuations are removed. The 10<sup>th</sup>, 25<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles demonstrate the fluctuation of the median; this fluctuation is discussed next.

In the spring (Figure 5), the wind speed is low at night, begins to increase at sunrise, reaches a typical maximum of 4.4 m s<sup>-1</sup> at 1600 PST, and then decreases more rapidly to its nighttime minimum of 1.2 m s<sup>-1</sup> at 0500 PST. Summertime (Figure 6) behavior is similar, but the maximum and minimum speeds are slightly higher (10 to 20%) than those for spring. Specifically, a

maximum of  $4.8 \text{ m s}^{-1}$  was reached at 1600 PST and a minimum of  $1.5 \text{ m s}^{-1}$  was reached at 0300 PST. The values are higher in the summer due to an increase in sea-breeze activity. Values in the fall and winter (Figures 7 and 8, respectively) are much lower than those in the spring and summer. The fall wind speed maximum of  $3.4 \text{ m s}^{-1}$  is reached an hour earlier (1500 PST), and the minimum of  $1.0 \text{ m s}^{-1}$  is reached at midnight. The winter maximum of  $3.3 \text{ m s}^{-1}$  is reached at 1400 PST, two hours earlier than in spring or summer. The wind speed decreases to  $1.1 \text{ m s}^{-1}$  at 2000 PST and remains at this speed until sunrise. On an annual basis (Figure 9), the maximum of  $3.8 \text{ m s}^{-1}$  is reached at 1500 PST and the minimum of  $1.2 \text{ m s}^{-1}$  is reached at 0200 PST.

Figures 10 through 14 show the diurnal variation of the wind speed distribution for each season and the year as a whole. Figure 11 (summer) shows the maximum near  $5 \text{ m s}^{-1}$  at 1600 to 1700 PST. There are also fewer low wind speeds ( $< 3 \text{ m s}^{-1}$ ) during the midday in summer than in the other seasons. The occurrence of nighttime near-calm speeds increases during the fall and winter (Figures 12 and 13, respectively).

### Wind Direction

Figures 15 through 19 are wind roses for each season and the entire year. Each diagram shows the frequency of occurrence of four wind speed classes equal to the length of the corresponding bar for each wind direction category. Wind direction categories are  $22.5^\circ$  wide, centered on each of eight wind directions. The frequency of occurrence of calm winds ( $0$  to  $1 \text{ m s}^{-1}$ ) are equally divided among the wind direction categories, and the radius of the center circle reflects this amount.

With the exception of winter (Figure 18), all seasonal and annual analyses show a maximum occurrence of south to southwest winds. Winter winds show a secondary maximum from the south, but a primary maximum from the north to northeast due to the passage of winter storms. Summer winds (Figure 16) are almost always (75%) from the south or southwest, resulting from the sea breeze.

### Standard Deviation of Wind Direction, $\sigma_\theta$

The standard deviation of horizontal wind direction is related to the atmosphere's dispersive quality. The value of  $\sigma_\theta$  can be used to determine P-G stability class for direct input to models as turbulence data (Brode, 1987). Figure 20 shows  $\sigma_\theta$  for spring, fall, and annual cumulative frequency distributions, and Figure 21 shows summer, winter, and annual distributions. All distributions are lognormal. The equation of best fit for the annual distribution is given on each figure. Spring and winter modes are at  $12.5^\circ$ ; summer, fall, and annual distributions show modes at  $15^\circ$ .

Figures 22 through 26 present diurnal variation of  $\sigma_\theta$  and are similar to Figures 3 through 7. Daytime median  $\sigma_\theta$  values are higher in summer than spring, and summer is approximately the same as fall; nighttime winter values are slightly higher, and daytime values slightly lower, than fall median values. Median winter  $\sigma_\theta$  values show very little diurnal trend compared to the other seasons.

## Pasquill-Gifford Stability

The Pasquill-Gifford (P-G) stability class can be found using  $\sigma_\theta$ , wind speed, and time of day in the Modified Sigma Theta (MST) method (Brode, 1987). This method is based on initial estimates of stability using  $\sigma_\theta$ , and then this estimate is modified based on time of day and wind speed (Tables 3 and 4). The higher wind speeds force stability toward neutral. This results in daytime categories of A through DD (D-Day) and nighttime categories of DN (D-Night) through F.

Figure 27 shows the probability distribution of stability for spring, fall, and annual and Figure 28 shows summer, winter, and annual. The most probable stability is category D. The categories A, C, E, and F are fairly probable, while the intermediate category of B is less probable.

Table 5 gives a joint frequency distribution of wind speed and stability for the entire nine years of data. This table shows the effect wind speed has on stability. The higher wind speeds force stability toward neutral, while the lighter wind speeds allow extreme stabilities (A or F). The method of determining stability requires that there are no occurrences of categories A through DD during the night and no occurrences of DN through F during the day. Figures 29 through 33 show the diurnal variation of the stability probability distribution for the four seasons and annually. The occurrence of A stability is greater during the summer than the spring due to the increase in surface heating. During the fall and winter, F stability is greater than spring and summer values due to weaker nighttime flow patterns.

Figures 34 through 38 show wind roses for each stability class during each season and the entire year. Again, the predominance of south and southwest winds during the spring and summer is evident. Daytime winds in spring and summer are primarily from the southwest under unstable conditions and from the south under neutral conditions with higher wind speeds. Nighttime winds in spring and summer under neutral conditions are primarily from the south, while spring winds under stable conditions are from the south and east quadrants.

Daytime winds in fall under unstable conditions are primarily from the southwest with a significant percentage of northerly winds as stability becomes neutral. Under neutral conditions, day or night, and stable conditions, winds are primarily from the south.

During the winter, daytime unstable winds are mostly from the north. Southerly winds are a significant portion of the distribution when the stability is neutral. At night, however, under neutral conditions, southerly flow is dominant, becoming northeasterly as conditions become more stable. These nighttime stable winds are probably due to weak drainage from the Altamont Hills to the east of LLNL.

On an annual basis, daytime unstable winds are most likely to be southwesterly, while neutral and nighttime stable winds are primarily southerly.

Table 3. Lateral wind direction turbulence criteria for initial estimate of P-G Stability Category. Use with Table 4 (from Brode, 1987).

Initial estimate of Pasquill stability category	Standard deviation of horizontal wind direction fluctuations, $\sigma_\theta$ , in degrees
A	$22.5 < \sigma_\theta$
B	$17.5 \leq \sigma_\theta < 22.5$
C	$12.5 \leq \sigma_\theta < 17.5$
D	$7.5 \leq \sigma_\theta < 12.5$
E	$3.8 \leq \sigma_\theta < 7.5$
F	$\sigma_\theta < 3.8$

Table 4. Wind speed adjustments for determining final estimate of P-G Stability Category from  $\sigma_\theta$ . Use with Table 3 (from Brode, 1987).

	Initial estimated category	10-m scalar wind speed (u) (m s <sup>-1</sup> )	Final estimate of stability category
Daytime	A	$u < 3$	A
		$3 \leq u < 4$	B
		$4 \leq u < 6$	C
	B	$6 \leq u$	D
		$u < 4$	B
		$4 \leq u < 6$	C
C	$6 \leq u$	D	
	$u < 6$	C	
D, E, or F	$6 \leq u$	D	
	Any	D	
Nighttime	A	$u < 2.9$	F
		$2.9 \leq u < 3.6$	E
		$3.6 \leq u$	D
	B	$u < 2.9$	F
		$2.4 \leq u < 3.6$	E
		$3.6 \leq u$	D
	C	$u < 2.4$	E
		$2.4 \leq u$	D
	D	Any	D
		$u < 5.0$	E
	E	$5.0 \leq u$	D
		$u < 3.0$	F
F	$3.0 \leq u < 5.0$	E	
	$5.0 \leq u$	D	

Table 5. Joint frequency of occurrence of wind speed and P-G stability class at LLNL presented as percent of 9 years of hourly averages (1979 to 1987).

Wind speed (ms <sup>-1</sup> )	Stability							ALL
	A	B	C	DD	DN	E	F	
<1	3.4	0.6	0.5	0.6	2.8	4.3	10.5	22.8
1-2	4.6	1.1	1.1	0.8	5.4	4.8	7.4	25.2
2-3	2.7	1.6	1.9	1.5	6.4	2.4	1.1	17.5
3-4	0.0	2.5	2.9	2.5	5.1	0.9	0.0	13.9
4-5	0.0	0.0	3.7	3.4	3.0	0.4	0.0	10.5
5-6	0.0	0.0	1.6	2.6	1.4	0.0	0.0	5.7
6-7	0.0	0.0	0.0	2.1	0.6	0.0	0.0	2.7
7-8	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.9
8-9	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.5
>9	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.3
ALL	10.8	5.8	11.7	14.7	25.2	12.8	19.0	100.0

#### Standard Deviation of Crosswind Wind Speed Component, $\sigma_v$

Another important parameter for turbulence and diffusion modeling is the standard deviation of the horizontal crosswind component,  $\sigma_v$ . It is defined as

$$\sigma_v = u \sigma_\theta \quad (2)$$

where  $u$  is wind speed.  $\sigma_v$  is a measure of the horizontal turbulence and has the effect of spreading a plume in the crosswind direction. For a given wind speed and height,  $\sigma_v$  is greater under unstable than stable conditions (Slade, 1968).

From statistical turbulence theory,  $\sigma_v$  is proportional to eddy diffusivity as follows:

$$K_m(y) = \sigma_v^2 \int_0^{t_0} R(\xi) d\xi \quad (3)$$

where  $R(\xi)$  is a time-varying correlation coefficient between eddy velocities at times  $t$  and  $t+\xi$  (Sutton, 1953).

Figures 39 through 43 show diurnal trends in  $\sigma_v$  and are similar to Figures 5 through 9 and 22 through 26. The diurnal trends for all seasons show maxima at 1300 PST (usually unstable) and minima near midnight, with the exception of winter, which has a minimum at 2000 PST (usually stable). Diurnal variation is greatest in summer and least in winter because the diurnal variation of wind speed is greater in summer.

### Mixing Height

Mixing height is defined as the height above the surface through which there is vigorous vertical mixing. Although mixing height was not measured at LLNL, it can be approximated from routine meteorological measurements that are performed at nearby National Weather Service stations. Holtzworth (1972) presents a compilation of these mixing-height calculations performed twice a day for each of the four seasons, and these calculations are presented as diagrams of the U.S. with mixing height isopleths. The data in Table 6 are interpolated from the diagrams in Holtzworth's study.

Mixing height is generally related to the P-G stability categories. Mixing height usually decreases with increasing stability. For dispersion modeling, the highest mixing height (1200 m) is assigned to stability class A and the lowest (440 m) to stability class F. The highest morning mixing height (700 m) and the lowest afternoon mixing height are assigned to the two neutral stabilities. The mixing height values for B, C, and E stabilities are interpolated from the A, D, and F stabilities. The mixing heights are presented in Table 7.

### Temperature

Figures 44 through 48 show the diurnal average variation of temperature at 10 m for each season and on an annual basis. Each figure shows the mean value at 10 m, standard deviation, maximum, and minimum for each hour.

Mean daily maximum and minimum hourly averaged temperatures for all seasons and the year as a whole from Figures 44 through 48 are given in Table 8.

### Relative Humidity

Figures 49 through 53 show the average diurnal variation of relative humidity for each season and the entire year. Each figure shows the mean, standard deviation, maximum, and minimum values for each hour.

The diurnal variation has the general shape of an inverted temperature curve, with the maximum occurring at night with cooler temperatures and the minimum occurring during the day with warmer temperatures. This is due to the way relative humidity is defined. It is the ratio of the amount of water vapor in the air to the amount the air could potentially hold without formation of condensation. Because warm air can hold more moisture than cold air, minimum relative humidity values would be expected to correspond to warmer daytime temperatures, and maximum relative humidity values would be expected to occur during the night.

**Table 6. Mixing height (m) at Livermore, CA from Holtzworth (1972).**

	Annual	Winter	Spring	Summer	Autumn
Morning	490	470	700	450	440
Afternoon	1000	750	1200	800	950

**Table 7. Mixing height (m) for each P-G stability category at Livermore, CA.**

	A	B	C	DD	DN	E	F
Mixing height (m)	1200	1050	900	750	700	570	440

**Table 8. Maximum and minimum mean temperatures for LLNL tower data set (1979 to 1987).**

Season	Minimum °C	Time (PST)	Maximum °C	Time (PST)
Spring	8.1	0500	18.6	1400
Summer	12.9	0400	27.7	1400
Fall	10.7	0500	21.8	1400
Winter	5.7	0600	12.7	1400
Annual	9.4	0500	20.2	1400



Daytime minimums correspond closely to the time of maximum temperature. Nighttime maximums occur shortly before the time of sunrise. Table 9 gives mean daily maximum and minimum hour-averaged relative humidity and time of occurrence for each season and annually.

#### Absolute Humidity

Because atmospheric moisture content is a conservative property, i.e., remains fairly constant with time, relative humidity is not the best way to quantify this parameter. A better estimate of atmospheric moisture is absolute humidity,  $\rho_v$ . Absolute humidity can be calculated from relative humidity and temperature:

$$\rho_v = \frac{R}{100} \frac{e_{s0}}{R_v T} \exp \left[ \frac{L_v}{R_v} \left( \frac{1}{T_0} - \frac{1}{T} \right) \right] , \quad (4)$$

where  $e_{s0}$  is saturation vapor pressure at standard temperature and pressure and is equal to 6.11 mb,  $R_v$  is the specific gas constant for water vapor and is equal to  $0.4615 \text{ Jg}^{-1}\text{K}^{-1}$ ,  $T_0$  is standard temperature (273.16 K),  $T$  is temperature in Kelvin, and  $L_v$  is latent heat of vaporization of water at temperature,  $T$ , and has the functional form

$$L_v = 2501 \text{ Jg}^{-1} - 2.266 \text{ Jg}^{-1}\text{K}^{-1} (T - 273.16) . \quad (5)$$

Equation (4) simplifies to

$$\rho_v = \frac{R}{100} \frac{1324}{T} \exp \left[ (6759 - 4.910 T) \left( \frac{1}{T_0} - \frac{1}{T} \right) \right] . \quad (6)$$

Table 9. Mean maximum and minimum relative humidity for LLNL tower data set (1979 to 1987).

Season	Minimum %	Time (PST)	Maximum %	Time (PST)
Spring	51.9	1500	88.1	0500
Summer	41.6	1500	92.6	0500
Fall	50.3	1400	84.2	0600
Winter	61.3	1500	80.5	0700
Annual	51.3	1400	85.4	0500

Table 10 gives absolute humidity in  $\text{g}\cdot\text{m}^{-3}$  for a range of relative humidities (0 to 100%) and temperatures (0 to  $42^{\circ}\text{C}$ ).

Figure 54 shows the probability distribution of absolute humidity for spring, fall, and annual time periods, and Figure 55 shows the distributions for summer, winter, and annual time periods. Table 11 gives modal values for each season and annually.

Figures 56 through 60 show the average diurnal variation of the mean, the standard deviation, and the maximum and minimum absolute humidity for each season and the entire year. All figures show the expected lack of variability in atmospheric moisture. Table 11 gives mean values for each season and annually. Summer values are higher than winter because the summer sea breezes bring moist ocean air to Livermore.

### FREQUENCY OF FAVORABLE METEOROLOGICAL CONDITIONS

Because wind and stability data for nine years are available, we can use this database to determine the frequency of any combination of meteorological conditions. Engineering and health-safety parameters can be studied to create a set of meteorological criteria that could cause a hazard if a release of a hazardous material should occur. A program can then be written to comb the database to count the number of times this specific set of conditions was found.

As a test of the methodology, undesirable meteorological conditions were selected on the basis of previous experience with atmospheric dispersion. The undesirable conditions are as follows:

(1) Extremely unstable conditions (A Stability) -- Vertical looping of the plume may occur causing high concentrations of effluent to impact the ground for short durations very close to the release point.

(2) Extremely stable conditions (F Stability) -- The lack of vertical and horizontal mixing leads to high concentrations farther downwind. With an elevated source, this high concentration may not reach the surface until the plume impacts a hill.

(3) Very low winds (Winds less than  $1 \text{ m s}^{-1}$ ) -- "Calms" can cause high concentrations under any stability category. Since the MST method of stability-class determination requires that A and F stabilities occur only during times of low wind speed, this criterion was the overriding factor in the analysis.

We were interested in the frequency of 4-h periods without these conditions and developed an algorithm that kept account of the beginning time of each 4-h period. The program was repeated for the summer and winter months. Spring and fall months were grouped together and presented as the transition months.

Table 10. Absolute humidity ( $\text{g}\cdot\text{m}^{-3}$ ) as a function of temperature and relative humidity (RH in percent).

RH	Temperature ( $^{\circ}\text{C}$ , $^{\circ}\text{F}$ , and K)														
	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42
	32 273	37 276	43 279	48 282	54 285	59 288	64 291	70 294	75 297	81 300	86 303	91 306	97 309	102 312	108 315
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.2	0.3	0.4	0.4	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.8	2.1	2.4	2.8
10	0.5	0.6	0.7	0.9	1.1	1.3	1.5	1.8	2.2	2.6	3.0	3.5	4.1	4.8	5.6
15	0.7	0.9	1.1	1.3	1.6	1.9	2.3	2.8	3.3	3.9	4.5	5.3	6.2	7.2	8.3
20	1.0	1.2	1.5	1.8	2.1	2.6	3.1	3.7	4.4	5.2	6.1	7.1	8.3	9.6	11.1
25	1.2	1.5	1.8	2.2	2.7	3.2	3.9	4.6	5.5	6.4	7.6	8.9	10.3	12.0	13.9
30	1.5	1.8	2.2	2.7	3.2	3.9	4.6	5.5	6.5	7.7	9.1	10.6	12.4	14.4	16.7
35	1.7	2.1	2.6	3.1	3.8	4.5	5.4	6.4	7.6	9.0	10.6	12.4	14.5	16.8	19.4
40	1.9	2.4	2.9	3.5	4.3	5.2	6.2	7.4	8.7	10.3	12.1	14.2	16.5	19.2	22.2
45	2.2	2.7	3.3	4.0	4.8	5.8	7.0	8.3	9.8	11.6	13.6	16.0	18.6	21.6	25.0
50	2.4	3.0	3.6	4.4	5.4	6.4	7.7	9.2	10.9	12.9	15.1	17.7	20.7	24.0	27.8
55	2.7	3.3	4.0	4.9	5.9	7.1	8.5	10.1	12.0	14.2	16.7	19.5	22.7	26.4	30.5
60	2.9	3.6	4.4	5.3	6.4	7.7	9.3	11.0	13.1	15.5	18.2	21.3	24.8	28.8	33.3
65	3.2	3.9	4.7	5.8	7.0	8.4	10.0	12.0	14.2	16.8	19.7	23.1	26.9	31.2	36.1
70	3.4	4.2	5.1	6.2	7.5	9.0	10.8	12.9	15.3	18.0	21.2	24.8	28.9	33.6	38.9
75	3.6	4.5	5.5	6.6	8.0	9.7	11.6	13.8	16.4	19.3	22.7	26.6	31.0	36.0	41.6
80	3.9	4.8	5.8	7.1	8.6	10.3	12.4	14.7	17.5	20.6	24.2	28.4	33.1	38.4	44.4
85	4.1	5.1	6.2	7.5	9.1	11.0	13.1	15.6	18.6	21.9	25.8	30.1	35.1	40.8	42.2
90	4.4	5.4	6.6	8.0	9.6	11.6	13.9	16.6	19.6	23.2	27.3	31.9	37.2	43.2	50.0
95	4.6	5.7	6.9	8.4	10.2	12.3	14.7	17.5	20.7	24.5	28.8	33.7	39.3	45.6	52.7
100	4.8	6.0	7.3	8.9	10.7	12.9	15.4	18.4	21.8	25.8	30.3	35.5	41.3	48.0	55.5

Table 11. Absolute humidity ( $\text{g}\cdot\text{m}^{-3}$ ) statistics for LLNL tower data set (1979 to 1987).

Season	Mean	Mode	Number of Months
Spring	7.6	8.0	2
Summer	10.7	11.5	5
Fall	9.2	11.2	7
Winter	6.5	4.9	5
Annual	8.7	11.5	19

The results of this database search are presented as Figure 61. The only time where the probability of desirable periods exceeds 50 percent is for the summer afternoons. This may be due to the persistence of strong sea-breezes during these times. The lowest probability of desirable meteorological periods occurs during the winter months, especially during the night; this is caused by reduced winds.

#### STAR FORMAT

Because these data may be used for modeling environmental effects and because many of U.S. Environmental Protection Agency's long-term models require meteorological data in the STAR format used by the National Climatic Data Center (Doty, 1983), the data are summarized in the STAR format (Appendix I). The STAR format is the three-dimensional, joint frequency of occurrence of wind direction, P-G stability, and wind speed. Sixteen classes of wind direction are used and each is coded as wind coming from the labeled direction. Six stability classes (A through F) are used and wind speed is divided into six classes also.

#### COMPARISON TO ANOTHER ON-SITE LOCATION

To investigate the applicability of the above climatological data to other locations of the laboratory, data for the months of February and March 1988 from the instruments on an exhaust stack at Building 222 at LLNL (B-222) were compared to the LLNL tower data. Measured and calculated parameters used for the comparison were horizontal wind speed and direction,  $\sigma_\theta$ , stability,  $\sigma_v$ , and temperature.

Instruments on the exhaust stack of B-222 are the same as those on the LLNL tower. Five-minute average horizontal wind speed, wind direction, standard deviation of wind direction, and 15-min average temperature data were

stored in a separate HANDAR 540A logger. Instruments are approximately 30 m above the ground. Instrument ranges and accuracies are the same as for LLNL tower instruments. Fifteen-minute averages were calculated from the 5-min-average recorded data from B-222 are compared with 15-min-average LLNL tower data.

## RESULTS

### Wind Speed

Wind speeds at B-222 and the LLNL tower are quite similar. Figure 62 shows the distribution of the difference in wind speed from the two locations. The difference in speed at the two locations is  $\pm 0.125 \text{ m s}^{-1}$  about 16% of the time and is within  $\pm 1 \text{ m s}^{-1}$  80% of the time. The LLNL 40 m wind speeds are slightly greater than B-222 30-m level, and the LLNL 10 m wind speeds are slightly less and B-222 30-m winds.

The effect of surface roughness is illustrated in Tables 12 and 13. These tables present joint frequency distributions of the 30-m B-222 wind speed and the 10- and 40-m LLNL tower wind speeds, respectively. Table 12 shows B-222 speeds having a nearly one-to-one correspondence with the 10-m LLNL tower wind speed. However, Table 13 shows a slight shift in the distribution toward the 40-m LLNL tower wind speed at speeds greater than  $3 \text{ m s}^{-1}$ . One would expect the 30-m B-222 speeds to be more closely related to the 40-m LLNL tower speeds than those of 10-m. This is not the case due to the greater surface roughness in the vicinity of B-222 caused by surrounding buildings.

### Wind Direction

Wind direction at the 30-m level of B-222 is quite similar to both the 10- and 40-m wind direction at the LLNL tower (Figure 63). This analysis is based on wind direction only when the wind speed was greater than  $1 \text{ m s}^{-1}$  to eliminate the uncertainty in wind direction with low wind speeds. Wind direction at B-222 is within  $\pm 20^\circ$  of the 10-m wind direction at the LLNL tower 69% of the time and the 40-m wind direction 72% of the time. One would not expect much higher agreement between the two locations due to the interference of the buildings near B-222. The small increase in the distribution at  $-120^\circ$  and  $+120^\circ$  often occurs when the wind at the LLNL tower is northerly. The wind at B-222 oscillates between SE and SW. No explanation can be offered for this phenomenon.

### Stability, $\sigma_v$ , and $\sigma_\theta$

Stability compares very well at the two locations. Over 45% of the time, the P-G class is the same, and over 80% of the time, it is within one category (Figure 64).

The B-222  $\sigma_v$  values are very close to LLNL-tower  $\sigma_v$  values. Nearly 40% are within  $\pm 0.125 \text{ ms}^{-1}$  of each other, and almost 75% are within  $\pm 0.375 \text{ ms}^{-1}$  (Figure 65).

Table 12. Joint frequency distribution of the wind speeds at B-222 and the LLNL tower (10 m) for February and March 1988 given in percent.

Tower (ms <sup>-1</sup> )	B-222 (ms <sup>-1</sup> )												Total
	0	1	2	3	4	5	6	7	8	9	10	>10	
0	17.5	6.1	0.1	0.1	0	0	0	0	0	0	0	0	23.8
1	9.0	14.0	2.7	0.1	0.1	0.1	0	0	0	0	0	0	26.0
2	1.5	7.8	7.5	2.1	0.3	0	0.1	0	0	0	0	0	19.2
3	0.2	1.4	4.1	6.1	1.3	0.2	0	0.1	0	0	0	0	13.3
4	0	0.2	0.9	3.2	3.3	0.6	0.1	0.1	0	0	0	0	8.5
5	0	0	0.1	0.6	0.9	0.8	0.4	0.2	0.1	0	0	0	3.1
6	0	0	0	0.1	0.2	0.5	0.6	0.3	0.2	0	0	0	2.0
7	0	0	0	0	0	0.1	0.5	0.6	0.4	0.1	0	0	1.7
8	0	0	0	0	0	0.1	0.1	0.2	0.5	0.3	0	0	1.1
9	0	0	0	0	0	0	0	0	0.3	0.3	0.1	0	0.8
10	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.4
>10	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1
Total	28.3	29.4	15.4	12.3	6.1	2.4	1.8	1.5	1.6	0.8	0.3	0.1	100.0

Table 13. Joint frequency distribution of the wind speeds at B-222 and the LLNL tower (40 m) for February and March 1988 given in percent.

Tower (ms <sup>-1</sup> )	B-222 (ms <sup>-1</sup> )												Total
	0	1	2	3	4	5	6	7	8	9	10	>10	
0	16.3	6.8	0.6	0.1	0	0	0	0	0	0	0	0	23.8
1	7.0	12.3	5.0	1.1	0.3	0	0.1	0	0.1	0	0	0	26.0
2	0.8	4.5	6.6	5.4	1.3	0.3	0.1	0	0	0.1	0	0	19.2
3	0.1	0.4	1.5	4.3	4.9	1.4	0.3	0.2	0.1	0.1	0	0	13.3
4	0	0.1	0.2	0.8	2.8	2.8	1.1	0.4	0.1	0.2	0	0	8.5
5	0	0	0	0	0.5	0.6	0.8	0.5	0.3	0.2	0.1	0.1	3.1
6	0	0	0	0	0	0.2	0.2	0.4	0.5	0.1	0.1	0.2	2.0
7	0	0	0	0	0	0	0.1	0.2	0.3	0.3	0.4	0.4	1.7
8	0	0	0	0	0	0	0	0	0.1	0.1	0.2	0.6	1.1
9	0	0	0	0	0	0	0	0	0	0	0.2	0.6	0.8
10	0	0	0	0	0	0	0	0	0	0	0	0.4	0.4
>10	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1
Total	24.1	24.1	14.0	11.8	9.8	5.5	2.7	1.8	1.6	1.1	1.2	2.4	100.0

The  $\sigma_\theta$  values for the two locations were not directly compared because raw  $\sigma_\theta$  values are not as physically meaningful as stability and  $\sigma_v$ , which are derived from it.

## Temperature

Under cloudless skies, temperature decreases with height during the day and increases with height at night. Therefore, one would expect a 30-m temperature would be closer to a 40-m temperature than to a 10-m temperature. This is illustrated in Figure 66. The distribution of the difference between the 40-m LLNL and 30-m B-222 temperatures is narrower than the similar distribution using the 10-m LLNL temperature. The temperature at B-222 is within  $\pm 1^\circ\text{C}$  of the 10-m LLNL temperature over 65% of the time and the 40-m LLNL temperature over 85% of the time.

## CONCLUSIONS

Overall, the 30-m data at B-222 is very similar to both the 10- and 40-m LLNL tower data. This study shows raw LLNL 15-min-average data are applicable to another site at the laboratory. This being the case, the derived climatology can also be used for other on-site locations. However, the slight differences in wind speed, for example, point out that local adjustments should be made when using the data at other locations. Local effects such as differences in surface roughness of the upwind fetch may need to be considered.

## FUTURE STUDY OF THE LLNL METEOROLOGICAL DATABASE

This study describes a database that can be a resource for future research of meteorology of the Livermore Valley and the San Francisco Bay Area.

More specifically, the 40-m level of the LLNL tower can be analyzed with the 10-m data to produce vertical profiles of wind speed, wind direction, horizontal turbulence, and temperature.

Algorithms can be developed to investigate the persistence of wind direction. Persistence is the probability of the current wind continuing in the same direction for some time in the future.

A method currently exists to compute mixing height using balloon-sounding data from a National Weather Service (NWS) station. However, the nearest NWS is in Oakland, about 40 miles away, and may not accurately represent the depth of the mixing layer at LLNL. An acoustic sounder could be installed at LLNL to measure the height of the mixing layer. Additional measurements available from a sounder include vertical profiles of wind from the surface to about one kilometer.

Meteorological data may be obtained from nearby sites for comparison with the LLNL data set. Nearby locations of meteorological data collection include Site 300 (near Tracy), Livermore Airport, Altamont Pass, and Bay Area Air Quality Management District's station in Livermore. A comprehensive set of wind flow data for the area may assist researchers in constructing models of wind fields in complex terrain.

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## SUMMARY OF FIGURES

Figures 3 and 4 show the cumulative frequency of occurrence of the wind speed (10-m height) for each season and annually. Refer to these diagrams to find the probability of wind below a certain wind speed. These diagrams show that the winter and fall have a higher frequency of lighter winds than the summer and spring. Expressions for the best fit to the Weibull distribution (Eq.1) are provided.

Figures 5 through 9 show the seasonal and annual cumulative frequency of occurrence of wind speed for each hour of the day. For instance, 50 percent of the wind speeds fall below the solid line.

Figures 10 through 14 show the seasonal and annual lines of constant frequency of occurrence of the wind speed (10-m height) for each hour of the day. Lines of constant frequency are drawn and illustrate the daily patterns of frequency density.

Figures 3 through 14 demonstrate the high frequency of strong winds during the summer months, especially in the afternoon. This is due to the sea-breeze activity in the area. Heat produced in the interior valleys causes low pressure which draws cooler air from the sea. During the summer, this pressure gradient effect is very persistent on a daily cycle. During the winter, cooler inland temperatures and winter storms limit the number of days with sea-breeze winds.

Figures 15 through 19 are seasonal and annual wind roses. The length of a direction radius is related to frequency of wind from that direction. The frequency of wind speed classes are included for each wind direction.

Figures 20 through 26 show the seasonal and annual cumulative and hourly frequency of occurrence of  $\sigma_{\theta}$  (10-m height). Sigma theta is the standard deviation of the wind angle. The wind vane is poled every second and the standard deviation of these readings is  $\sigma_{\theta}$ . Sigma theta is a measure of the crosswind turbulence of the atmosphere.

Figures 27 and 28 show the seasonal and annual frequency of occurrence of the atmospheric stability categories generally used by EPA. This is often referred to as Pasquill-Gifford stability or P-G class. Atmospheric stability is related to dispersion of airborne particles. Plumes or puffs spread more readily under A stability (very unstable) than F stability (very stable). Neutral stability (P-G class D) is divided into daytime and nighttime classes for specific uses.

Figures 29 through 33 show the seasonal and annual frequency density of P-G class for each hour of the day. Unstable classes (A, B, and C) do not occur during the night and stable classes (E and F) do not appear during the day. The distribution of the stable classes does not change throughout the night. In the daytime, there is a high frequency of unstable classes before noon. In the afternoon, there is a higher frequency of neutral classes due to the higher wind speeds.

Figures 34 through 38 are the seasonal and annual wind roses associated with each stability category.

Figures 39 through 43 show the seasonal and annual cumulative frequency of occurrence of  $\sigma_v$  for each hour of the day. Sigma v is a measure of the horizontal spread of a plume. These figures indicate that a plume will spread faster during mid-day than at night.

Figures 44 through 48 show the seasonal and annual average and range of temperatures (10-m height) found in the nine-year data set. For each hour of the day, the solid line is the average temperature, 68% of temperatures occur within the bars, and the dotted lines indicate the extreme temperatures.

Figures 49 through 53 show the seasonal and annual average and range of relative humidity (10-m height). The relative humidity instrument was installed in 1986. By comparing Figures 48 and 53, you can see that the average relative humidity curve is the inverse of the temperature curve. This is because the amount of atmospheric water does not change with a daily pattern.

Figures 54 and 55 are seasonal and annual histograms of absolute humidity, which is a true measure of atmospheric water density. These figures show the obvious seasonal change in the absolute humidity. Summer air contains about three times the amount of water of winter air. Winter storms bring cold air from the north and warm, moist air from the south to give us precipitation despite the reduced water content of the air.

Figures 56 through 60 show that for each season there is no consistent daily pattern in the absolute humidity. Changes in water content occur with large-scale synoptic changes, which do not follow daily cycles.

Figure 61 shows the percent of time when the next four consecutive hours will have favorable conditions for dispersion. The criterion for this study were taken from experience with dispersion models. It is presented to illustrate a type of analysis that may be performed for a specific scenario.

Figures 62 through 66 show the difference in meteorological conditions as measured at Building 222 and on the two levels of the LLNL tower. The two sites are about 3/4 mile apart. Wind speeds at both sites are usually within  $1 \text{ ms}^{-1}$ . Wind directions are usually within  $20^\circ$ , excluding times of calm winds. Stability classes are the same over 45% of the time and within one class over 80% of the time. There are also small differences between the two sites in crosswind turbulence ( $\sigma_v$ ) and temperature.



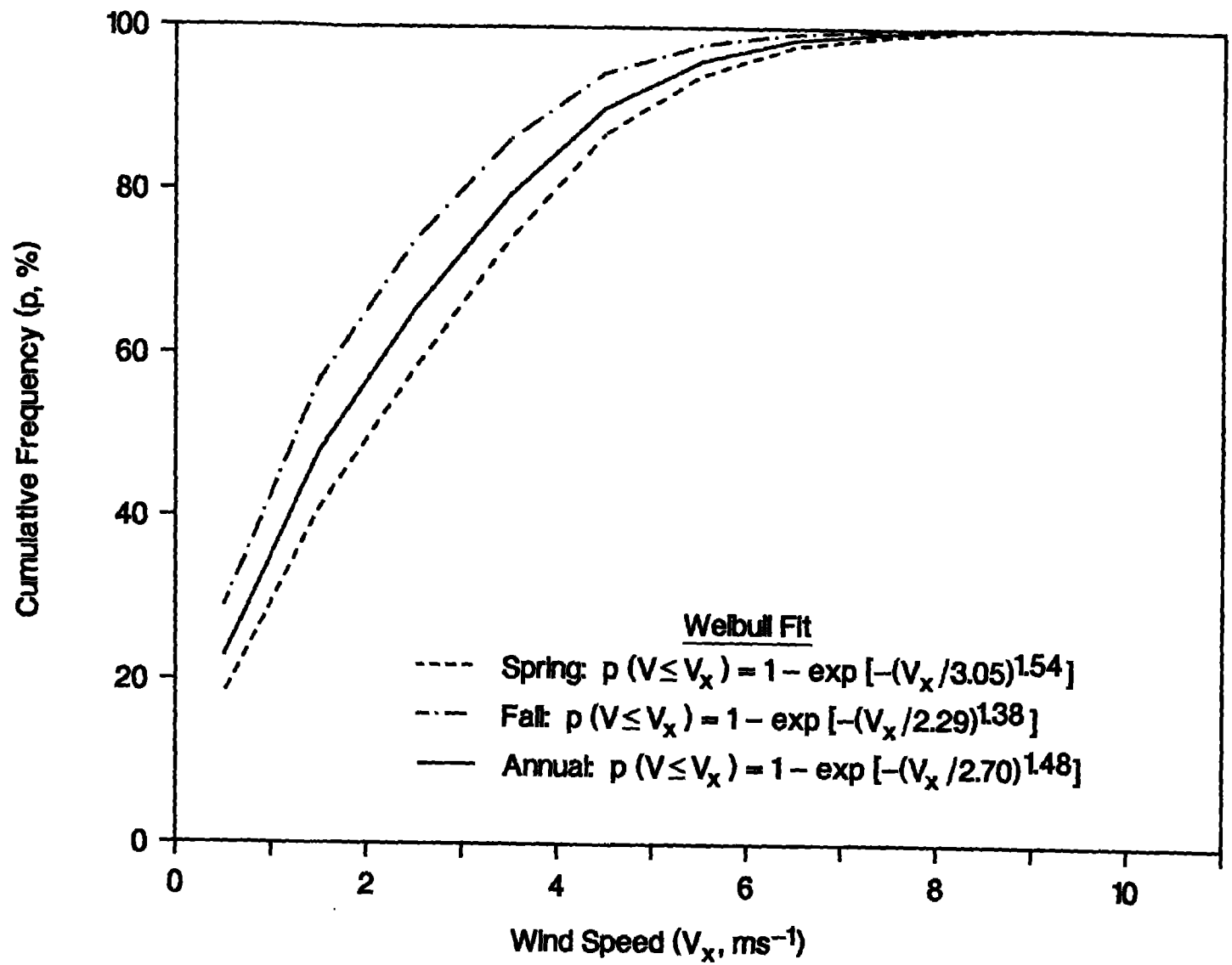


Figure 3. Spring, fall, and annual wind-speed frequency distributions for 1979 to 1987 at the LLNL tower.

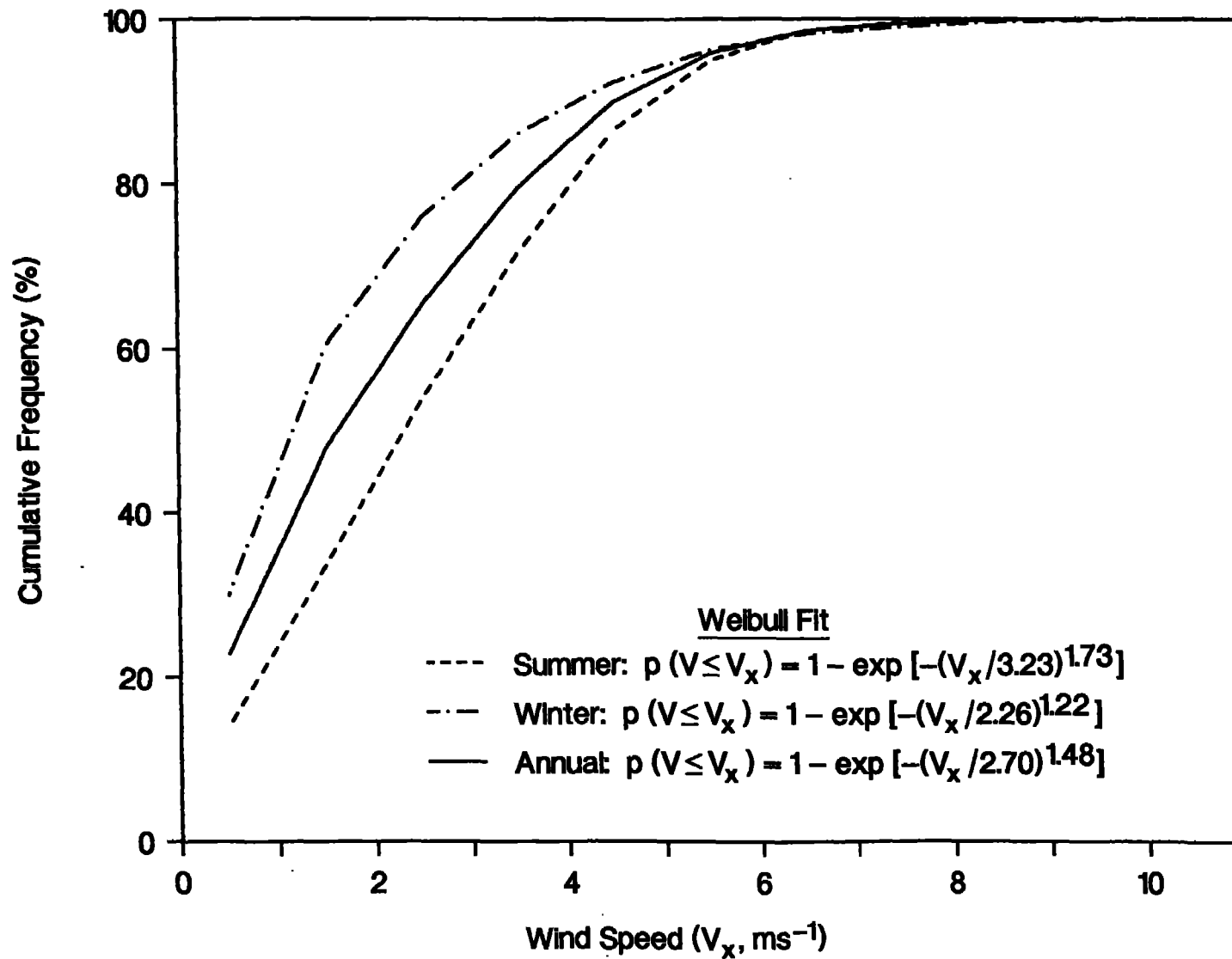


Figure 4. Summer, winter, and annual wind-speed frequency distributions for 1979 to 1987 at the LLNL tower.

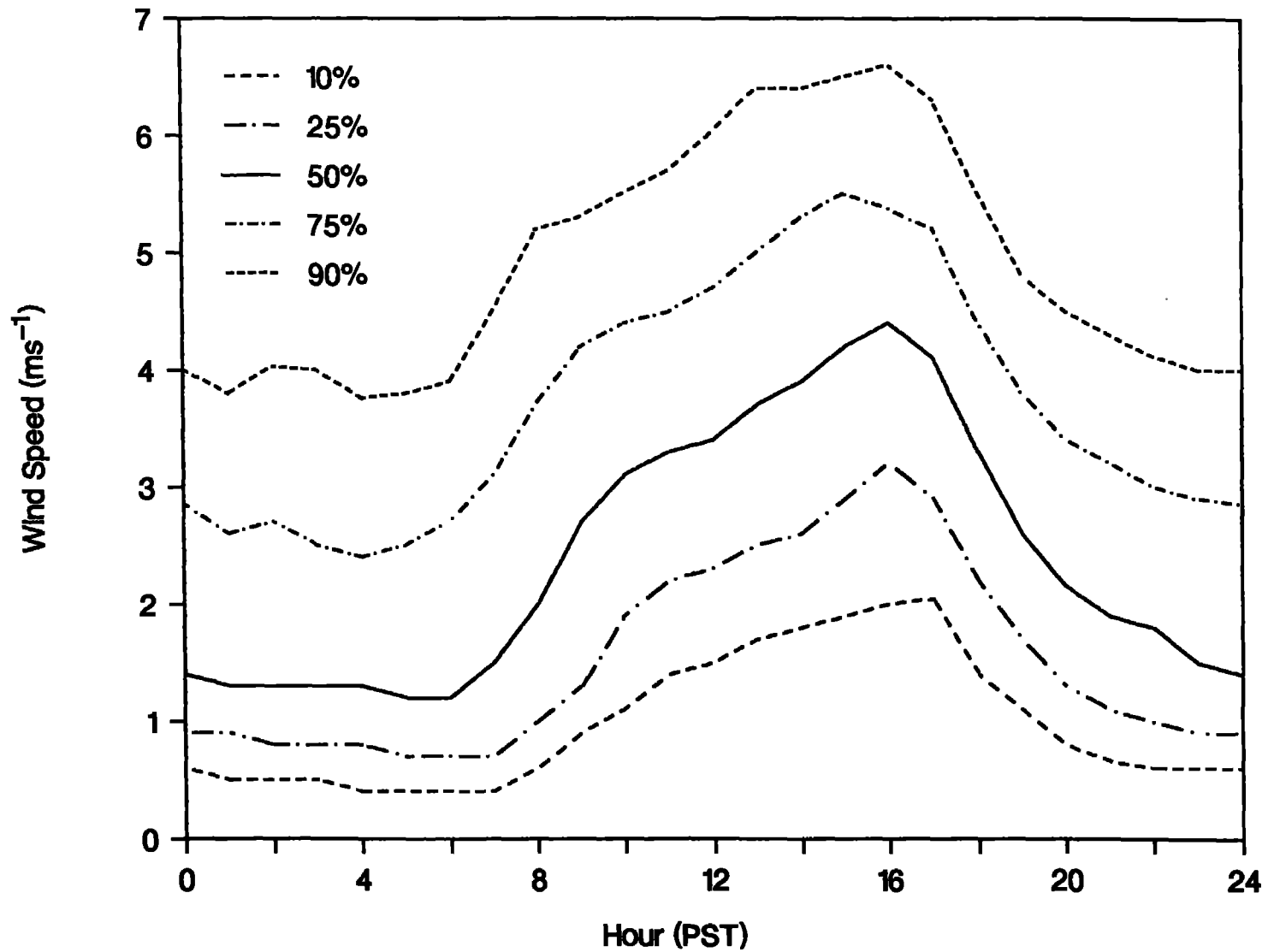


Figure 5. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of wind speed during the springs of 1979 to 1987 at the LLNL tower.

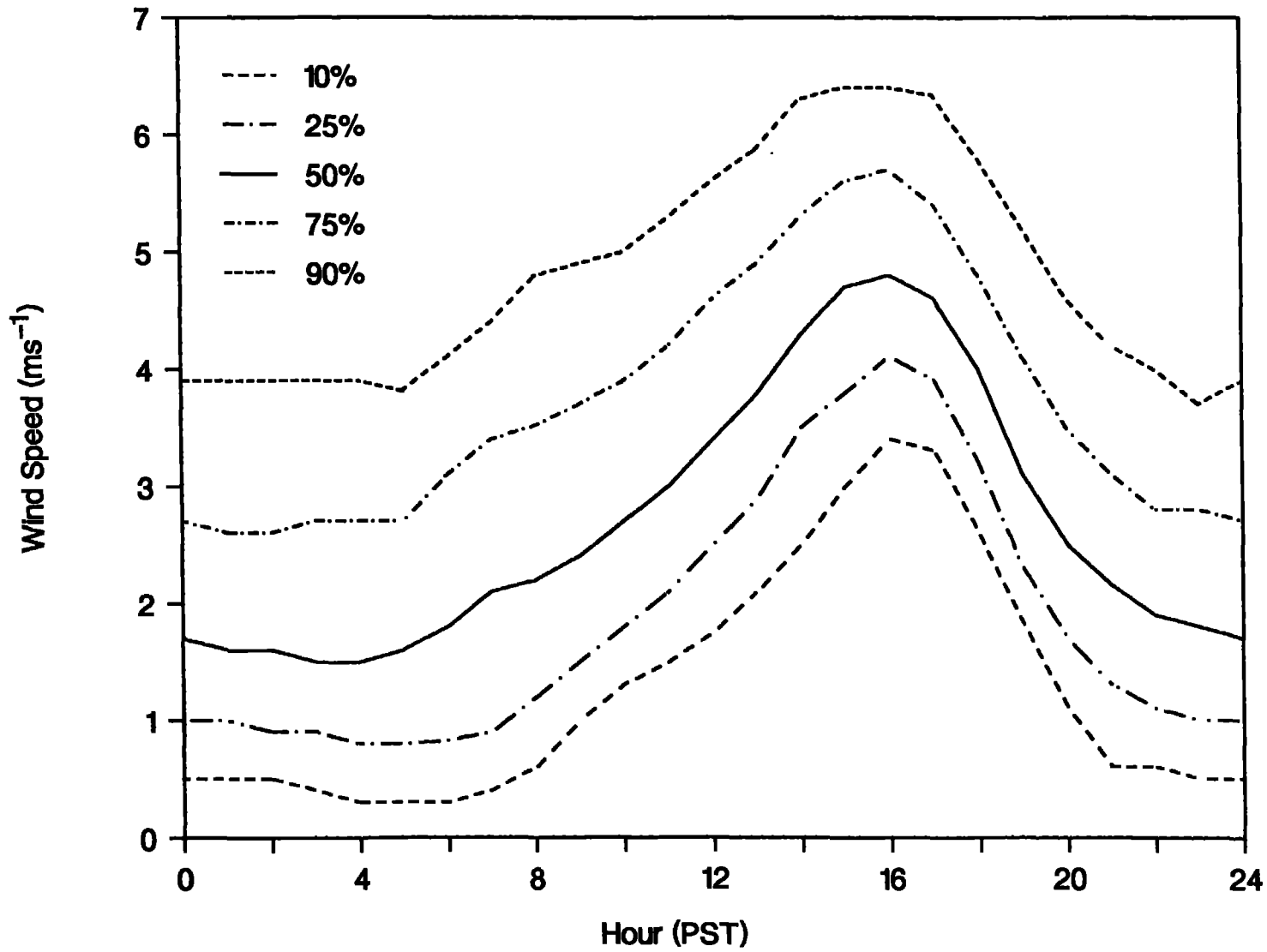


Figure 6. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of wind speed during the summers of 1979 to 1987 at the LLNL tower.



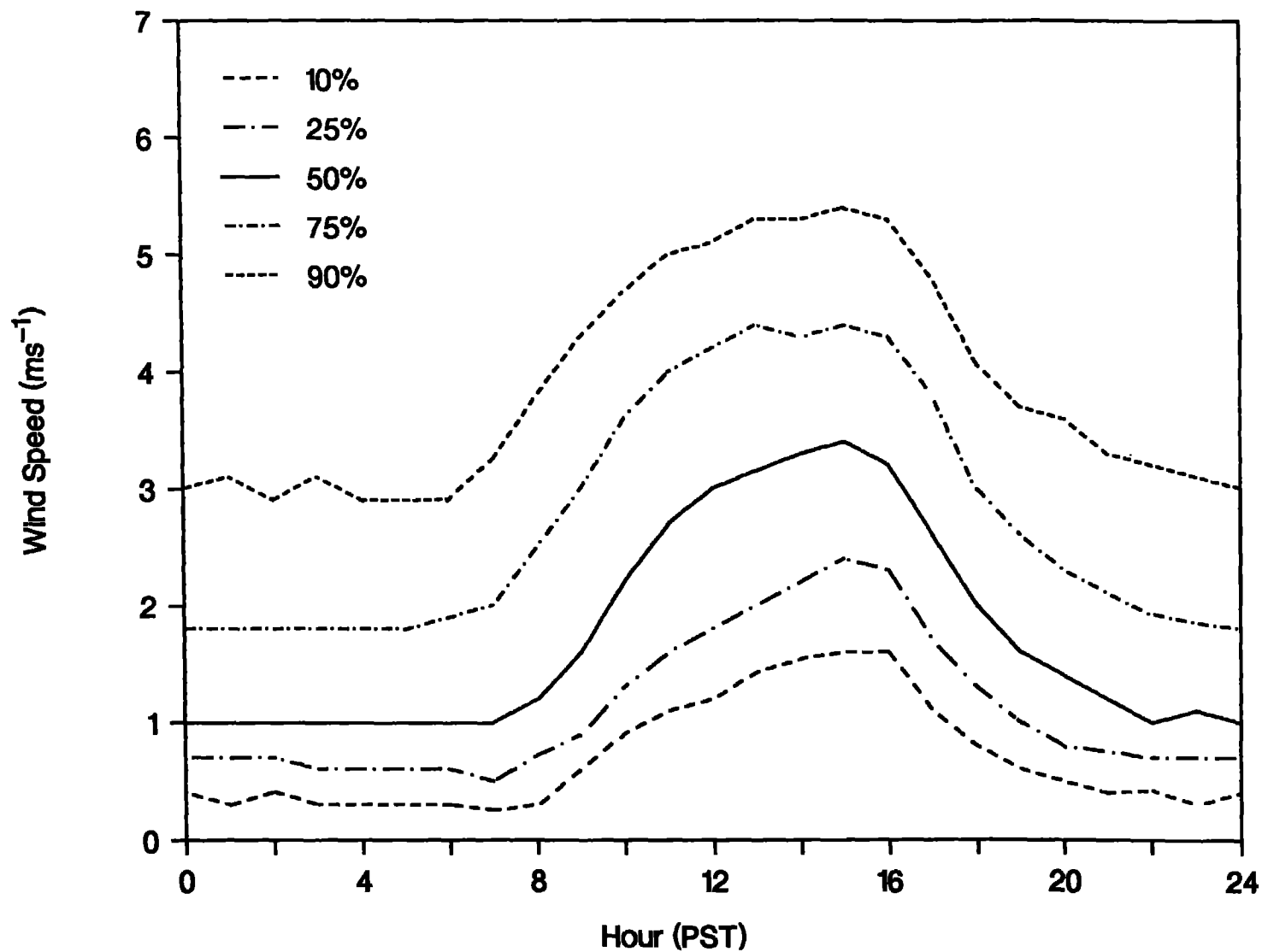


Figure 7. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of wind speed during the falls of 1979 to 1987 at the LLNL tower.

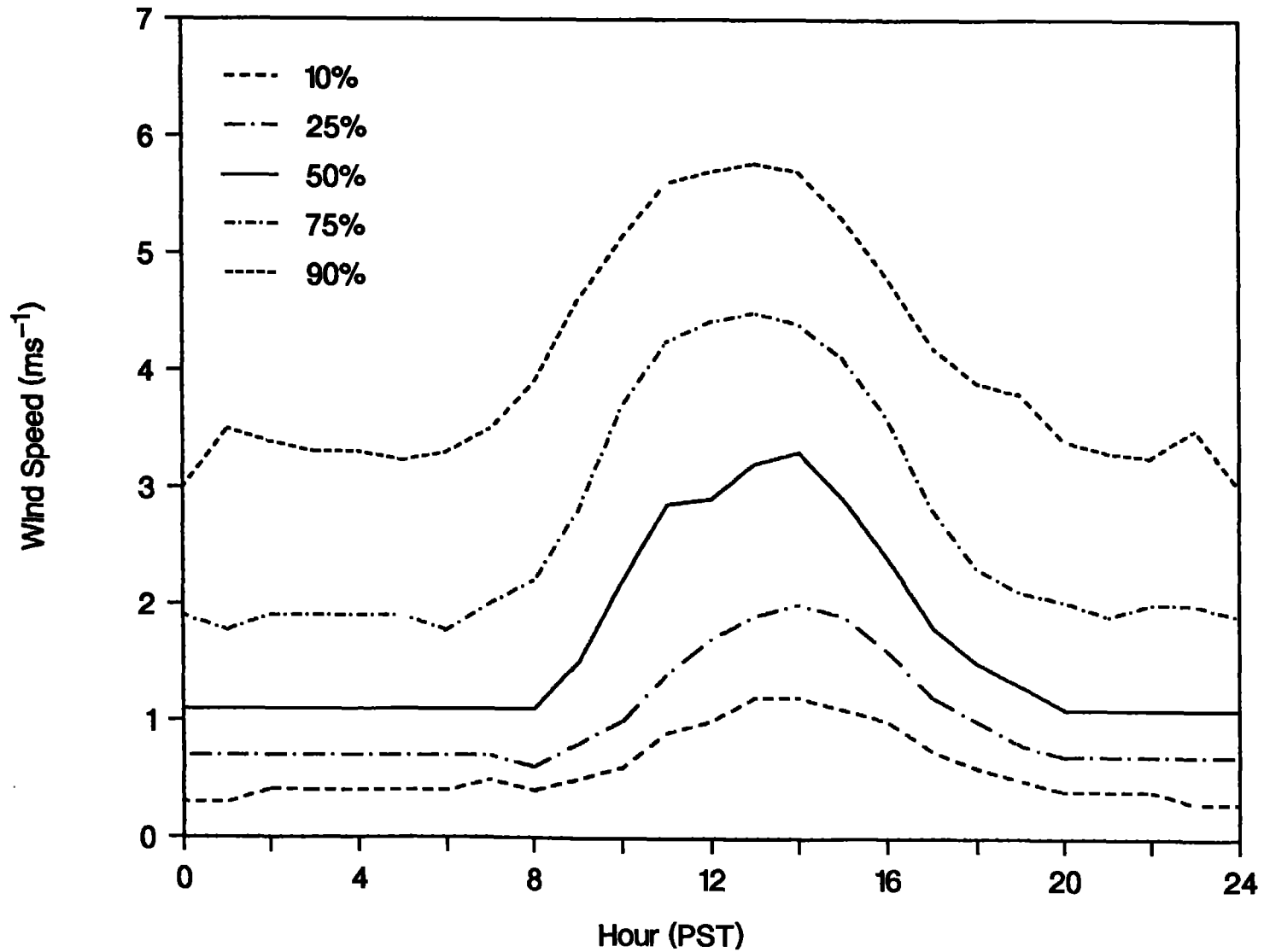


Figure 8. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of wind speed during the winters of 1979 to 1987 at the LLNL tower.

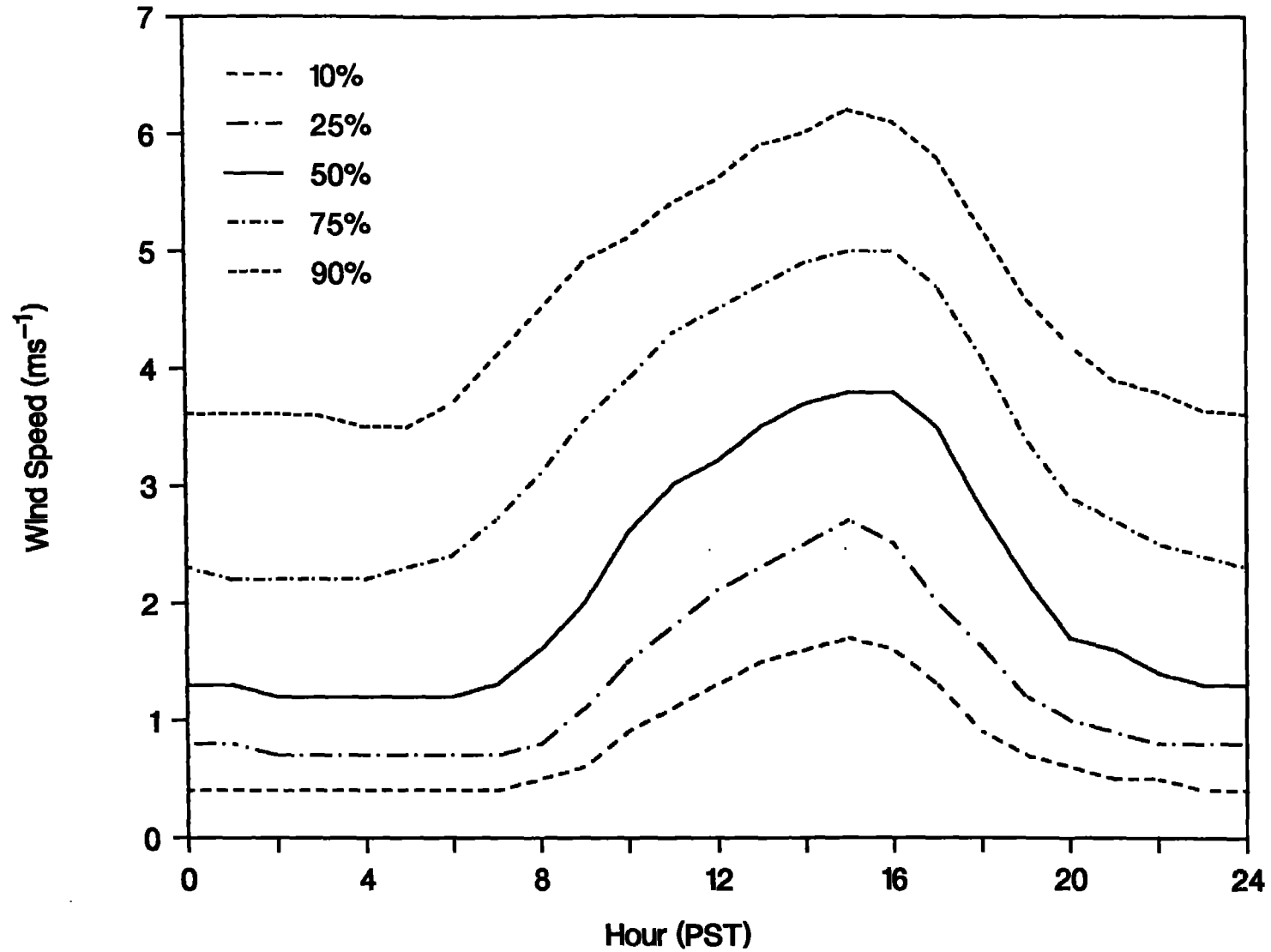


Figure 9. Annual diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of wind speed from 1979 to 1987 at the LLNL tower.

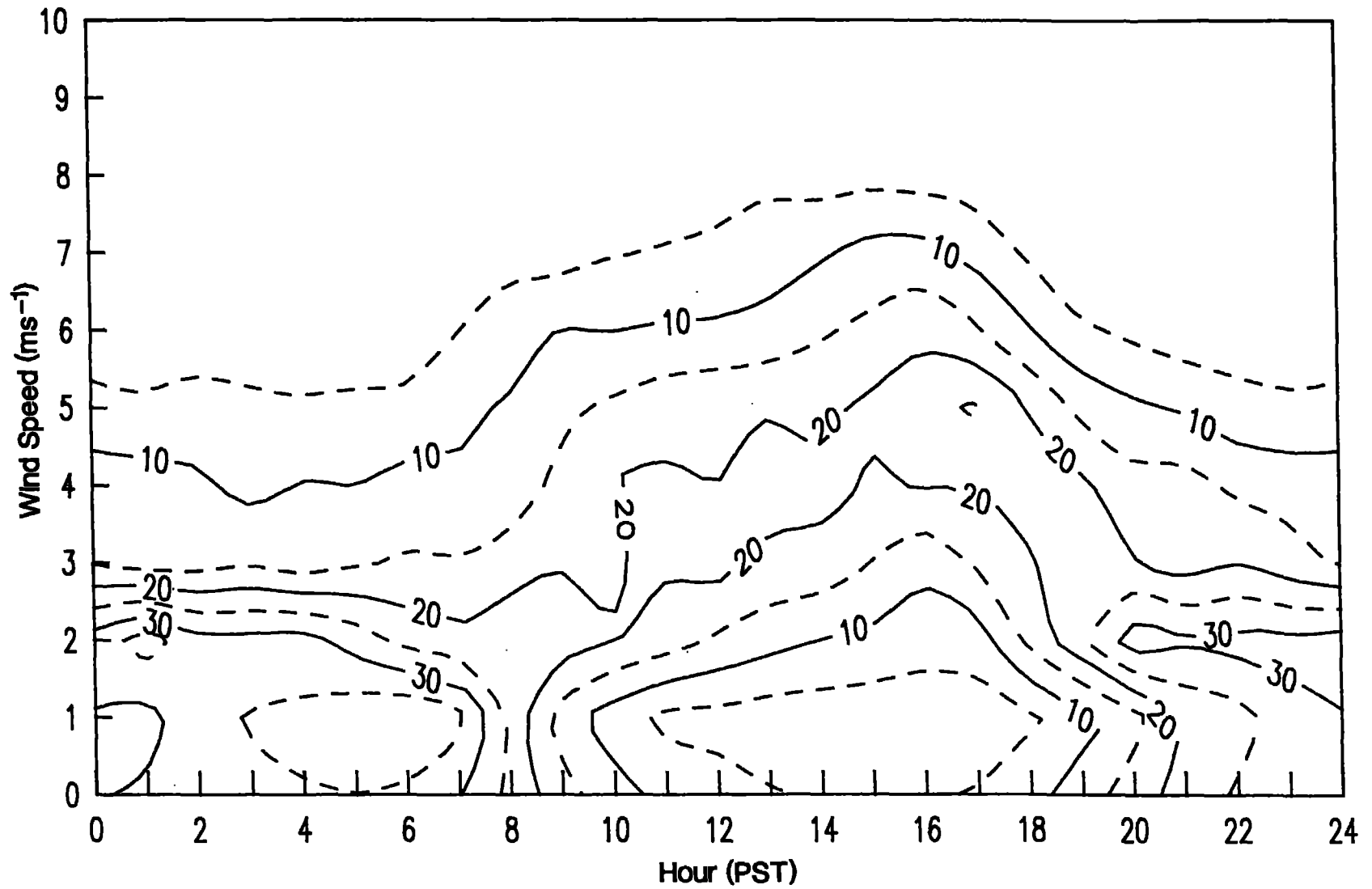


Figure 10. Diurnal variation of the wind speed frequency distribution during the springs of 1979 to 1987 at the LLNL tower.

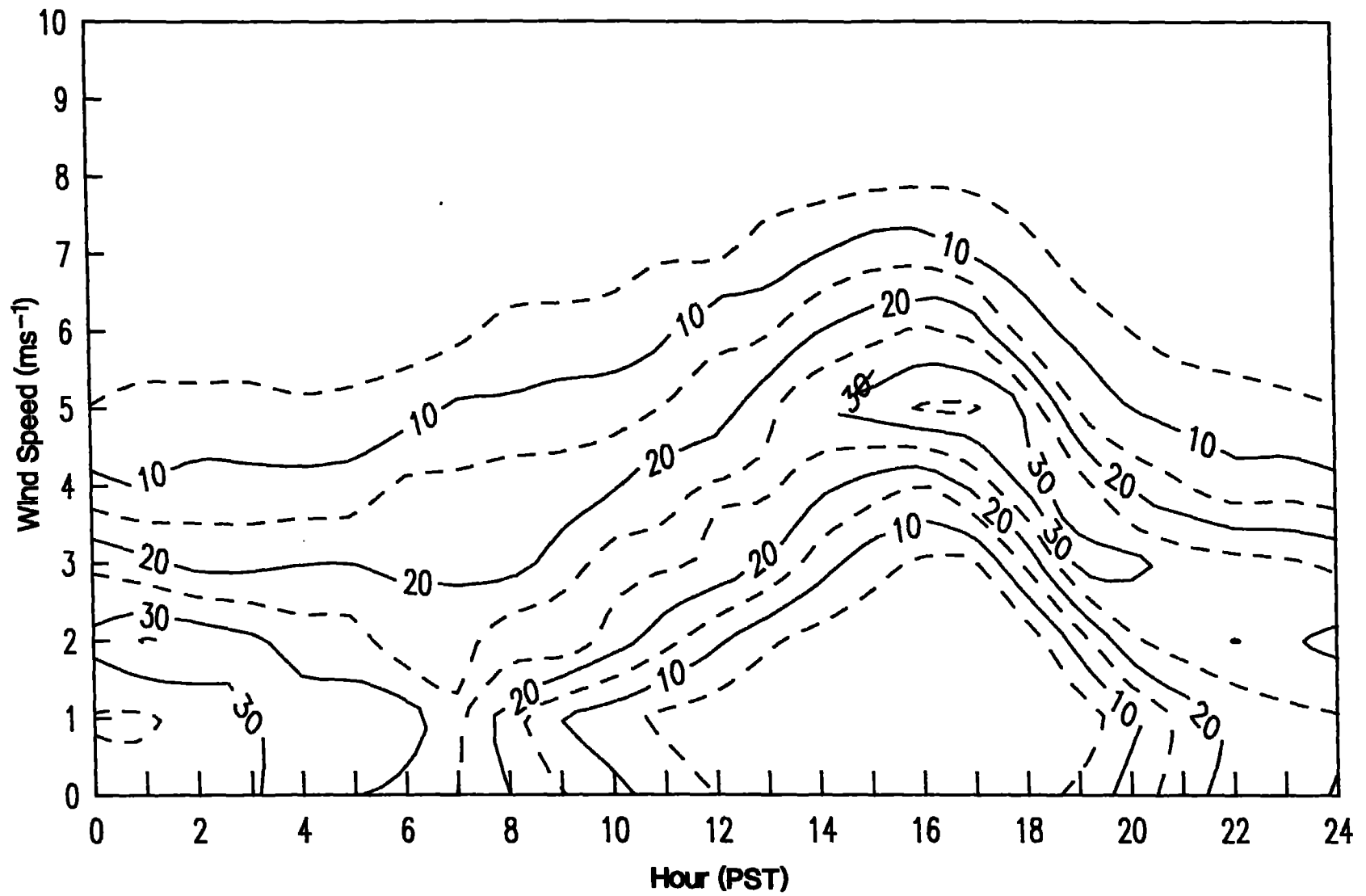


Figure 11. Diurnal variation of the wind speed frequency distribution during the summers of 1979 to 1987 at the LLNL tower.

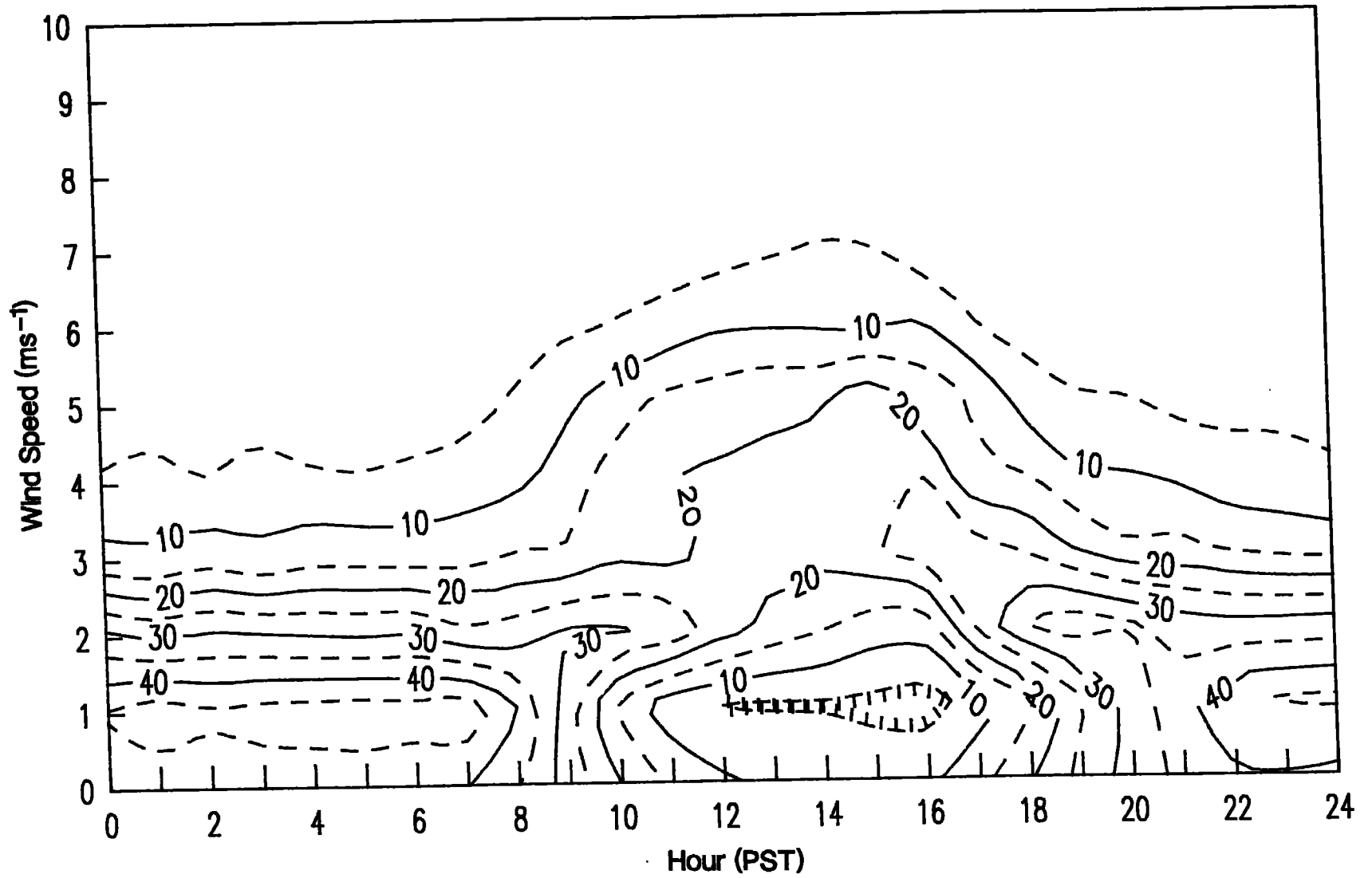


Figure 12. Diurnal variation of the wind speed frequency distribution during the falls of 1979 to 1987 at the LLNL tower.

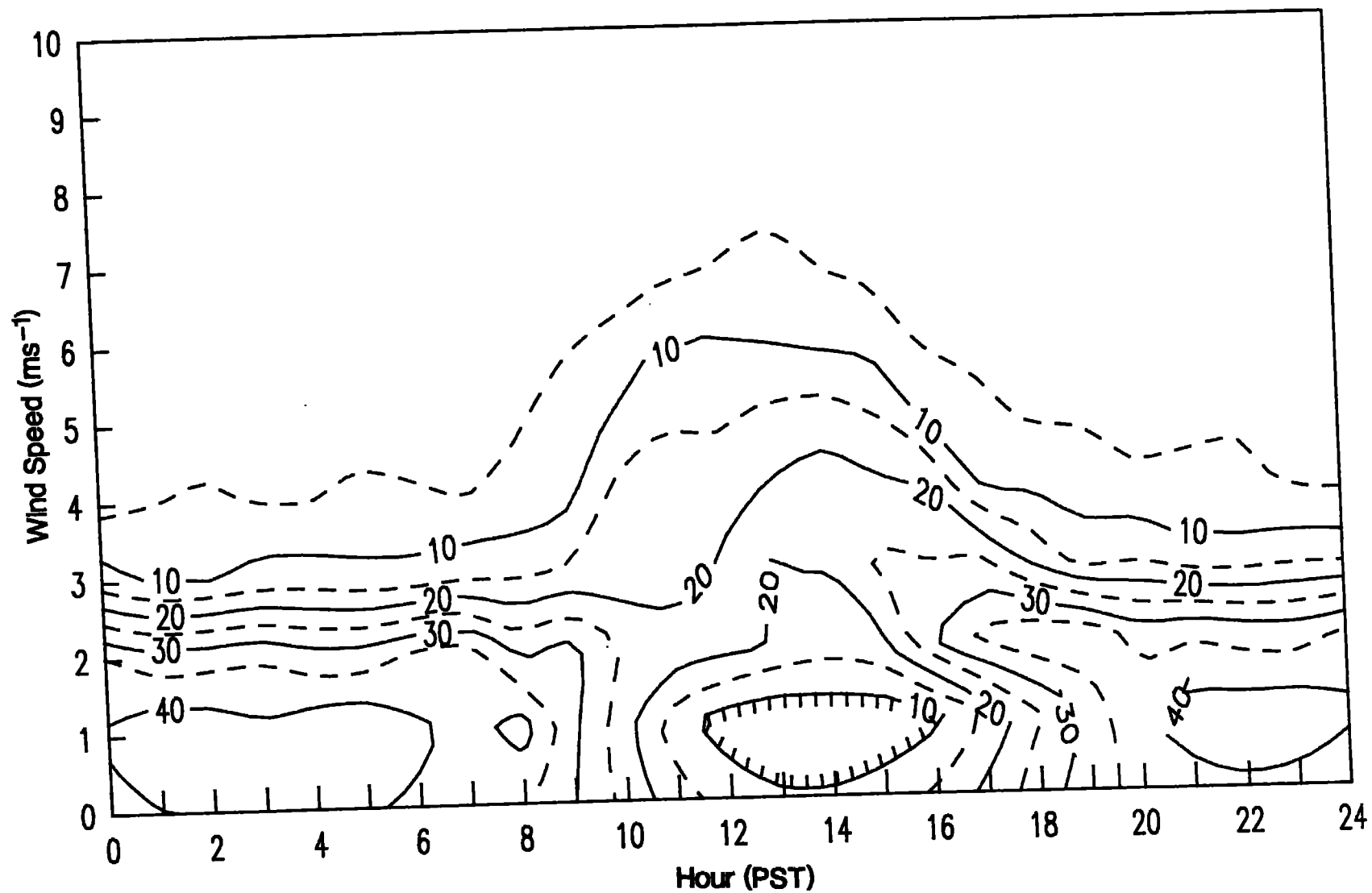


Figure 13. Diurnal variation of the wind speed frequency distribution during the winters of 1979 to 1987 at the LLNL tower.

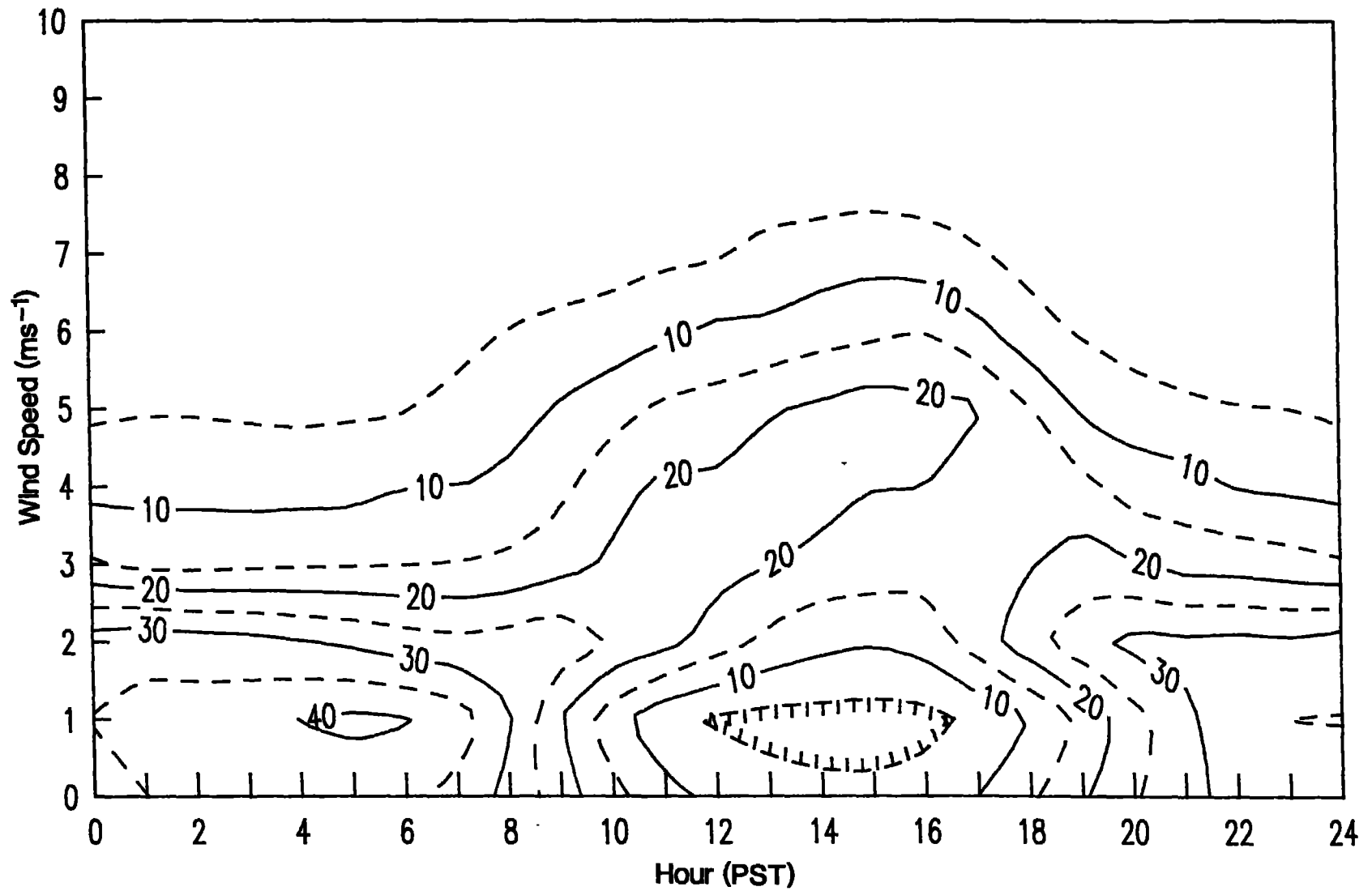


Figure 14. Annual diurnal variation of the wind speed frequency distribution during 1979 to 1987 at the LLNL tower.



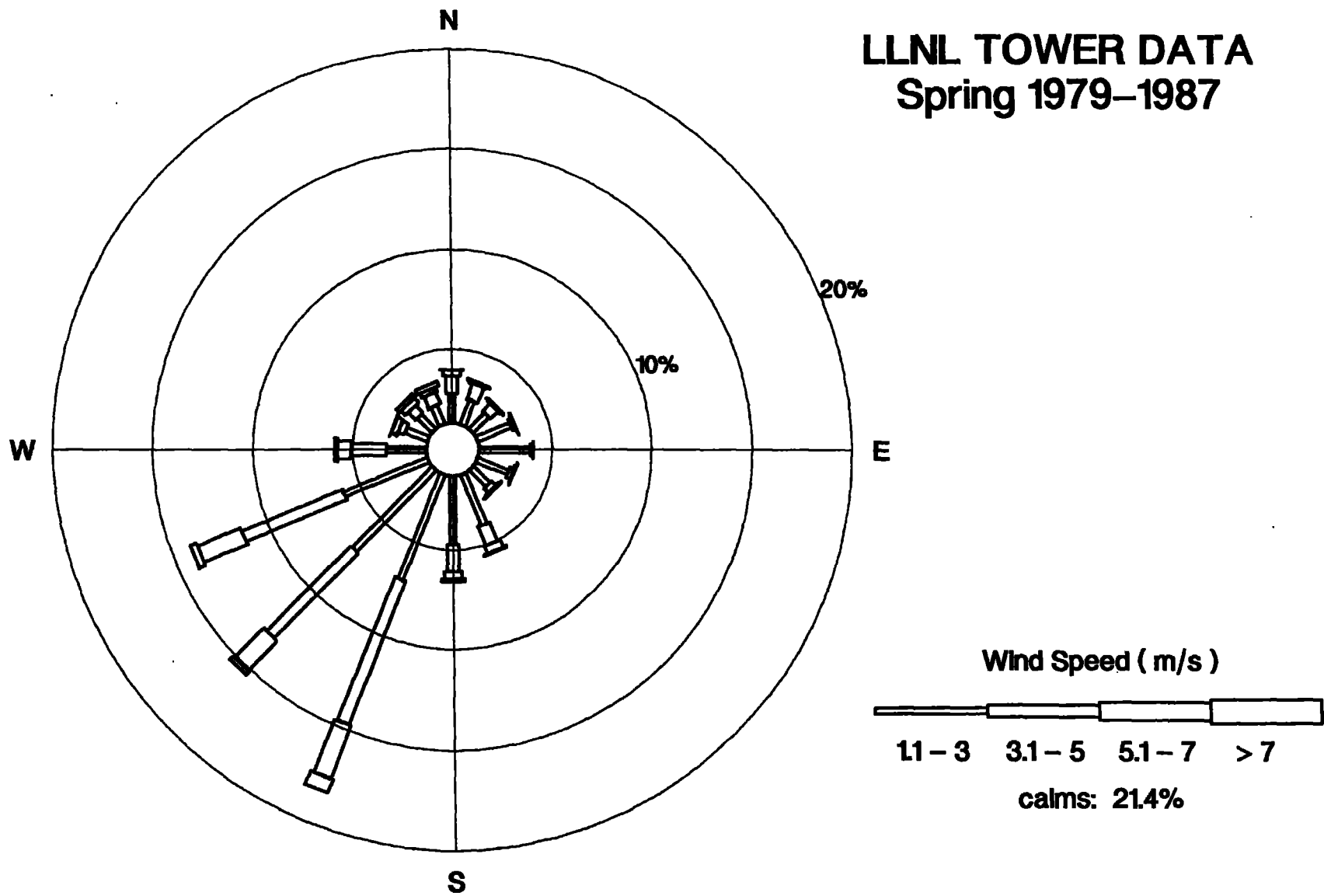


Figure 15. Wind rose for the springs of 1979 to 1987 at the LLNL tower.

**LLNL TOWER DATA  
Summer 1979-1987**

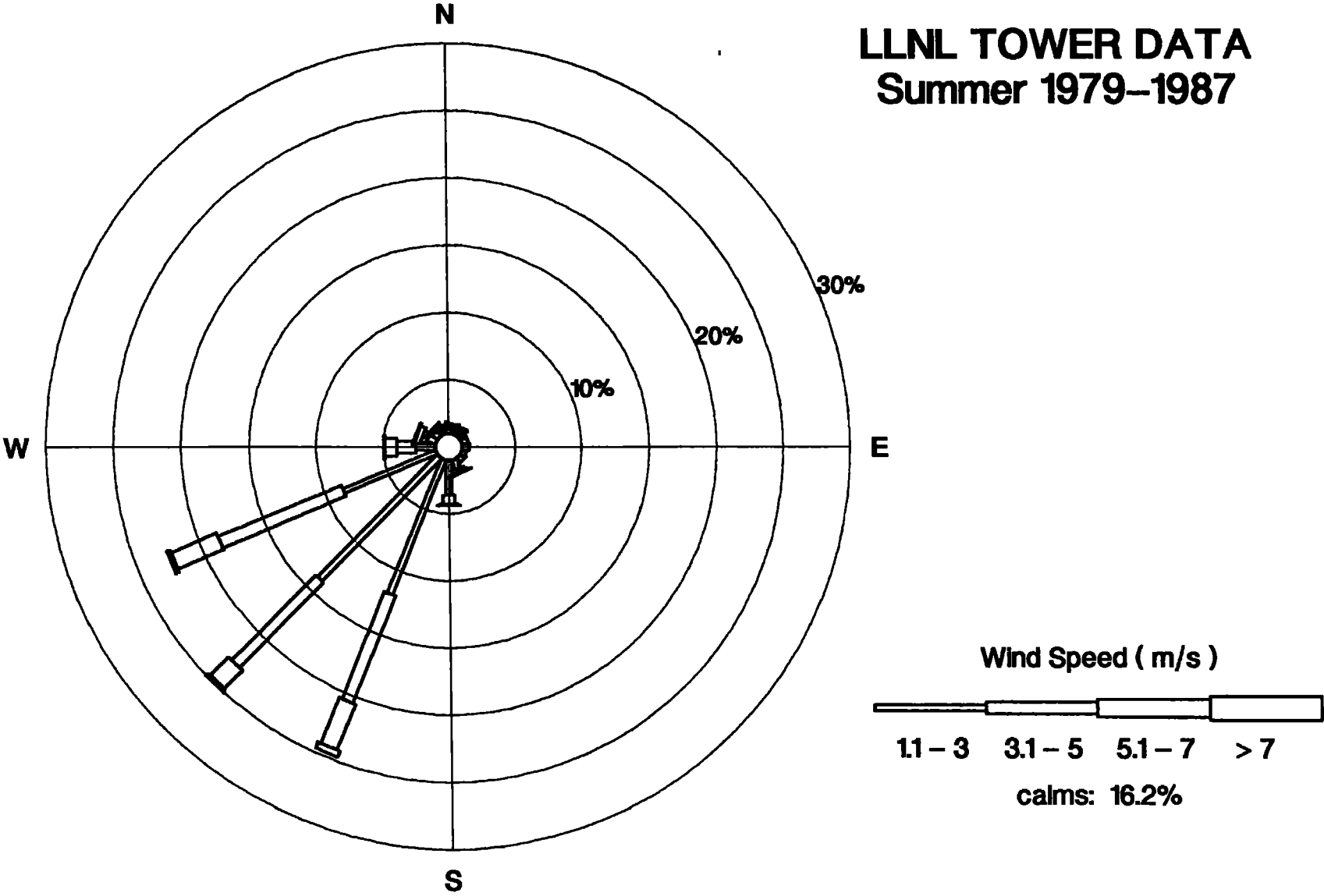


Figure 16. Wind rose for the summers of 1979 to 1987 at the LLNL tower.

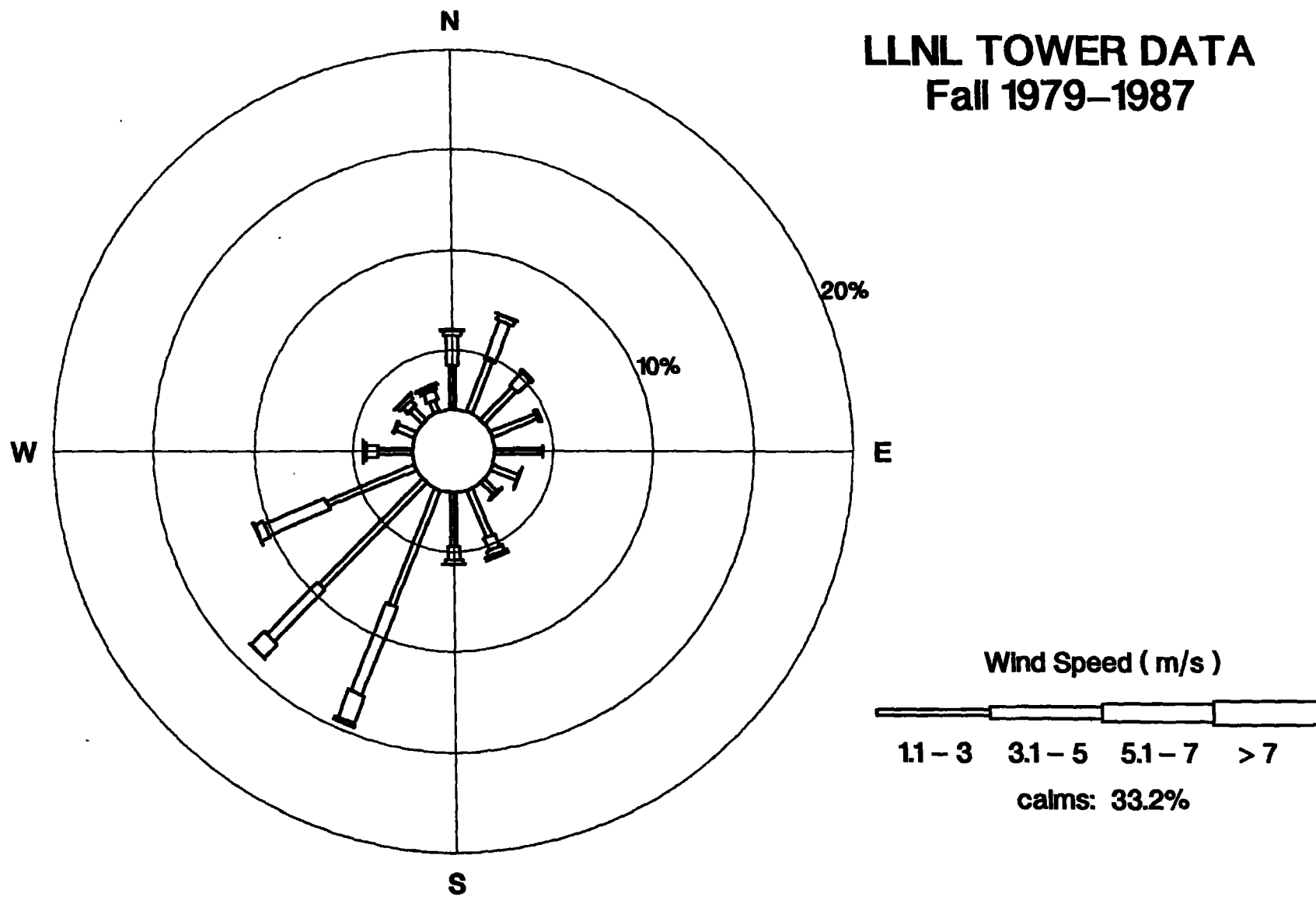


Figure 17. Wind rose for the falls of 1979 to 1987 at the LLNL tower.

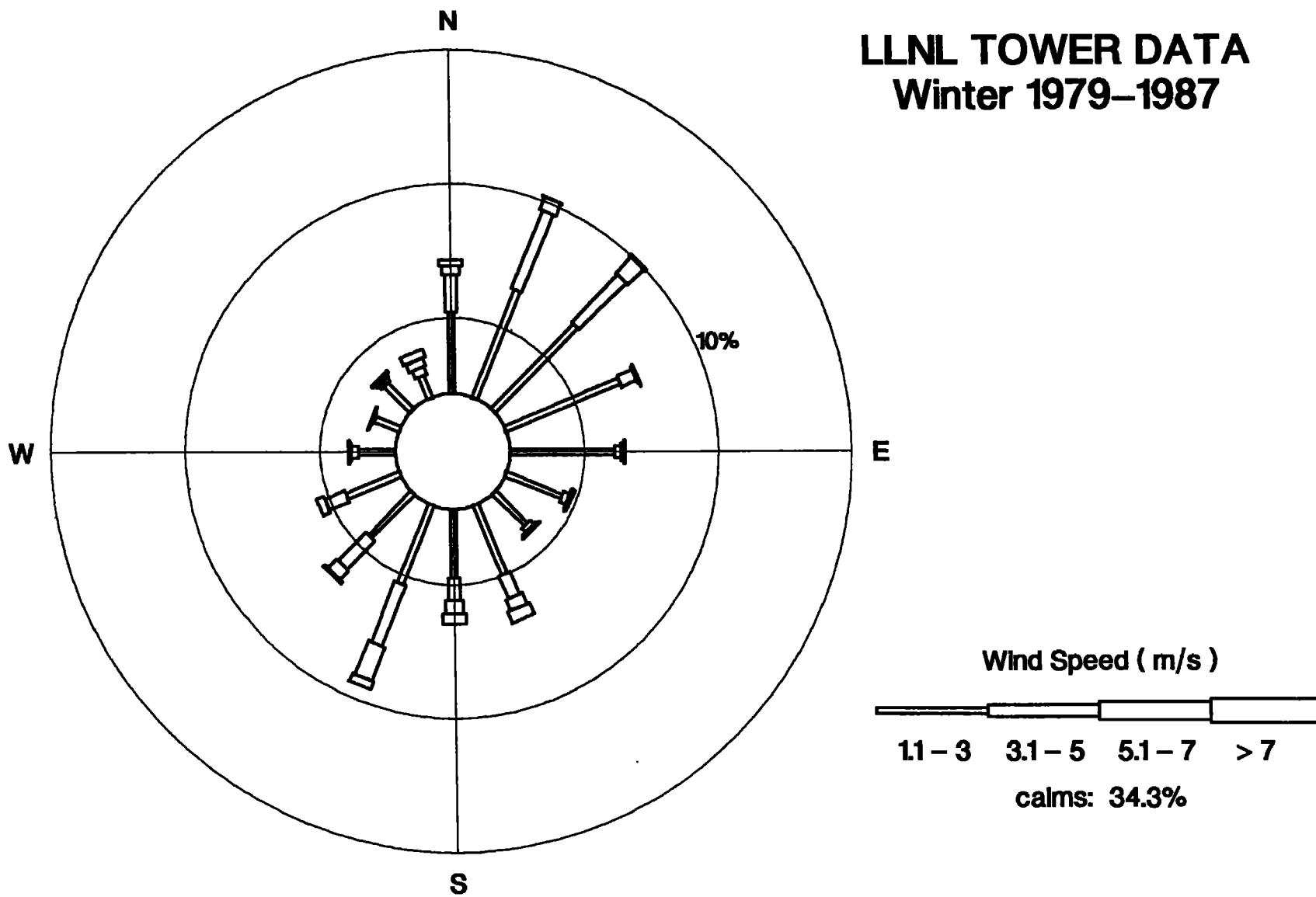


Figure 18. Wind rose for the winters of 1979 to 1987 at the LLNL tower.

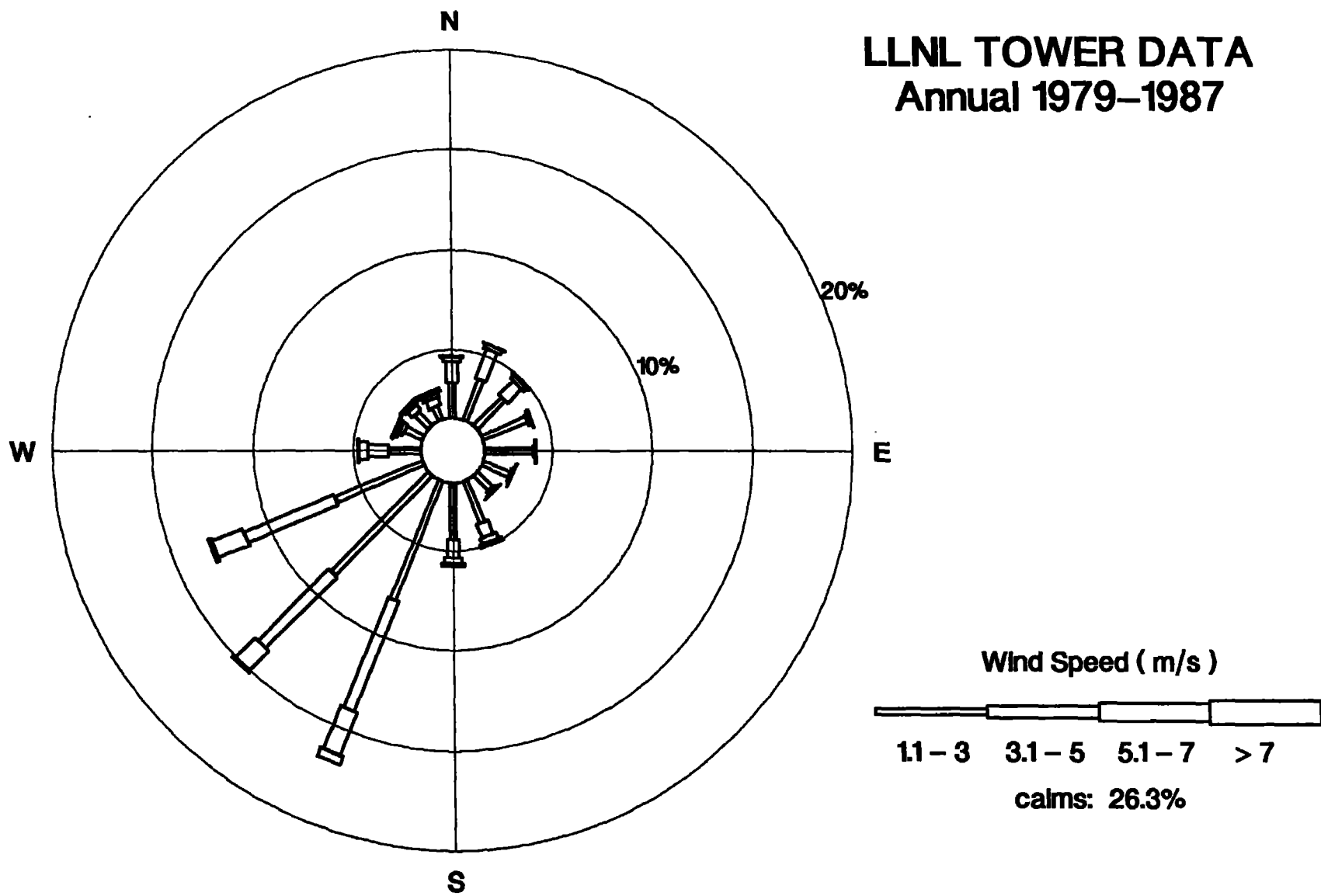


Figure 19. Wind rose for the years of 1979 to 1987 at the LLNL tower.

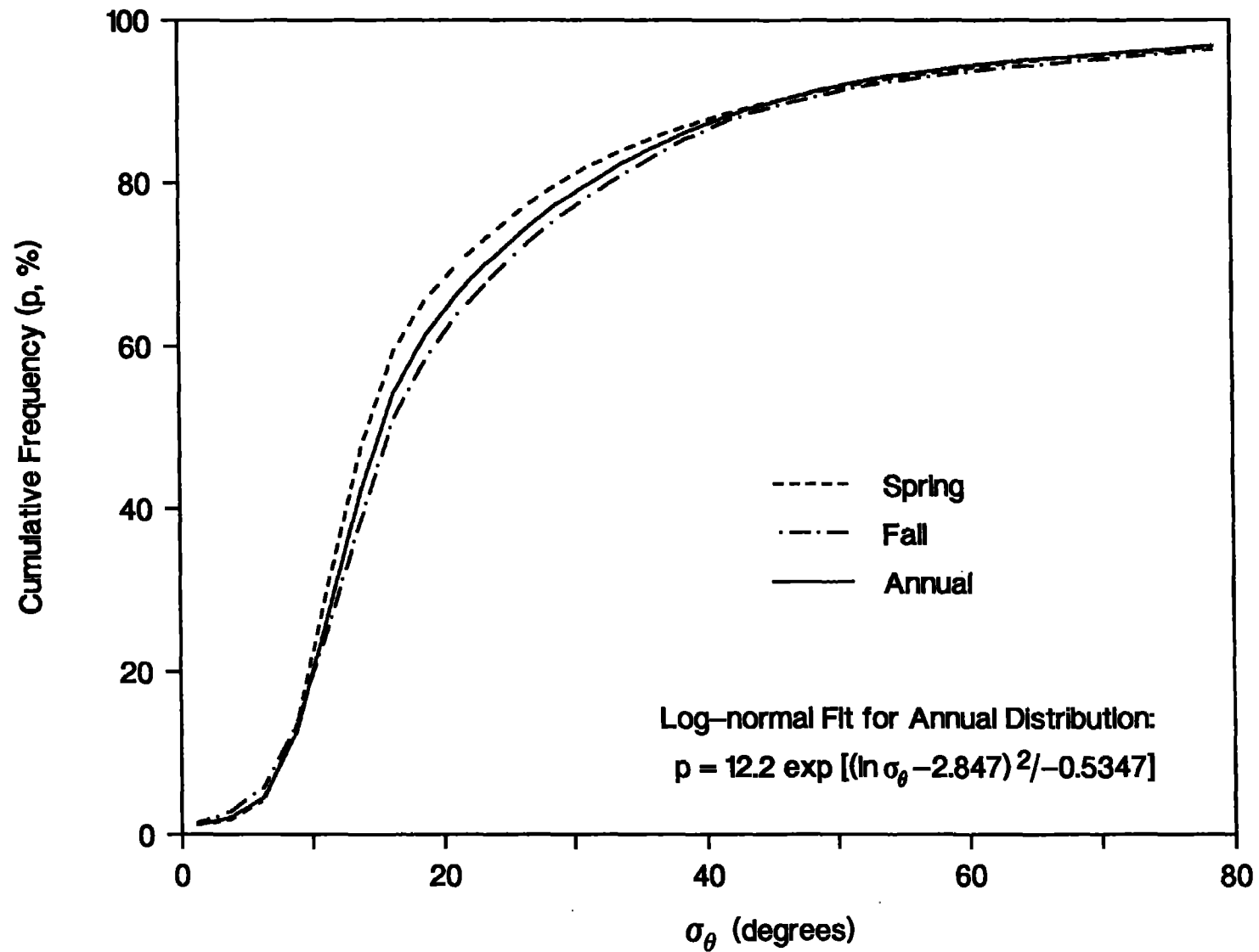


Figure 20. Spring, fall, and annual  $\sigma_{\theta}$  frequency distributions for 1979 to 1987 at the LLNL tower.

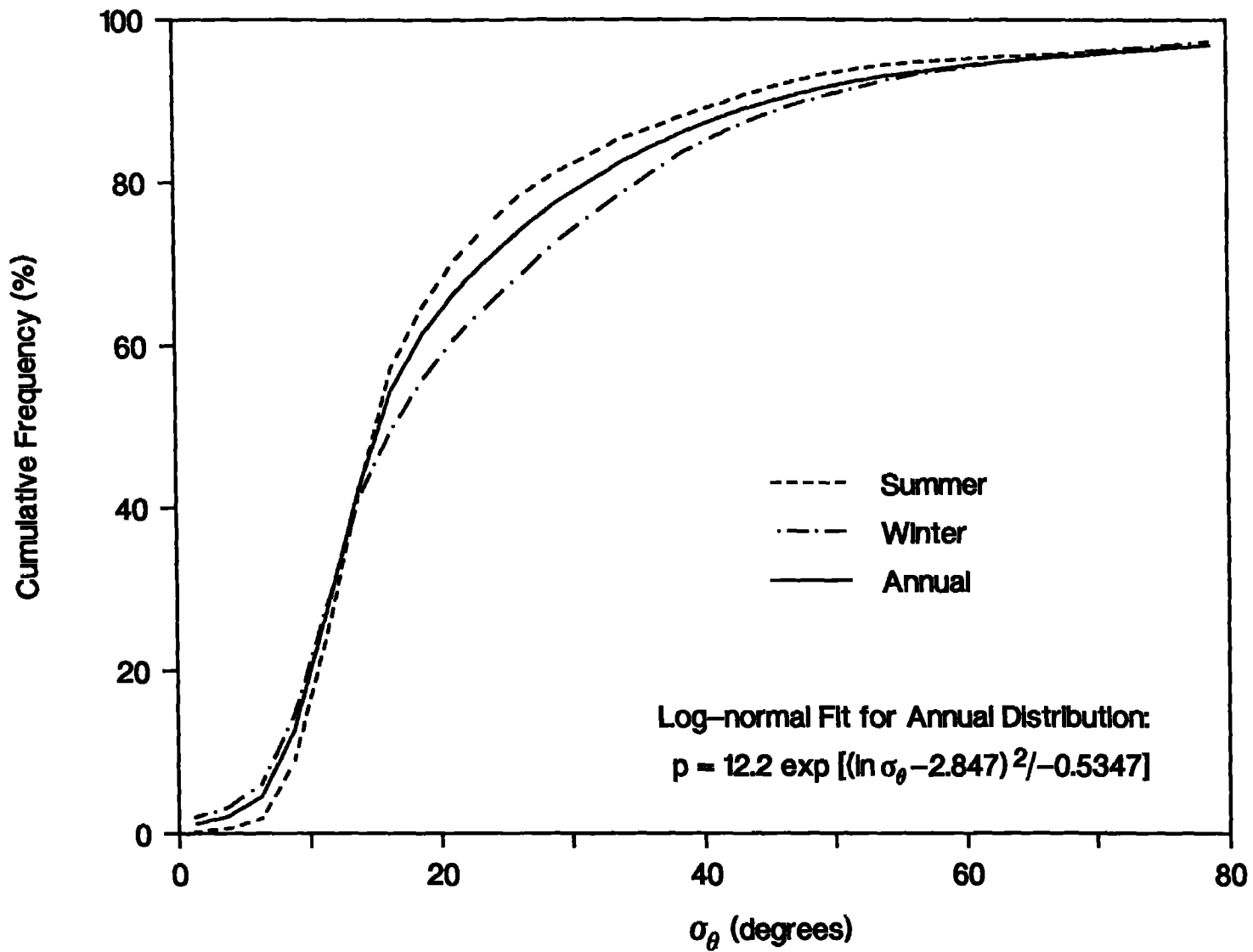


Figure 21. Summer, winter and annual  $\sigma_\theta$  frequency distributions for 1979 to 1987 at the LLNL tower.

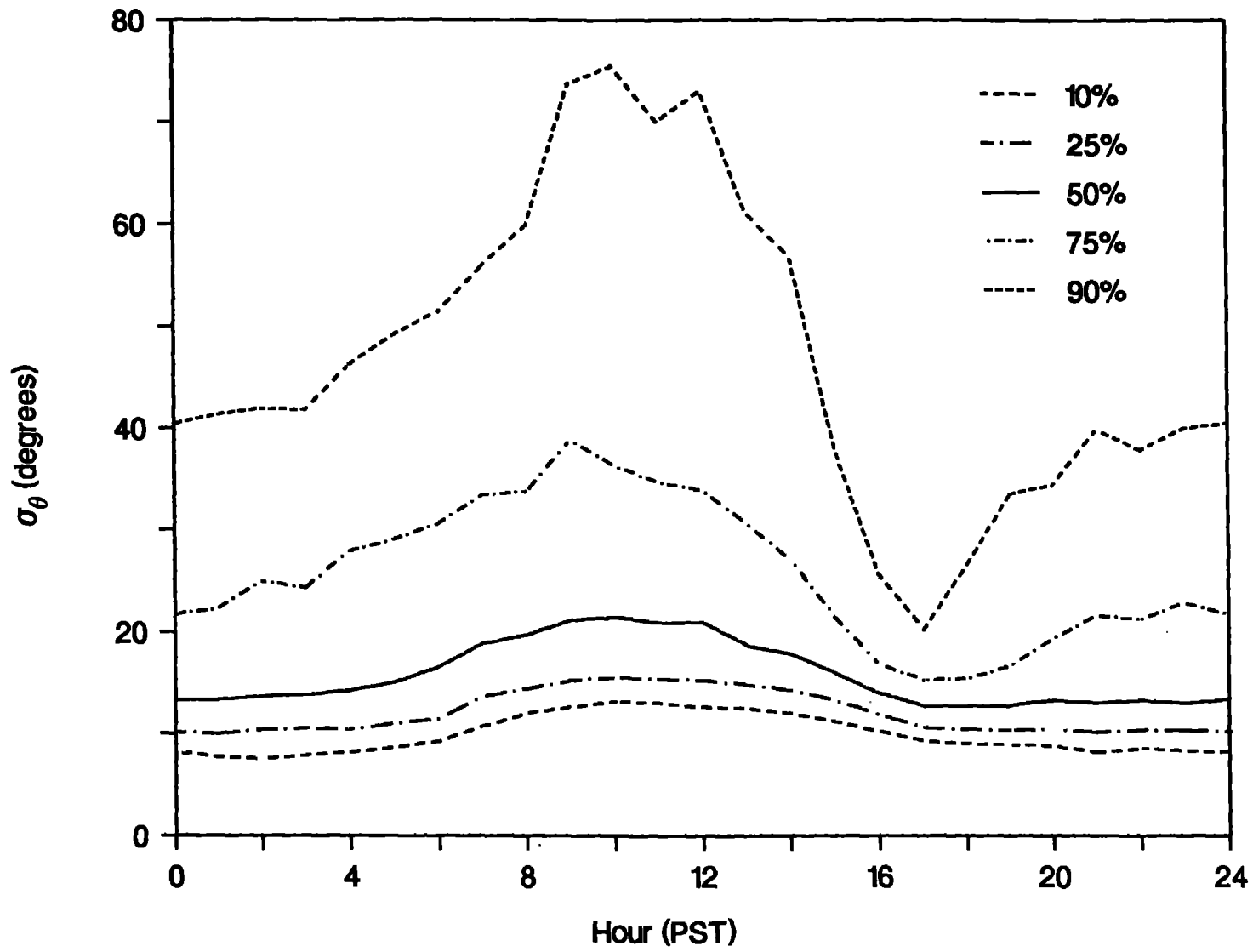


Figure 22. Diurnal variation of 10th, 25th, 50th, 75th, 90th percentiles of  $\sigma_\theta$  during the springs of 1979 to 1987 at the LLNL tower.



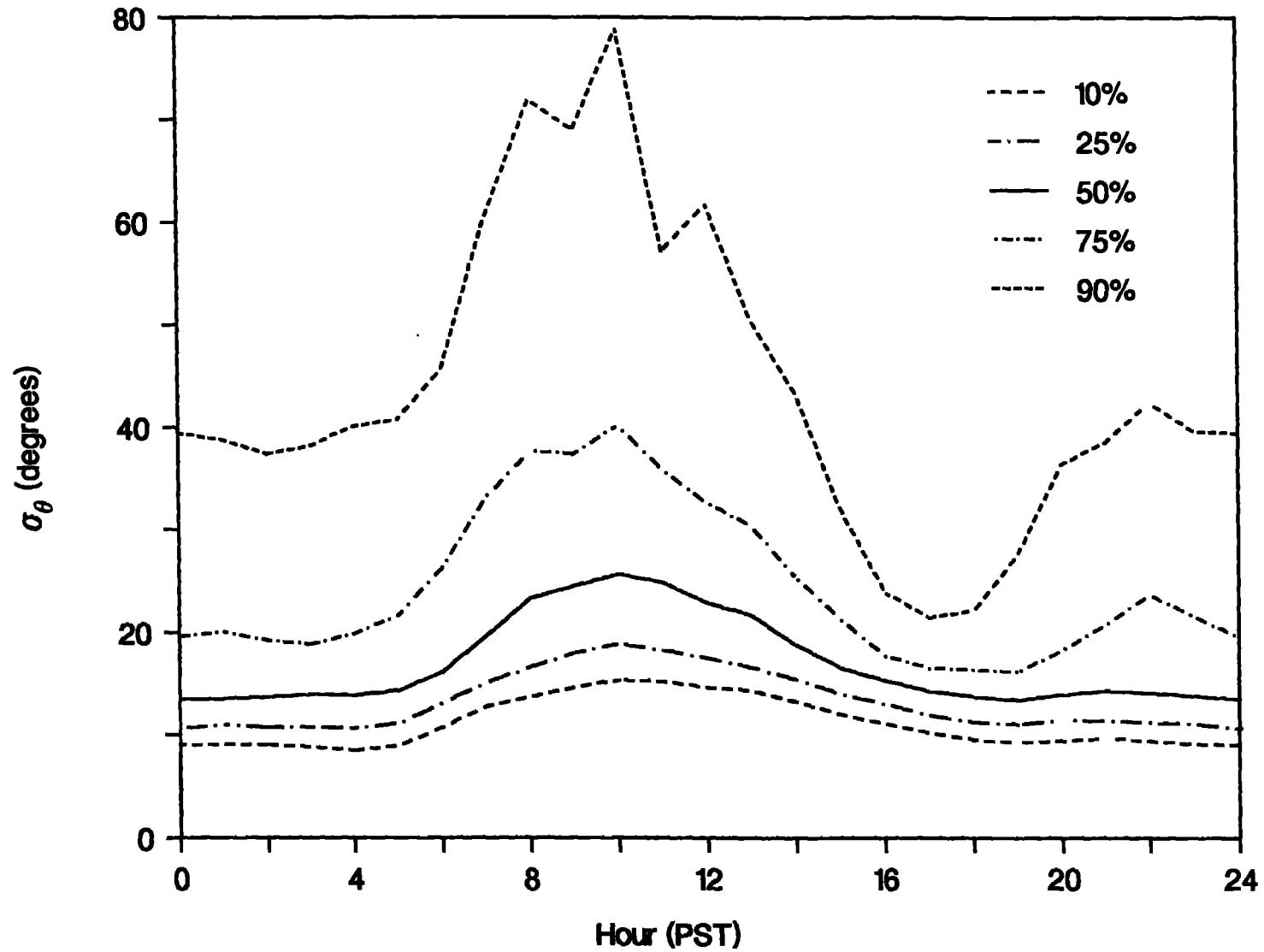


Figure 23. Diurnal variation of 10th, 25th, 50th, 75th, 90th percentiles of  $\sigma_\theta$  during the summers of 1979 to 1987 at the LLNL tower.

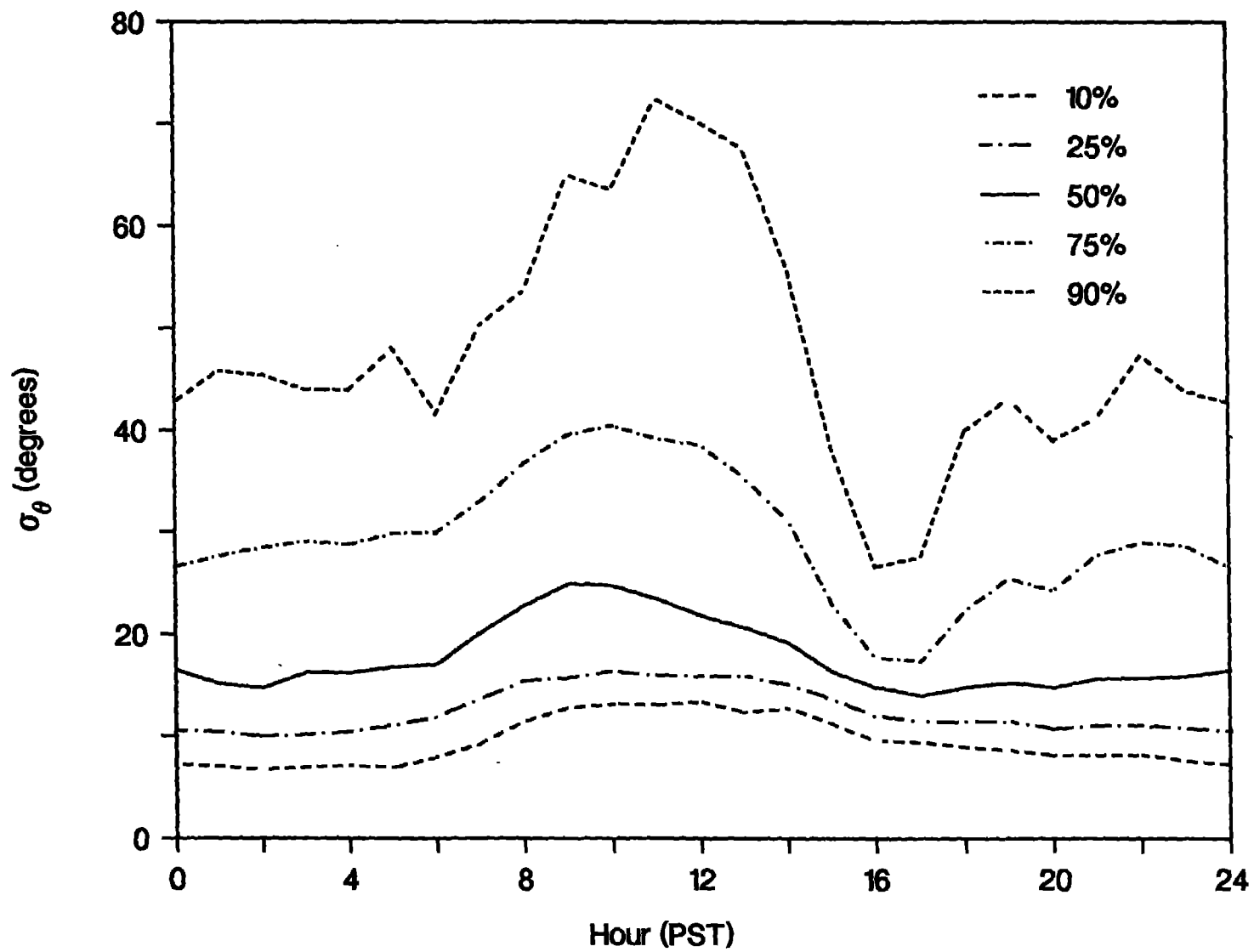


Figure 24. Diurnal variation of 10th, 25th, 50th, 75th, 90th percentiles of  $\sigma_\theta$  during the falls of 1979 to 1987 at the LLNL tower.

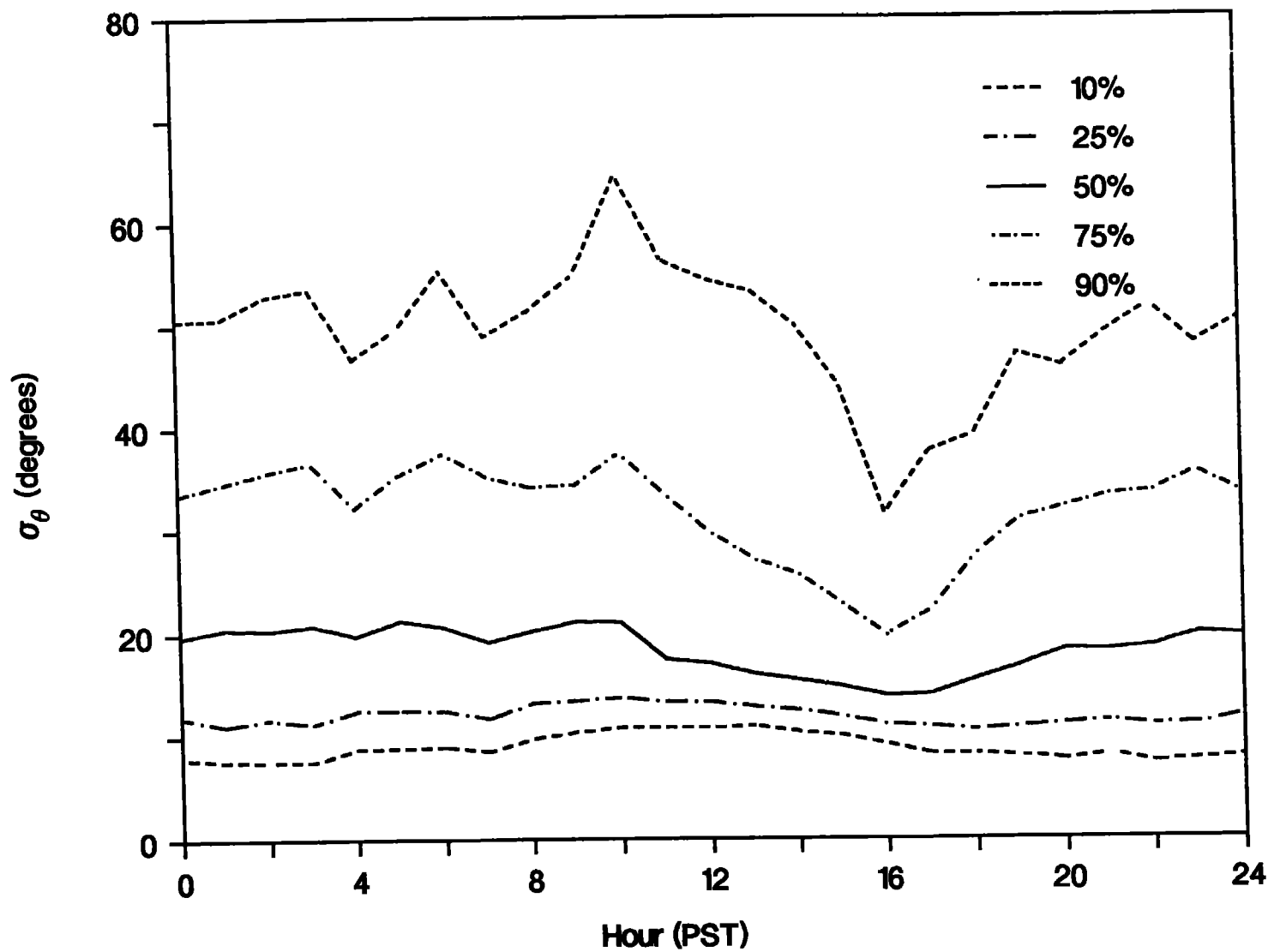


Figure 25. Diurnal variation of 10th, 25th, 50th, 75th, 90th percentiles of  $\sigma_\theta$  during the winters of 1979 to 1987 at the LLNL tower.

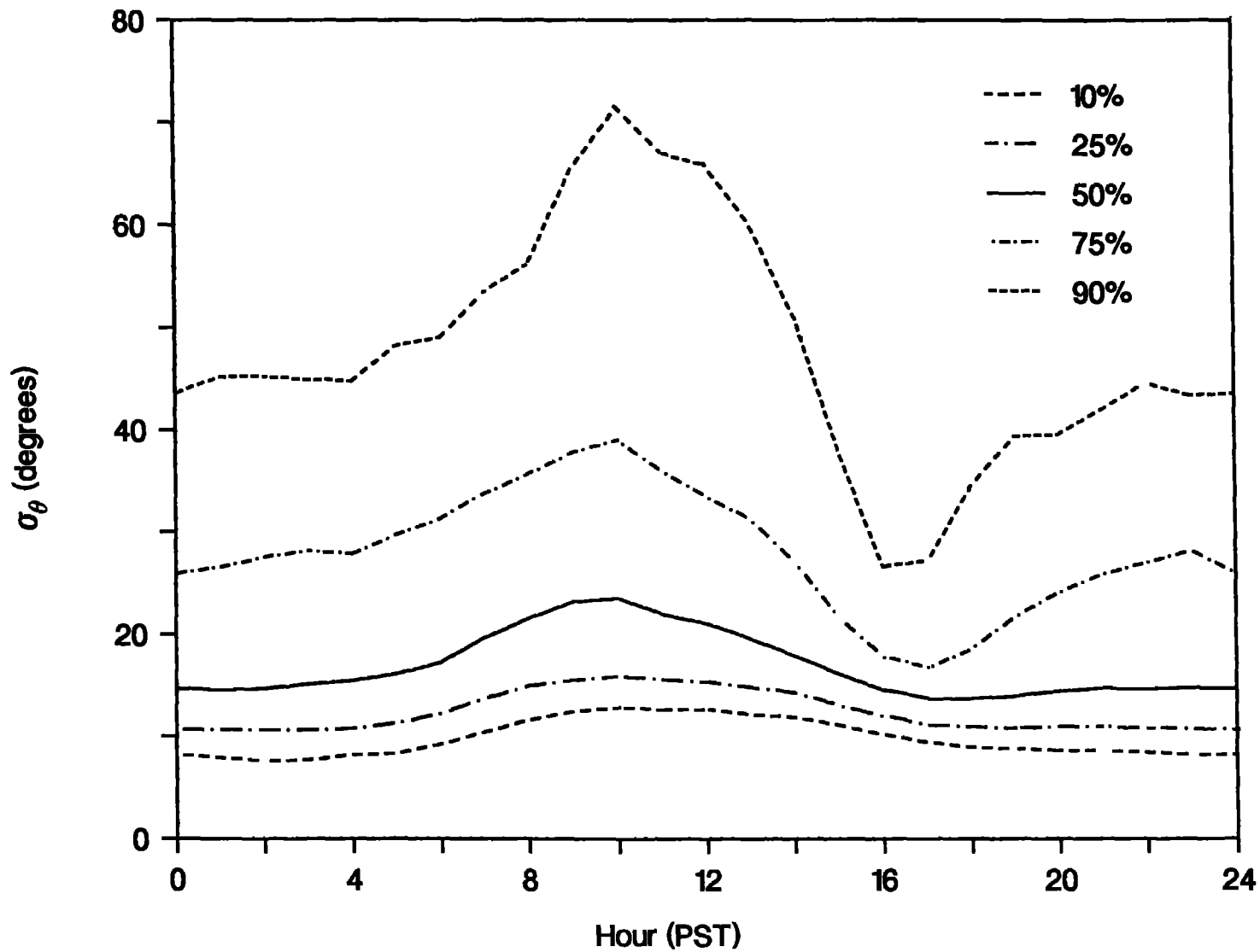


Figure 26. Annual diurnal variation of 10th, 25th, 50th, 75th, 90th percentiles of  $\sigma_\theta$  during 1979 to 1987 at the LLNL tower.

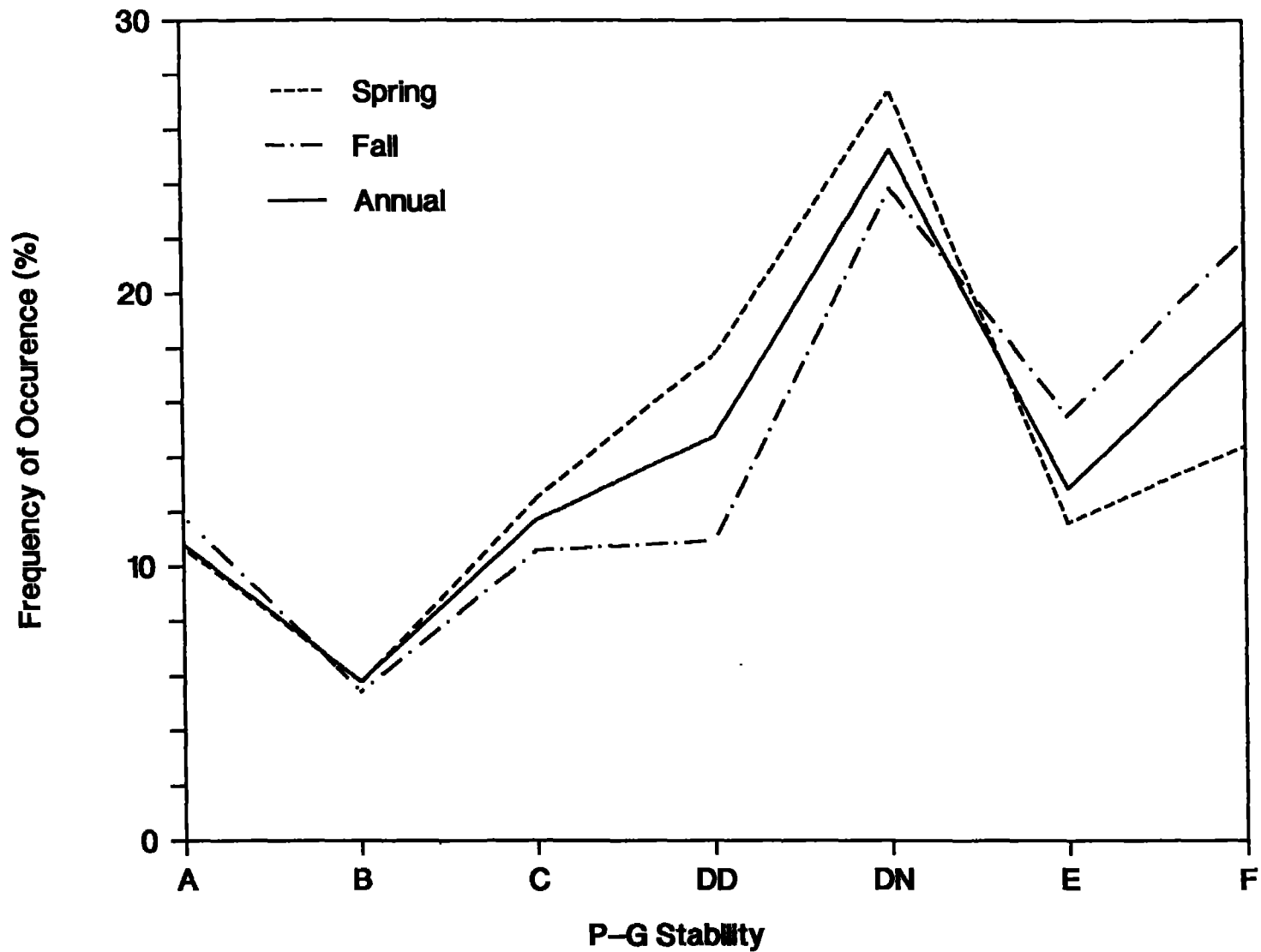


Figure 27. Spring, fall and annual Pasquill-Gifford stability frequency distributions for 1979 to 1987 at the LLNL tower.

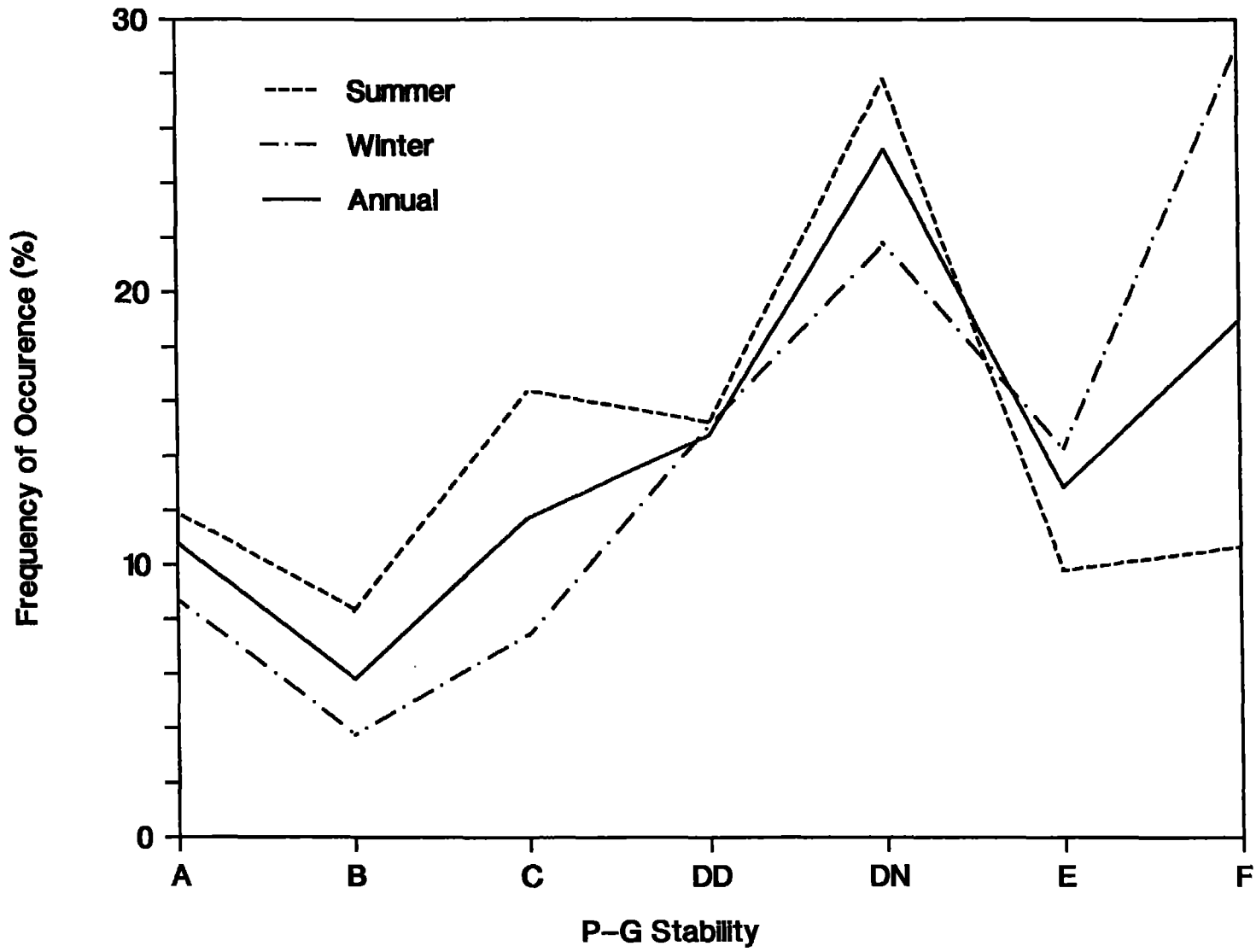


Figure 28. Summer, winter, and annual Pasquill-Gifford stability frequency distributions for 1979 to 1987 at the LLNL tower.

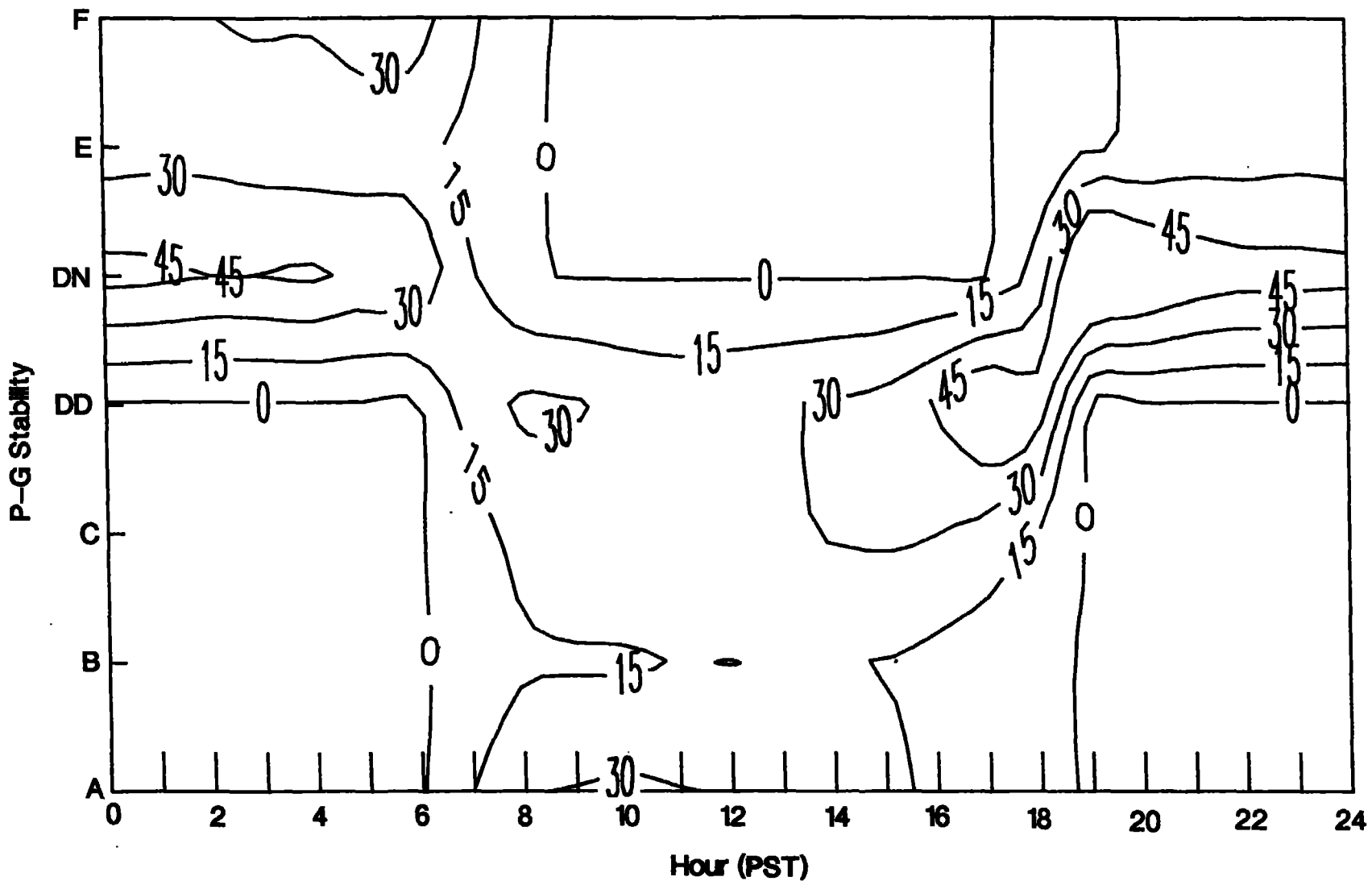


Figure 29. Diurnal variation of stability frequency distributions during the springs of 1979 to 1987 at the LLNL tower.

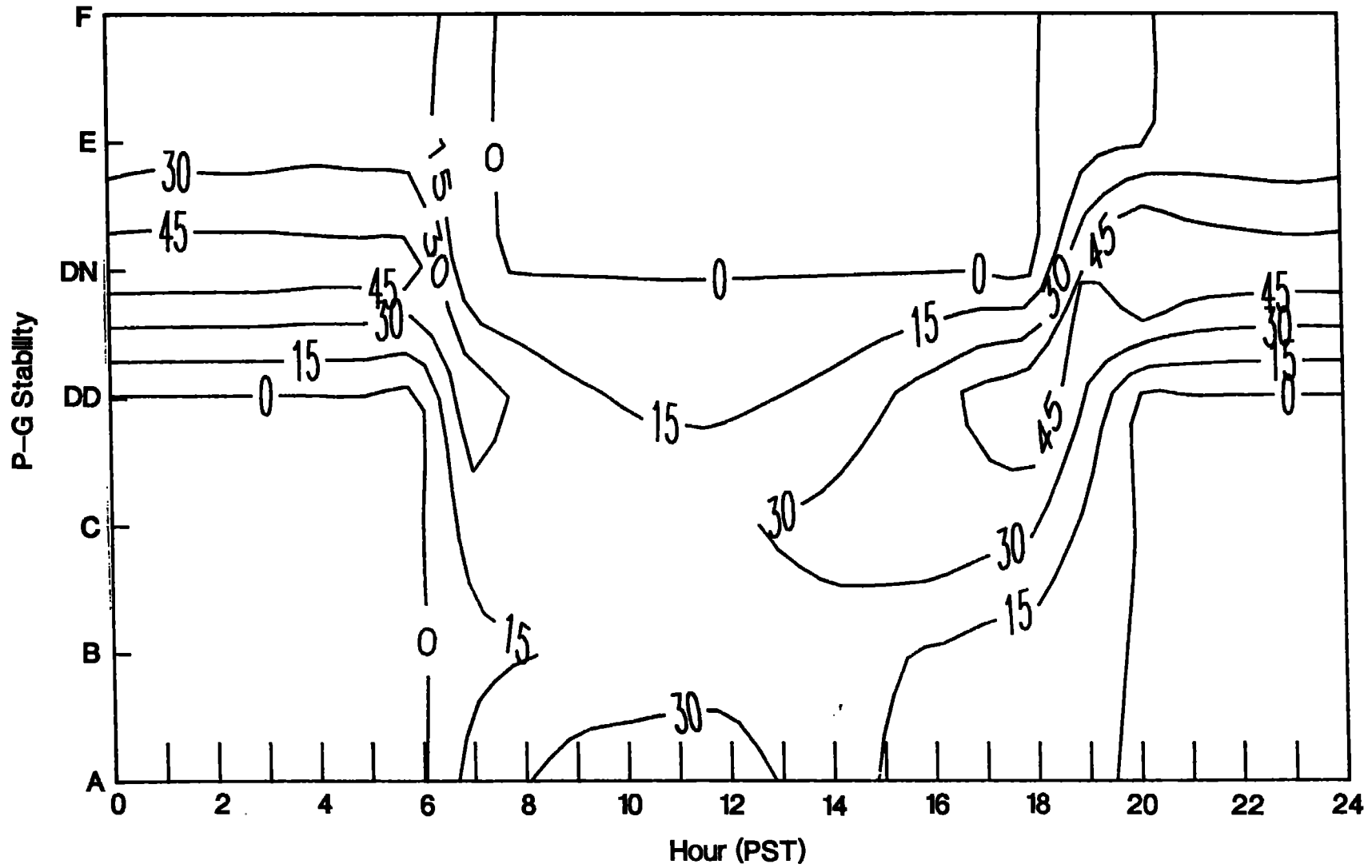


Figure 30. Diurnal variation of stability frequency distributions during the summers of 1979 to 1987 at the LLNL tower.



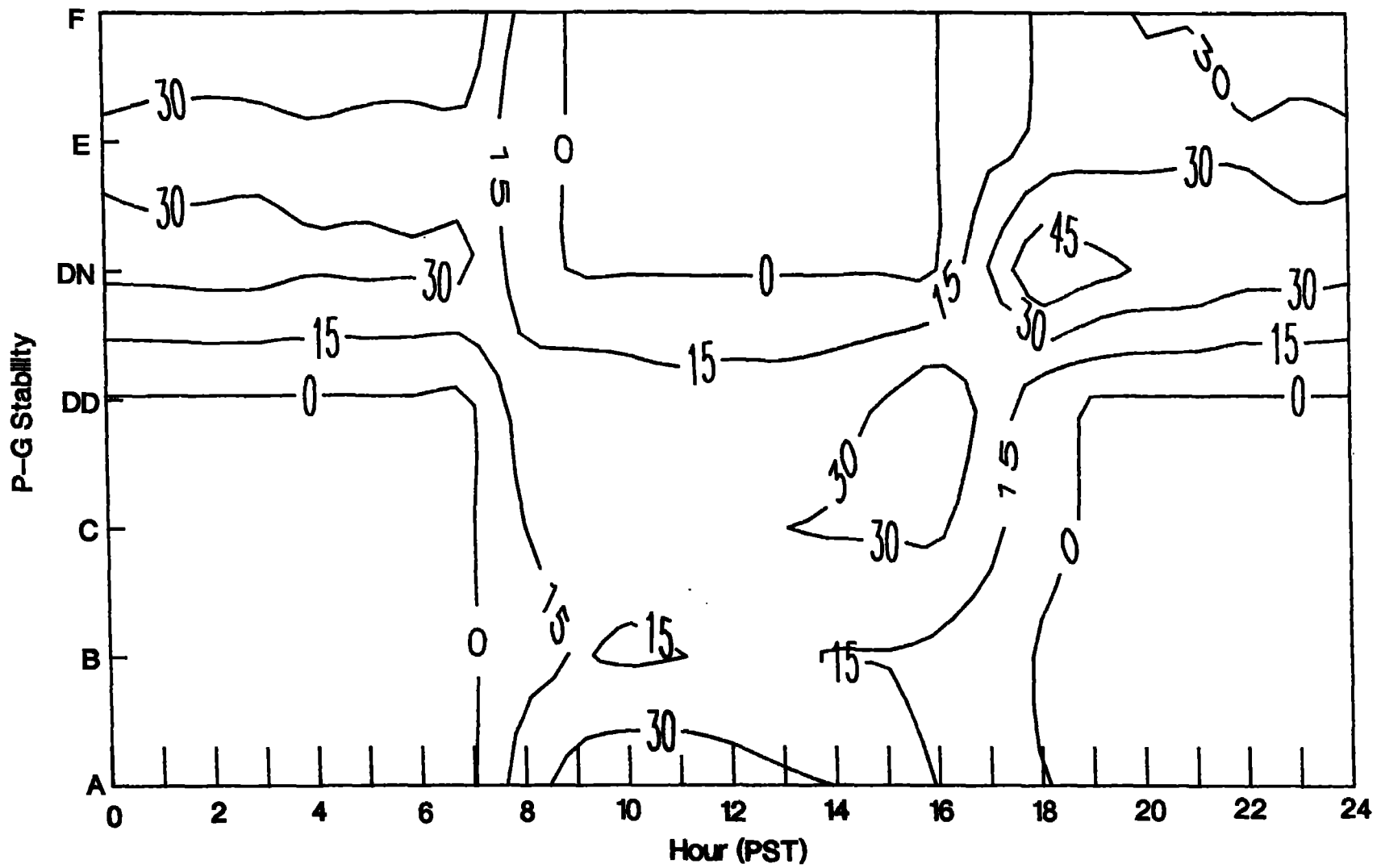


Figure 31. Diurnal variation of stability frequency distributions during the falls of 1979 to 1987 at the LLNL tower.

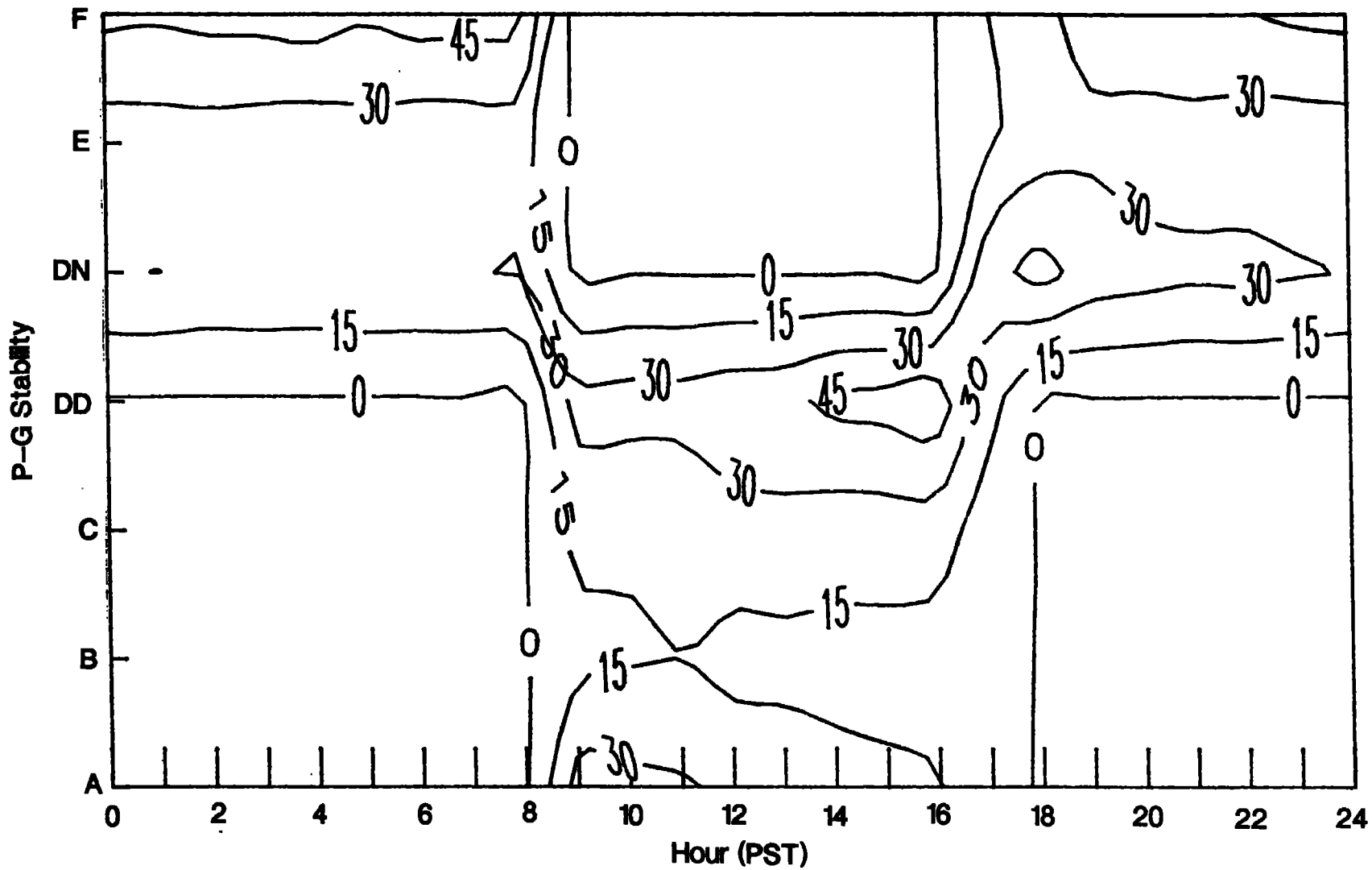


Figure 32. Diurnal variation of stability frequency distributions during the winters of 1979 to 1987 at the LLNL tower.

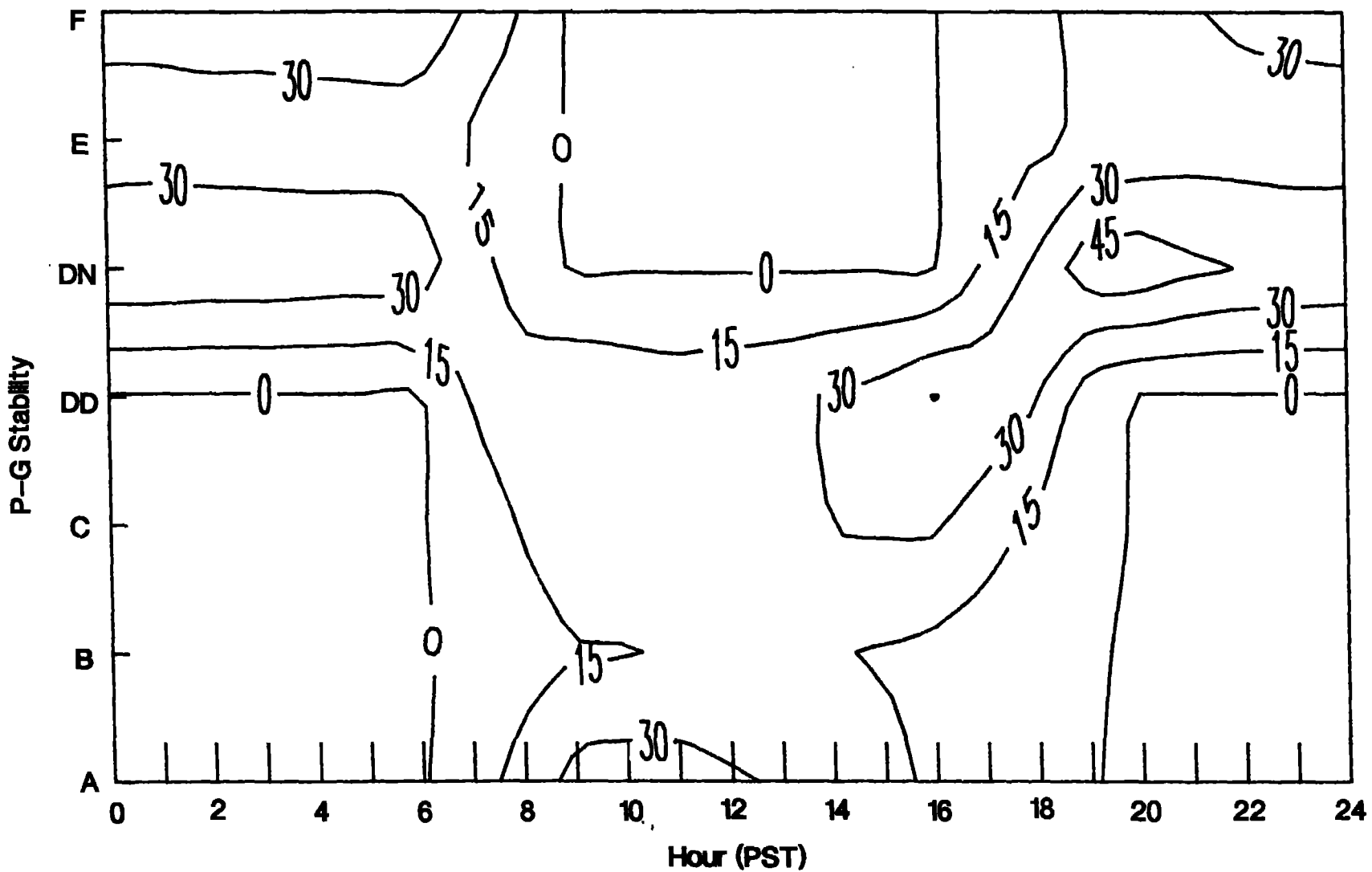
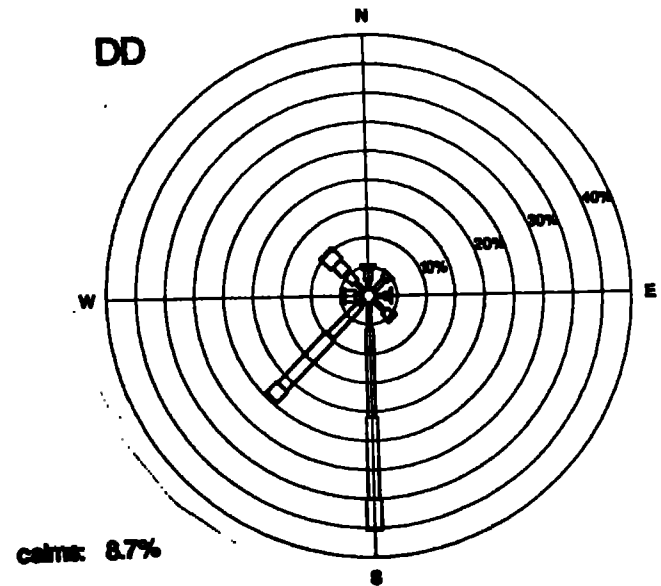
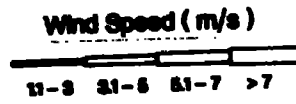
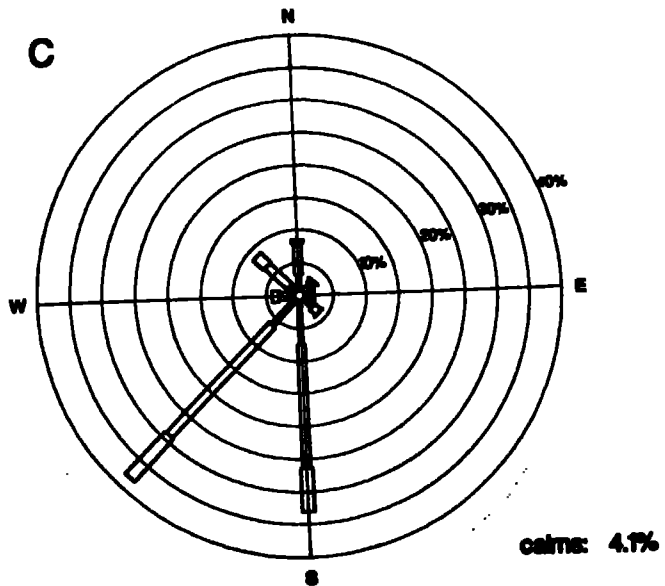
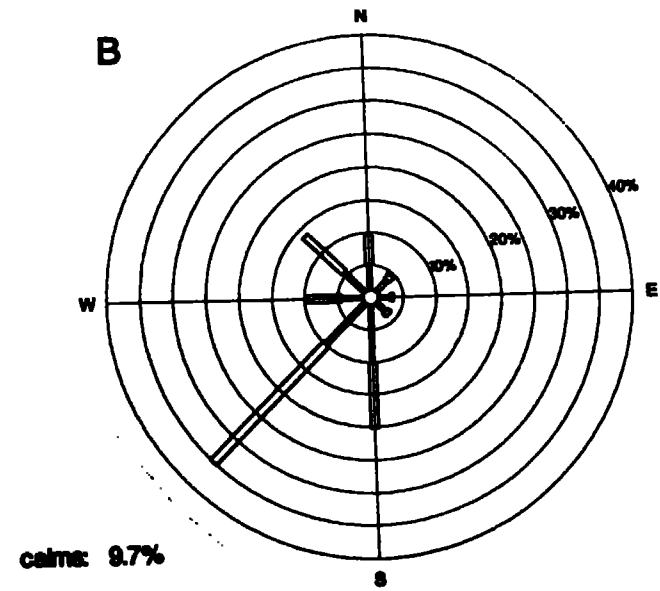
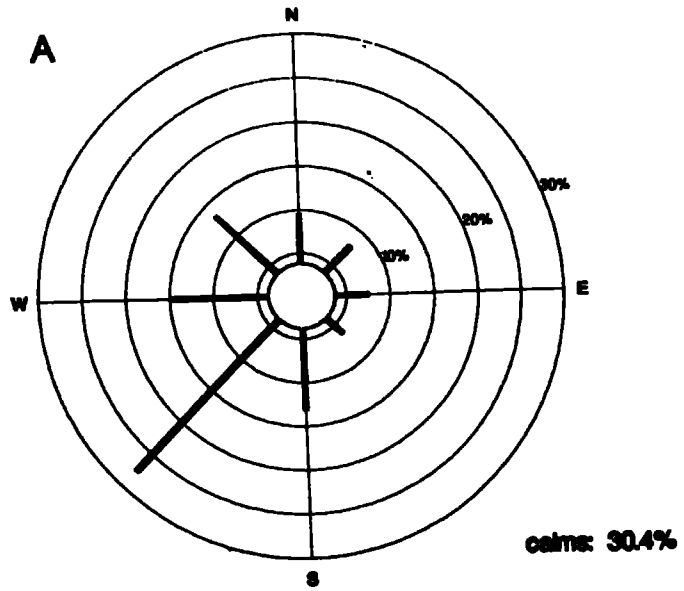


Figure 33. Annual diurnal variation of stability frequency distributions during 1979 to 1987 at the LLNL tower.

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# Spring



# Spring

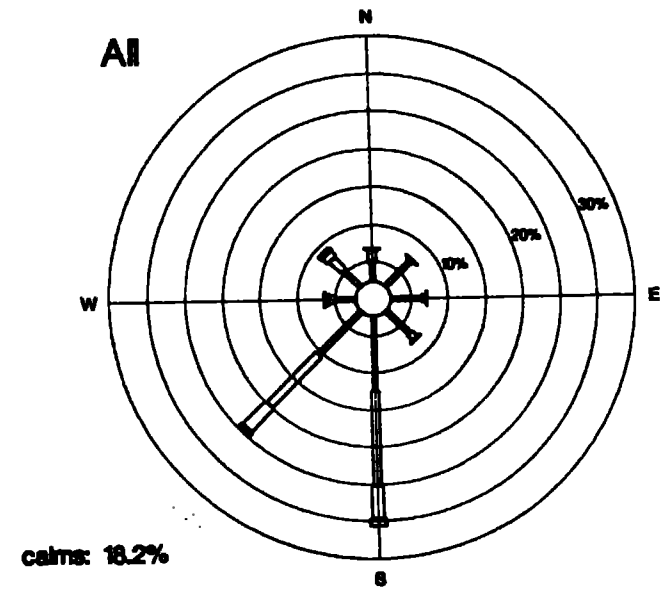
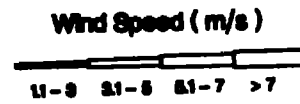
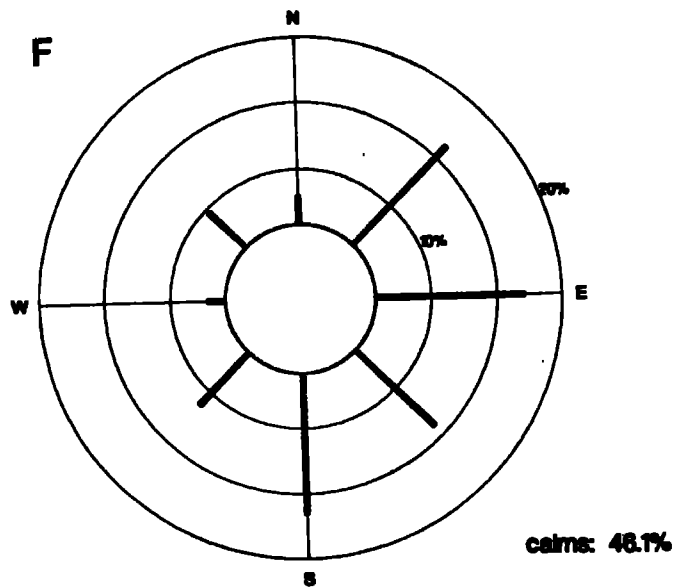
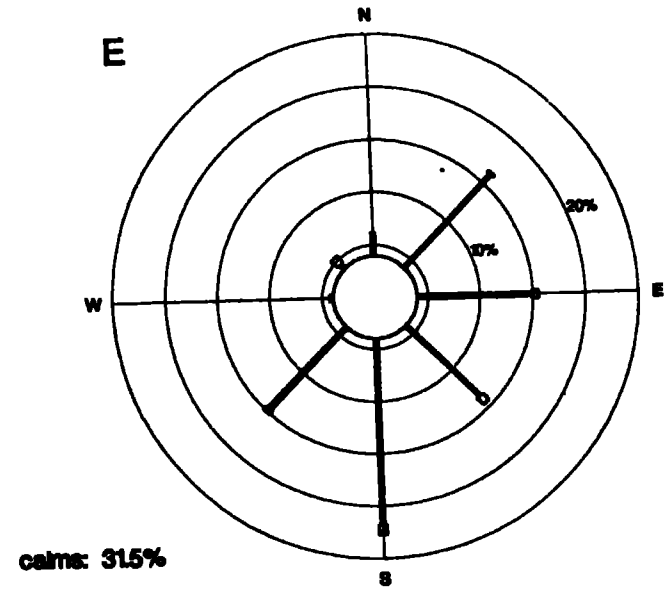
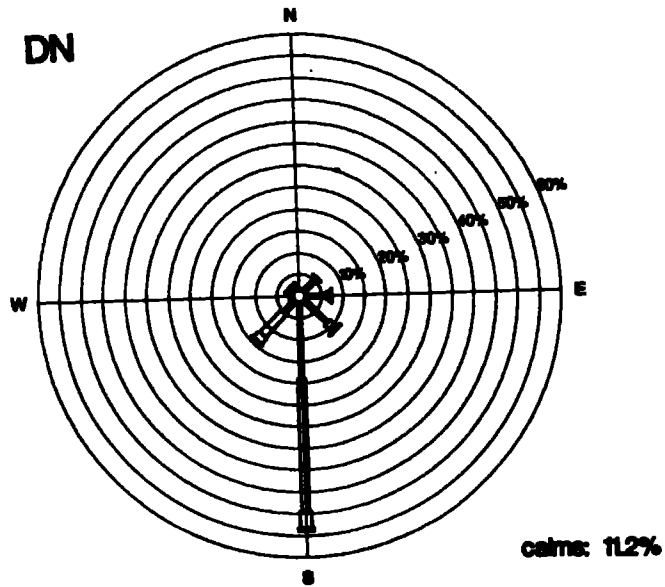
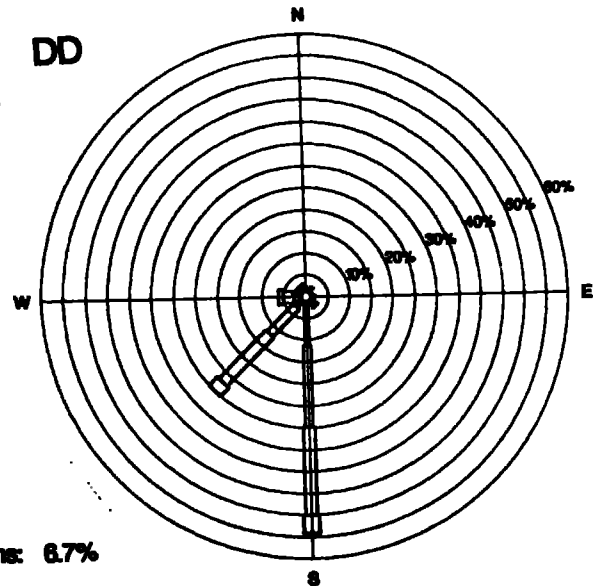
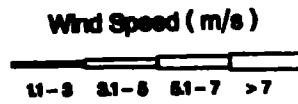
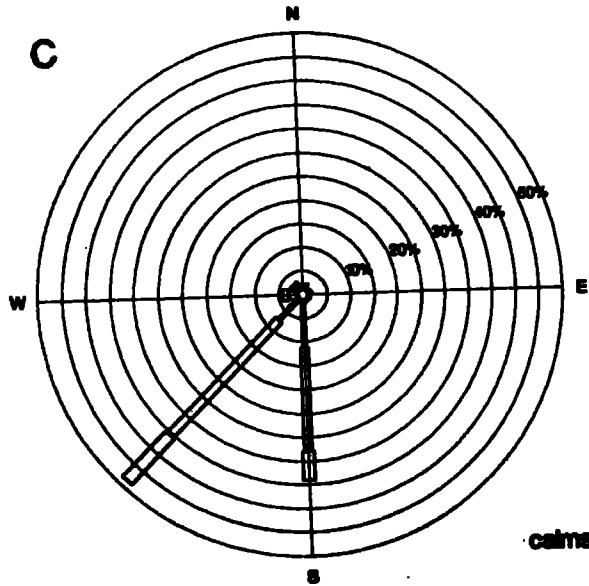
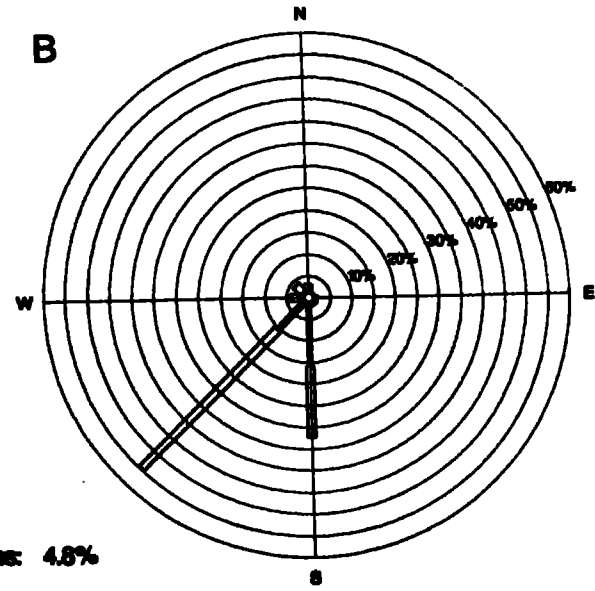
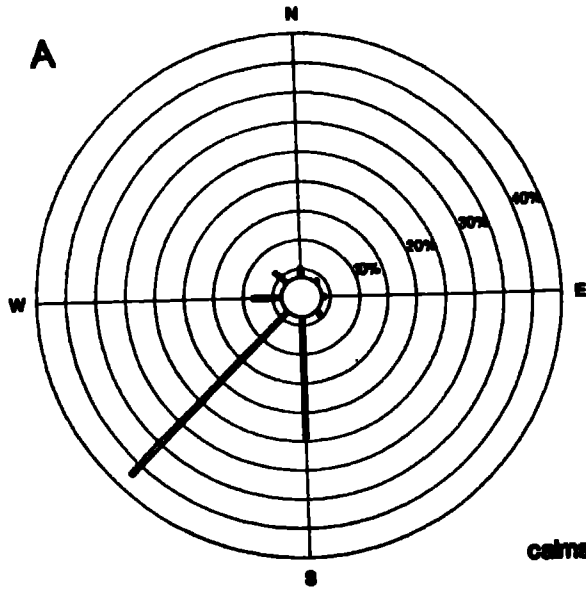


Figure 34. Wind rose for each stability during the springs of 1979 to 1987 at the LLNL tower.

# Summer



# Summer

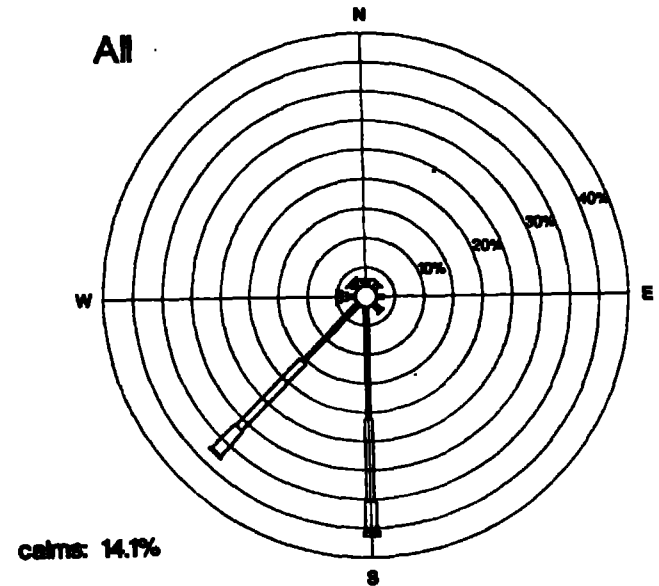
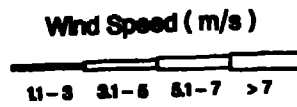
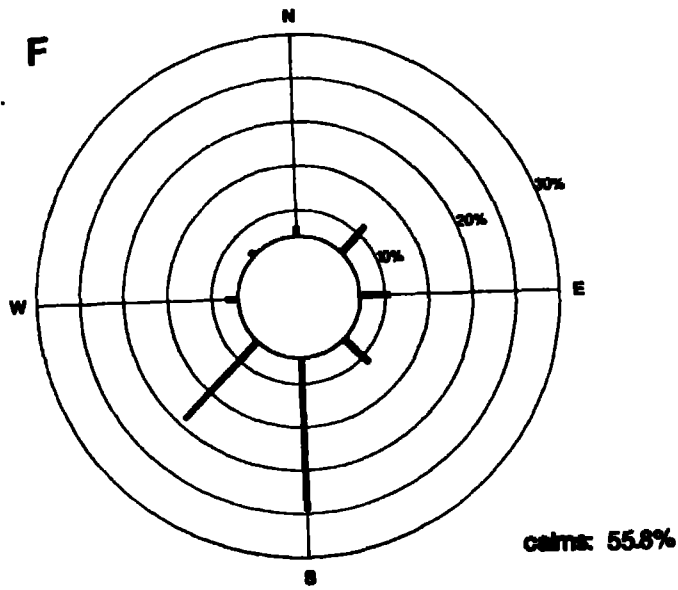
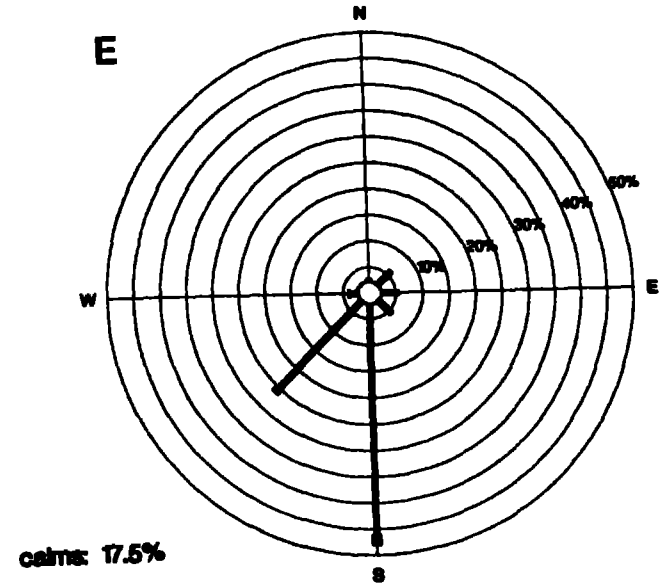
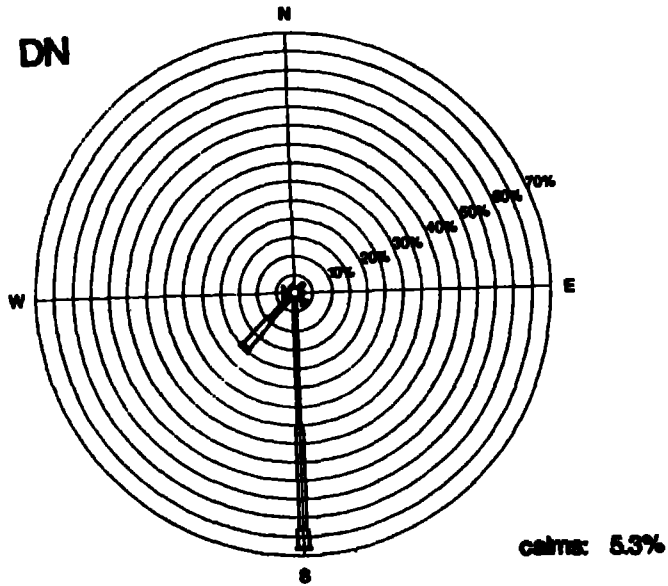
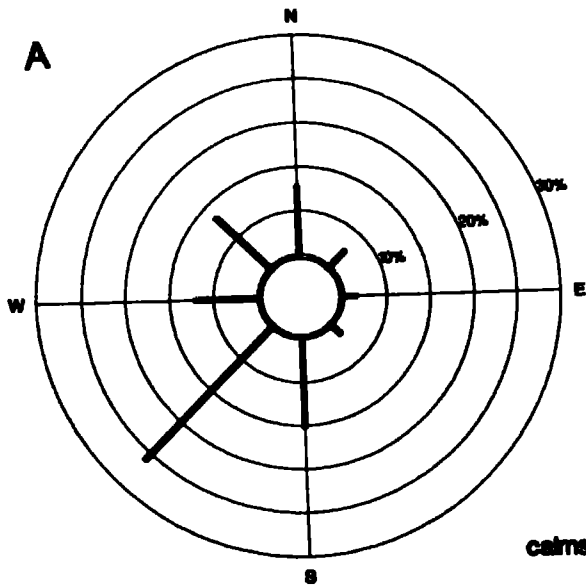


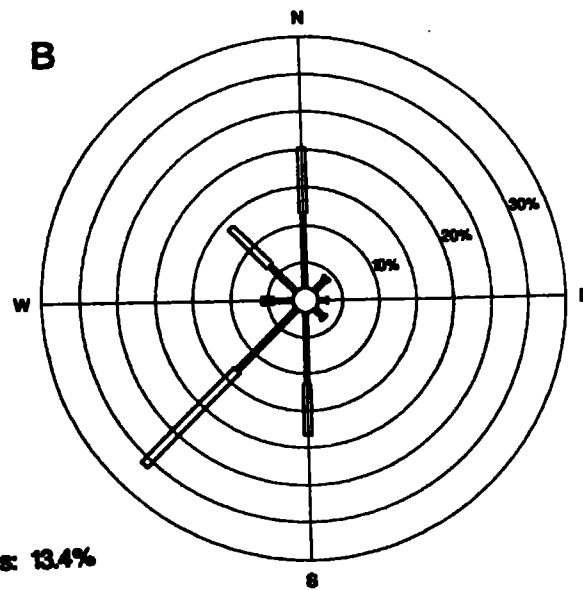
Figure 35. Wind rose for each stability during the summers of 1979 to 1987 at the LLNL tower.



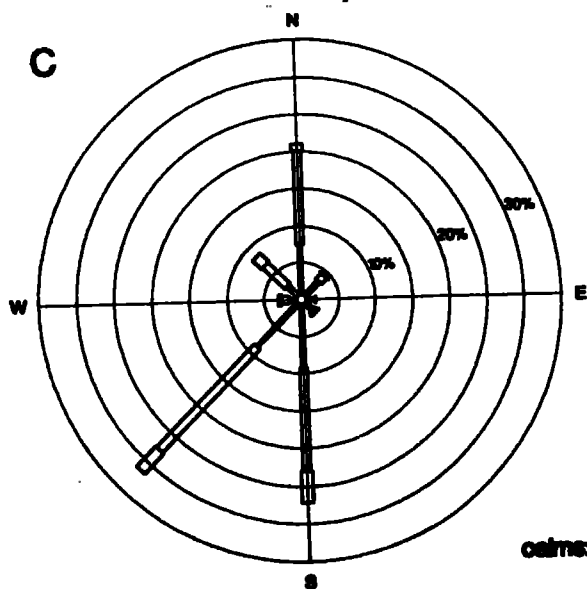
# Fall



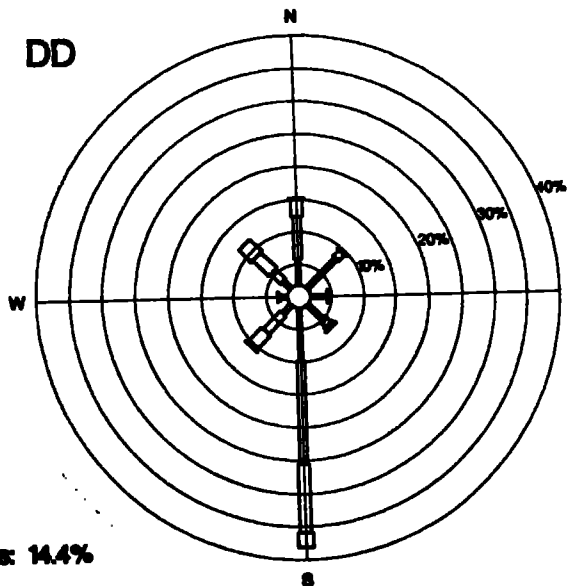
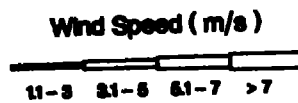
calms: 36.3%



calms: 13.4%



calms: 5.5%



calms: 14.4%

# Fall

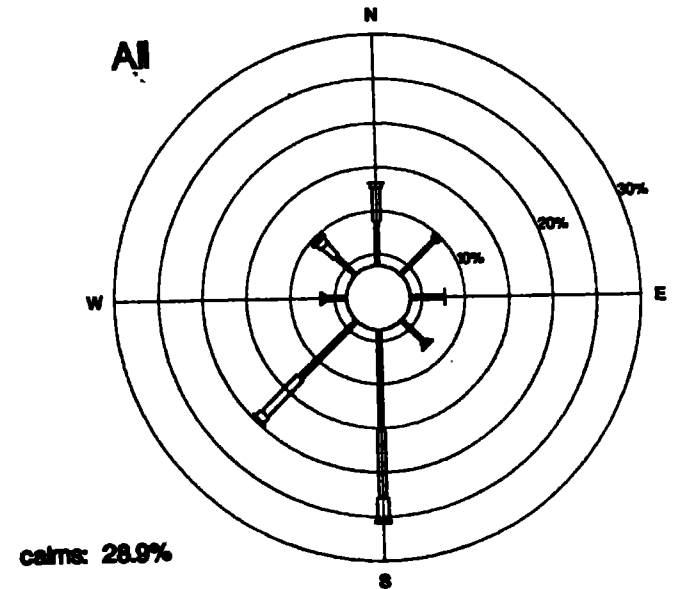
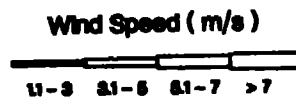
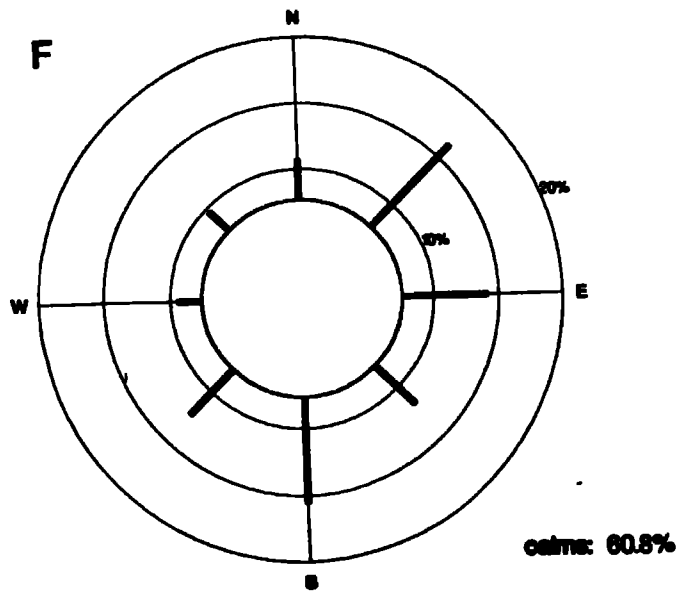
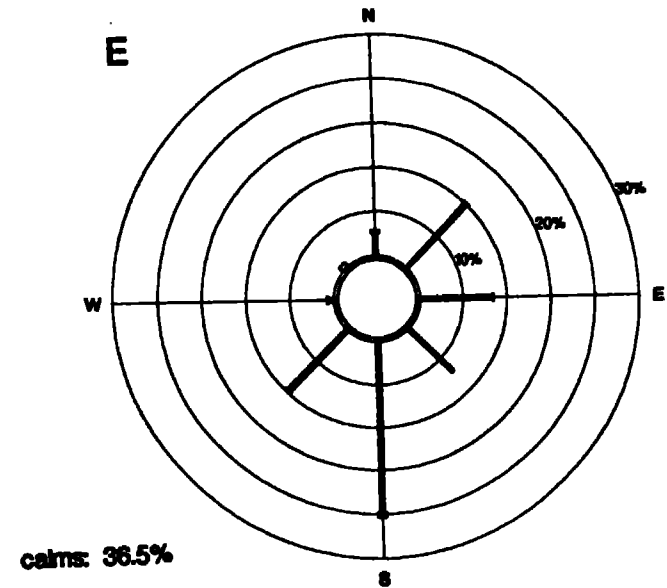
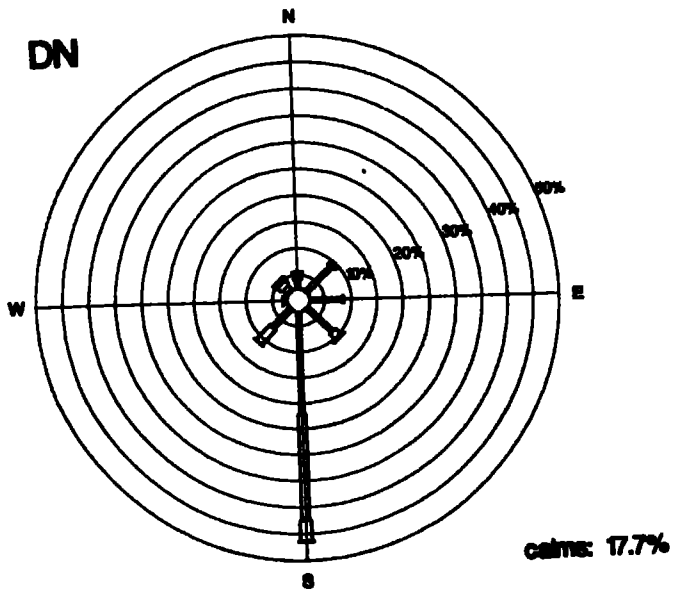
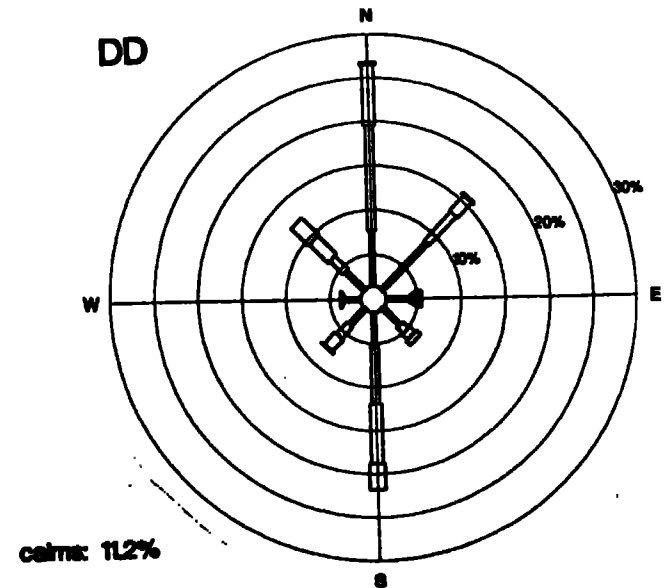
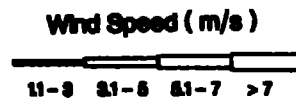
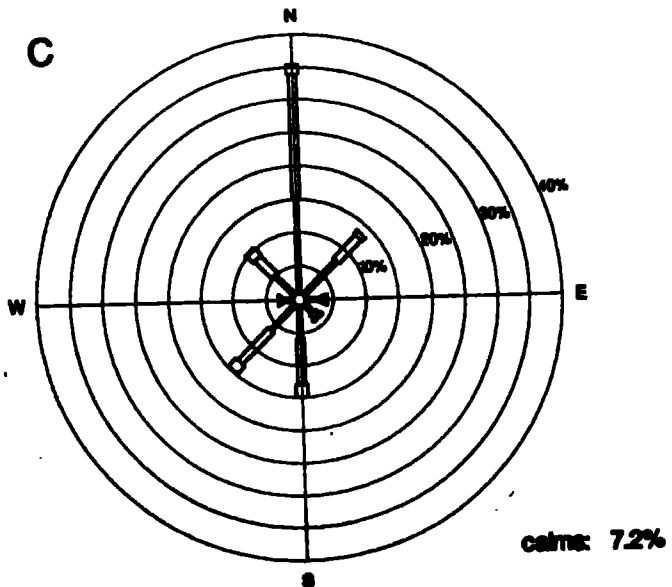
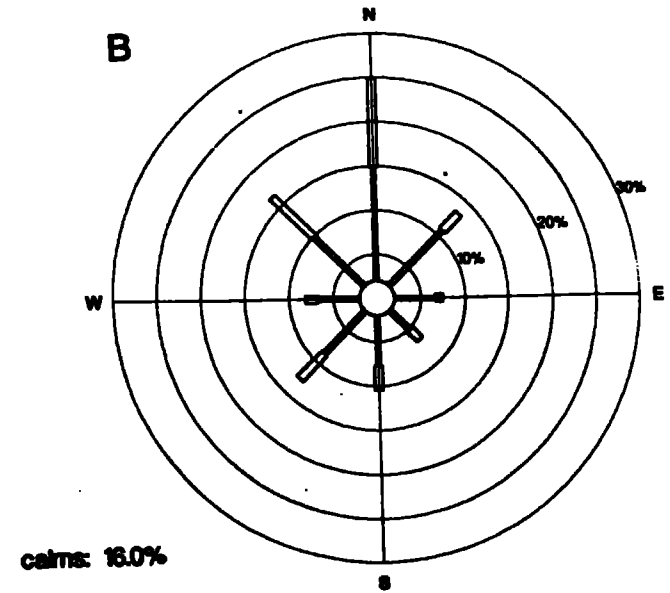
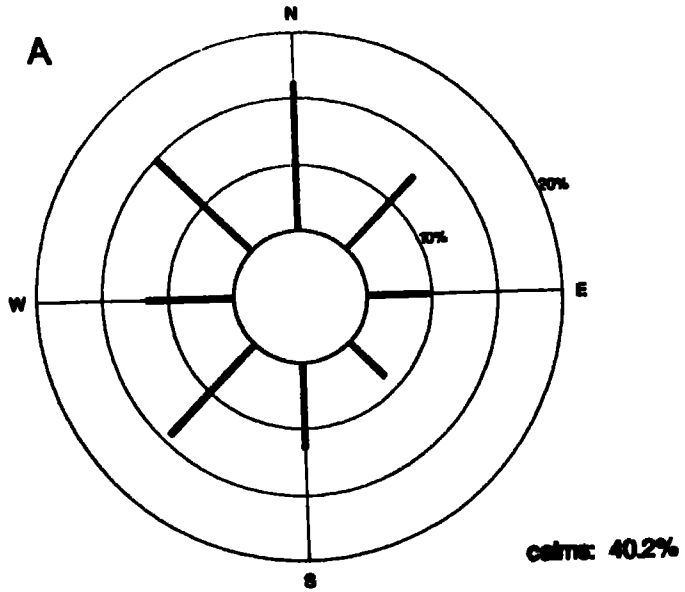


Figure 36. Wind rose for each stability during the falls of 1979 to 1987 at the LLNL tower.

# Winter



# Winter

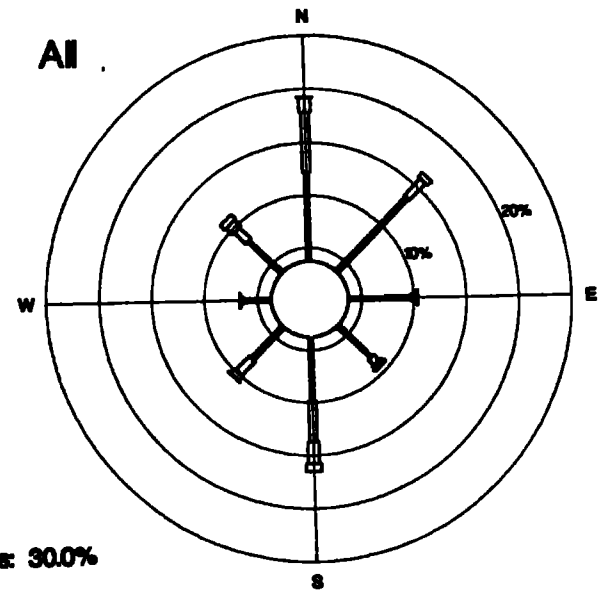
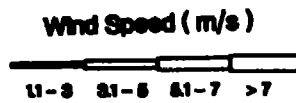
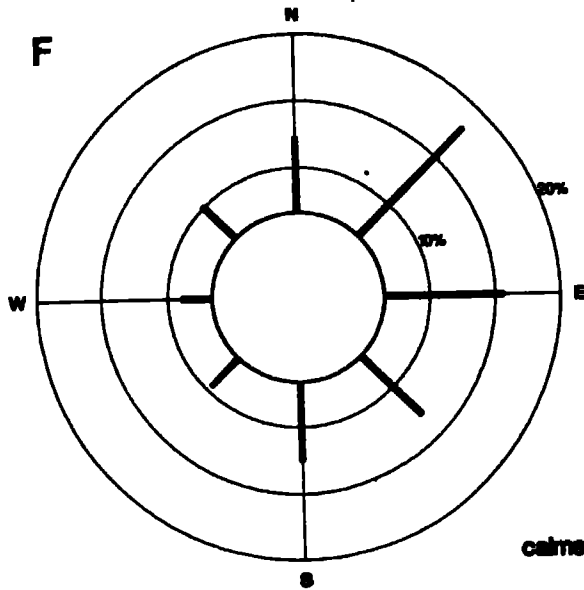
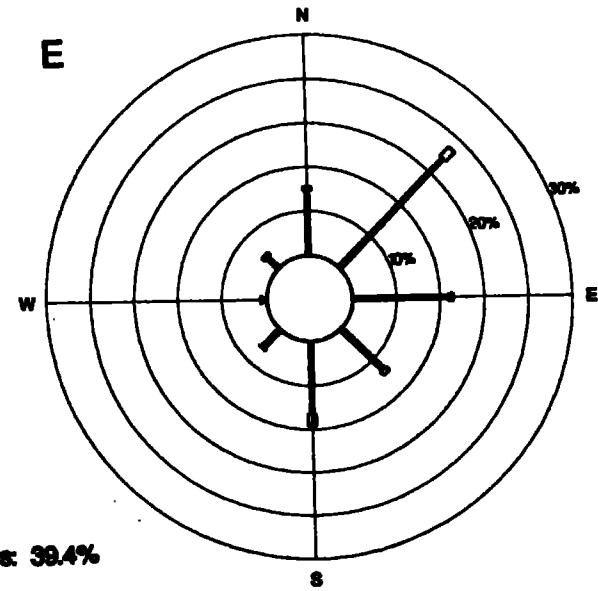
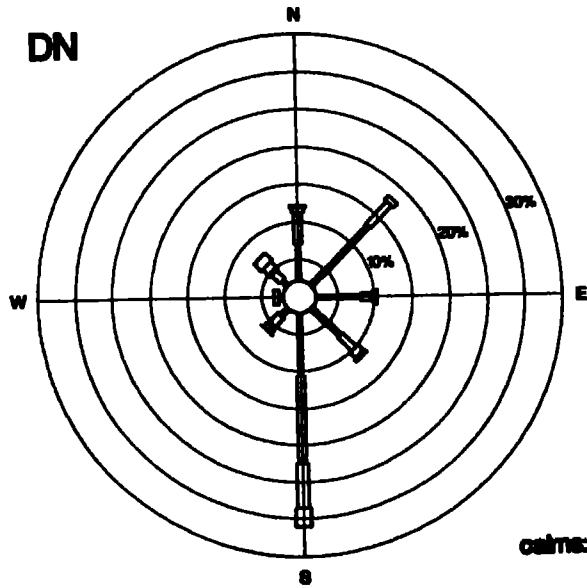
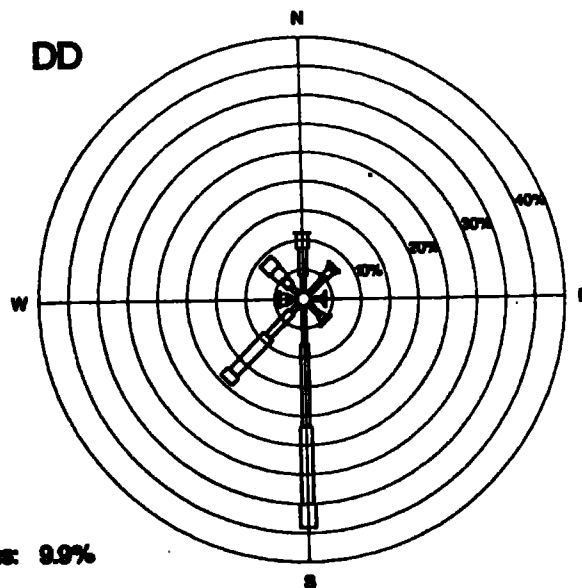
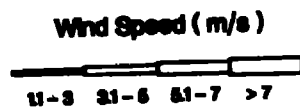
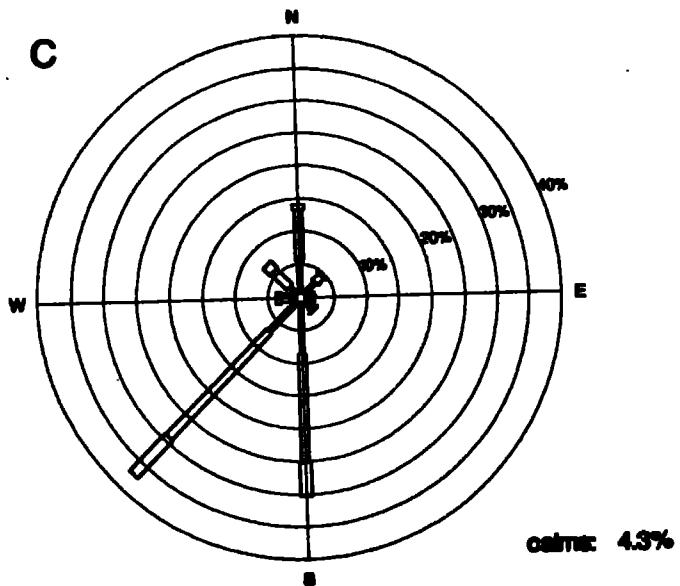
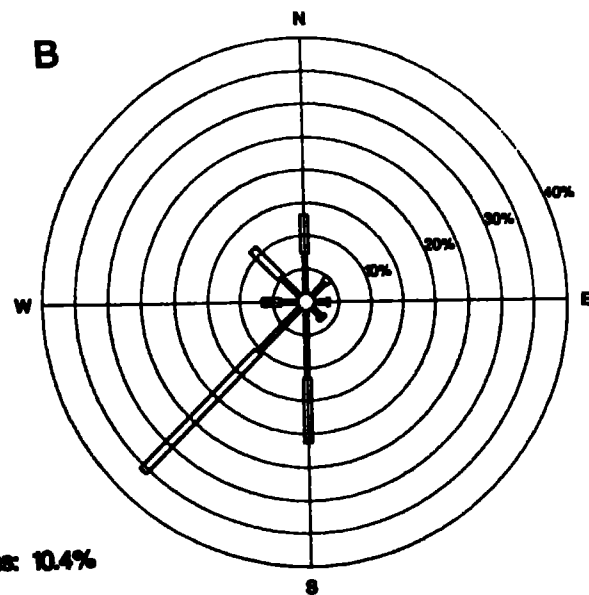
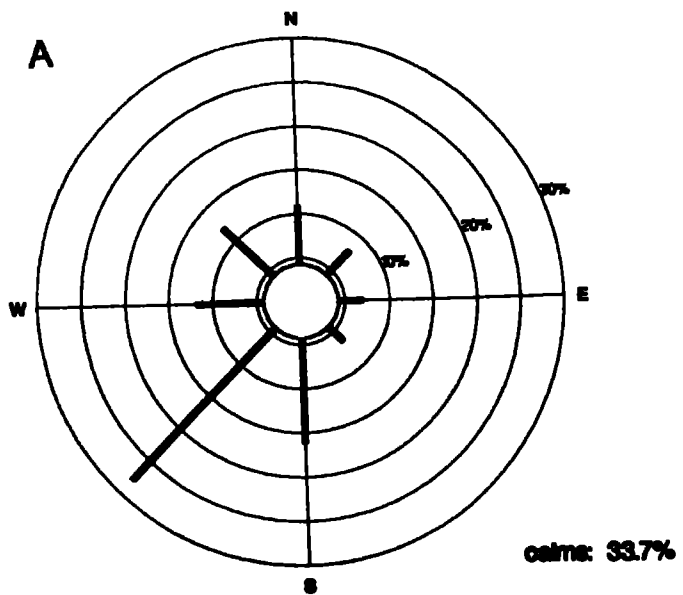


Figure 37. Wind rose for each stability during the winters of 1979 to 1987 at the LLNL tower.

# Annual



# Annual

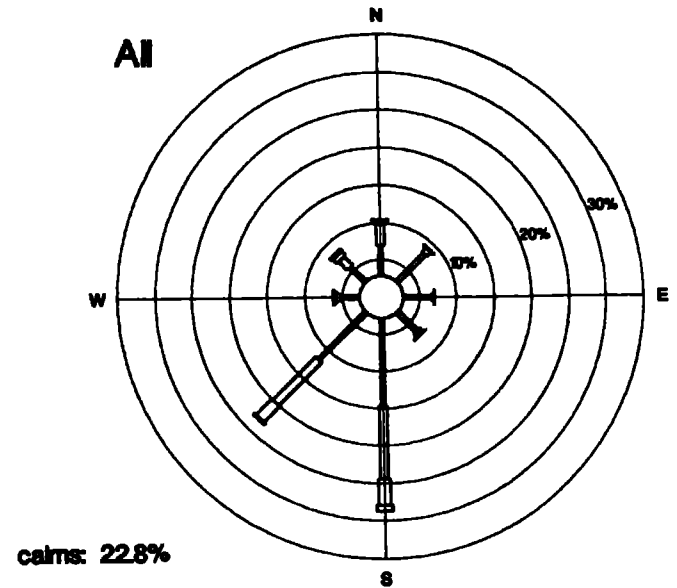
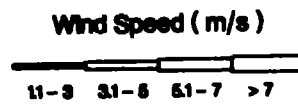
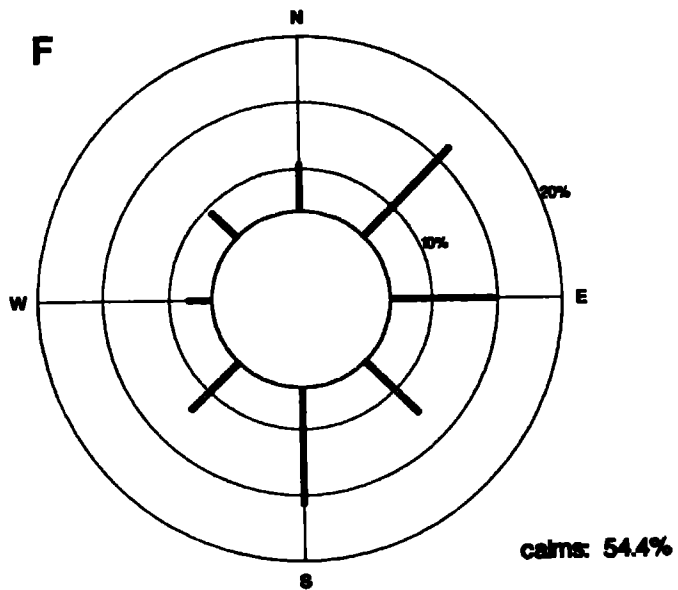
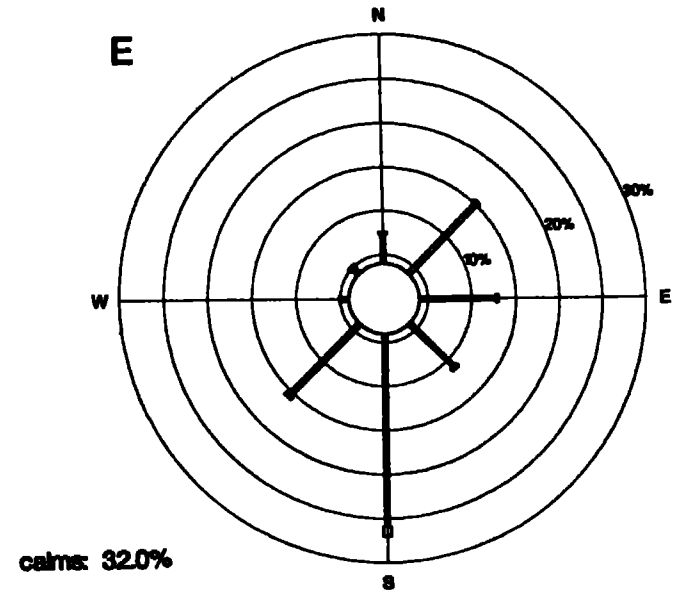
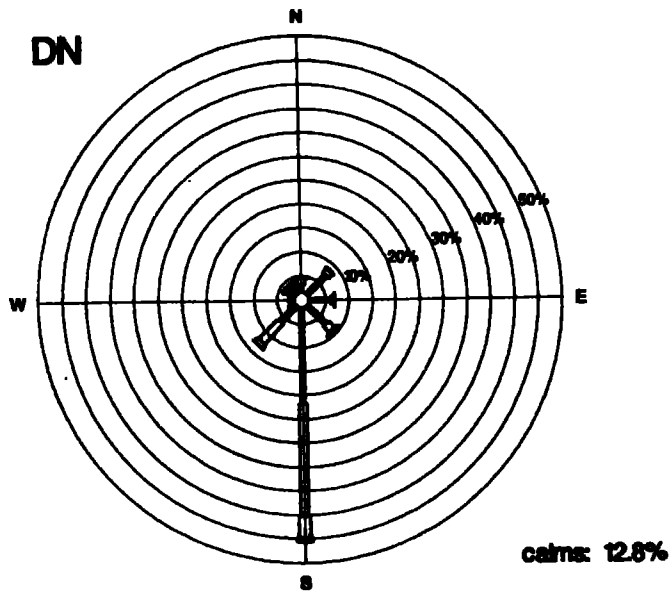


Figure 38. Wind rose for each stability during the years of 1979 to 1987 at the LLNL tower.

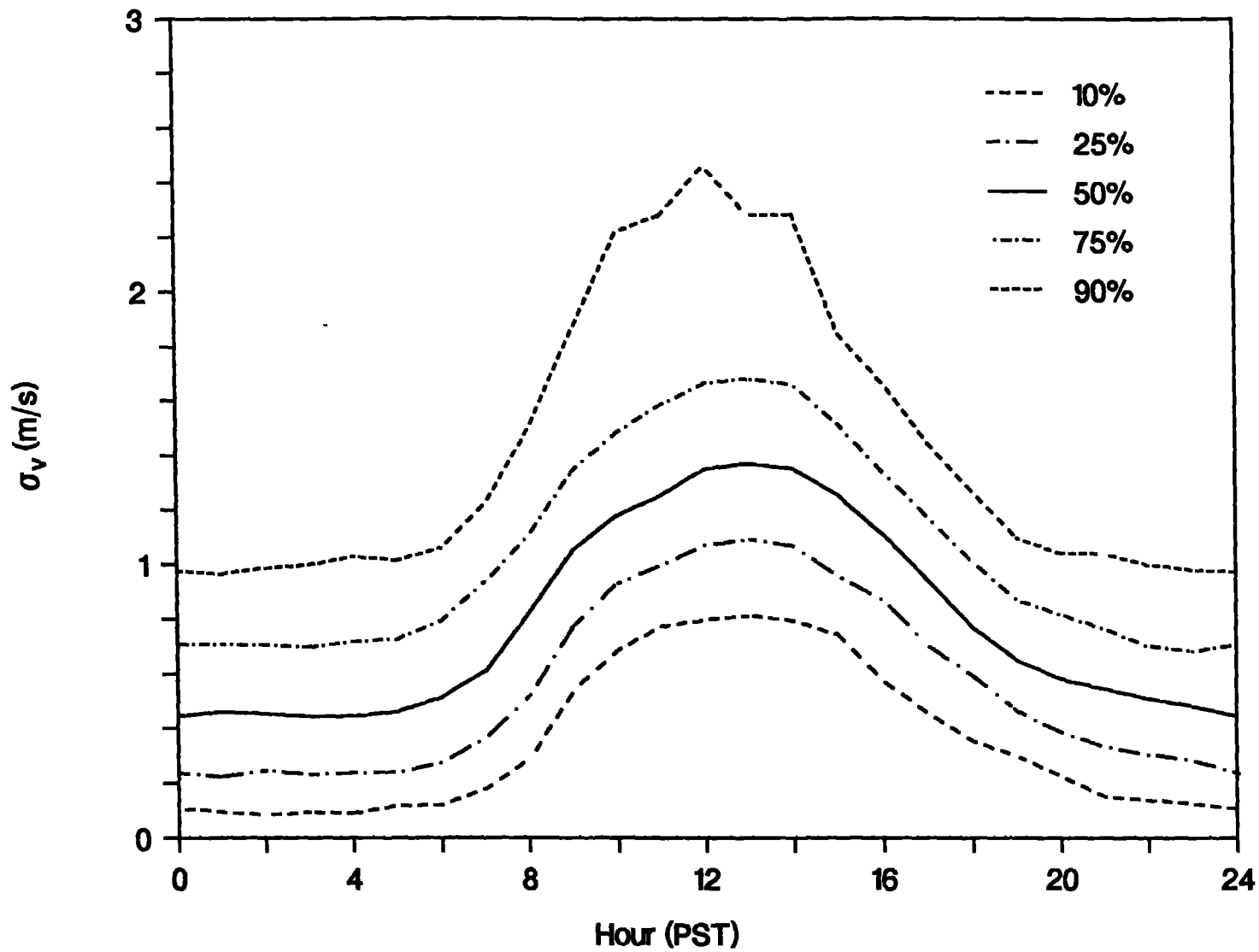


Figure 39. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of  $\sigma_\theta$  during the springs of 1979 to 1987 at the LLNL tower.

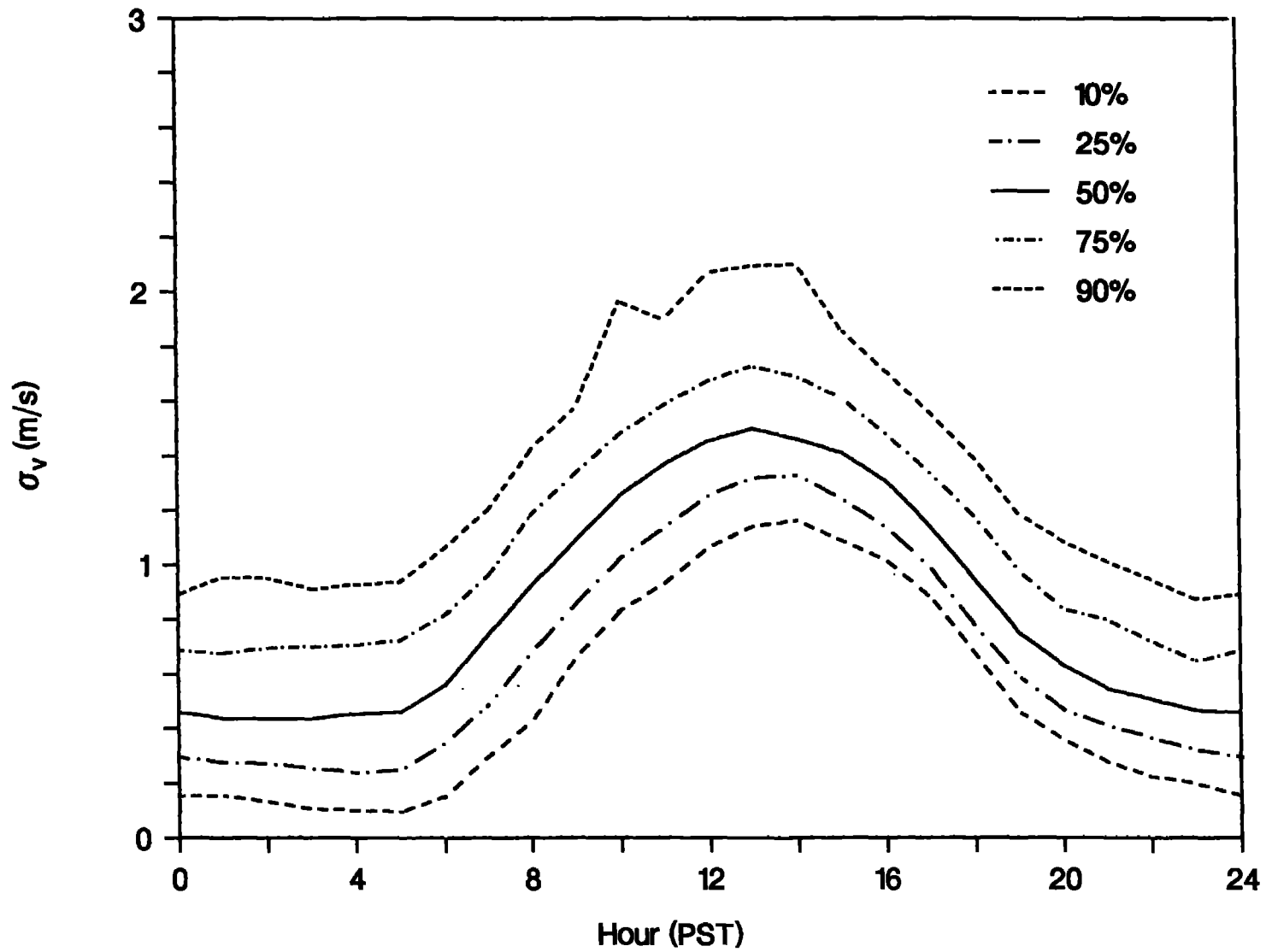


Figure 40. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of  $\sigma_\theta$  during the summers of 1979 to 1987 at the LLNL tower.



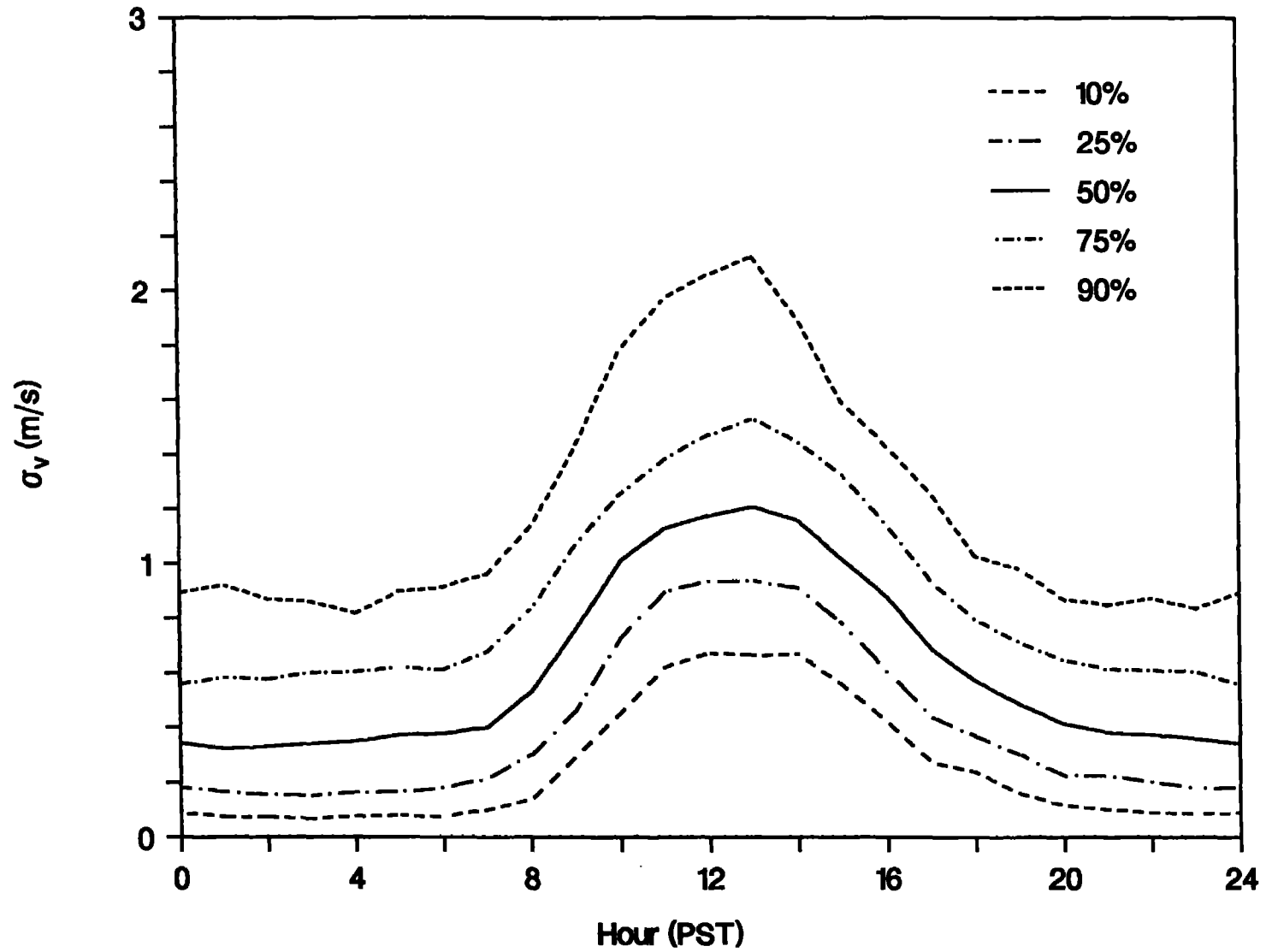


Figure 41. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of  $\sigma_\theta$  during the falls of 1979 to 1987 at the LLNL tower.

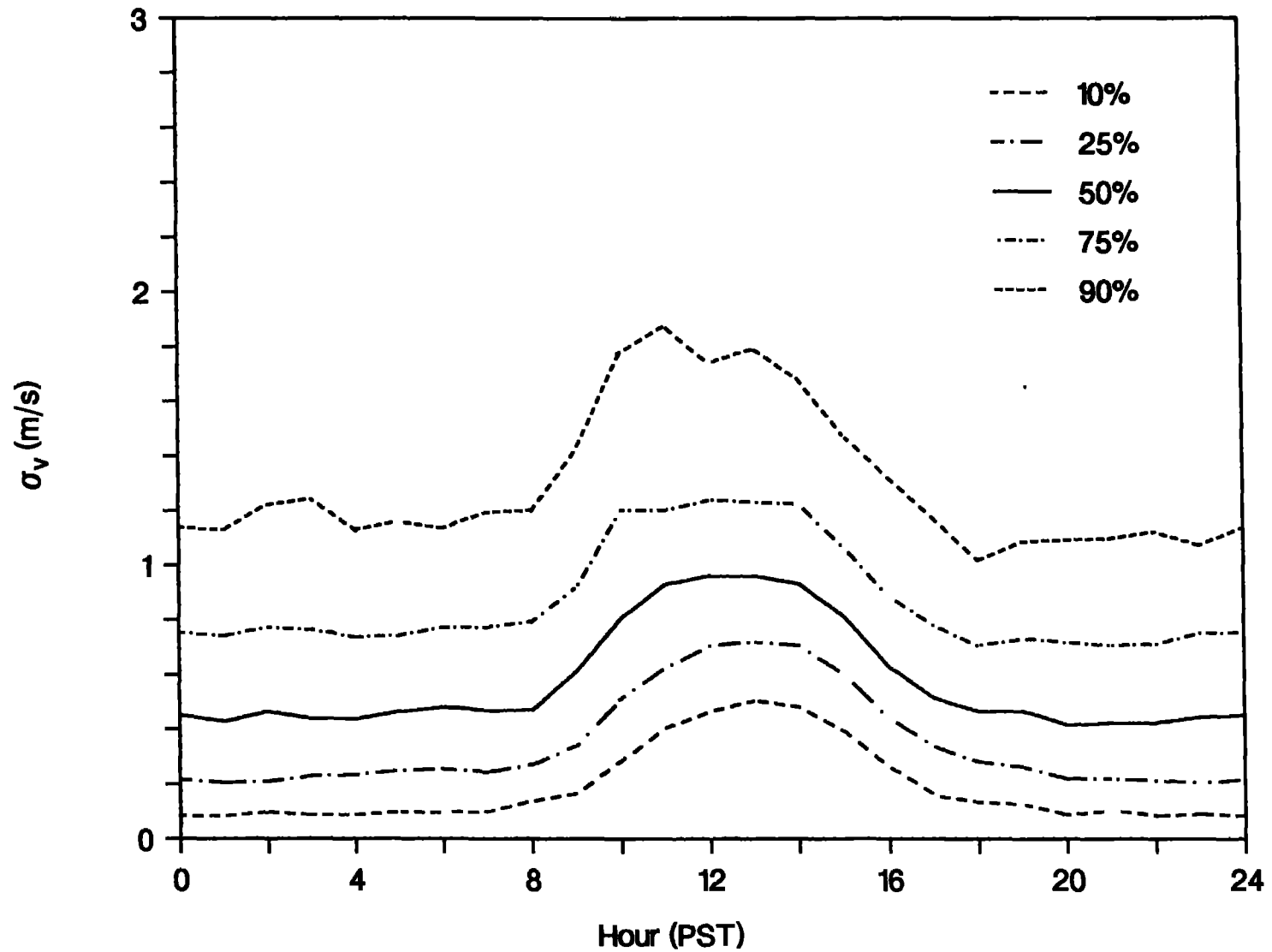


Figure 42. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of  $\sigma_\theta$  during the winters of 1979 to 1987 at the LLNL tower.

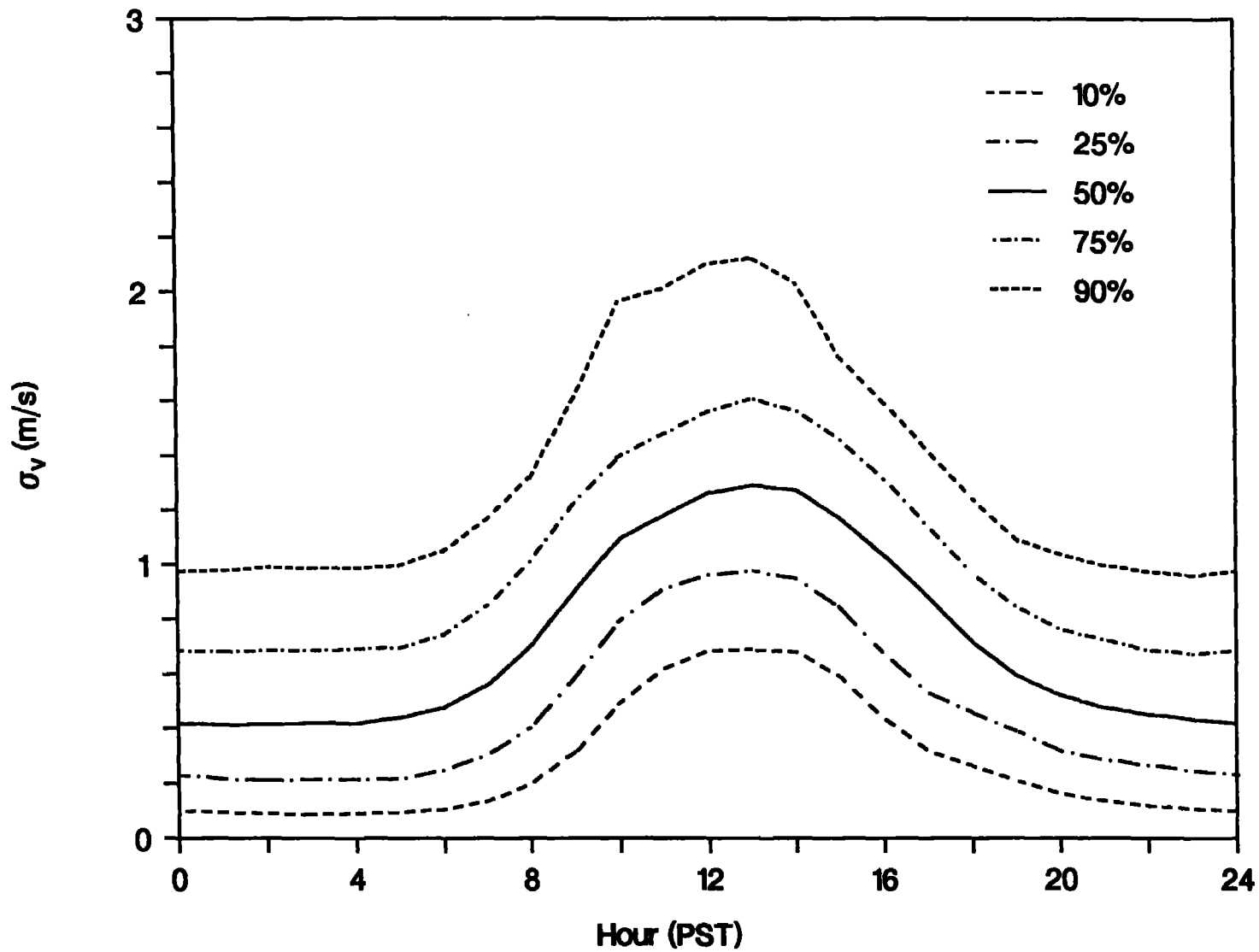


Figure 43. Diurnal variation of 10th, 25th, 50th, 75th, and 90th percentiles of  $\sigma_\theta$  during the years of 1979 to 1987 at the LLNL tower.

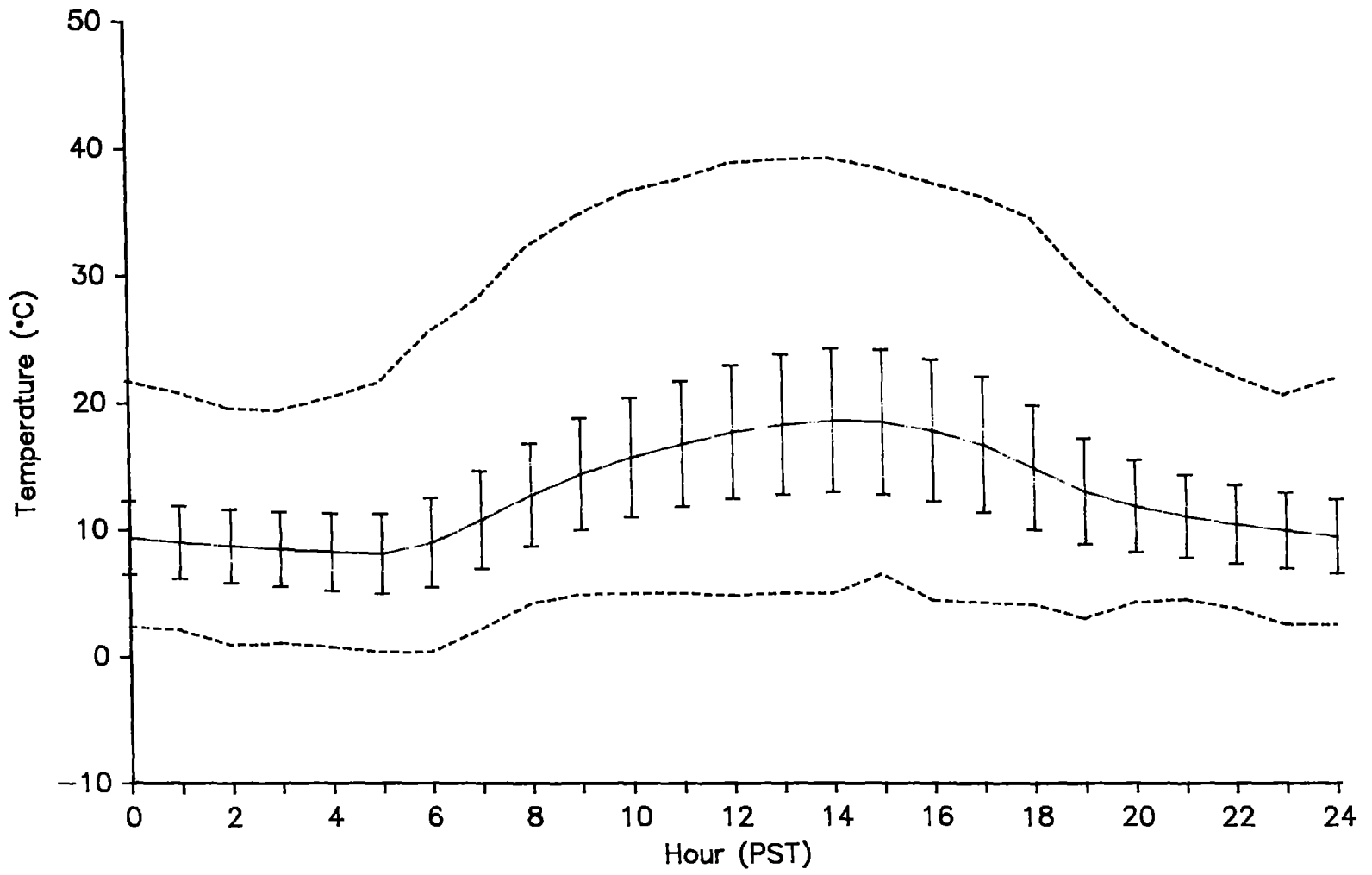


Figure 44. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) temperatures during the springs of 1979 to 1987 at the LLNL tower.

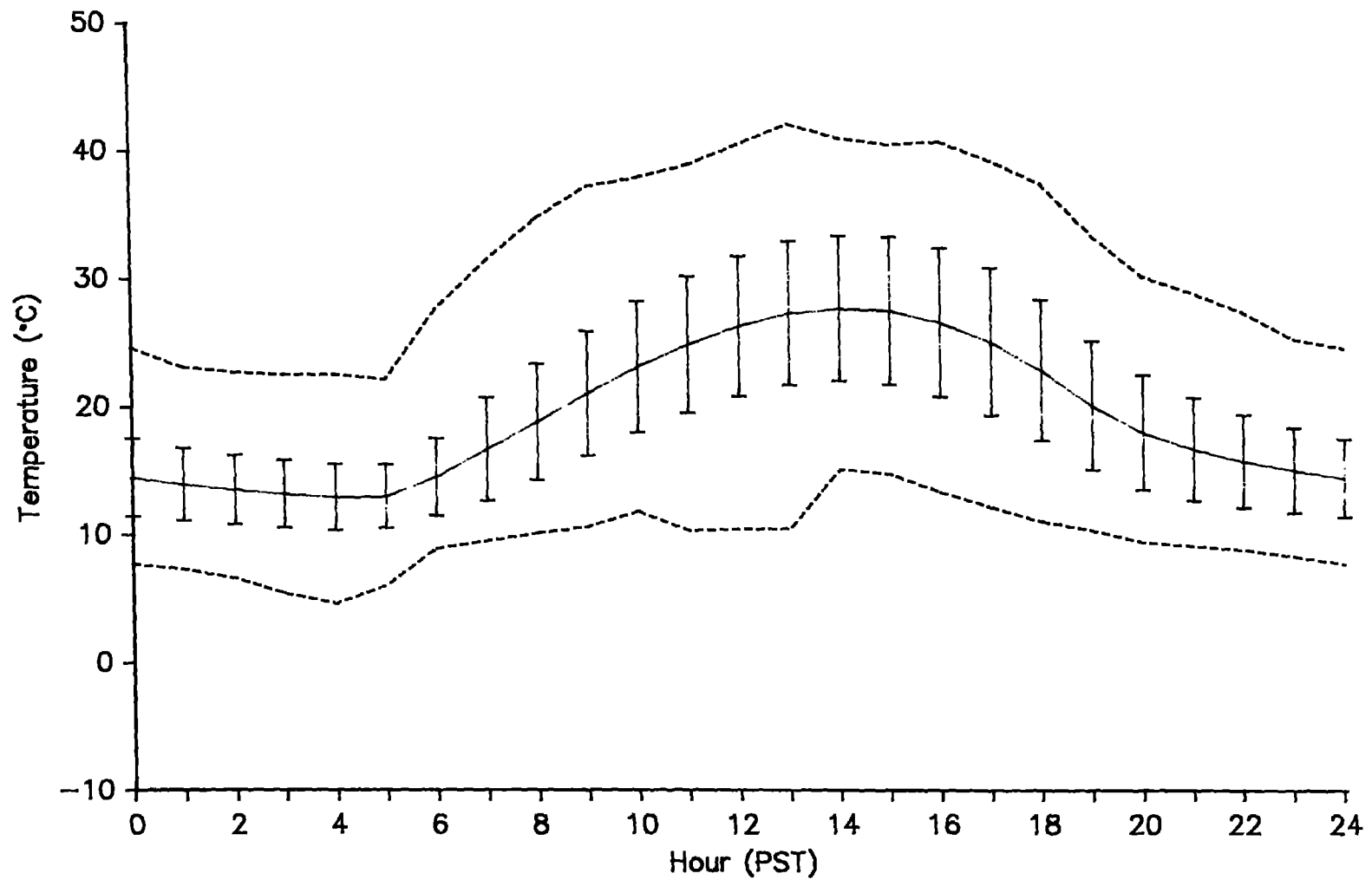


Figure 45. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) temperatures during the summers of 1979 to 1987 at the LLNL tower.

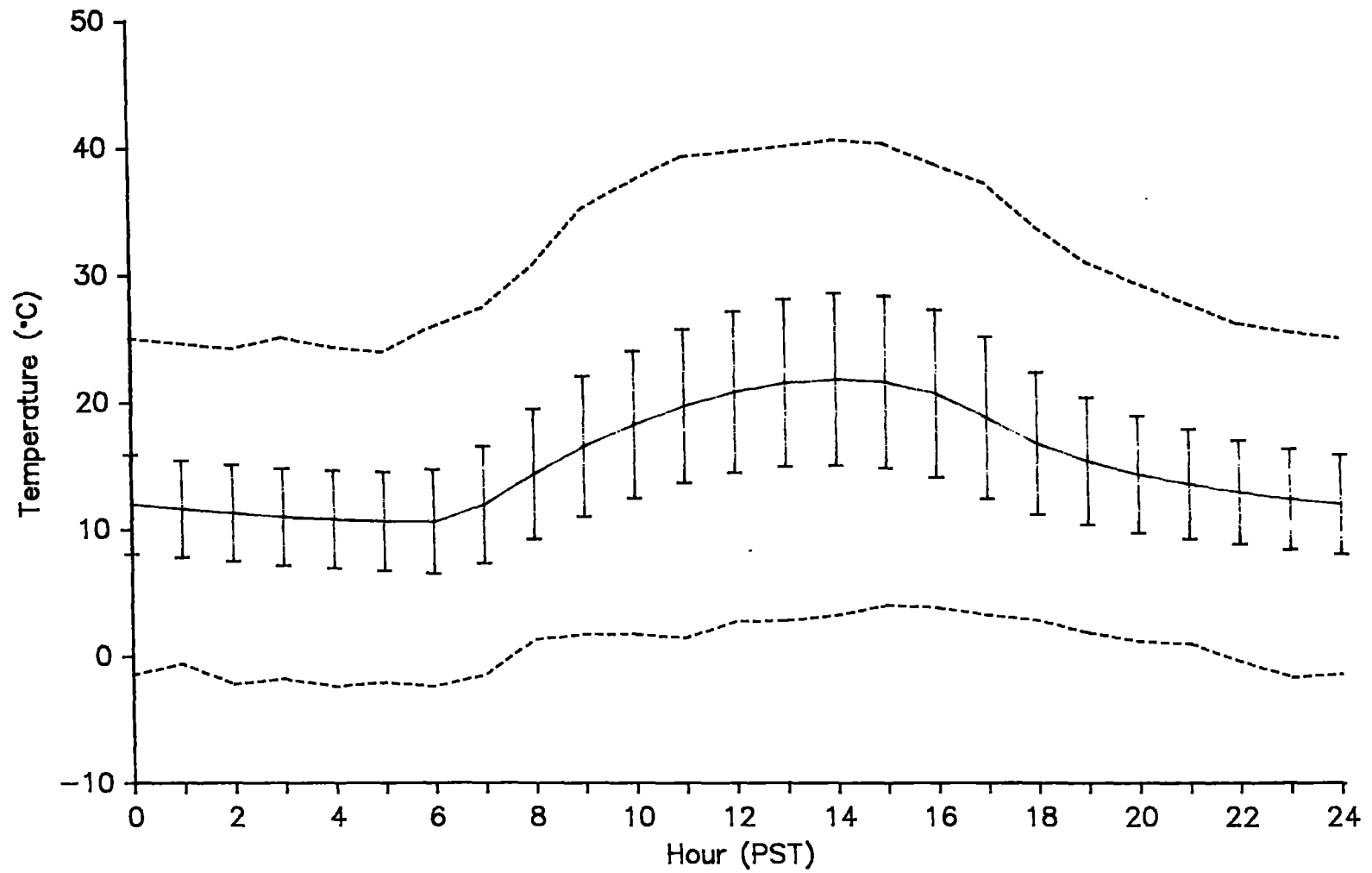


Figure 46. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) temperatures during the falls of 1979 to 1987 at the LLNL tower.

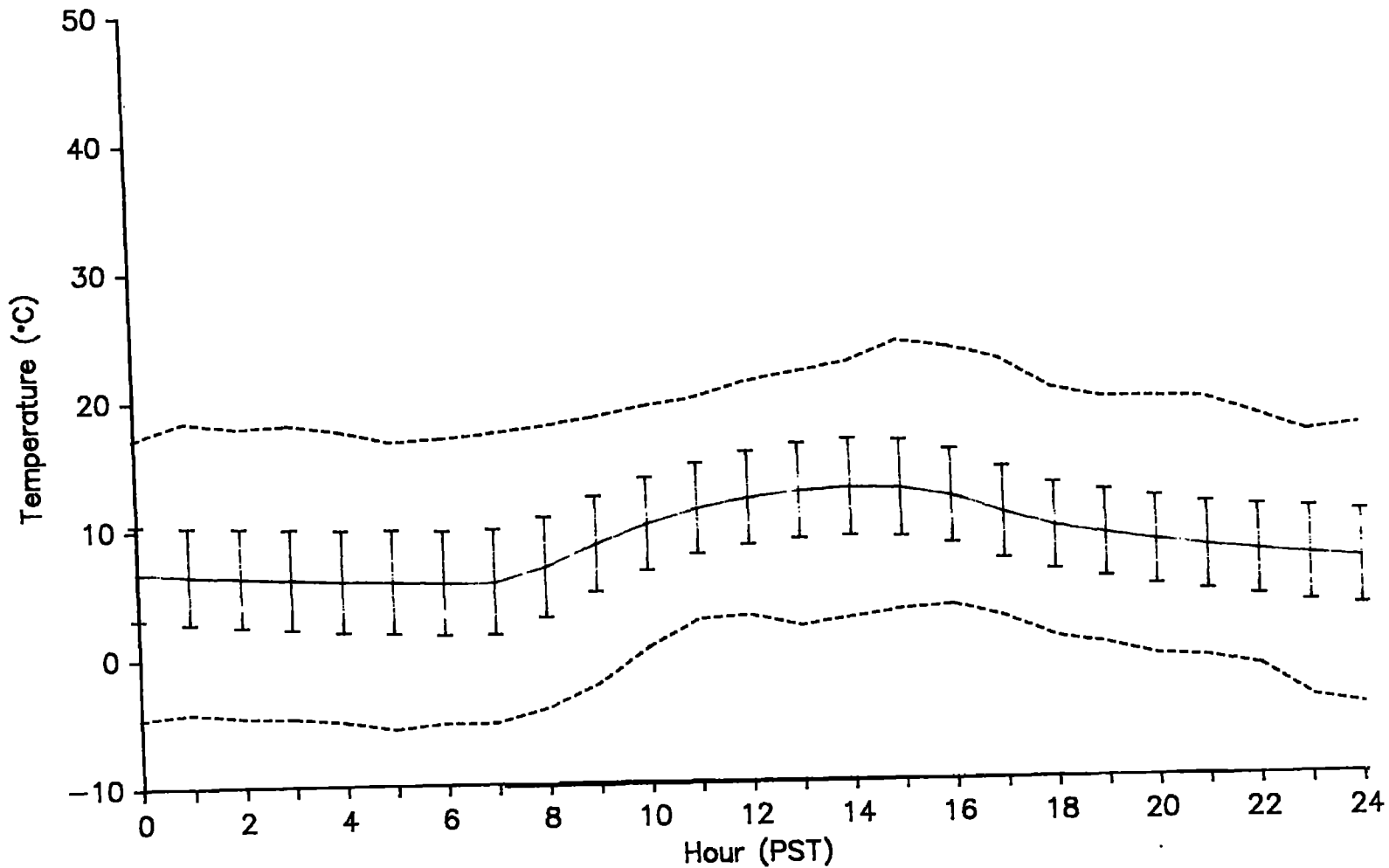


Figure 47. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) temperatures during the winters of 1979 to 1987 at the LLNL tower.

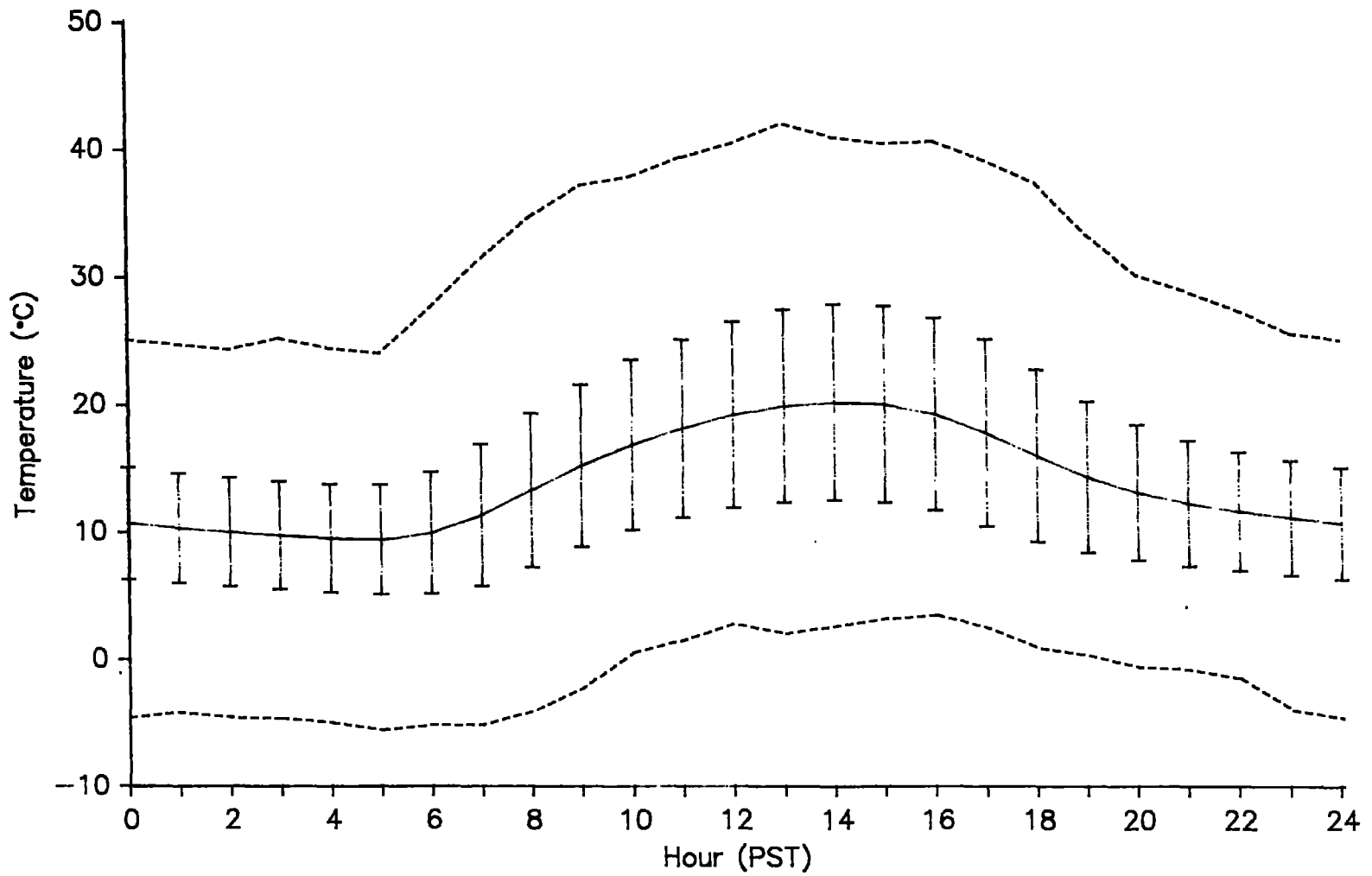


Figure 48. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) temperatures during the years of 1979 to 1987 at the LLNL tower.



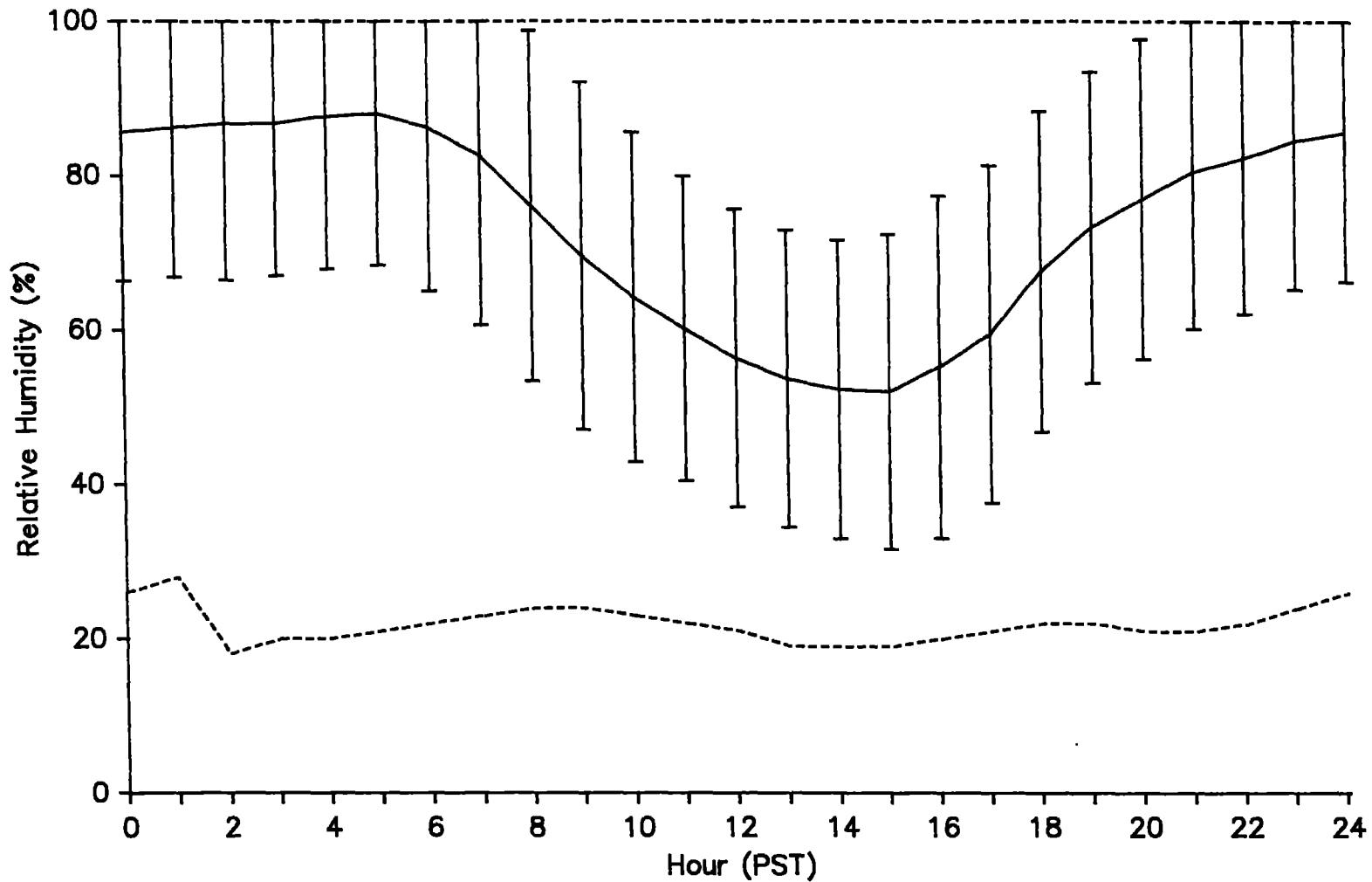


Figure 49. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) relative humidity during the springs of 1986 to 1987 at the LLNL tower.

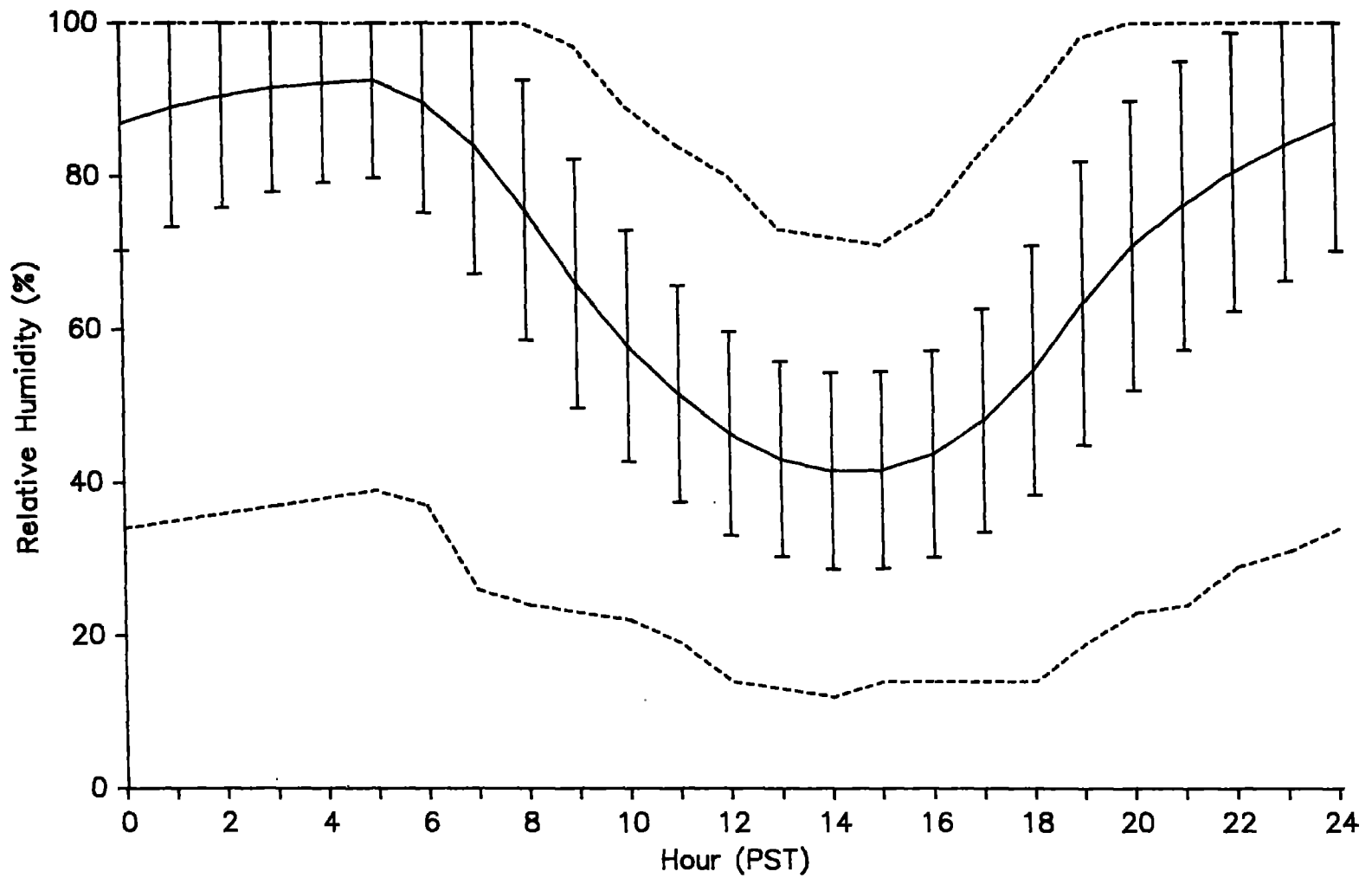


Figure 50. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) relative humidity during the summers of 1986 to 1987 at the LLNL tower.

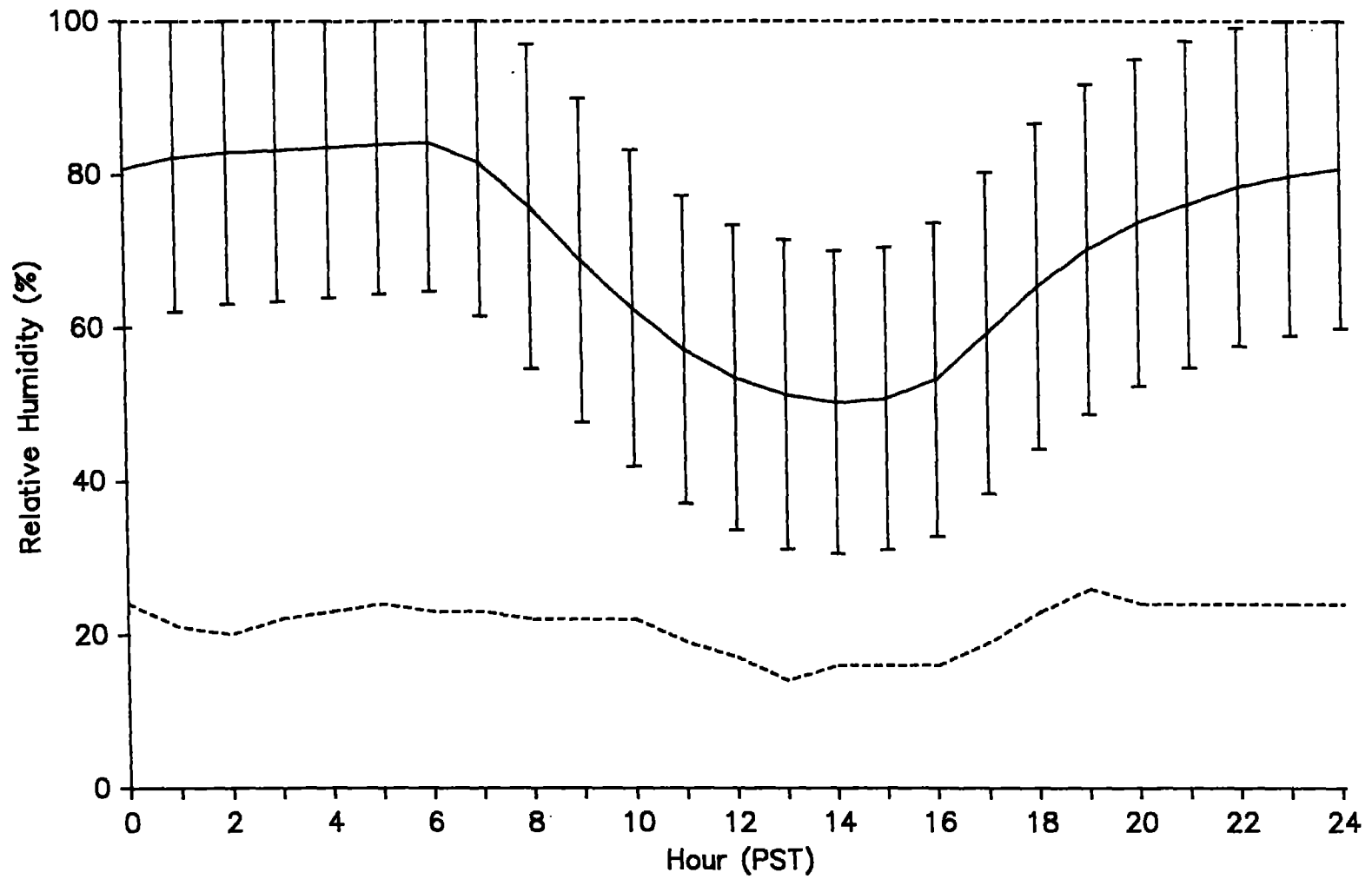


Figure 51. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) relative humidity during the falls of 1986 to 1987 at the LLNL tower.

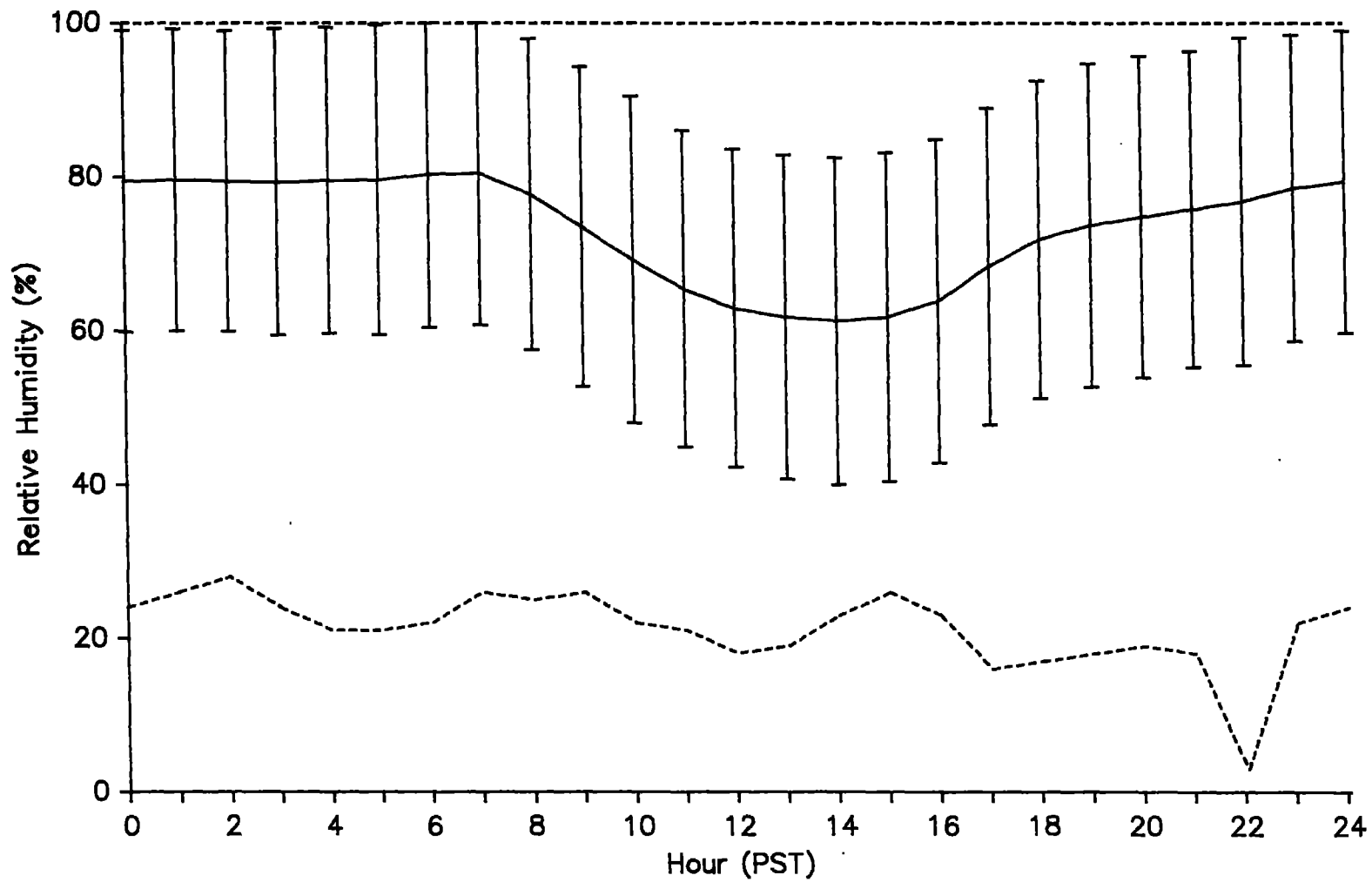


Figure 52. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) relative humidity during the winters of 1986 to 1987 at the LLNL tower.

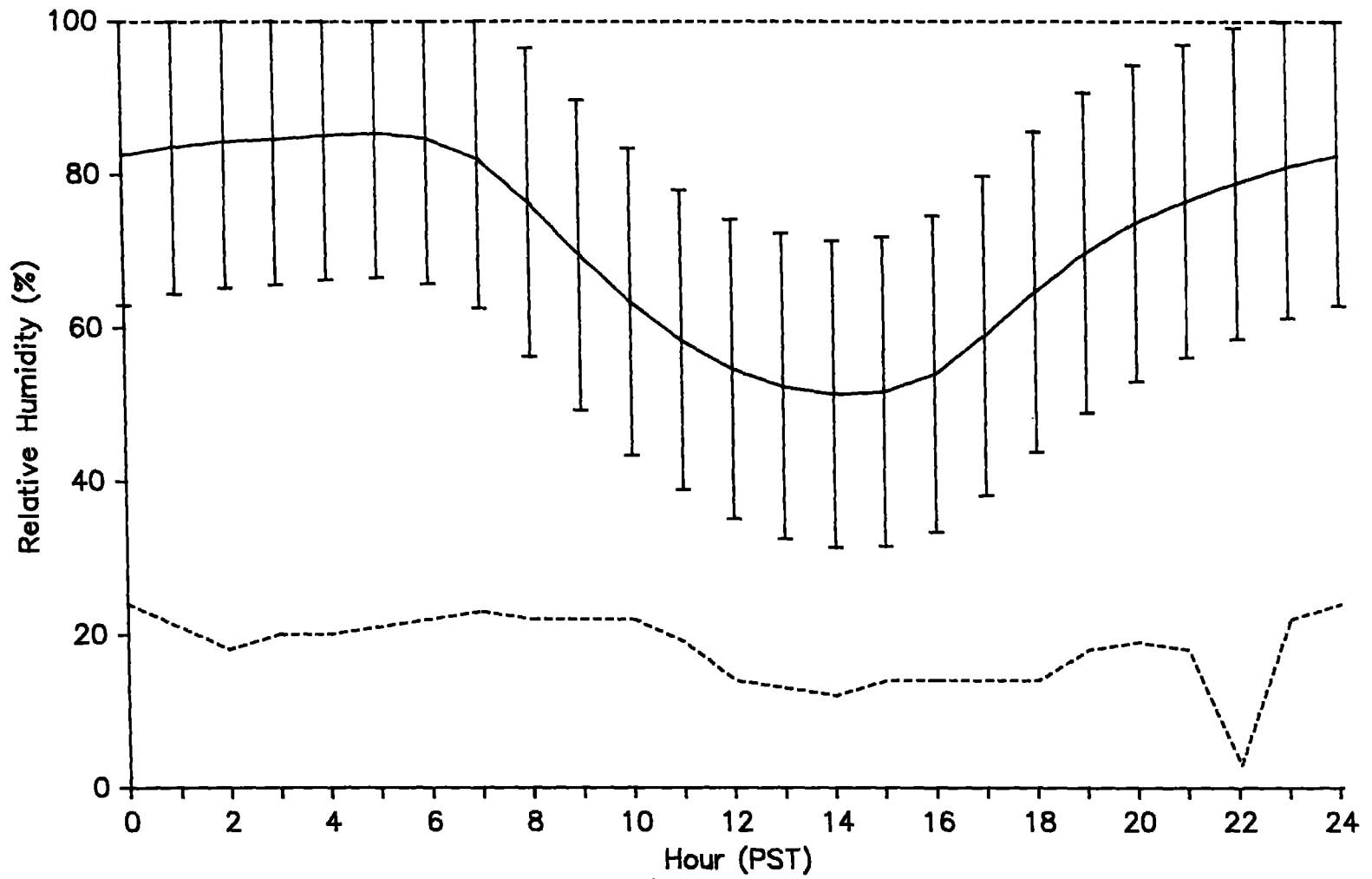


Figure 53. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) relative humidity during the years of 1986 to 1987 at the LLNL tower.

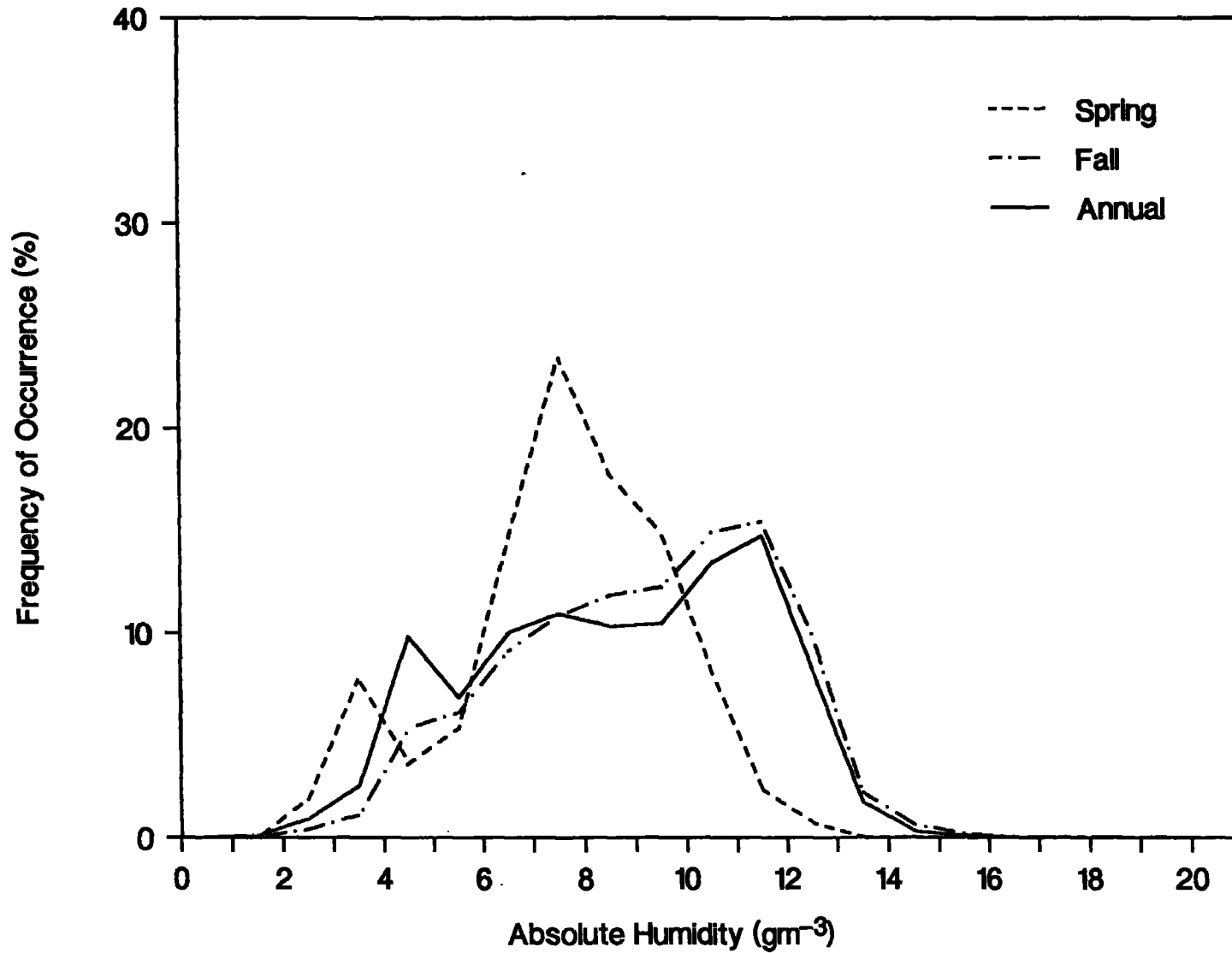


Figure 54. Absolute humidity frequency distributions for the springs, falls and years of 1986 to 1987 at the LLNL tower.

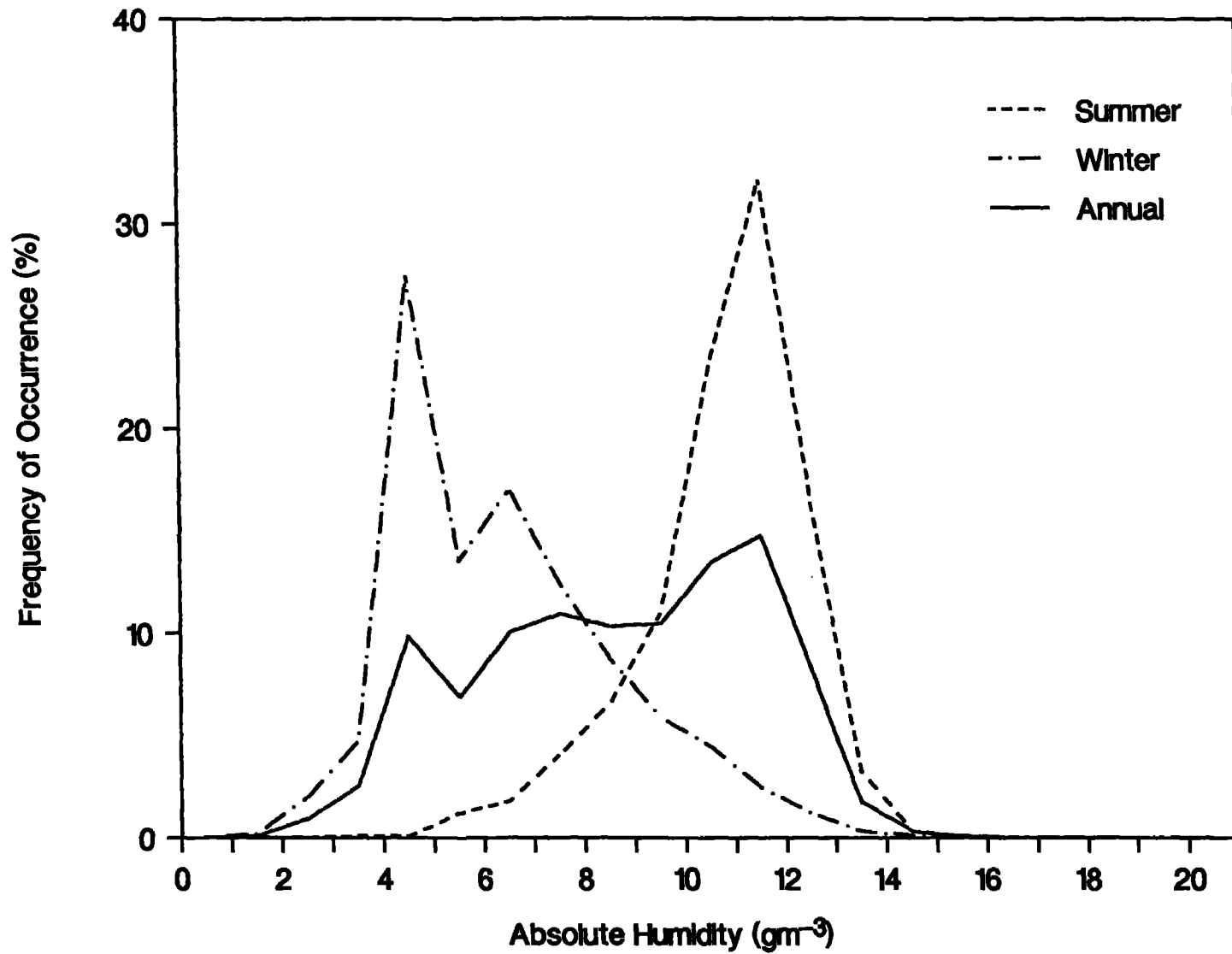


Figure 55. Absolute humidity frequency distributions for the summers, winters and years of 1986 to 1987 at the LLNL tower.

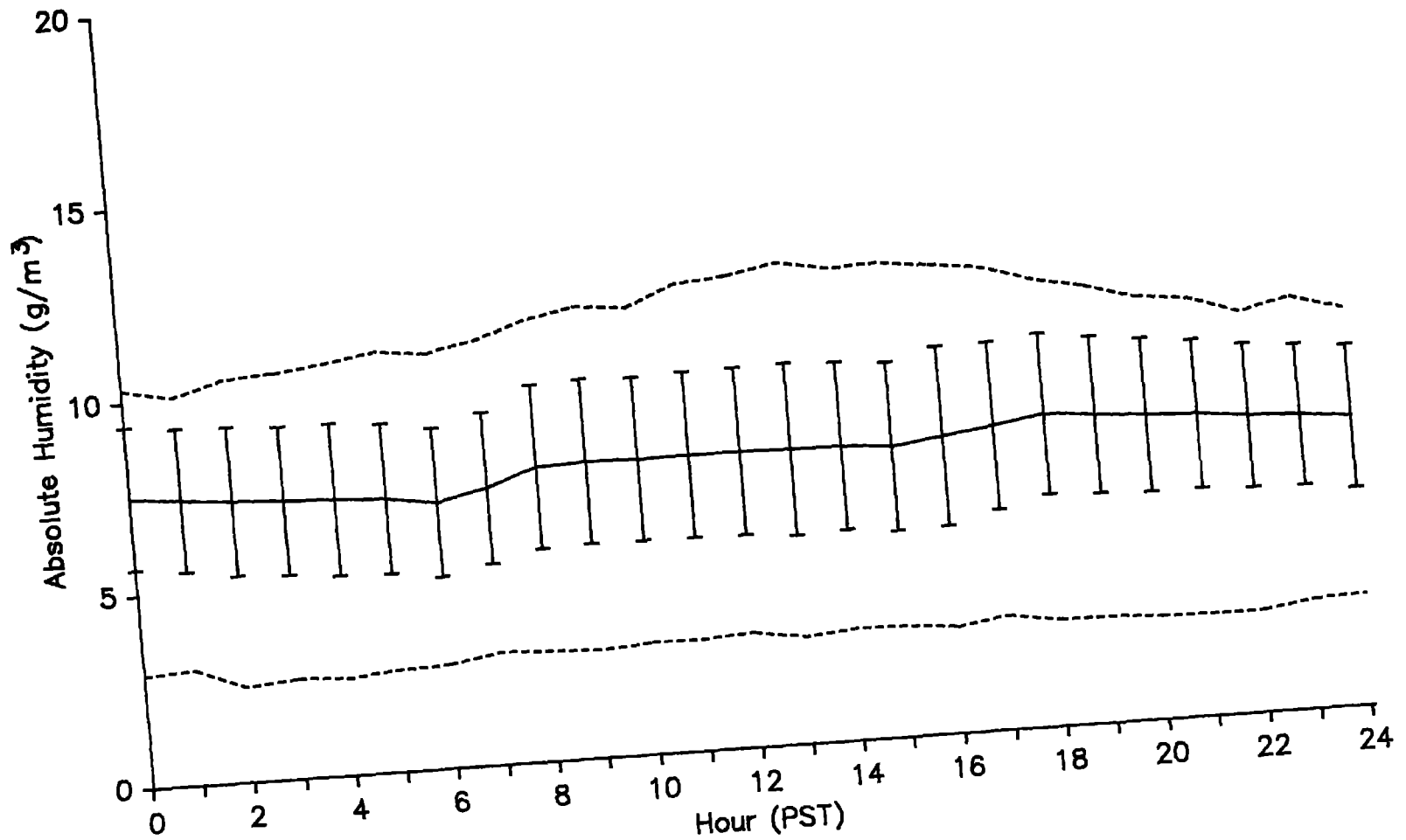


Figure 56. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) absolute humidity during the springs of 1986 to 1987 at the LLNL tower.



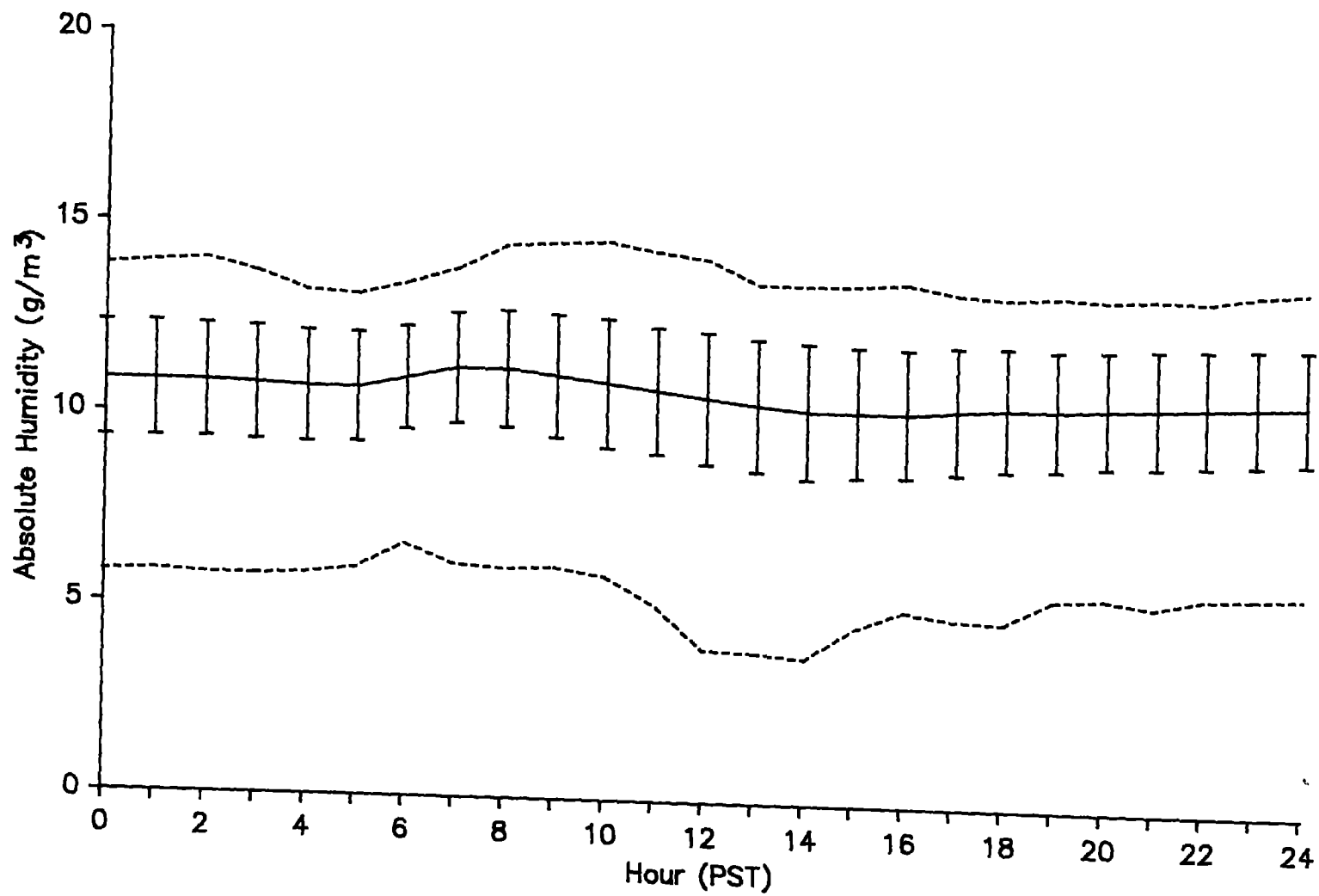


Figure 57. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) absolute humidity during the summers of 1986 to 1987 at the LLNL tower.

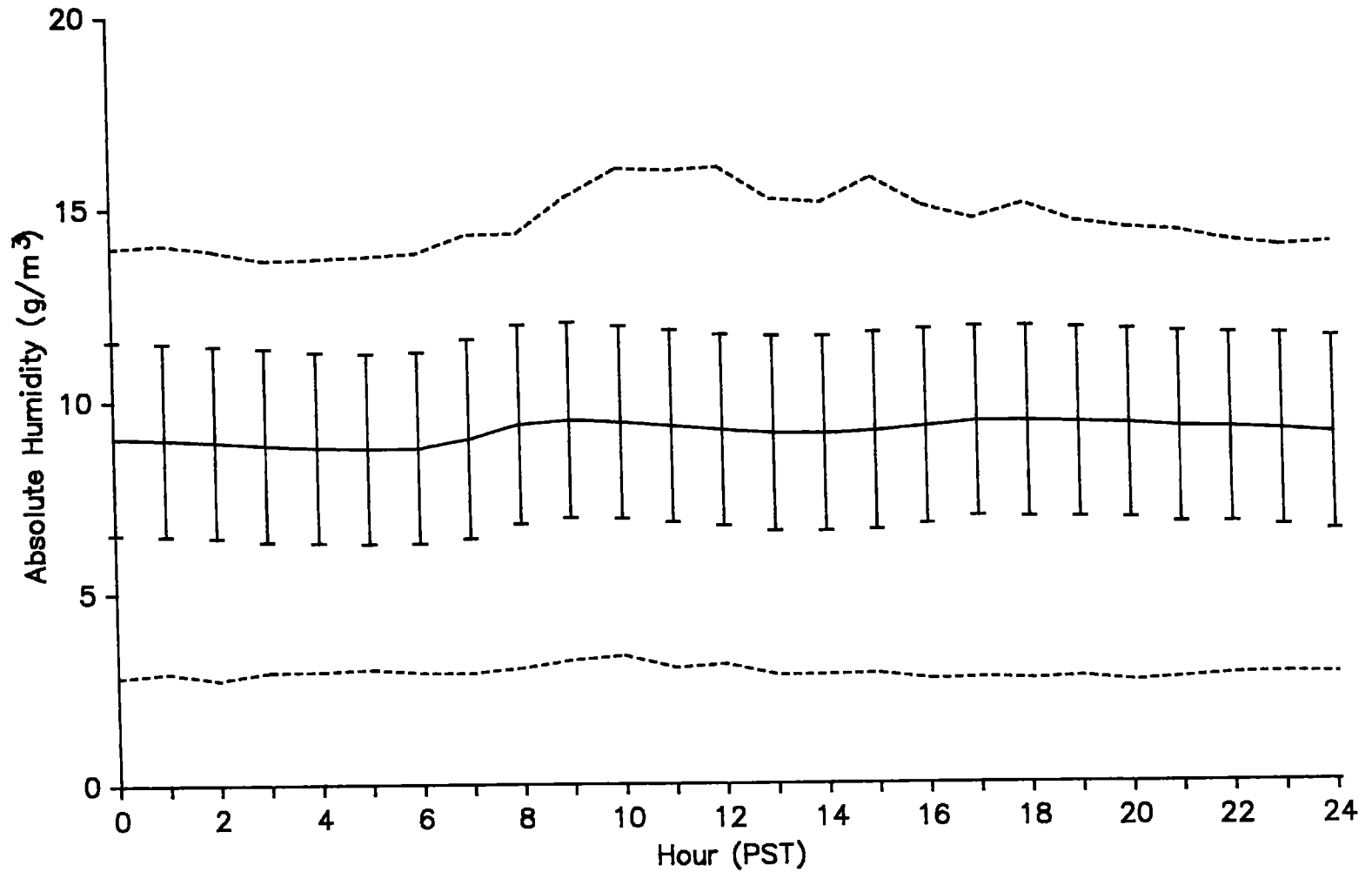


Figure 58. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) absolute humidity during the falls of 1986 to 1987 at the LLNL tower.

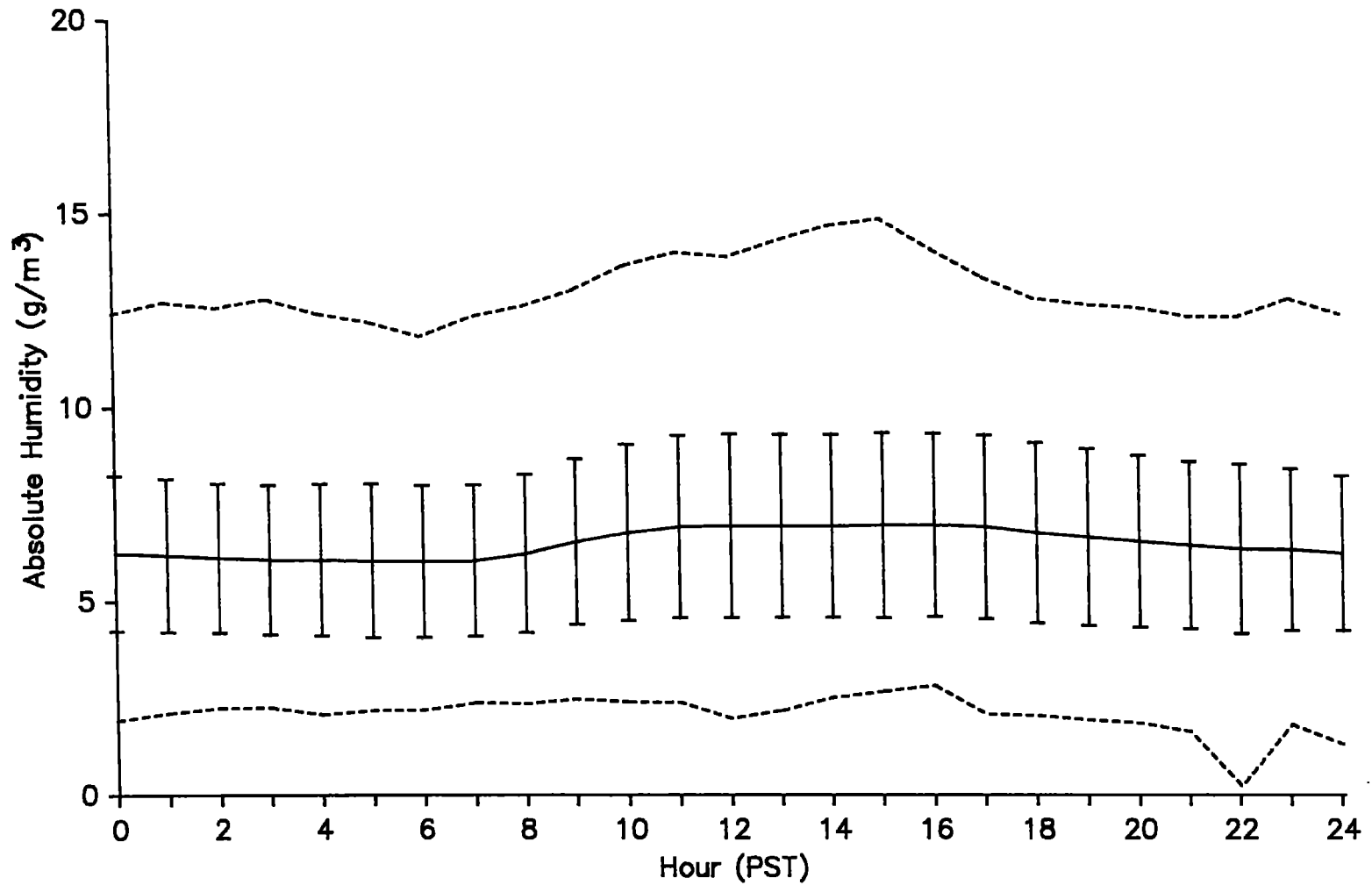


Figure 59. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) absolute humidity during the winters of 1986 to 1987 at the LLNL tower.

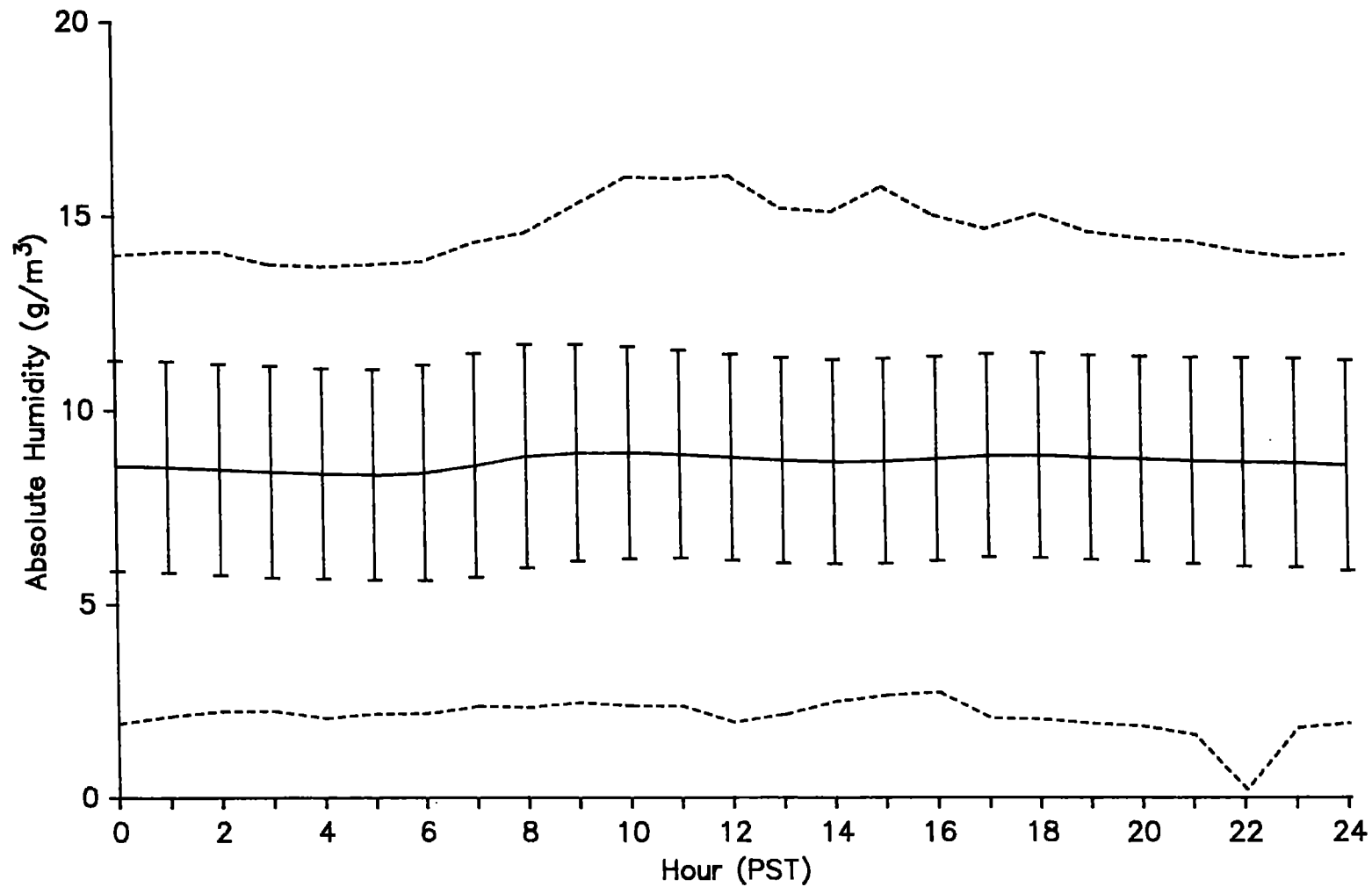


Figure 60. Diurnal variation of mean (solid line), standard deviation (bars), and extreme (dashed lines) absolute humidity during the years of 1986 to 1987 at the LLNL tower.

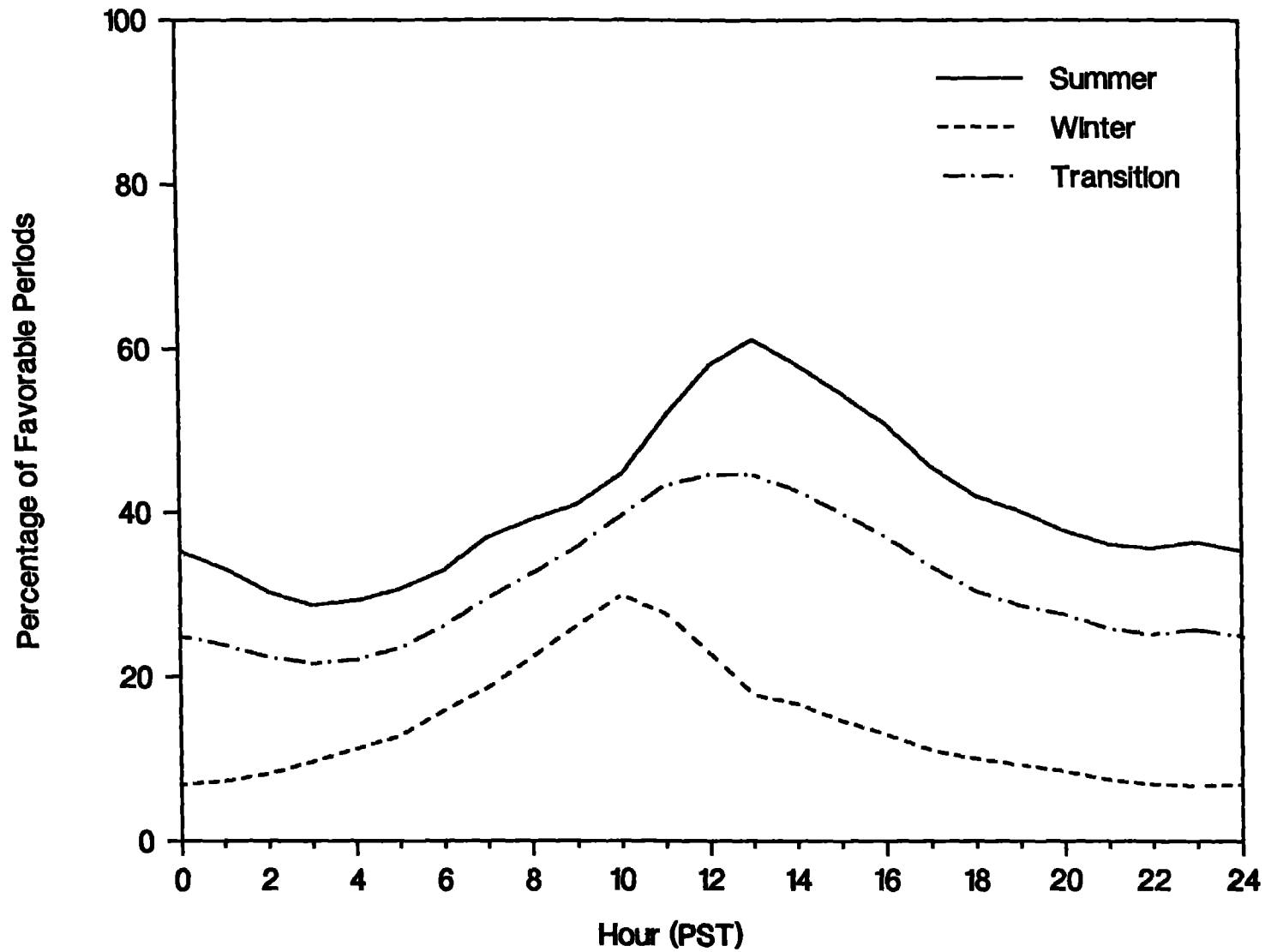


Figure 61. The probability if the next four hours without A or F stabilities or wind speed less than  $1 \text{ ms}^{-1}$ .

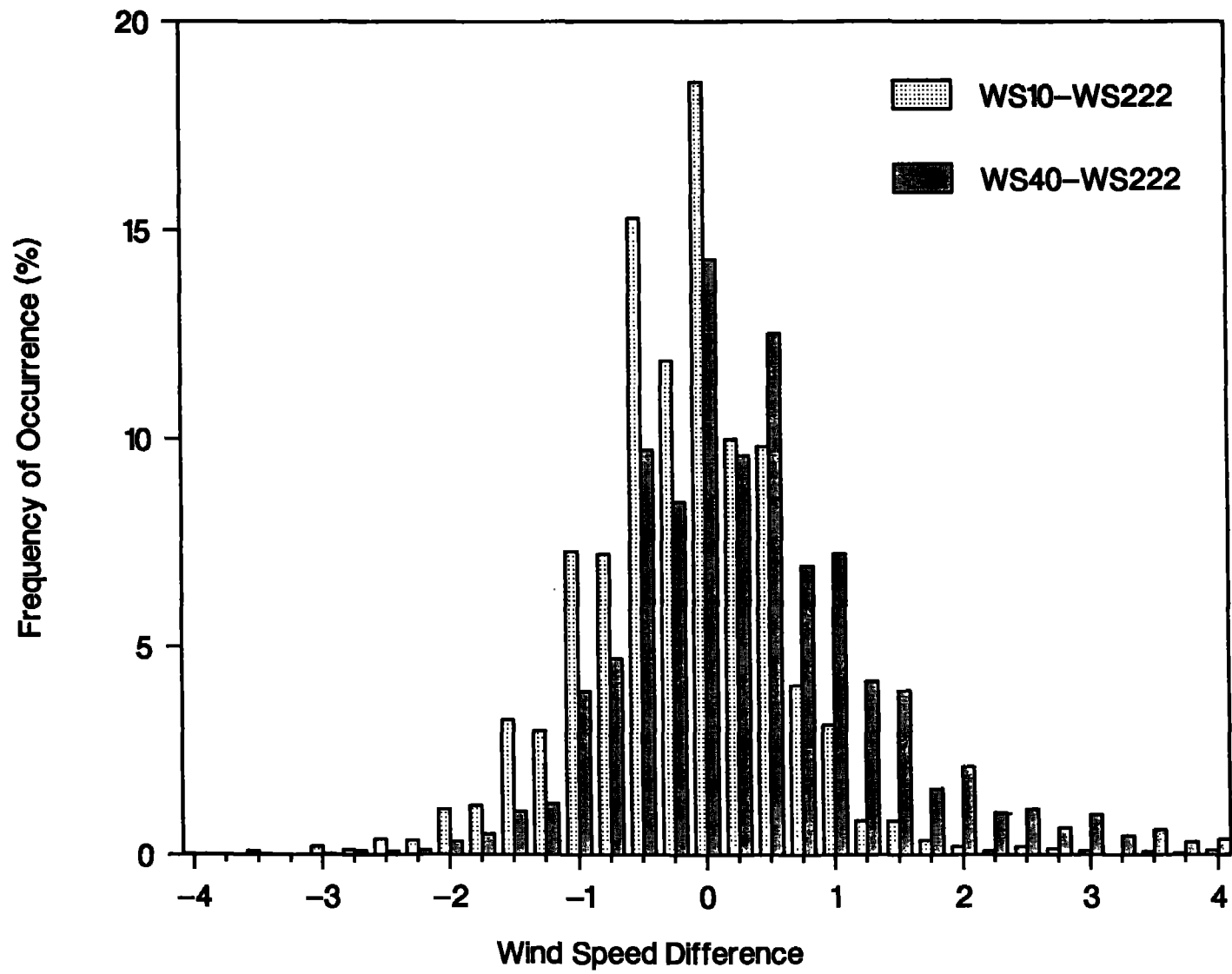


Figure 62. Wind speed difference (LLNL-B222) frequency distributions for February and March 1988.

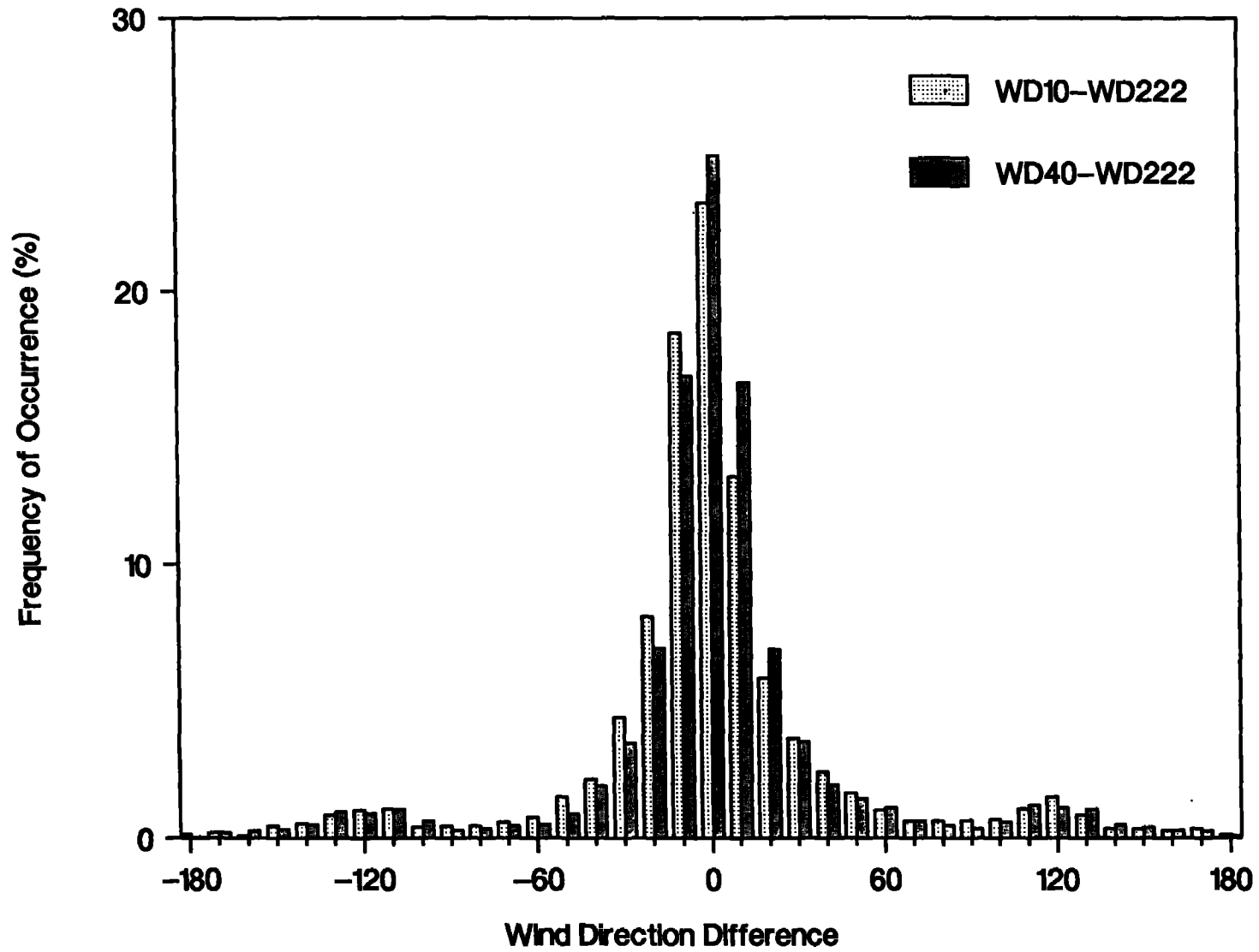


Figure 63. Wind direction difference (LLNL-B222) frequency distributions for February and March 1988.

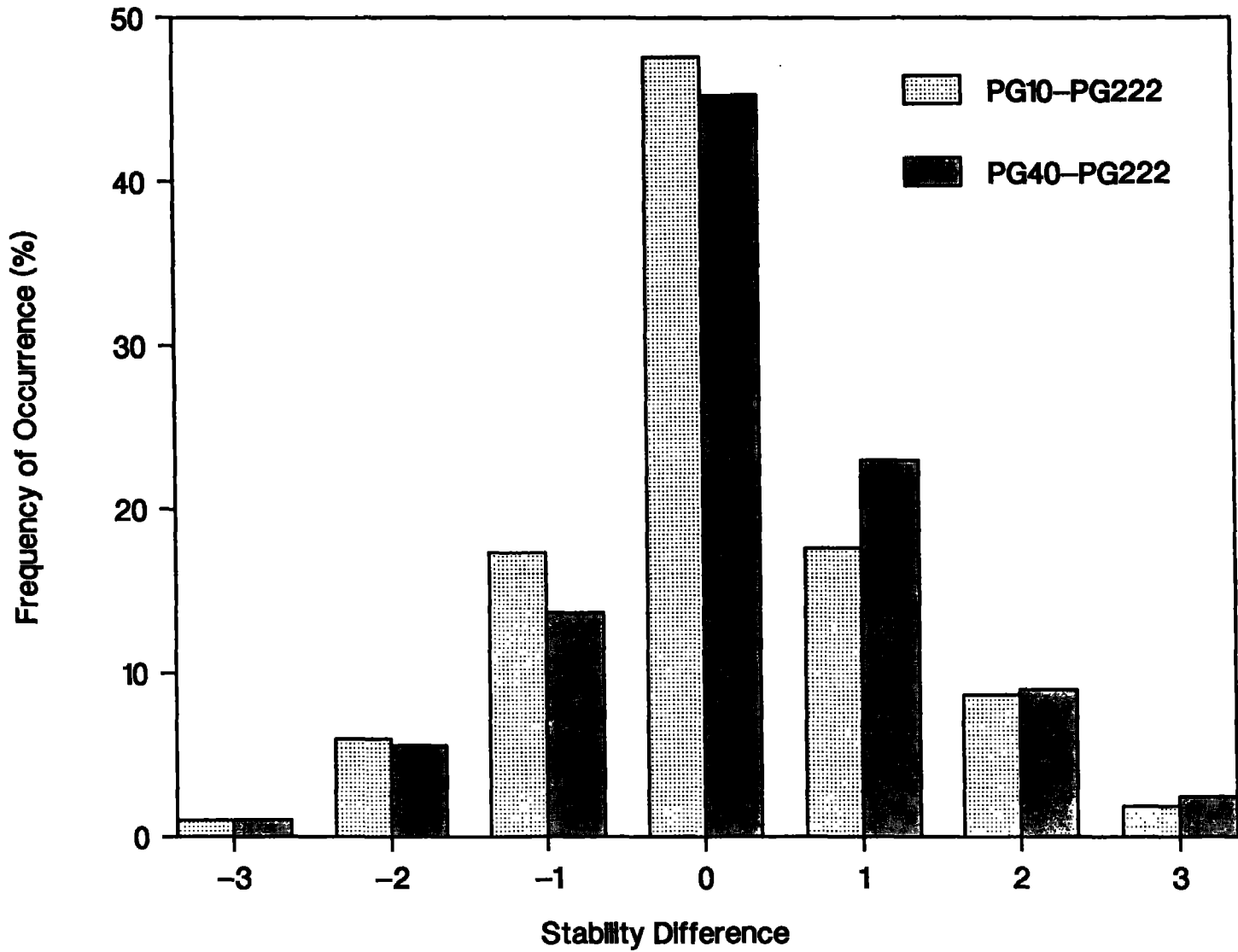


Figure 64. Stability difference (LLNL-B222) frequency distributions for February and March 1988.



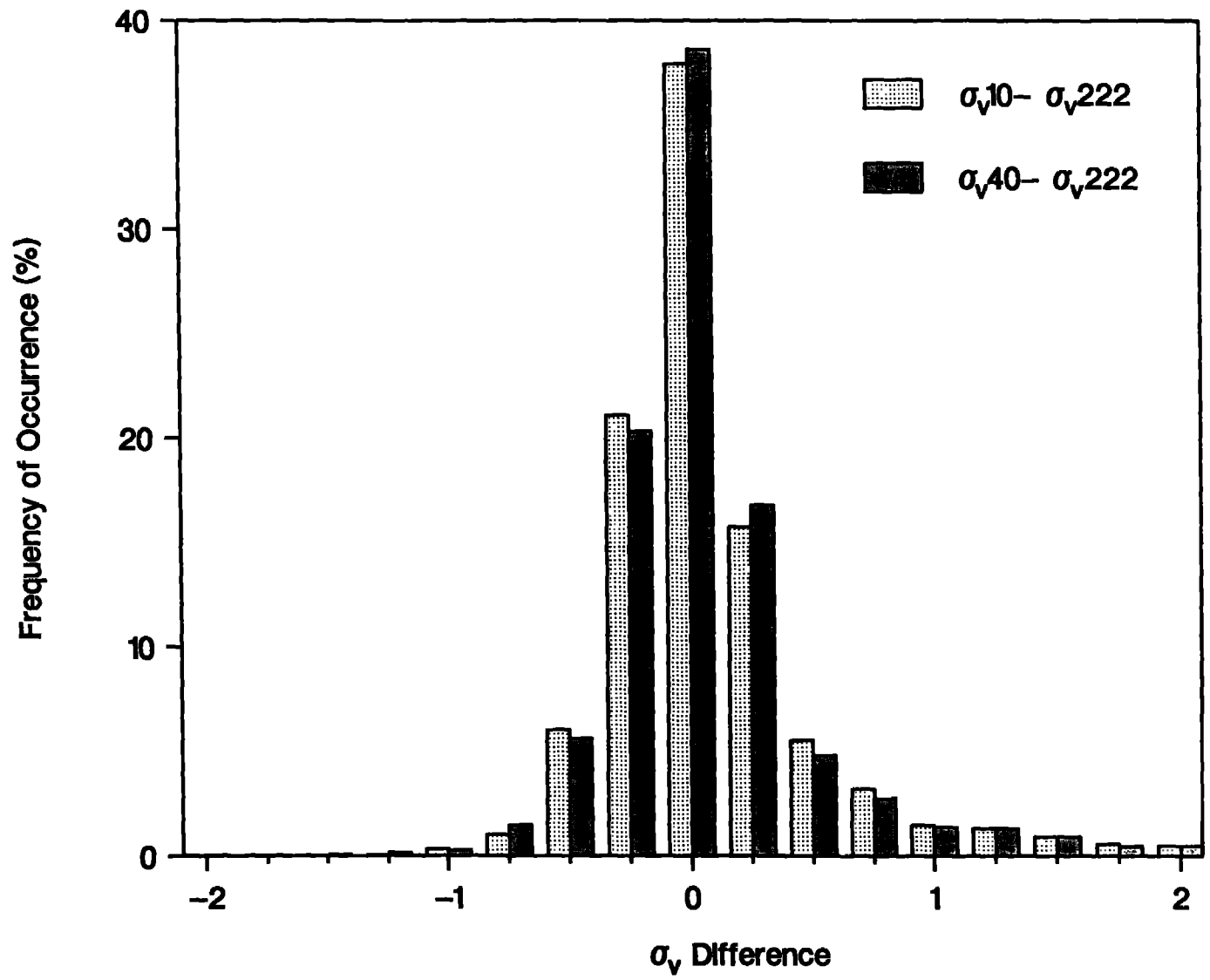


Figure 65.  $\sigma_v$  difference (LLNL-B222) frequency distributions for February and March 1988.

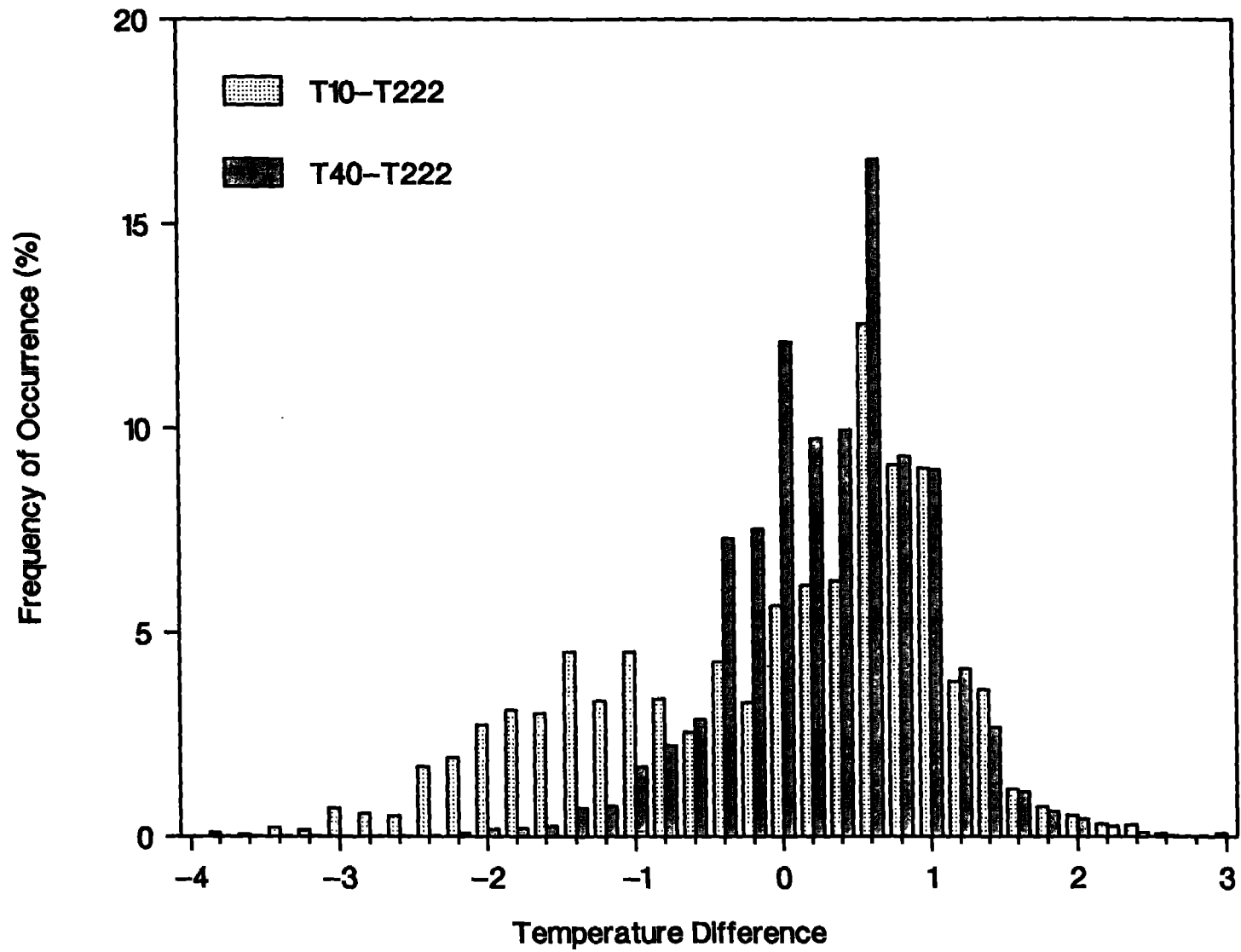


Figure 66. Temperature difference (LLNL-B222) frequency distributions for February and March 1988.

## **Appendix A**

### **Wind Speed**

Table A-1. Wind speed frequency distributions for each month from the LLNL tower data set (1979 to 1987).

Wind Speed (m/s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
< 1.0	30.8	30.4	20.9	17.4	16.3	12.1	16.1	14.3	22.7	32.7	30.8	28.6	22.7
2.0	29.8	27.4	27.6	24.1	16.7	15.8	19.8	23.9	23.6	28.2	31.5	34.2	25.2
3.0	16.9	14.4	18.4	18.3	14.4	17.1	20.6	23.1	19.4	16.2	16.2	15.1	17.5
4.0	10.0	11.5	14.8	16.3	17.0	18.6	16.5	17.6	15.5	11.4	9.9	8.6	14.0
5.0	6.0	6.9	9.3	12.2	16.5	17.0	14.7	12.7	11.8	6.3	6.8	6.4	10.6
6.0	4.0	4.1	4.5	6.3	10.7	11.8	8.0	5.2	4.9	3.3	2.5	3.6	5.8
7.0	1.7	2.1	2.4	3.5	5.2	5.1	3.2	2.5	1.4	1.4	1.4	2.1	2.7
8.0	0.6	1.4	1.0	0.9	1.9	1.9	0.7	0.4	0.6	0.4	0.5	0.7	0.9
9.0	0.2	1.1	0.7	0.7	0.8	0.6	0.2	0.2	0.1	0.1	0.3	0.5	0.5
10.0	0.0	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.1
> 10.0	0.0	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

A-2

Table A-2. Diurnal variation of wind speed percentiles  $\text{ms}^{-1}$  from the LLNL tower data set (1979 to 1987).

Hour (PST)		10	25	50	75	90
JAN.	0	0.3	0.6	1.2	2.0	3.1
	1	0.4	0.6	1.2	1.8	3.6
	2	0.3	0.7	1.1	1.9	3.2
	3	0.4	0.7	1.0	2.0	3.0
	4	0.3	0.6	1.1	2.0	3.1
	5	0.3	0.6	1.0	1.9	3.1
	6	0.4	0.7	1.0	1.9	3.6
	7	0.5	0.7	1.1	2.0	3.2
	8	0.5	0.8	1.1	2.1	3.8
	9	0.5	0.8	1.5	2.4	4.3
	10	0.7	1.1	2.1	3.2	4.6
	11	0.9	1.5	2.7	3.8	5.2
	12	1.0	1.7	2.8	4.2	5.4
	13	1.3	1.9	3.2	4.3	5.4
	14	1.2	2.0	3.1	4.3	5.5
	15	1.1	2.0	2.9	4.0	5.0
	16	0.9	1.6	2.2	3.4	4.6
	17	0.6	1.1	1.6	2.5	4.0
	18	0.5	0.9	1.3	2.3	3.6
	19	0.5	0.7	1.2	2.1	3.5
	20	0.4	0.7	1.1	2.0	2.9
	21	0.4	0.7	1.1	2.0	3.2
	22	0.4	0.7	1.2	2.1	3.2
	23	0.3	0.6	1.2	2.1	3.5
FEB.	0	0.3	0.7	1.1	2.1	4.2
	1	0.2	0.6	0.9	2.1	4.2
	2	0.3	0.6	1.1	2.2	3.9
	3	0.3	0.6	1.1	2.1	4.0
	4	0.4	0.6	1.0	1.9	3.8
	5	0.3	0.6	1.0	1.8	3.3
	6	0.4	0.7	1.1	1.9	3.4
	7	0.3	0.7	1.1	2.1	3.8
	8	0.3	0.6	1.0	2.3	4.3
	9	0.4	0.8	1.5	3.4	4.7
	10	0.6	0.9	2.2	3.9	5.3
	11	1.0	1.4	3.0	4.3	5.8
	12	1.1	1.7	3.0	4.6	6.0
	13	1.2	2.0	3.4	4.7	6.1
	14	1.3	2.2	3.4	4.4	6.0
	15	1.2	2.0	3.4	4.3	5.8
	16	1.1	1.8	2.8	3.7	5.0
	17	0.9	1.5	2.2	3.3	4.6
	18	0.6	1.0	1.7	2.7	4.2
	19	0.6	0.9	1.5	2.6	4.1
	20	0.4	0.8	1.3	2.2	4.0
	21	0.5	0.8	1.1	2.1	4.1
	22	0.4	0.7	1.0	2.0	4.7
	23	0.3	0.7	1.0	2.0	4.2

Table A-2. (Continued).

	Hour (PST)	10	25	50	75	90
MARCH	0	0.6	0.8	1.3	2.7	4.2
	1	0.5	0.8	1.2	2.4	3.8
	2	0.5	0.8	1.1	2.3	3.9
	3	0.5	0.8	1.2	2.2	3.5
	4	0.5	0.8	1.2	2.0	3.3
	5	0.5	0.8	1.1	2.2	3.5
	6	0.5	0.8	1.2	2.3	3.3
	7	0.4	0.7	1.1	2.3	3.4
	8	0.5	0.8	1.3	2.7	4.1
	9	0.8	1.1	2.1	3.5	4.7
	10	0.9	1.6	2.6	4.0	5.1
	11	1.1	1.9	3.1	4.4	5.5
	12	1.4	2.0	3.1	4.7	5.9
	13	1.7	2.2	3.3	4.7	6.5
	14	1.6	2.2	3.3	4.7	6.1
	15	1.7	2.3	3.5	4.5	6.3
	16	1.7	2.5	3.6	4.6	5.6
	17	1.6	2.1	3.1	4.2	5.2
	18	1.1	1.6	2.4	3.3	4.5
	19	0.9	1.4	2.1	3.1	4.2
	20	0.8	1.2	1.8	3.0	4.2
	21	0.7	1.0	1.7	2.9	4.0
	22	0.6	0.9	1.6	2.8	4.2
	23	0.6	0.9	1.4	2.8	3.7
APRIL	0	0.6	0.9	1.3	2.4	3.7
	1	0.5	0.8	1.3	2.3	3.7
	2	0.4	0.8	1.3	2.3	3.7
	3	0.5	0.8	1.3	2.3	3.8
	4	0.4	0.8	1.2	2.3	3.7
	5	0.5	0.7	1.1	2.3	3.6
	6	0.4	0.7	1.2	2.4	3.7
	7	0.4	0.7	1.4	3.0	4.5
	8	0.6	1.0	2.1	3.7	5.1
	9	1.0	1.7	2.8	4.3	5.3
	10	1.3	2.0	3.2	4.2	5.7
	11	1.5	2.2	3.3	4.4	5.7
	12	1.7	2.3	3.4	4.4	6.1
	13	1.8	2.5	3.6	4.7	6.3
	14	1.9	2.7	3.7	5.0	6.4
	15	2.0	2.9	4.0	5.5	6.3
	16	2.2	3.2	4.2	5.3	6.5
	17	2.3	3.0	4.1	5.0	6.1
	18	1.6	2.3	3.4	4.5	5.4
	19	1.1	1.7	2.4	3.7	4.6
	20	0.9	1.3	2.0	3.2	4.3
	21	0.7	1.1	1.8	3.1	4.3
	22	0.7	1.0	1.7	2.8	3.9
	23	0.6	0.9	1.4	2.6	3.7

Table A-2. (Continued).

Hour (PST)		10	25	50	75	90
MAY	0	0.5	1.0	1.7	3.2	4.1
	1	0.5	1.0	1.5	3.1	4.0
	2	0.5	0.9	1.5	3.1	4.2
	3	0.3	0.8	1.6	3.0	4.3
	4	0.3	0.8	1.5	3.2	4.3
	5	0.3	0.7	1.5	3.1	4.2
	6	0.4	0.7	1.8	3.5	4.4
	7	0.5	0.9	2.5	4.0	5.1
	8	0.7	1.3	2.9	4.5	5.4
	9	0.9	1.7	3.3	4.7	5.7
	10	1.3	2.0	3.6	4.9	6.0
	11	1.6	2.4	3.7	4.9	5.9
	12	1.8	2.5	3.8	5.0	6.0
	13	2.0	3.0	4.2	5.4	6.4
	14	2.2	3.4	4.6	5.7	6.5
	15	2.5	4.0	4.8	6.1	6.9
	16	3.4	4.4	5.2	6.1	6.9
	17	3.4	4.1	4.9	5.8	6.8
	18	2.6	3.3	4.2	5.1	6.1
	19	1.4	2.2	3.4	4.4	5.2
	20	0.8	1.5	2.7	4.0	4.8
	21	0.6	1.2	2.5	3.5	4.3
	22	0.6	1.0	2.1	3.3	4.4
23	0.6	0.9	1.6	3.2	4.3	
JUNE	0	0.6	1.1	1.9	3.2	4.3
	1	0.6	1.0	1.8	2.8	4.1
	2	0.6	0.9	1.8	3.1	4.3
	3	0.6	0.9	1.7	3.2	4.1
	4	0.6	0.9	1.8	3.0	4.1
	5	0.5	0.8	1.8	3.0	4.2
	6	0.4	0.8	2.4	3.5	4.4
	7	0.5	1.0	2.8	4.0	4.9
	8	0.9	1.3	3.0	4.4	5.2
	9	1.3	1.8	3.2	4.3	5.4
	10	1.6	2.3	3.4	4.6	5.6
	11	1.9	2.8	3.7	4.8	6.3
	12	2.2	3.0	4.1	5.2	6.1
	13	2.5	3.3	4.4	5.5	6.4
	14	2.9	3.9	4.7	5.7	6.7
	15	3.5	4.4	5.1	5.9	7.0
	16	4.0	4.6	5.2	6.0	7.1
	17	3.8	4.3	4.9	5.8	6.8
	18	3.1	3.6	4.3	5.2	6.2
	19	2.1	2.7	3.4	4.5	5.6
	20	1.3	1.8	2.8	4.0	5.0
	21	0.7	1.3	2.5	3.6	4.8
	22	0.7	1.2	2.2	3.3	4.4
23	0.7	1.1	2.1	3.1	4.1	

Table A-2. (Continued).

Hour (PST)		10	25	50	75	90
JULY	0	0.4	0.9	1.8	2.7	3.9
	1	0.3	1.0	1.8	2.5	4.1
	2	0.3	0.9	1.6	2.6	3.8
	3	0.3	0.8	1.5	2.4	4.0
	4	0.2	0.7	1.4	2.6	3.8
	5	0.2	0.6	1.4	2.4	3.8
	6	0.2	0.7	1.6	2.8	3.8
	7	0.2	0.8	1.7	3.3	4.2
	8	0.3	1.1	1.9	3.3	4.3
	9	0.6	1.3	2.2	3.3	4.5
	10	0.9	1.6	2.5	3.5	4.9
	11	1.3	2.0	3.0	4.0	4.9
	12	1.7	2.5	3.4	4.4	5.5
	13	2.0	2.9	3.8	4.8	5.7
	14	2.3	3.4	4.4	5.2	6.0
	15	2.8	3.5	4.7	5.6	6.3
	16	3.1	4.0	4.7	5.7	6.3
	17	3.1	3.9	4.6	5.4	6.3
	18	2.5	3.1	4.0	4.8	5.6
	19	1.6	2.3	3.0	4.1	5.0
	20	1.1	1.6	2.4	3.2	4.4
	21	0.5	1.2	2.0	2.9	4.0
	22	0.4	0.9	1.8	2.7	4.2
23	0.3	0.9	1.8	2.8	3.9	
AUG.	0	0.3	0.9	1.4	2.3	3.1
	1	0.5	1.0	1.5	2.3	3.3
	2	0.3	0.9	1.4	2.3	3.5
	3	0.3	0.9	1.4	2.3	3.4
	4	0.3	0.8	1.5	2.6	3.7
	5	0.4	0.9	1.5	2.6	3.7
	6	0.4	0.8	1.5	2.8	3.7
	7	0.5	0.9	1.9	2.8	3.9
	8	0.6	1.1	2.1	3.0	4.3
	9	1.0	1.3	2.1	3.2	4.2
	10	1.1	1.6	2.2	3.3	4.5
	11	1.4	1.9	2.5	3.3	4.7
	12	1.7	2.3	3.0	3.8	4.9
	13	2.1	2.6	3.5	4.3	5.3
	14	2.5	3.1	4.0	4.8	5.9
	15	2.9	3.7	4.3	5.2	6.1
	16	3.2	3.8	4.5	5.1	6.1
	17	3.0	3.7	4.3	4.8	5.7
	18	2.4	2.9	3.6	4.3	5.1
	19	1.6	2.2	2.8	3.7	4.6
	20	1.0	1.5	2.2	2.9	4.0
	21	0.8	1.4	2.0	2.6	3.5
	22	0.6	1.0	1.8	2.4	3.1
23	0.5	0.9	1.7	2.3	3.0	



Table A-2. (Continued).

	Hour (PST)	10	25	50	75	90
SEPT.	0	0.4	0.8	1.3	2.0	3.0
	1	0.4	0.7	1.1	2.0	3.0
	2	0.4	0.7	1.1	1.9	3.2
	3	0.4	0.7	1.0	2.0	3.2
	4	0.4	0.7	1.1	2.2	3.0
	5	0.3	0.7	1.1	2.2	2.9
	6	0.3	0.7	1.1	2.2	3.1
	7	0.3	0.6	1.1	2.6	3.7
	8	0.4	0.8	1.7	3.1	4.3
	9	0.9	1.3	2.0	3.6	4.8
	10	1.2	1.5	2.4	3.7	4.8
	11	1.5	1.9	2.9	4.1	4.8
	12	1.6	2.3	3.0	4.3	5.2
	13	1.8	2.3	3.4	4.6	5.5
	14	1.9	2.7	3.8	4.7	5.8
	15	2.0	2.9	4.1	4.9	5.9
	16	2.7	3.4	4.3	5.0	5.8
	17	2.3	3.0	3.9	4.6	5.4
	18	1.2	2.0	3.0	3.8	4.8
	19	0.8	1.2	2.2	3.0	3.9
	20	0.7	1.0	1.8	3.0	3.8
	21	0.5	0.9	1.6	2.6	3.6
	22	0.5	0.8	1.4	2.3	3.4
	23	0.3	0.8	1.4	2.2	3.3
OCT.	0	0.3	0.6	0.9	1.5	3.0
	1	0.3	0.6	0.9	1.6	3.2
	2	0.2	0.6	1.0	1.5	2.8
	3	0.2	0.5	0.9	1.6	2.9
	4	0.3	0.6	0.9	1.5	2.7
	5	0.3	0.6	0.9	1.5	2.8
	6	0.3	0.6	0.9	1.5	2.5
	7	0.2	0.4	0.8	1.5	2.8
	8	0.3	0.6	1.0	2.0	3.3
	9	0.5	0.8	1.3	2.6	4.2
	10	0.8	1.2	2.1	3.5	4.6
	11	1.1	1.5	2.5	3.8	5.0
	12	1.2	1.8	2.8	4.1	5.1
	13	1.3	1.8	3.0	4.2	5.3
	14	1.3	2.0	3.1	4.2	5.3
	15	1.7	2.5	3.2	4.2	5.3
	16	2.0	2.5	3.1	4.0	5.0
	17	1.3	1.8	2.4	3.1	4.3
	18	0.8	1.1	1.8	2.5	3.7
	19	0.6	1.0	1.5	2.2	3.5
	20	0.4	0.8	1.2	1.9	3.3
	21	0.4	0.7	1.1	1.8	2.9
	22	0.3	0.6	1.0	1.6	2.9
	23	0.3	0.6	0.9	1.6	3.1

Table A-2. (Continued).

	Hour (PST)	10	25	50	75	90
NOV.	0	0.4	0.7	1.0	1.8	3.0
	1	0.3	0.7	1.0	1.8	3.0
	2	0.4	0.7	1.0	1.9	2.6
	3	0.3	0.7	1.0	1.8	3.0
	4	0.4	0.7	1.0	1.8	2.8
	5	0.4	0.7	1.0	1.7	3.1
	6	0.4	0.6	1.1	1.8	2.9
	7	0.4	0.6	1.0	1.9	2.9
	8	0.3	0.6	1.1	2.0	3.5
	9	0.4	0.9	1.4	2.8	4.2
	10	0.8	1.1	2.0	3.6	4.8
	11	0.9	1.3	2.6	4.2	5.3
	12	1.1	1.6	3.0	4.3	5.1
	13	1.2	1.8	3.0	4.4	5.1
	14	1.3	2.0	3.0	4.0	4.9
	15	1.3	2.0	3.0	4.1	4.7
	16	1.1	1.9	2.4	3.2	4.3
	17	0.8	1.3	1.8	2.6	3.5
	18	0.6	1.1	1.6	2.3	3.3
	19	0.5	0.9	1.3	2.0	3.5
	20	0.5	0.7	1.2	2.0	3.3
	21	0.4	0.8	1.0	1.9	3.0
	22	0.4	0.6	1.0	1.8	2.7
	23	0.4	0.7	1.0	1.8	2.8
DEC.	0	0.4	0.7	1.1	1.6	2.8
	1	0.4	0.7	1.2	1.8	3.1
	2	0.5	0.7	1.1	1.8	3.3
	3	0.5	0.8	1.1	1.8	3.6
	4	0.5	0.8	1.1	1.9	3.3
	5	0.5	0.8	1.2	2.1	3.4
	6	0.4	0.7	1.1	1.8	3.5
	7	0.5	0.8	1.1	1.9	3.7
	8	0.4	0.7	1.3	2.3	3.9
	9	0.6	1.0	1.4	2.5	4.7
	10	0.7	1.1	2.3	4.0	5.6
	11	0.9	1.4	3.0	4.7	5.9
	12	1.0	1.8	3.1	4.6	5.8
	13	1.2	2.0	3.2	4.7	6.1
	14	1.1	2.1	3.2	4.6	5.8
	15	1.1	1.8	2.6	4.0	5.5
	16	1.0	1.5	2.2	3.4	4.9
	17	0.8	1.2	1.8	2.7	4.3
	18	0.7	1.0	1.5	2.4	4.3
	19	0.6	0.8	1.3	2.1	4.0
	20	0.5	0.8	1.1	1.9	3.8
	21	0.5	0.8	1.1	1.8	3.3
	22	0.5	0.7	1.1	1.7	3.1
	23	0.4	0.7	1.1	1.8	3.2

Table A-2. (Continued).

Hour (PST)	10	25	50	75	90
<b>ANNUAL</b>					
0	0.4	0.8	1.3	2.3	3.6
1	0.4	0.8	1.3	2.2	3.6
2	0.4	0.7	1.2	2.2	3.6
3	0.4	0.7	1.2	2.2	3.6
4	0.4	0.7	1.2	2.2	3.5
5	0.4	0.7	1.2	2.3	3.5
6	0.4	0.7	1.2	2.4	3.7
7	0.4	0.7	1.3	2.7	4.1
8	0.5	0.8	1.6	3.1	4.5
9	0.6	1.1	2.0	3.6	4.9
10	0.9	1.5	2.6	3.9	5.1
11	1.1	1.8	3.0	4.3	5.4
12	1.3	2.1	3.2	4.5	5.6
13	1.5	2.3	3.5	4.7	5.9
14	1.6	2.5	3.7	4.9	6.0
15	1.7	2.7	3.8	5.0	6.2
16	1.6	2.5	3.8	5.0	6.1
17	1.3	2.0	3.5	4.7	5.8
18	0.9	1.6	2.8	4.1	5.2
19	0.7	1.2	2.2	3.4	4.6
20	0.6	1.0	1.7	2.9	4.2
21	0.5	0.9	1.6	2.7	3.9
22	0.5	0.8	1.4	2.5	3.8
23	0.4	0.8	1.3	2.4	3.6

Table A-3. Diurnal variation of wind speed frequency distributions (%) from the LLNL tower data set (1979-1987).

Hour (PST)	Wind Speed $\text{ms}^{-1}$									
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
<b>JANUARY</b>										
0	39.1	33.7	13.4	5.4	3.5	3.0	0.5	1.5	0.0	0.0
1	32.5	32.0	19.6	5.2	3.1	5.7	1.5	0.5	0.0	0.0
2	21.1	27.8	19.6	17.0	6.2	4.6	2.6	1.0	0.0	0.0
3	13.4	21.8	21.8	20.8	8.4	11.9	1.5	0.5	0.0	0.0
4	7.2	21.1	25.4	18.2	13.4	8.6	5.3	0.5	0.5	0.0
5	4.5	21.4	20.9	20.9	15.9	9.0	7.0	0.0	0.5	0.0
6	7.0	18.0	21.5	23.0	16.5	7.5	4.0	2.5	0.0	0.0
7	7.0	17.9	26.9	22.9	15.4	6.5	3.0	0.5	0.0	0.0
8	11.2	31.7	23.9	16.1	9.8	5.4	2.0	0.0	0.0	0.0
9	20.7	38.4	21.2	8.1	7.1	3.0	1.5	0.0	0.0	0.0
10	29.3	35.4	20.2	7.6	2.5	4.0	0.5	0.5	0.0	0.0
11	37.4	34.8	14.1	5.6	3.5	2.0	1.0	1.0	0.5	0.0
12	45.0	28.2	16.8	4.5	1.5	1.0	1.5	1.0	0.0	0.5
13	42.3	32.7	12.8	8.2	2.6	0.5	0.5	0.5	0.0	0.0
14	39.3	33.2	12.8	10.7	2.0	1.0	0.5	0.5	0.0	0.0
15	39.8	32.1	15.8	3.6	6.1	1.0	1.0	0.5	0.0	0.0
16	39.3	33.3	14.9	5.0	3.0	3.0	1.0	0.5	0.0	0.0
17	43.4	34.3	6.6	7.1	5.6	2.0	0.5	0.0	0.5	0.0
18	44.9	31.8	10.6	5.1	3.5	2.5	1.0	0.0	0.5	0.0
19	42.4	31.8	14.6	4.5	2.5	2.5	0.5	0.0	1.0	0.0
20	44.3	29.9	12.4	7.0	3.0	2.0	1.0	0.5	0.0	0.0
21	49.2	27.1	13.6	4.0	3.0	1.0	0.5	1.0	0.5	0.0
22	43.7	32.2	11.6	5.0	2.0	4.0	1.0	0.5	0.0	0.0
23	37.7	36.7	14.1	4.5	3.5	3.0	0.0	0.0	0.5	0.0
<b>FEBRUARY</b>										
0	49.7	20.2	12.6	4.9	5.5	3.3	1.1	2.2	0.5	0.0
1	33.7	24.9	11.6	12.7	8.3	4.4	0.6	2.2	1.1	0.6
2	25.3	22.0	11.5	17.0	12.1	6.0	2.2	0.5	2.2	1.1
3	9.8	29.9	10.3	19.6	15.8	6.0	2.7	1.6	1.6	2.7
4	8.2	22.8	18.5	17.4	13.0	9.8	3.8	1.6	2.7	2.2
5	6.7	18.3	18.9	19.4	15.0	10.0	6.1	0.6	3.3	1.7
6	4.4	16.0	20.4	26.0	14.9	7.7	5.0	2.8	1.1	1.7
7	5.5	19.3	19.3	25.4	13.8	8.3	3.3	3.9	0.0	1.1
8	5.9	22.6	24.2	28.5	8.6	3.8	3.2	1.6	1.1	0.5
9	11.4	28.1	30.8	15.1	7.0	3.8	2.2	0.5	0.5	0.5
10	20.0	38.9	18.4	11.4	5.4	1.6	2.7	0.0	0.5	1.1
11	25.9	38.9	13.5	11.4	3.8	2.2	0.5	2.2	1.1	0.5
12	33.0	34.1	15.7	7.0	2.7	1.6	2.7	2.2	1.1	0.0
13	39.1	33.0	10.6	5.6	4.5	3.4	1.1	0.6	2.2	0.0
14	46.9	27.4	8.9	5.0	4.5	3.4	0.6	1.7	1.1	0.6
15	46.1	27.5	10.1	5.1	3.9	2.8	0.6	1.7	2.2	0.0
16	43.3	30.6	12.2	3.9	1.7	2.8	3.3	1.1	1.1	0.0
17	51.4	22.3	11.2	5.0	2.8	2.2	2.2	1.7	0.0	1.1
18	46.1	26.1	10.0	7.8	3.3	1.7	2.2	1.7	0.0	1.1
19	41.7	31.7	11.1	5.6	2.2	4.4	1.7	0.0	1.1	0.6
20	49.2	27.1	11.0	3.3	4.4	2.2	0.6	1.1	1.1	0.0
21	46.9	31.1	9.6	6.2	2.3	1.7	1.1	0.6	0.0	0.6
22	41.2	33.9	11.3	6.8	3.4	1.1	1.1	0.6	0.6	0.0
23	41.8	31.1	12.4	5.1	4.0	3.4	0.6	0.6	1.1	0.0

Table A-3. (Continued).

Hour (PST)	Wind Speed $\text{ms}^{-1}$									
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
MARCH										
0	33.6	31.8	13.5	9.9	7.2	2.7	0.9	0.4	0.0	0.0
1	18.5	30.1	17.6	15.3	9.7	6.5	0.9	0.9	0.0	0.5
2	12.9	23.0	19.8	18.0	14.7	7.8	2.3	0.9	0.5	0.0
3	6.0	21.2	20.7	21.2	13.8	9.2	5.5	2.3	0.0	0.0
4	2.7	21.9	21.0	18.3	16.5	9.8	4.9	2.2	2.2	0.4
5	1.9	18.4	22.2	20.3	16.5	8.0	5.7	5.2	1.4	0.5
6	1.9	16.1	25.6	20.4	16.1	9.0	5.2	2.8	1.9	0.9
7	0.9	15.6	21.2	25.5	15.6	9.0	6.1	2.4	3.3	0.5
8	1.8	13.3	20.6	25.2	21.6	9.6	5.5	0.5	1.4	0.5
9	1.9	17.4	26.3	24.9	17.4	6.6	2.8	2.3	0.5	0.0
10	5.7	33.0	22.2	21.7	9.9	4.7	1.4	1.4	0.0	0.0
11	11.3	34.3	23.9	16.9	7.5	3.3	1.4	0.0	1.4	0.0
12	15.7	38.9	19.0	14.8	6.0	3.2	0.5	0.5	0.9	0.5
13	24.3	32.2	19.2	14.0	5.6	2.3	0.5	0.5	0.5	0.9
14	25.1	31.6	20.9	11.6	6.5	1.9	1.4	0.0	0.5	0.5
15	30.4	31.3	17.3	12.6	2.3	0.9	2.8	0.9	0.5	0.9
16	33.9	30.3	13.8	10.6	6.9	1.8	1.4	0.0	0.5	0.9
17	30.1	38.9	12.5	10.2	4.2	2.3	0.9	0.0	0.5	0.5
18	39.3	29.0	13.6	8.4	5.1	1.9	2.3	0.0	0.0	0.5
19	38.8	33.6	11.7	7.5	3.7	3.3	0.9	0.0	0.5	0.0
20	39.8	34.7	12.0	7.4	2.8	0.9	1.4	0.9	0.0	0.0
21	40.3	31.5	14.4	7.4	4.6	0.5	1.4	0.0	0.0	0.0
22	39.3	31.3	15.9	7.5	4.7	1.4	0.0	0.0	0.0	0.0
23	45.6	23.0	18.4	6.0	5.1	1.4	0.5	0.0	0.0	0.0
APRIL										
0	20.0	25.7	18.8	13.5	9.8	7.8	2.0	1.2	0.4	0.8
1	9.6	21.3	23.8	16.3	13.4	10.5	2.9	0.4	0.8	0.8
2	3.3	20.2	21.1	25.6	13.2	9.1	4.1	1.7	1.2	0.4
3	1.2	19.9	19.9	22.8	20.7	7.9	3.7	2.5	0.8	0.4
4	2.5	14.8	23.5	21.4	20.6	6.6	7.4	1.2	1.6	0.4
5	1.3	12.0	20.1	25.6	20.5	8.5	7.3	2.6	1.7	0.4
6	0.4	10.1	18.5	26.5	19.3	10.5	10.1	2.1	2.1	0.4
7	0.4	8.8	16.3	21.8	20.5	17.2	11.3	2.1	0.8	0.8
8	0.8	6.2	11.9	24.7	25.5	14.8	11.9	2.5	0.8	0.8
9	0.4	5.8	17.8	21.6	29.0	13.7	9.5	0.8	1.2	0.0
10	2.5	14.5	24.9	22.0	19.5	10.8	4.6	1.2	0.0	0.0
11	7.5	23.2	29.5	19.9	14.1	5.0	0.4	0.0	0.4	0.0
12	12.0	37.2	20.2	17.8	9.1	2.9	0.4	0.4	0.0	0.0
13	18.4	37.7	16.7	14.6	8.8	2.9	0.4	0.0	0.0	0.4
14	21.7	36.7	19.2	14.2	5.0	2.5	0.4	0.0	0.0	0.4
15	30.1	33.9	18.4	9.2	4.6	2.5	0.4	0.4	0.4	0.0
16	32.1	33.8	16.7	10.0	3.8	2.5	1.3	0.0	0.0	0.0
17	30.5	38.9	13.8	8.4	6.3	0.8	0.8	0.0	0.4	0.0
18	32.9	36.7	12.9	9.2	3.8	3.3	0.0	0.8	0.4	0.0
19	36.3	32.5	16.3	6.7	4.6	1.3	1.3	0.0	0.8	0.4
20	37.9	31.3	14.2	8.3	4.6	1.7	0.4	0.4	0.8	0.4
21	41.2	26.9	15.5	7.6	5.5	1.3	0.8	0.0	1.3	0.0
22	40.2	26.8	15.5	10.0	4.2	1.7	0.4	0.8	0.4	0.0
23	36.8	23.0	14.2	11.7	6.7	4.6	1.3	0.8	0.0	0.8

Table A-3. (Continued).

Hour (PST)	Wind Speed $\text{ms}^{-1}$									
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
MAY										
0	17.5	16.2	17.5	14.4	14.0	14.4	4.8	0.9	0.4	0.0
1	10.0	17.8	16.9	16.4	18.3	12.8	5.0	2.7	0.0	0.0
2	6.4	17.4	17.8	16.0	19.6	12.8	7.3	2.3	0.5	0.0
3	4.5	11.3	22.2	18.6	19.0	14.5	6.8	1.8	0.9	0.5
4	5.3	6.2	21.2	19.9	19.9	15.9	5.8	4.0	1.3	0.4
5	4.1	5.5	14.7	20.2	21.6	18.8	8.7	4.1	1.8	0.5
6	4.5	4.1	10.8	18.0	19.8	23.4	11.7	4.1	3.2	0.5
7	4.5	2.3	7.3	10.9	26.8	21.8	17.3	5.9	2.3	0.9
8	4.8	0.9	2.6	10.9	21.8	31.4	17.9	5.7	1.7	2.2
9	4.4	0.4	3.1	12.9	29.8	26.7	13.8	4.4	3.6	0.9
10	4.5	2.3	10.0	25.8	29.9	16.3	7.7	2.7	0.5	0.5
11	5.4	14.0	20.3	26.1	20.3	9.5	2.3	0.9	0.9	0.5
12	12.2	21.6	22.1	18.0	18.0	5.9	0.9	0.5	0.0	0.9
13	20.2	21.6	17.9	22.5	14.2	1.4	0.9	0.9	0.0	0.5
14	22.0	27.1	19.7	16.5	9.2	2.8	0.9	1.4	0.5	0.0
15	25.3	28.1	15.7	17.1	11.5	0.9	0.9	0.0	0.5	0.0
16	23.0	32.9	13.1	18.0	9.0	2.3	1.4	0.5	0.0	0.0
17	24.8	33.5	12.4	18.8	6.9	2.8	0.5	0.0	0.5	0.0
18	28.4	28.9	12.4	15.6	11.9	1.8	0.5	0.5	0.0	0.0
19	31.1	28.3	15.1	11.4	9.6	3.2	0.5	0.9	0.0	0.0
20	30.9	29.6	10.8	14.8	9.4	2.7	0.9	0.4	0.4	0.0
21	33.5	25.2	13.3	15.1	8.3	2.8	1.4	0.5	0.0	0.0
22	39.7	11.4	15.5	17.4	10.0	3.2	2.3	0.5	0.0	0.0
23	27.2	17.4	13.8	13.8	15.6	7.6	3.1	0.9	0.0	0.4
JUNE										
0	12.3	25.6	11.8	19.7	16.7	10.3	2.0	1.5	0.0	0.0
1	5.1	23.2	19.2	17.2	18.2	11.6	3.0	2.0	0.5	0.0
2	2.0	17.2	21.2	23.7	15.7	13.1	4.5	1.5	1.0	0.0
3	1.0	9.6	19.2	28.3	18.2	13.1	8.1	1.5	1.0	0.0
4	1.0	8.3	15.7	22.1	21.1	21.6	6.9	2.9	0.5	0.0
5	0.5	4.1	14.2	19.3	25.4	21.3	9.6	4.6	1.0	0.0
6	0.0	1.0	9.5	16.0	30.0	23.0	13.5	4.5	2.0	0.5
7	0.0	0.5	3.0	12.0	29.0	31.0	14.5	6.0	3.0	1.0
8	0.5	0.0	1.4	7.7	32.1	33.0	15.3	7.2	2.4	0.5
9	0.0	0.0	1.0	17.5	33.0	26.7	13.1	6.8	1.9	0.0
10	0.0	0.0	8.8	28.3	32.2	17.1	10.2	3.4	0.0	0.0
11	0.0	7.4	26.1	32.0	16.3	12.8	3.4	2.0	0.0	0.0
12	6.8	19.4	28.2	19.4	15.0	7.8	3.4	0.0	0.0	0.0
13	17.9	20.9	21.9	18.9	12.4	6.0	2.0	0.0	0.0	0.0
14	15.4	26.4	26.4	17.4	10.0	3.5	1.0	0.0	0.0	0.0
15	17.9	28.4	22.4	19.4	8.0	3.0	0.5	0.5	0.0	0.0
16	21.6	28.9	22.5	14.7	6.9	4.4	1.0	0.0	0.0	0.0
17	24.5	28.5	23.0	10.5	9.5	3.5	0.5	0.0	0.0	0.0
18	25.9	28.4	17.9	16.4	8.0	3.0	0.5	0.0	0.0	0.0
19	28.4	24.9	18.4	17.4	7.5	2.5	1.0	0.0	0.0	0.0
20	30.2	23.3	21.3	14.4	7.4	3.0	0.5	0.0	0.0	0.0
21	29.0	24.9	20.7	14.5	8.3	2.1	0.5	0.0	0.0	0.0
22	29.9	13.4	21.6	19.6	9.3	4.1	2.1	0.0	0.0	0.0
23	22.6	16.6	16.1	19.1	16.6	4.0	4.5	0.5	0.0	0.0

Table A-3. (Continued).

Hour (PST)	Wind Speed $\text{ms}^{-1}$									
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
JULY										
0	20.6	30.4	16.5	18.0	8.8	4.6	0.5	0.0	0.5	0.0
1	14.5	28.0	24.2	15.6	11.3	3.8	2.2	0.0	0.5	0.0
2	11.2	19.7	31.4	18.1	12.8	3.7	2.1	0.5	0.5	0.0
3	5.9	15.4	28.7	23.4	16.0	6.9	3.2	0.0	0.5	0.0
4	2.6	13.0	22.3	26.4	16.6	14.5	3.1	1.6	0.0	0.0
5	0.5	7.6	19.5	24.9	26.5	13.0	5.9	1.6	0.5	0.0
6	0.0	3.8	13.4	20.4	29.6	22.6	7.5	1.6	1.1	0.0
7	0.0	3.7	9.5	16.4	31.7	21.7	13.8	3.2	0.0	0.0
8	0.0	1.0	6.5	15.5	35.0	24.5	14.0	2.0	1.0	0.5
9	0.0	1.1	5.8	20.0	30.5	29.5	9.5	3.2	0.0	0.5
10	0.5	2.1	17.4	30.0	29.5	13.7	6.3	0.0	0.5	0.0
11	2.6	13.8	31.7	24.9	16.4	7.4	3.2	0.0	0.0	0.0
12	9.7	24.1	29.7	22.1	9.2	4.6	0.5	0.0	0.0	0.0
13	18.4	28.6	29.2	13.5	7.6	1.6	0.0	0.5	0.0	0.5
14	25.3	29.6	24.7	9.1	8.1	1.6	0.5	0.5	0.0	0.5
15	27.4	26.3	25.8	10.8	7.5	1.1	0.0	0.5	0.0	0.5
16	26.4	27.4	25.9	10.7	6.6	2.0	0.0	0.5	0.5	0.0
17	23.9	34.2	24.5	7.1	6.5	2.7	0.5	0.5	0.0	0.0
18	29.0	33.3	19.1	10.4	5.5	2.2	0.0	0.5	0.0	0.0
19	30.2	33.0	18.7	8.2	7.1	2.2	0.5	0.0	0.0	0.0
20	36.3	28.4	18.9	9.5	4.7	1.1	1.1	0.0	0.0	0.0
21	39.8	24.4	19.3	9.7	5.1	1.1	0.6	0.0	0.0	0.0
22	34.5	24.9	16.9	15.3	6.2	1.7	0.6	0.0	0.0	0.0
23	31.3	24.7	15.4	14.3	10.4	2.2	1.1	0.5	0.0	0.0
AUGUST										
0	18.8	29.7	25.5	14.6	6.3	4.7	0.5	0.0	0.0	0.0
1	10.0	37.4	22.1	18.9	6.3	3.7	1.6	0.0	0.0	0.0
2	7.9	32.1	30.0	15.3	8.9	3.2	1.6	1.1	0.0	0.0
3	4.2	25.8	30.5	20.0	11.1	5.8	2.1	0.5	0.0	0.0
4	2.6	11.9	35.2	28.0	12.4	5.7	1.6	2.1	0.5	0.0
5	1.1	5.9	26.3	34.9	18.8	7.0	4.3	1.1	0.5	0.0
6	0.0	4.3	14.9	28.7	29.8	13.3	7.4	1.1	0.5	0.0
7	0.5	1.6	8.0	26.1	36.2	16.5	9.0	0.0	2.1	0.0
8	0.0	2.1	4.7	22.5	39.8	19.4	8.9	1.6	1.0	0.0
9	0.0	0.5	7.0	27.4	44.1	13.4	5.9	1.1	0.5	0.0
10	0.0	2.7	23.2	35.1	27.0	6.5	4.9	0.5	0.0	0.0
11	2.2	16.2	36.8	25.9	11.9	4.9	2.2	0.0	0.0	0.0
12	9.5	29.1	37.6	13.8	5.8	2.6	1.6	0.0	0.0	0.0
13	13.7	34.1	33.0	13.7	2.7	1.6	1.1	0.0	0.0	0.0
14	22.7	34.8	29.8	7.7	3.3	1.7	0.0	0.0	0.0	0.0
15	26.5	33.1	29.8	6.1	3.3	0.6	0.6	0.0	0.0	0.0
16	25.7	38.5	23.5	8.0	1.6	2.7	0.0	0.0	0.0	0.0
17	24.2	44.1	16.1	11.3	2.7	1.1	0.5	0.0	0.0	0.0
18	26.9	39.2	18.3	8.1	5.9	0.5	1.1	0.0	0.0	0.0
19	29.6	36.0	18.8	8.1	4.8	1.6	1.1	0.0	0.0	0.0
20	32.1	31.6	19.3	10.2	4.8	1.1	1.1	0.0	0.0	0.0
21	29.9	32.1	19.6	10.9	5.4	1.1	1.1	0.0	0.0	0.0
22	33.2	25.5	20.1	12.5	6.5	1.6	0.5	0.0	0.0	0.0
23	25.1	26.2	25.7	14.4	4.8	3.7	0.0	0.0	0.0	0.0

Table A-3. (Continued).

Hour (PST)	Wind Speed $\text{ms}^{-1}$									
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
SEPTEMBER										
0	30.2	21.4	19.3	12.5	12.0	3.6	0.0	0.5	0.0	0.5
1	15.1	31.7	15.1	18.3	12.4	5.9	1.1	0.0	0.0	0.5
2	4.3	31.0	22.5	20.3	14.4	6.4	0.5	0.0	0.0	0.5
3	2.7	21.4	25.1	22.5	20.3	5.3	1.1	1.1	0.5	0.0
4	1.0	14.1	29.8	22.5	16.2	12.0	2.1	1.6	0.5	0.0
5	2.6	8.4	26.7	21.5	22.0	11.5	5.8	1.0	0.5	0.0
6	2.6	8.9	18.3	20.9	25.1	14.7	6.8	2.6	0.0	0.0
7	1.0	7.3	17.7	16.7	33.3	15.1	5.2	2.6	1.0	0.0
8	0.5	4.7	8.9	25.0	33.3	20.3	3.1	3.1	1.0	0.0
9	2.6	4.2	16.3	24.7	35.3	11.6	4.2	1.1	0.0	0.0
10	6.3	16.3	23.2	30.0	17.4	5.8	1.1	0.0	0.0	0.0
11	15.8	25.3	29.5	17.4	7.4	4.7	0.0	0.0	0.0	0.0
12	22.5	26.7	23.6	17.8	7.9	1.0	0.5	0.0	0.0	0.0
13	28.2	26.1	24.5	13.8	5.9	0.5	1.1	0.0	0.0	0.0
14	33.0	29.3	20.7	10.6	4.8	0.5	1.1	0.0	0.0	0.0
15	35.1	34.0	16.0	9.0	5.3	0.5	0.0	0.0	0.0	0.0
16	36.3	34.7	17.1	7.8	2.6	1.6	0.0	0.0	0.0	0.0
17	41.9	30.4	16.8	7.3	3.7	0.0	0.0	0.0	0.0	0.0
18	40.8	32.5	14.1	9.4	2.6	0.5	0.0	0.0	0.0	0.0
19	43.5	29.8	12.0	12.0	2.1	0.5	0.0	0.0	0.0	0.0
20	42.5	26.9	18.7	8.8	2.6	0.5	0.0	0.0	0.0	0.0
21	41.6	27.9	21.1	5.3	3.7	0.5	0.0	0.0	0.0	0.0
22	40.0	28.9	16.8	10.0	4.2	0.0	0.0	0.0	0.0	0.0
23	38.4	23.7	17.4	12.6	5.8	0.5	0.5	1.1	0.0	0.0
OCTOBER										
0	49.6	24.8	13.7	7.7	1.3	1.7	0.9	0.0	0.0	0.4
1	33.0	29.6	16.5	10.4	4.8	2.6	2.2	0.4	0.4	0.0
2	16.8	30.2	19.0	17.2	8.6	5.6	1.3	0.4	0.9	0.0
3	6.9	31.9	18.1	20.7	12.1	6.9	2.6	0.4	0.4	0.0
4	5.9	23.3	22.0	22.9	13.1	8.1	2.1	2.5	0.0	0.0
5	4.4	23.9	20.8	20.8	15.0	8.4	3.5	3.1	0.0	0.0
6	5.3	18.0	22.4	24.1	16.7	7.5	5.3	0.9	0.0	0.0
7	4.4	11.5	28.2	25.1	17.2	6.2	7.0	0.4	0.0	0.0
8	1.3	8.0	35.9	28.3	16.5	7.2	2.5	0.4	0.0	0.0
9	5.6	28.2	37.2	16.7	7.3	2.6	2.6	0.0	0.0	0.0
10	15.7	40.9	26.0	9.4	6.0	0.9	1.3	0.0	0.0	0.0
11	25.1	42.9	17.7	7.4	4.8	1.7	0.4	0.0	0.0	0.0
12	34.0	42.6	11.9	6.4	3.4	1.7	0.0	0.0	0.0	0.0
13	42.7	35.7	12.3	5.7	2.2	0.9	0.0	0.0	0.4	0.0
14	47.8	33.6	9.1	4.3	3.9	0.9	0.4	0.0	0.0	0.0
15	51.7	28.0	9.5	6.5	2.2	1.7	0.4	0.0	0.0	0.0
16	51.9	31.8	5.6	3.9	3.0	3.4	0.0	0.4	0.0	0.0
17	54.8	27.0	6.5	6.1	3.5	1.3	0.4	0.4	0.0	0.0
18	50.0	31.3	9.6	3.9	2.2	2.2	0.9	0.0	0.0	0.0
19	50.6	30.7	8.7	5.2	2.6	1.7	0.4	0.0	0.0	0.0
20	54.5	27.7	9.8	4.7	0.9	2.6	0.0	0.0	0.0	0.0
21	56.6	24.6	11.0	5.3	1.3	1.3	0.0	0.0	0.0	0.0
22	54.2	29.1	9.7	4.8	1.3	0.9	0.0	0.0	0.0	0.0
23	62.1	22.0	7.8	6.0	0.9	1.3	0.0	0.0	0.0	0.0



Table A-3. (Continued).

Hour (PST)	Wind Speed $\text{ms}^{-1}$									
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
NOVEMBER										
0	38.4	35.6	13.7	5.9	3.7	1.4	0.5	0.5	0.5	0.0
1	31.9	30.5	14.8	7.6	9.5	3.3	0.5	1.0	0.5	0.5
2	19.0	30.3	15.2	14.2	13.7	3.3	2.4	0.9	0.5	0.5
3	10.3	32.2	12.6	15.9	16.4	6.1	4.2	1.4	0.9	0.0
4	7.3	28.6	13.2	16.8	22.7	6.8	3.2	0.5	0.5	0.5
5	6.5	21.0	19.6	21.0	20.1	7.9	2.8	0.0	0.5	0.5
6	5.6	18.8	23.9	26.3	15.5	5.6	3.3	0.5	0.0	0.5
7	5.6	18.1	25.6	24.2	19.1	4.2	2.8	0.0	0.5	0.0
8	6.3	24.4	35.3	20.8	7.7	3.6	1.4	0.5	0.0	0.0
9	14.4	43.5	25.9	7.9	4.2	2.8	0.5	0.5	0.5	0.0
10	19.0	45.8	23.1	6.9	2.3	1.4	0.5	0.0	0.0	0.9
11	30.9	42.4	12.4	7.4	3.7	0.9	1.4	0.0	0.5	0.5
12	39.7	34.8	12.5	6.7	4.0	0.9	0.0	0.4	0.0	0.9
13	43.4	32.9	12.8	6.8	1.8	1.4	0.5	0.0	0.0	0.5
14	49.3	29.2	12.8	4.6	2.3	0.9	0.5	0.0	0.5	0.0
15	47.2	31.7	12.4	4.1	2.8	0.9	0.0	0.5	0.0	0.5
16	47.5	28.5	13.6	5.4	1.8	0.5	0.9	1.4	0.0	0.5
17	47.5	30.9	11.1	6.9	0.9	0.5	1.4	0.5	0.0	0.5
18	46.1	29.5	16.6	3.2	1.4	1.8	1.4	0.0	0.0	0.0
19	46.1	30.9	12.9	6.0	2.3	0.0	1.4	0.0	0.5	0.0
20	44.0	34.9	12.4	5.0	1.4	0.9	0.9	0.0	0.5	0.0
21	43.8	36.2	8.6	5.7	1.4	2.4	1.0	1.0	0.0	0.0
22	46.2	31.4	12.9	3.3	3.3	1.0	1.0	1.0	0.0	0.0
23	42.7	33.2	15.2	4.7	1.4	1.4	0.5	0.9	0.0	0.0
DECEMBER										
0	37.4	31.3	15.4	7.7	4.4	1.6	0.5	0.0	1.6	0.0
1	27.0	36.8	15.5	6.9	7.5	2.9	1.1	1.1	1.1	0.0
2	19.3	22.7	19.9	14.2	12.5	6.3	4.0	0.0	1.1	0.0
3	12.9	20.8	14.0	15.7	17.4	11.2	3.9	1.7	0.6	1.7
4	6.7	22.8	18.3	17.2	16.1	11.1	4.4	0.6	2.2	0.6
5	6.8	18.1	19.8	21.5	15.8	8.5	8.5	0.0	0.0	1.1
6	8.5	18.1	19.2	19.8	18.1	9.0	4.5	1.7	0.6	0.6
7	7.4	21.0	30.7	14.2	14.2	6.8	3.4	1.1	0.0	1.1
8	9.3	34.1	27.5	14.3	7.1	2.7	1.6	1.6	0.5	1.1
9	16.5	42.6	25.0	6.3	4.5	1.7	1.7	0.6	0.6	0.6
10	23.9	43.2	16.5	6.8	4.0	1.7	1.7	2.3	0.0	0.0
11	33.7	42.3	9.7	5.7	4.0	2.3	0.6	0.6	1.1	0.0
12	41.0	36.5	9.0	6.2	3.4	0.6	2.2	0.6	0.6	0.0
13	44.3	36.2	10.3	4.0	2.9	0.6	1.7	0.0	0.0	0.0
14	40.8	37.4	11.5	4.6	2.3	2.3	1.1	0.0	0.0	0.0
15	42.2	37.0	11.6	3.5	2.9	1.7	0.6	0.0	0.6	0.0
16	40.6	41.7	10.6	1.7	1.7	1.1	1.1	0.6	1.1	0.0
17	39.3	39.9	12.4	2.2	2.8	1.7	0.6	0.6	0.0	0.6
18	39.9	41.6	9.0	4.5	1.1	1.7	1.1	0.6	0.6	0.0
19	40.4	39.3	9.6	4.5	2.2	1.1	1.7	0.6	0.6	0.0
20	38.3	38.3	13.3	3.9	2.2	2.2	1.1	0.6	0.0	0.0
21	37.5	38.1	10.2	9.1	2.3	1.7	0.0	1.1	0.0	0.0
22	37.4	40.2	11.2	5.6	1.1	2.8	1.1	0.6	0.0	0.0
23	34.8	41.0	12.9	5.1	2.2	2.2	1.1	0.6	0.0	0.0

Table A-3. (Continued).

Hour (PST)	Wind Speed $\text{ms}^{-1}$									
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
<b>ANNUAL</b>										
0	30.6	27.3	15.8	11.1	7.7	5.0	1.3	0.7	0.4	0.2
1	19.7	28.8	18.0	13.3	10.2	6.2	1.9	0.9	0.4	0.4
2	12.3	24.6	20.6	18.0	12.8	6.9	2.9	1.0	0.7	0.3
3	6.4	21.8	20.4	20.6	15.7	8.8	3.8	1.3	0.6	0.5
4	4.5	17.5	22.1	20.9	16.9	10.7	4.2	1.8	1.1	0.4
5	3.4	13.8	20.4	22.5	19.2	10.9	6.3	2.1	1.0	0.4
6	3.3	11.4	18.7	22.5	20.5	12.7	7.1	2.3	1.1	0.5
7	3.0	10.6	18.1	20.2	22.4	13.6	8.1	2.3	1.1	0.5
8	3.5	12.0	17.2	19.9	21.6	14.6	7.3	2.3	0.9	0.6
9	6.4	17.3	18.3	17.3	20.5	11.7	5.7	1.8	0.8	0.2
10	10.5	23.1	19.8	19.3	15.2	7.0	3.6	1.1	0.1	0.2
11	16.4	28.3	21.9	16.6	9.5	4.7	1.4	0.6	0.5	0.2
12	23.3	31.6	20.3	12.7	7.2	2.8	1.2	0.5	0.2	0.3
13	29.4	31.2	18.1	11.9	5.9	1.9	0.8	0.3	0.2	0.3
14	32.7	31.2	17.9	9.7	5.1	1.9	0.7	0.3	0.2	0.2
15	35.2	30.9	16.8	9.0	4.9	1.5	0.7	0.4	0.3	0.2
16	35.2	32.7	15.5	8.3	4.1	2.3	1.0	0.4	0.2	0.2
17	36.5	33.6	13.7	8.4	4.6	1.7	0.7	0.3	0.2	0.3
18	37.7	32.3	13.6	8.4	4.5	1.9	0.9	0.3	0.1	0.2
19	38.5	31.7	13.8	8.0	4.2	2.0	0.9	0.1	0.4	0.2
20	40.3	30.3	14.3	8.0	3.9	1.7	0.8	0.4	0.3	0.1
21	40.9	29.2	14.5	8.3	4.3	1.4	0.7	0.4	0.2	0.1
22	40.5	27.3	14.6	9.6	4.6	2.1	0.8	0.4	0.1	0.0
23	37.7	26.3	15.0	9.7	6.4	2.9	1.1	0.6	0.2	0.2

**Appendix B**  
**Wind Direction**

Table B-1. Wind rose tables from the LLNL tower data set (1979 to 1987).

Speed	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>JANUARY</b>									
0- 1	3.9	7.5	7.0	3.2	2.0	1.9	2.2	3.1	30.8
1- 2	4.4	6.5	4.3	3.2	3.3	2.8	2.1	3.2	29.8
2- 3	5.8	3.9	1.0	1.0	2.0	1.0	0.4	1.8	16.9
3- 4	4.0	1.6	0.3	0.4	2.0	0.8	0.3	0.7	10.0
4- 5	1.6	1.1	0.2	0.2	1.7	0.6	0.1	0.4	6.0
5- 6	0.8	0.5	0.2	0.2	1.5	0.3	0.0	0.5	4.0
6- 7	0.3	0.1	0.0	0.1	0.6	0.3	0.0	0.3	1.7
> 7	0.0	0.1	0.0	0.1	0.4	0.0	0.0	0.2	0.8
<b>Totals</b>	<b>20.8</b>	<b>21.3</b>	<b>13.0</b>	<b>8.4</b>	<b>13.4</b>	<b>7.8</b>	<b>5.1</b>	<b>10.3</b>	<b>100.0</b>
<b>FEBRUARY</b>									
0- 1	3.5	8.2	8.1	2.7	1.5	1.8	2.2	2.5	30.4
1- 2	3.7	5.7	4.6	2.8	3.1	2.7	2.3	2.6	27.4
2- 3	3.0	2.0	0.9	1.4	2.9	2.4	0.4	1.4	14.4
3- 4	3.3	0.9	0.3	0.6	3.0	1.9	0.1	1.2	11.5
4- 5	1.6	0.6	0.2	0.2	2.6	1.1	0.0	0.7	6.9
5- 6	0.5	0.4	0.1	0.3	1.5	0.7	0.0	0.5	4.1
6- 7	0.1	0.1	0.1	0.1	0.9	0.2	0.0	0.5	2.1
> 7	0.1	0.0	0.2	0.3	1.4	0.1	0.3	0.8	3.3
<b>Totals</b>	<b>15.9</b>	<b>17.9</b>	<b>14.5</b>	<b>8.3</b>	<b>16.9</b>	<b>10.8</b>	<b>5.4</b>	<b>10.2</b>	<b>100.0</b>
<b>MARCH</b>									
0- 1	2.7	6.2	5.0	1.6	0.9	1.0	1.4	2.2	20.9
1- 2	2.4	4.5	5.1	3.9	3.7	3.6	2.1	2.3	27.6
2- 3	1.5	1.3	1.7	1.8	5.8	4.1	1.0	1.2	18.4
3- 4	1.6	0.3	1.4	1.4	5.4	3.5	0.3	0.9	14.8
4- 5	0.8	0.3	0.6	0.7	3.4	2.5	0.2	0.9	9.3
5- 6	0.2	0.1	0.2	0.3	1.5	1.2	0.1	0.9	4.5
6- 7	0.0	0.1	0.1	0.2	0.9	0.5	0.2	0.3	2.4
> 7	0.0	0.0	0.1	0.2	0.6	0.3	0.1	0.6	2.0
<b>Totals</b>	<b>9.2</b>	<b>12.9</b>	<b>14.3</b>	<b>10.0</b>	<b>22.2</b>	<b>16.7</b>	<b>5.5</b>	<b>9.2</b>	<b>100.0</b>

Table B-1. (Continued).

Speed	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>APRIL</b>									
0- 1	1.3	5.9	4.2	1.1	1.0	1.1	1.1	1.7	17.4
1- 2	1.5	4.2	4.0	3.5	4.1	3.6	1.8	1.4	24.1
2- 3	1.5	1.0	0.5	1.4	6.7	4.9	1.0	1.3	18.3
3- 4	1.4	0.3	0.1	0.5	6.8	5.2	0.8	1.1	16.3
4- 5	0.9	0.3	0.0	0.1	5.4	4.1	0.5	0.9	12.2
5- 6	0.1	0.0	0.0	0.1	2.7	2.4	0.4	0.6	6.3
6- 7	0.1	0.0	0.0	0.0	1.5	1.4	0.2	0.3	3.5
> 7	0.1	0.0	0.0	0.0	0.6	0.3	0.0	1.0	1.9
<b>Totals</b>	<b>6.9</b>	<b>11.7</b>	<b>8.9</b>	<b>6.6</b>	<b>28.8</b>	<b>23.0</b>	<b>5.8</b>	<b>8.3</b>	<b>100.0</b>
<b>MAY</b>									
0- 1	1.1	3.8	2.7	1.3	1.7	3.2	1.7	0.9	16.3
1- 2	0.4	2.7	2.9	2.1	4.0	2.9	1.0	0.7	16.7
2- 3	0.4	0.1	0.1	0.5	6.1	5.2	1.1	1.0	14.4
3- 4	0.2	0.0	0.0	0.1	8.8	6.2	0.6	1.1	17.0
4- 5	0.2	0.0	0.0	0.0	8.2	6.8	0.3	1.0	16.5
5- 6	0.3	0.0	0.0	0.0	4.3	5.1	0.4	0.5	10.7
6- 7	0.0	0.0	0.0	0.0	2.5	2.1	0.4	0.2	5.2
> 7	0.0	0.0	0.0	0.0	1.9	0.9	0.2	0.0	3.1
<b>Totals</b>	<b>2.7</b>	<b>6.6</b>	<b>5.7</b>	<b>4.0</b>	<b>37.5</b>	<b>32.5</b>	<b>5.6</b>	<b>5.4</b>	<b>100.0</b>
<b>JUNE</b>									
0- 1	0.9	3.8	2.3	1.2	1.5	1.0	0.8	0.6	12.1
1- 2	0.3	1.6	1.7	1.3	5.7	3.7	1.1	0.5	15.8
2- 3	0.4	0.2	0.0	0.4	7.9	6.9	0.8	0.5	17.1
3- 4	0.5	0.0	0.0	0.1	8.0	8.6	0.5	0.8	18.6
4- 5	0.5	0.0	0.0	0.0	7.2	8.3	0.4	0.6	17.0
5- 6	0.2	0.0	0.0	0.0	4.7	5.9	0.5	0.4	11.8
6- 7	0.1	0.0	0.0	0.0	2.4	2.1	0.3	0.2	5.1
> 7	0.2	0.0	0.0	0.0	1.1	0.6	0.4	0.3	2.5
<b>Totals</b>	<b>3.0</b>	<b>5.6</b>	<b>4.0</b>	<b>3.0</b>	<b>38.5</b>	<b>37.1</b>	<b>4.8</b>	<b>4.0</b>	<b>100.0</b>

Table B-1. (Continued).

Speed	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>JULY</b>									
0- 1	1.0	3.0	2.5	1.3	2.6	3.7	1.1	0.9	16.1
1- 2	0.3	0.8	0.8	1.0	9.5	6.1	0.9	0.3	19.8
2- 3	0.2	0.1	0.0	0.4	11.2	7.9	0.6	0.2	20.6
3- 4	0.2	0.0	0.0	0.1	7.2	8.1	0.7	0.1	16.5
4- 5	0.1	0.1	0.0	0.0	7.1	6.5	0.8	0.1	14.7
5- 6	0.0	0.0	0.0	0.0	3.3	3.8	0.8	0.1	8.0
6- 7	0.0	0.0	0.0	0.0	1.6	1.3	0.3	0.0	3.2
> 7	0.0	0.0	0.0	0.0	0.8	0.1	0.2	0.0	1.1
<b>Totals</b>	<b>1.9</b>	<b>4.0</b>	<b>3.3</b>	<b>2.8</b>	<b>43.3</b>	<b>37.5</b>	<b>5.5</b>	<b>1.8</b>	<b>100.0</b>
<b>AUGUST</b>									
0- 1	0.9	2.5	1.9	1.5	3.1	3.3	0.8	0.4	14.3
1- 2	0.3	1.1	0.9	1.5	11.6	7.4	0.6	0.3	23.9
2- 3	0.2	0.0	0.0	0.2	12.5	9.7	0.2	0.3	23.1
3- 4	0.2	0.0	0.0	0.0	7.4	9.8	0.1	0.1	17.6
4- 5	0.0	0.0	0.0	0.0	5.8	6.7	0.2	0.0	12.7
5- 6	0.0	0.0	0.0	0.0	2.5	2.5	0.2	0.0	5.2
6- 7	0.0	0.0	0.0	0.0	1.0	1.4	0.0	0.0	2.5
> 7	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.6
<b>Totals</b>	<b>1.5</b>	<b>3.7</b>	<b>2.8</b>	<b>3.3</b>	<b>44.1</b>	<b>41.2</b>	<b>2.2</b>	<b>1.1</b>	<b>100.0</b>
<b>SEPTEMBER</b>									
0- 1	2.4	7.2	5.4	1.9	1.4	1.6	1.3	1.5	22.7
1- 2	1.5	1.7	2.4	2.8	7.5	5.4	1.4	1.0	23.6
2- 3	1.3	0.0	0.1	0.5	8.4	7.1	0.6	1.3	19.4
3- 4	1.2	0.0	0.0	0.1	6.9	6.1	0.3	0.9	15.5
4- 5	0.5	0.0	0.0	0.0	5.7	4.8	0.2	0.6	11.8
5- 6	0.1	0.0	0.0	0.0	2.6	1.7	0.1	0.3	4.9
6- 7	0.1	0.0	0.0	0.0	0.9	0.3	0.0	0.0	1.4
> 7	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.2	0.8
<b>Totals</b>	<b>7.1</b>	<b>9.0</b>	<b>7.9</b>	<b>5.3</b>	<b>33.9</b>	<b>27.2</b>	<b>3.9</b>	<b>5.9</b>	<b>100.0</b>

Table B-1. (Continued).

Speed	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>OCTOBER</b>									
0- 1	3.1	10.3	7.3	2.8	2.4	2.3	2.2	2.3	32.7
1- 2	2.4	4.7	3.2	2.6	6.8	5.2	1.9	1.4	28.2
2- 3	2.7	0.9	0.1	0.5	5.2	4.8	0.5	1.4	16.2
3- 4	2.6	0.3	0.0	0.3	3.8	3.2	0.3	0.9	11.4
4- 5	1.3	0.1	0.0	0.1	2.1	1.8	0.2	0.6	6.3
5- 6	0.3	0.1	0.0	0.1	1.6	0.5	0.1	0.7	3.3
6- 7	0.1	0.0	0.0	0.0	0.7	0.2	0.0	0.5	1.4
> 7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.5
<b>Totals</b>	<b>12.5</b>	<b>16.4</b>	<b>10.5</b>	<b>6.3</b>	<b>22.8</b>	<b>18.0</b>	<b>5.3</b>	<b>8.1</b>	<b>100.0</b>
<b>NOVEMBER</b>									
0- 1	3.7	8.5	7.6	2.9	2.3	1.5	1.9	2.4	30.8
1- 2	3.9	6.8	5.3	3.4	3.6	3.3	2.4	2.7	31.5
2- 3	3.9	2.6	1.0	1.2	3.6	2.1	0.4	1.4	16.2
3- 4	3.6	0.7	0.1	0.4	2.8	1.0	0.2	1.2	9.9
4- 5	2.3	0.3	0.0	0.3	2.0	0.7	0.0	1.0	6.8
5- 6	0.6	0.0	0.0	0.2	1.0	0.2	0.0	0.4	2.5
6- 7	0.2	0.0	0.0	0.1	0.6	0.0	0.0	0.5	1.4
> 7	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.7	1.0
<b>Totals</b>	<b>18.2</b>	<b>19.0</b>	<b>14.2</b>	<b>8.5</b>	<b>16.0</b>	<b>8.8</b>	<b>5.0</b>	<b>10.3</b>	<b>100.0</b>
<b>DECEMBER</b>									
0- 1	2.5	5.4	6.1	4.4	3.6	2.0	2.0	2.4	28.6
1- 2	3.8	7.4	6.2	4.0	5.1	2.9	2.2	2.5	34.2
2- 3	4.5	3.9	1.0	0.7	1.9	1.1	0.5	1.6	15.1
3- 4	3.3	1.5	0.2	0.5	1.2	0.8	0.0	0.9	8.6
4- 5	3.1	0.7	0.0	0.4	1.2	0.4	0.0	0.6	6.4
5- 6	1.7	0.4	0.0	0.1	0.8	0.2	0.0	0.4	3.6
6- 7	0.4	0.1	0.0	0.2	0.9	0.1	0.0	0.3	2.1
> 7	0.1	0.0	0.1	0.0	0.6	0.0	0.0	0.7	1.6
<b>Totals</b>	<b>19.5</b>	<b>19.5</b>	<b>13.7</b>	<b>10.4</b>	<b>15.2</b>	<b>7.5</b>	<b>4.8</b>	<b>9.5</b>	<b>100.0</b>

Table B-1. (Continued).

Speed	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>ANNUAL</b>									
0- 1	2.2	6.1	5.0	2.1	2.0	2.0	1.6	1.8	22.7
1- 2	2.1	4.0	3.5	2.7	5.6	4.1	1.7	1.6	25.2
2- 3	2.1	1.3	0.5	0.8	6.2	4.8	0.6	1.1	17.5
3- 4	1.8	0.5	0.2	0.4	5.3	4.6	0.4	0.8	14.0
4- 5	1.1	0.3	0.1	0.2	4.4	3.7	0.3	0.6	10.6
5- 6	0.4	0.1	0.1	0.1	2.3	2.1	0.2	0.5	5.8
6- 7	0.1	0.0	0.0	0.1	1.2	0.8	0.1	0.3	2.7
> 7	0.0	0.0	0.0	0.1	0.7	0.2	0.1	0.4	1.6
<b>Totals</b>	<b>9.8</b>	<b>12.3</b>	<b>9.4</b>	<b>6.4</b>	<b>27.7</b>	<b>22.3</b>	<b>4.9</b>	<b>7.1</b>	<b>100.0</b>



**Appendix C**

**Sigma theta**

Table C-1. Sigma theta frequency distributions (%) for each month from the LLNL tower data set (1979 to 1987).

Sigma Theta	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
< 2.5	1.4	0.1	3.0	0.3	0.0	0.4	0.1	0.2	0.6	1.2	2.5	4.4	1.2
5.0	0.6	1.3	0.8	0.8	0.5	0.5	0.2	0.5	1.1	1.6	1.4	1.7	0.9
7.5	2.5	2.8	3.0	2.9	0.9	1.3	1.2	1.1	2.7	2.8	3.4	3.3	2.3
10.0	8.3	8.8	11.0	8.3	8.7	7.3	7.0	6.8	8.2	6.9	8.4	8.2	8.2
12.5	15.4	13.9	16.4	16.4	19.6	17.5	15.3	12.9	12.2	11.4	12.1	11.3	14.6
15.0	14.4	12.9	13.8	16.8	19.6	19.7	17.1	16.4	14.7	12.5	12.8	11.8	15.2
17.5	8.6	9.4	9.8	11.0	14.6	16.8	13.9	14.5	15.7	11.7	10.1	7.2	12.0
20.0	5.9	7.0	5.6	6.4	6.9	7.5	7.8	7.3	7.5	7.6	6.7	6.1	6.9
22.5	5.2	5.2	4.6	4.4	4.3	5.2	6.5	5.6	5.3	5.5	5.7	4.8	5.2
25.0	4.1	3.7	3.7	3.9	2.9	3.9	4.3	4.6	4.3	4.3	3.8	4.2	4.0
27.5	3.6	3.6	3.5	3.5	2.9	3.1	3.6	4.3	3.6	4.2	4.1	3.8	3.6
30.0	3.6	3.6	3.0	3.0	2.1	1.9	2.7	3.1	3.1	3.3	3.3	4.0	3.1
32.5	3.1	3.0	2.8	2.3	1.9	1.7	2.3	2.4	2.7	2.8	2.8	3.2	2.6
35.0	3.3	2.6	2.2	2.1	1.6	1.9	2.1	2.5	2.2	2.8	3.2	3.2	2.5
37.5	2.8	2.6	2.0	1.6	1.3	1.3	1.4	1.9	1.7	2.8	2.4	2.6	2.0
40.0	2.4	2.7	1.4	1.8	1.2	0.9	1.5	2.1	1.8	2.5	2.1	3.0	1.9
42.5	1.6	2.3	1.5	1.4	0.9	0.9	1.2	1.8	1.3	2.0	2.1	2.1	1.6
45.0	1.6	1.8	1.4	1.1	0.8	1.0	1.3	1.6	1.1	1.6	1.4	1.7	1.3
47.5	1.8	1.4	1.0	1.1	0.8	0.7	1.4	1.4	0.9	1.3	1.2	1.3	1.2
50.0	1.2	1.4	0.9	0.8	0.6	0.6	1.1	1.3	0.8	1.0	0.9	1.2	1.0
52.5	0.8	1.4	0.9	0.6	0.7	0.4	1.2	0.6	0.7	1.2	0.9	1.0	0.9
55.0	0.9	1.2	0.8	0.8	0.7	0.4	0.6	0.6	0.5	0.6	0.7	1.0	0.7
57.5	0.9	0.9	0.6	0.8	0.4	0.4	0.4	0.5	0.4	0.7	0.5	0.8	0.6
60.0	0.6	0.5	0.6	0.6	0.5	0.4	0.2	0.2	0.4	0.6	0.6	0.8	0.5
62.5	0.5	0.6	0.4	0.7	0.4	0.4	0.3	0.3	0.5	0.5	0.5	0.5	0.5
65.0	0.6	0.5	0.3	0.5	0.6	0.2	0.2	0.3	0.3	0.5	0.3	0.6	0.4
67.5	0.3	0.4	0.4	0.3	0.3	0.1	0.2	0.2	0.2	0.5	0.3	0.5	0.3
70.0	0.6	0.4	0.3	0.3	0.3	0.3	0.1	0.2	0.3	0.3	0.4	0.4	0.3
72.5	0.5	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.4	0.4	0.4	0.5	0.4
75.0	0.2	0.3	0.2	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.3
77.5	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.3
80.0	0.3	0.2	0.4	0.2	0.3	0.2	0.2	0.4	0.2	0.3	0.4	0.5	0.3
> 80.0	2.0	2.9	3.1	4.4	2.5	2.4	3.8	3.6	3.8	4.0	3.3	3.8	3.3

Table C-2. Diurnal variation of sigma theta percentiles from the LLNL tower (1979 to 1987).

Hour (PST)		10	25	50	75	90
JAN.	0	8.7	12.0	18.8	32.3	50.7
	1	8.4	11.2	19.2	35.3	47.6
	2	8.6	11.6	20.4	33.6	47.6
	3	7.3	11.3	19.4	38.0	47.7
	4	8.9	12.6	19.2	31.3	46.2
	5	9.5	13.7	21.6	38.1	51.5
	6	10.2	12.8	22.4	38.7	55.5
	7	9.3	11.7	18.2	33.7	45.4
	8	10.0	13.1	19.4	33.7	49.7
	9	9.8	12.7	17.7	31.4	50.1
	10	10.2	13.0	18.1	34.5	64.2
	11	10.6	13.2	16.7	30.2	54.9
	12	10.9	13.2	16.5	28.1	53.5
	13	10.2	12.1	15.0	23.0	35.5
	14	10.2	11.8	14.6	21.8	45.6
	15	10.0	11.4	13.5	19.1	36.8
	16	8.7	11.2	13.7	19.3	30.5
	17	8.4	10.7	13.6	21.5	36.2
	18	8.5	10.5	15.4	28.7	43.0
	19	8.2	11.2	17.6	32.7	45.8
	20	9.4	12.3	19.6	31.1	42.1
	21	8.8	11.8	18.2	32.9	44.9
	22	8.8	11.7	18.8	34.1	46.8
	23	8.2	11.8	20.5	35.6	52.1
FEB.	0	8.5	11.0	16.2	32.1	48.1
	1	7.6	10.4	19.0	29.8	50.3
	2	8.5	11.7	18.5	35.4	49.8
	3	8.7	11.6	21.5	34.0	51.3
	4	8.7	12.1	19.7	31.8	45.8
	5	9.3	12.2	20.9	34.2	48.2
	6	8.2	11.9	19.1	35.5	49.5
	7	8.7	11.4	18.5	38.4	55.2
	8	10.0	13.2	21.2	36.2	51.4
	9	11.9	14.2	22.5	37.6	52.3
	10	11.9	14.4	23.1	39.4	62.3
	11	11.6	14.3	19.4	37.3	61.5
	12	11.7	14.1	18.7	34.3	60.2
	13	11.5	13.6	17.6	29.8	53.4
	14	11.7	13.5	16.6	29.0	48.4
	15	10.9	12.8	15.9	23.6	48.2
	16	10.0	11.6	14.5	19.5	29.0
	17	8.7	10.7	13.5	18.2	33.8
	18	8.4	10.9	15.3	24.2	39.3
	19	7.7	10.5	15.8	27.6	49.3
	20	8.0	10.5	16.8	33.7	46.2
	21	8.9	11.6	18.1	35.3	51.0
	22	7.5	10.1	17.3	32.7	55.6
	23	7.8	10.6	18.3	35.0	48.8

Table C-2. (Continued).

	Hour (PST)	10	25	50	75	90
MARCH	0	7.7	9.4	13.3	23.5	40.8
	1	7.2	9.7	13.7	24.5	41.3
	2	7.5	10.4	14.2	28.1	44.7
	3	7.3	10.1	13.9	28.4	43.5
	4	7.6	10.1	15.4	28.4	41.8
	5	7.8	10.9	17.1	35.7	53.2
	6	7.9	10.6	17.0	29.0	41.9
	7	9.0	11.9	20.2	33.4	48.9
	8	10.9	14.4	21.9	33.5	51.6
	9	11.3	14.2	21.4	38.9	66.7
	10	12.1	14.6	20.4	36.4	65.4
	11	11.3	13.9	19.6	34.5	66.4
	12	11.5	13.8	18.9	34.4	71.1
	13	10.8	13.9	18.1	33.0	63.4
	14	10.7	13.2	18.5	27.8	61.1
	15	9.9	12.3	16.1	22.7	39.2
	16	9.4	11.1	13.8	17.4	30.4
	17	8.1	9.8	12.1	15.3	24.0
	18	8.0	10.1	13.1	20.2	44.7
	19	7.6	9.8	12.8	18.3	36.3
	20	7.5	10.0	13.3	20.2	32.1
	21	7.4	9.6	12.6	22.1	36.3
	22	7.5	9.9	13.3	21.0	35.8
	23	7.5	9.3	12.7	23.7	39.8
APRIL	0	8.2	10.2	14.0	24.2	42.3
	1	7.1	9.6	12.9	22.0	43.0
	2	6.8	10.3	14.0	24.4	43.0
	3	7.5	10.7	14.0	23.4	39.7
	4	7.3	10.9	14.7	29.6	49.2
	5	8.8	11.1	14.7	29.1	43.4
	6	9.2	11.0	18.4	32.2	51.0
	7	11.3	14.2	20.0	33.0	59.2
	8	12.8	14.4	20.0	34.1	66.2
	9	13.1	15.1	22.6	43.6	86.2
	10	13.5	16.0	23.2	39.7	89.5
	11	13.2	15.5	22.1	39.4	73.5
	12	12.8	15.8	22.5	37.9	87.7
	13	13.3	15.8	20.1	36.7	70.1
	14	12.2	14.5	19.5	34.4	68.5
	15	11.9	13.7	16.3	25.2	45.0
	16	11.0	12.4	14.6	18.2	29.6
	17	9.6	11.1	13.3	15.4	25.1
	18	9.3	10.6	12.7	15.5	24.3
	19	9.3	10.9	13.1	20.1	42.4
	20	8.9	10.7	13.4	20.8	37.3
	21	8.6	10.1	13.4	23.2	40.8
	22	8.7	10.2	13.6	23.1	41.6
	23	8.5	10.5	13.2	25.9	43.0

Table C-2. (Continued).

	Hour (PST)	10	25	50	75	90
MAY	0	8.8	10.5	12.9	19.3	36.5
	1	8.5	10.7	13.5	20.1	39.3
	2	8.8	10.5	13.4	21.0	37.3
	3	9.2	10.8	13.7	23.7	48.3
	4	8.8	10.4	13.7	25.1	45.9
	5	8.9	10.7	13.9	25.3	42.8
	6	10.6	12.7	15.8	31.0	56.5
	7	11.6	13.7	17.4	33.6	57.2
	8	11.9	14.2	18.1	33.8	68.1
	9	13.5	15.5	20.2	35.3	67.1
	10	13.7	15.7	20.2	34.2	69.3
	11	14.3	16.5	20.8	32.4	66.6
	12	13.8	15.9	19.9	30.3	65.3
	13	13.2	15.0	17.8	25.1	49.1
	14	12.3	14.2	16.9	23.5	38.2
	15	11.7	13.3	15.7	17.8	30.2
	16	10.3	11.9	13.8	16.1	18.6
	17	9.8	10.9	12.5	14.9	16.6
	18	9.4	10.5	12.4	14.4	16.8
	19	9.3	10.3	12.2	14.5	18.8
	20	9.3	10.6	13.0	18.0	31.3
	21	9.0	10.9	13.2	19.6	39.2
	22	9.0	10.6	12.6	18.0	37.3
	23	9.0	10.8	12.8	19.3	33.3
JUNE	0	8.9	10.3	13.0	17.1	34.5
	1	8.9	10.9	13.2	20.1	34.9
	2	8.8	10.4	13.1	17.1	33.3
	3	8.3	10.5	13.7	17.7	34.2
	4	8.0	10.5	13.8	19.3	33.1
	5	8.8	10.7	13.9	20.6	38.6
	6	10.8	13.2	15.7	25.2	42.7
	7	11.9	14.7	18.6	29.5	59.8
	8	13.3	15.3	20.9	34.6	59.2
	9	14.1	16.3	20.7	33.0	59.3
	10	14.0	16.7	21.8	33.1	70.9
	11	14.2	17.0	21.7	29.5	48.2
	12	13.9	16.1	20.4	27.5	63.5
	13	13.9	15.6	19.7	26.7	51.3
	14	13.0	15.5	17.9	22.5	47.3
	15	11.7	13.6	15.9	19.3	26.4
	16	10.8	12.7	14.9	16.7	19.4
	17	10.0	11.5	13.8	15.9	17.2
	18	9.7	11.2	13.1	15.7	17.6
	19	9.3	10.6	12.8	14.8	17.8
	20	9.7	11.3	12.9	16.4	26.0
	21	9.6	11.2	13.8	17.9	33.0
	22	9.6	10.8	13.7	17.3	34.0
	23	9.0	10.5	13.3	17.4	28.1

Table C-2. (Continued).

Hour (PST)		10	25	50	75	90
JULY	0	9.1	10.7	13.0	19.5	44.6
	1	9.0	10.8	13.2	18.6	40.2
	2	8.9	10.6	13.3	19.1	40.3
	3	8.8	10.7	13.8	18.6	38.9
	4	8.9	10.5	13.4	20.4	44.6
	5	9.2	11.6	15.0	23.1	47.1
	6	10.9	13.3	16.7	26.9	47.9
	7	12.9	15.4	20.9	38.2	72.7
	8	14.6	17.9	25.1	42.0	83.3
	9	13.9	19.2	26.0	41.0	81.7
	10	16.0	19.6	26.1	38.4	89.0
	11	15.8	19.0	24.7	36.1	68.3
	12	14.9	17.9	22.9	32.3	61.7
	13	14.6	16.6	21.2	30.1	46.6
	14	13.7	15.1	18.8	24.4	36.9
	15	12.2	14.1	16.7	21.4	29.1
	16	11.2	13.0	15.5	18.6	24.0
	17	10.5	11.9	14.1	16.7	22.7
	18	9.6	11.2	13.7	16.5	23.4
	19	9.1	11.0	13.4	16.2	28.7
	20	9.4	11.3	13.6	20.2	40.2
	21	9.7	11.8	14.7	22.3	46.7
	22	9.3	11.5	14.1	29.4	46.5
	23	9.3	11.1	13.9	26.1	45.2
AUG.	0	9.3	11.3	14.2	24.4	41.7
	1	9.5	11.1	14.1	20.8	48.5
	2	9.2	11.3	14.5	21.5	47.5
	3	9.0	10.9	14.5	20.0	41.6
	4	8.5	10.9	14.2	19.7	41.1
	5	8.5	11.4	14.4	21.3	40.3
	6	10.1	12.5	16.0	26.5	45.4
	7	13.0	15.2	19.5	32.0	51.0
	8	13.5	17.2	23.5	35.1	62.1
	9	15.9	20.0	27.0	37.7	76.6
	10	16.6	20.6	29.3	43.0	79.8
	11	16.5	21.0	27.6	40.1	65.2
	12	16.3	19.6	25.5	35.9	60.8
	13	15.2	18.5	24.0	34.3	54.4
	14	13.6	15.6	20.0	27.8	41.9
	15	12.3	14.5	17.6	22.7	38.2
	16	11.2	13.5	15.8	19.7	25.8
	17	9.8	12.1	14.7	16.9	24.3
	18	9.2	11.3	14.4	16.8	32.0
	19	9.0	11.7	14.2	16.9	36.4
	20	9.1	11.8	14.7	24.9	39.6
	21	9.8	11.2	14.4	24.3	40.2
	22	9.3	11.4	14.4	25.9	46.3
	23	9.2	11.3	14.4	23.5	45.9

Table C-2. (Continued).

Hour (PST)		10	25	50	75	90
SEPT.	0	7.3	9.6	13.6	23.3	35.8
	1	7.0	10.0	13.3	20.7	39.0
	2	7.1	10.1	13.3	19.5	38.8
	3	7.5	10.2	14.5	23.1	36.2
	4	6.8	10.3	14.2	23.2	39.7
	5	7.6	10.3	14.6	21.8	38.9
	6	7.3	11.2	15.5	23.9	38.7
	7	11.2	14.1	18.7	30.8	47.0
	8	13.4	16.0	22.9	34.1	50.0
	9	13.3	16.0	26.6	39.9	73.2
	10	14.6	18.4	26.6	40.8	64.2
	11	14.3	17.6	24.9	39.6	70.3
	12	14.6	17.1	22.7	34.1	70.0
	13	14.4	16.8	21.3	34.9	66.7
	14	14.0	15.7	19.9	30.9	59.0
	15	12.4	14.6	17.1	23.5	35.4
	16	10.7	13.4	15.6	17.8	24.6
	17	9.8	11.6	14.3	16.4	21.6
	18	9.3	11.8	14.7	17.2	26.6
	19	9.1	12.3	15.2	21.1	37.9
	20	8.5	10.5	14.5	20.0	32.5
	21	8.5	11.0	15.1	23.9	40.3
	22	8.6	11.0	15.1	22.8	40.9
	23	8.1	10.7	14.7	21.6	39.7
OCT.	0	6.9	10.5	15.8	27.9	43.2
	1	6.8	10.1	15.2	29.4	47.3
	2	6.7	9.6	14.7	26.4	40.0
	3	6.9	10.3	16.4	27.8	44.6
	4	7.3	10.6	16.6	30.4	45.7
	5	6.7	11.4	16.8	30.6	45.1
	6	7.9	11.0	18.1	31.5	42.1
	7	9.2	14.3	22.5	36.2	53.2
	8	12.3	15.7	24.9	40.2	55.4
	9	13.6	17.9	27.8	44.1	64.4
	10	13.5	16.4	26.7	45.3	72.7
	11	13.6	16.4	25.2	39.2	80.8
	12	14.4	16.8	23.3	41.5	76.4
	13	12.9	16.1	22.9	40.1	71.5
	14	13.1	15.9	21.2	34.9	57.6
	15	11.7	14.3	17.2	24.1	40.6
	16	10.4	12.4	15.0	17.5	26.6
	17	9.6	11.4	14.2	19.3	32.7
	18	9.8	12.2	15.8	28.1	41.7
	19	8.9	11.6	15.9	26.6	45.0
	20	8.1	11.2	15.3	26.7	43.5
	21	8.3	11.4	16.4	27.7	40.6
	22	7.8	11.4	16.2	31.8	52.1
	23	7.6	11.1	17.3	31.7	44.9

Table C-2. (Continued).

	Hour (PST)	10	25	50	75	90
NOV.	0	8.2	11.9	19.2	31.5	48.2
	1	7.2	11.2	18.0	31.5	48.8
	2	6.4	10.6	18.9	35.2	57.1
	3	6.6	9.6	20.9	35.2	45.4
	4	7.2	11.1	19.7	32.4	44.6
	5	7.0	11.6	20.0	33.1	52.0
	6	8.6	13.0	20.2	32.0	45.9
	7	7.8	12.0	19.4	32.1	50.5
	8	8.7	13.1	20.6	34.8	53.4
	9	11.7	14.3	21.1	36.8	60.3
	10	12.2	14.7	20.6	37.2	54.2
	11	11.4	14.1	18.9	35.1	70.3
	12	11.5	14.3	18.0	34.6	60.0
	13	10.9	13.5	17.8	32.5	61.3
	14	11.4	13.9	16.3	24.9	48.2
	15	10.2	12.1	14.6	20.1	37.2
	16	8.2	11.1	13.6	18.0	31.5
	17	8.7	10.8	13.4	20.5	31.4
	18	7.8	10.7	14.4	24.9	40.9
	19	8.1	10.5	14.8	27.2	40.8
	20	7.5	10.4	14.6	23.4	37.3
	21	7.2	9.9	16.5	30.8	43.1
	22	6.7	10.5	17.6	30.9	48.8
23	6.2	10.7	17.4	30.1	43.8	
DEC.	0	6.5	12.8	22.7	36.5	52.7
	1	6.6	12.2	22.7	37.9	57.3
	2	6.0	12.5	24.1	37.4	57.2
	3	5.6	11.2	22.7	37.9	60.4
	4	8.7	13.3	20.7	33.3	50.6
	5	7.6	12.0	21.5	34.0	48.8
	6	8.2	12.8	21.3	39.6	54.1
	7	7.6	12.3	21.8	35.3	48.2
	8	9.4	13.4	21.2	35.5	53.9
	9	8.8	13.7	22.0	35.5	54.9
	10	10.6	14.0	22.5	35.2	62.3
	11	10.6	12.9	17.0	34.9	46.4
	12	10.3	13.3	17.6	28.9	47.7
	13	10.3	12.8	16.1	27.8	67.6
	14	9.8	12.3	15.1	24.4	54.6
	15	9.4	11.9	14.9	24.8	49.2
	16	8.1	10.6	13.5	20.9	41.2
	17	8.0	11.3	15.5	27.8	40.9
	18	6.7	10.4	15.5	26.9	38.2
	19	8.1	10.8	17.4	31.4	47.3
	20	5.3	10.6	17.5	31.6	46.6
	21	6.7	10.6	18.9	30.8	50.8
	22	5.2	10.8	19.5	33.5	48.5
23	7.3	11.7	21.7	36.5	46.8	



Table C-2. (Continued).

Hour (PST)	10	25	50	75	90
<b>ANNUAL</b>					
0	8.2	10.6	14.6	25.9	43.5
1	7.9	10.6	14.5	26.5	45.1
2	7.6	10.6	14.6	27.5	45.2
3	7.7	10.6	15.1	28.2	44.9
4	8.2	10.7	15.4	27.9	44.7
5	8.3	11.3	16.1	29.7	48.2
6	9.2	12.2	17.2	31.3	49.0
7	10.4	13.7	19.6	33.7	53.3
8	11.6	14.9	21.6	35.7	56.2
9	12.4	15.5	23.1	37.8	65.6
10	12.8	15.8	23.4	38.9	71.4
11	12.6	15.5	21.9	35.9	67.1
12	12.6	15.3	21.0	33.4	65.8
13	12.1	14.8	19.5	31.2	60.1
14	11.8	14.2	17.8	27.0	51.1
15	11.1	13.1	16.1	21.7	38.0
16	10.1	12.0	14.5	17.8	26.6
17	9.4	11.1	13.7	16.7	27.2
18	8.9	10.9	13.7	18.5	34.5
19	8.8	10.8	13.9	21.7	39.4
20	8.6	10.9	14.4	24.1	39.5
21	8.6	10.9	14.7	25.9	42.0
22	8.4	10.8	14.6	27.0	44.6
23	8.2	10.7	14.7	28.1	43.4

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**Appendix D**  
**Pasquill-Gifford Stability**

Table D-1. Pasquill-Gifford stability frequency distributions (%) for each month from the LLNL tower data set (1979 to 1987).

Stab	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
A	7.8	10.0	10.5	11.5	9.8	8.7	13.2	13.9	12.8	13.9	8.5	8.4	10.8
B	3.6	4.0	5.3	6.4	5.5	6.9	8.1	10.0	6.5	5.8	4.0	3.6	5.8
C	6.7	8.9	9.6	12.5	15.4	18.3	16.5	14.2	12.7	10.7	8.5	6.8	11.7
DD	15.9	14.9	16.1	17.4	19.6	18.8	14.9	11.7	10.7	9.7	12.4	14.5	14.7
DN	23.1	22.3	25.9	26.2	30.2	29.5	26.6	27.3	26.6	22.6	22.6	20.1	25.2
E	14.1	15.0	14.4	11.4	9.0	9.0	9.7	10.6	15.2	15.1	16.2	13.8	12.8
F	28.8	24.9	18.3	14.6	10.4	8.7	11.0	12.3	15.5	22.2	27.9	32.8	19.0

Table D-2. Wind rose per stability from the LLNL tower data set (1979 to 1987).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>JANUARY</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.5	0.3	0.4	0.3	0.2	0.4	0.6	0.5	3.2
1- 2	0.5	0.4	0.2	0.2	0.2	0.6	0.5	0.6	3.4
2- 3	0.4	0.1	0.1	0.0	0.1	0.1	0.1	0.4	1.3
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.4	0.8	0.7	0.5	0.5	1.2	1.2	1.5	7.8
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.2	0.7
1- 2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	1.1
2- 3	0.4	0.1	0.0	0.0	0.1	0.1	0.0	0.2	1.0
3- 4	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.2	0.9
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.9	0.5	0.2	0.2	0.4	0.5	0.3	0.7	3.6
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.8
1- 2	0.3	0.1	0.1	0.1	0.3	0.3	0.2	0.4	1.8
2- 3	0.8	0.1	0.0	0.1	0.2	0.2	0.1	0.4	1.9
3- 4	0.8	0.1	0.0	0.0	0.2	0.1	0.1	0.1	1.3
4- 5	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.6
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	2.1	0.4	0.3	0.3	0.9	0.9	0.5	1.3	6.7

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>JANUARY</b>									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.1	0.1	0.2	0.0	0.0	0.1	0.2	0.1	0.9
1- 2	0.4	0.3	0.0	0.1	0.3	0.3	0.3	0.4	1.9
2- 3	1.5	0.4	0.1	0.1	0.4	0.1	0.0	0.4	3.0
3- 4	2.0	0.5	0.0	0.0	0.5	0.2	0.0	0.2	3.6
4- 5	1.1	0.7	0.0	0.0	0.6	0.3	0.0	0.2	2.9
5- 6	0.7	0.3	0.0	0.1	0.5	0.2	0.0	0.3	2.2
6- 7	0.3	0.1	0.0	0.0	0.2	0.1	0.0	0.3	1.1
> 7	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.3
Totals	5.9	2.5	0.4	0.4	2.6	1.4	0.6	2.0	15.9
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.5	1.1	1.4	0.3	0.1	0.1	0.1	0.3	3.7
1- 2	0.7	1.5	1.1	0.6	0.7	0.4	0.0	0.4	5.5
2- 3	1.8	1.9	0.3	0.4	0.8	0.2	0.1	0.2	5.6
3- 4	0.9	0.6	0.2	0.3	1.1	0.4	0.1	0.1	3.6
4- 5	0.4	0.4	0.2	0.1	0.8	0.2	0.0	0.1	2.1
5- 6	0.1	0.1	0.2	0.0	0.9	0.1	0.0	0.1	1.6
6- 7	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.6
> 7	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.1	0.4
Totals	4.3	5.6	3.3	1.8	5.0	1.5	0.3	1.3	23.1
	P-G CLASS= E				Slightly Stable				
0- 1	0.7	1.9	1.7	0.5	0.3	0.1	0.1	0.1	5.6
1- 2	0.6	1.1	0.9	0.7	0.5	0.4	0.0	0.3	4.7
2- 3	0.5	1.1	0.3	0.3	0.3	0.1	0.0	0.1	2.8
3- 4	0.1	0.2	0.1	0.0	0.2	0.0	0.0	0.1	0.8
4- 5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	2.0	4.4	3.0	1.5	1.5	0.7	0.2	0.8	14.1

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>JANUARY</b>									
	<b>P-G CLASS= F</b>				<b>Moderately Stable</b>				
0- 1	1.9	3.9	3.2	2.1	1.1	1.0	1.1	1.5	15.9
1- 2	1.9	2.9	1.7	1.4	1.2	0.6	0.8	1.1	11.5
2- 3	0.3	0.3	0.2	0.1	0.2	0.0	0.0	0.1	1.4
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>4.2</b>	<b>7.2</b>	<b>5.1</b>	<b>3.6</b>	<b>2.5</b>	<b>1.6</b>	<b>1.9</b>	<b>2.8</b>	<b>28.8</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>FEBRUARY</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.5	0.5	0.2	0.2	0.4	0.7	1.0	0.6	4.2
1- 2	0.7	0.2	0.1	0.2	0.4	0.9	0.9	0.7	4.2
2- 3	0.3	0.1	0.0	0.0	0.2	0.6	0.1	0.2	1.6
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.5</b>	<b>0.9</b>	<b>0.3</b>	<b>0.4</b>	<b>1.1</b>	<b>2.3</b>	<b>2.0</b>	<b>1.5</b>	<b>10.0</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.5
1- 2	0.2	0.1	0.0	0.1	0.1	0.3	0.3	0.2	1.4
2- 3	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.8
3- 4	0.2	0.1	0.0	0.1	0.1	0.2	0.1	0.5	1.3
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.7</b>	<b>0.4</b>	<b>0.1</b>	<b>0.2</b>	<b>0.4</b>	<b>0.8</b>	<b>0.6</b>	<b>0.9</b>	<b>4.0</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.8
1- 2	0.4	0.1	0.0	0.0	0.0	0.1	0.3	0.4	1.4
2- 3	0.8	0.0	0.0	0.1	0.2	0.5	0.1	0.3	2.0
3- 4	0.9	0.1	0.0	0.1	0.3	0.5	0.1	0.1	2.2
4- 5	0.2	0.0	0.0	0.0	0.3	0.6	0.0	0.4	1.6
5- 6	0.2	0.1	0.0	0.0	0.1	0.4	0.0	0.3	0.9
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>2.5</b>	<b>0.5</b>	<b>0.2</b>	<b>0.2</b>	<b>1.0</b>	<b>2.2</b>	<b>0.5</b>	<b>1.7</b>	<b>8.9</b>



Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
FEBRUARY									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.0	0.3	0.1	0.1	0.0	0.0	0.2	0.2	0.8
1- 2	0.5	0.2	0.0	0.0	0.1	0.1	0.1	0.2	1.2
2- 3	0.9	0.2	0.1	0.1	0.2	0.1	0.0	0.1	1.8
3- 4	1.9	0.3	0.1	0.0	0.5	0.5	0.0	0.3	3.6
4- 5	1.3	0.3	0.0	0.1	0.9	0.2	0.0	0.2	2.9
5- 6	0.4	0.2	0.0	0.1	0.6	0.2	0.0	0.0	1.7
6- 7	0.1	0.1	0.1	0.0	0.3	0.2	0.0	0.3	1.2
> 7	0.1	0.0	0.2	0.2	0.6	0.0	0.0	0.6	1.8
Totals	5.3	1.6	0.6	0.6	3.4	1.3	0.3	1.9	14.9
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.5	1.0	1.6	0.3	0.0	0.0	0.0	0.1	3.5
1- 2	0.6	1.4	0.9	0.6	0.6	0.2	0.1	0.1	4.6
2- 3	0.6	0.7	0.3	0.7	1.4	0.5	0.0	0.2	4.4
3- 4	0.2	0.4	0.1	0.3	1.8	0.7	0.0	0.3	3.7
4- 5	0.1	0.2	0.2	0.1	1.2	0.3	0.0	0.1	2.1
5- 6	0.1	0.1	0.1	0.2	0.8	0.1	0.0	0.2	1.6
6- 7	0.0	0.0	0.0	0.1	0.6	0.0	0.0	0.2	1.0
> 7	0.0	0.0	0.0	0.1	0.8	0.0	0.3	0.2	1.5
Totals	2.0	3.8	3.2	2.3	7.2	1.8	0.5	1.4	22.3
	P-G CLASS= E				Slightly Stable				
0- 1	0.6	2.7	2.4	0.4	0.1	0.0	0.1	0.3	6.6
1- 2	0.4	1.4	1.5	0.7	0.5	0.2	0.2	0.2	5.1
2- 3	0.2	0.5	0.3	0.4	0.7	0.2	0.0	0.2	2.4
3- 4	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.6
4- 5	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.3
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.4	4.7	4.3	1.5	1.7	0.5	0.3	0.7	15.0

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>FEBRUARY</b>									
	P-G CLASS= F				Moderately Stable				
0- 1	1.6	3.5	3.7	1.7	0.9	0.9	0.7	1.0	14.0
1- 2	0.9	2.3	1.9	1.2	1.3	0.8	0.4	0.8	9.5
2- 3	0.1	0.3	0.2	0.1	0.1	0.3	0.0	0.3	1.4
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>2.6</b>	<b>6.1</b>	<b>5.8</b>	<b>3.1</b>	<b>2.2</b>	<b>1.9</b>	<b>1.2</b>	<b>2.1</b>	<b>24.9</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>MARCH</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.5	0.4	0.2	0.2	0.3	0.2	0.7	0.9	3.4
1- 2	0.5	0.2	0.3	0.2	0.5	1.4	1.0	0.9	5.1
2- 3	0.1	0.1	0.1	0.1	0.2	0.7	0.3	0.4	2.1
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.2</b>	<b>0.8</b>	<b>0.6</b>	<b>0.5</b>	<b>1.0</b>	<b>2.3</b>	<b>2.0</b>	<b>2.2</b>	<b>10.5</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.6
1- 2	0.1	0.1	0.0	0.1	0.3	0.3	0.3	0.3	1.6
2- 3	0.2	0.1	0.0	0.1	0.2	0.7	0.2	0.1	1.6
3- 4	0.2	0.0	0.0	0.1	0.2	0.5	0.2	0.3	1.5
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.7</b>	<b>0.2</b>	<b>0.1</b>	<b>0.3</b>	<b>0.8</b>	<b>1.6</b>	<b>0.8</b>	<b>0.8</b>	<b>5.3</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.5
1- 2	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.2	1.1
2- 3	0.4	0.2	0.1	0.0	0.6	0.7	0.2	0.2	2.5
3- 4	0.6	0.0	0.1	0.0	0.5	1.0	0.1	0.1	2.3
4- 5	0.1	0.0	0.0	0.1	0.4	0.9	0.1	0.4	2.1
5- 6	0.0	0.0	0.0	0.0	0.2	0.4	0.1	0.5	1.1
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.4</b>	<b>0.4</b>	<b>0.3</b>	<b>0.3</b>	<b>1.8</b>	<b>3.2</b>	<b>0.7</b>	<b>1.5</b>	<b>9.6</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>MARCH</b>									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.5
1- 2	0.2	0.1	0.1	0.0	0.2	0.2	0.1	0.3	1.1
2- 3	0.3	0.1	0.1	0.3	0.5	0.3	0.2	0.5	2.2
3- 4	0.8	0.1	0.3	0.4	0.9	0.8	0.1	0.5	3.7
4- 5	0.6	0.2	0.2	0.3	1.2	0.7	0.0	0.4	3.7
5- 6	0.2	0.1	0.1	0.2	0.7	0.5	0.0	0.2	2.0
6- 7	0.0	0.1	0.0	0.0	0.6	0.3	0.2	0.3	1.6
> 7	0.0	0.0	0.1	0.0	0.4	0.3	0.1	0.4	1.3
Totals	2.1	0.8	0.8	1.3	4.5	3.1	0.7	2.8	16.1
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.3	1.3	1.0	0.2	0.1	0.0	0.0	0.1	3.0
1- 2	0.5	1.2	1.1	1.2	0.9	0.5	0.1	0.2	5.6
2- 3	0.2	0.3	0.3	0.8	2.9	1.2	0.1	0.1	5.9
3- 4	0.1	0.1	0.3	0.7	3.2	1.2	0.1	0.1	5.7
4- 5	0.0	0.0	0.2	0.2	1.5	0.6	0.0	0.2	2.8
5- 6	0.0	0.0	0.2	0.1	0.6	0.3	0.0	0.2	1.4
6- 7	0.0	0.0	0.1	0.1	0.3	0.2	0.0	0.1	0.8
> 7	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.2	0.7
Totals	1.0	3.1	3.1	3.4	9.8	4.1	0.3	0.9	25.9
	P-G CLASS= E				Slightly Stable				
0- 1	0.4	1.8	1.1	0.3	0.0	0.0	0.1	0.1	3.8
1- 2	0.5	1.2	1.2	1.3	0.7	0.4	0.1	0.1	5.4
2- 3	0.2	0.3	0.3	0.5	1.1	0.3	0.0	0.2	2.9
3- 4	0.0	0.1	0.3	0.2	0.6	0.1	0.0	0.3	1.6
4- 5	0.0	0.0	0.1	0.1	0.3	0.2	0.0	0.1	0.8
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.1	3.4	2.9	2.3	2.7	1.0	0.2	0.8	14.4

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>MARCH</b>									
	<b>P-G CLASS= F</b>				<b>Moderately Stable</b>				
0- 1	1.2	2.5	2.1	0.8	0.5	0.6	0.4	1.0	9.2
1- 2	0.5	1.6	1.4	1.0	1.0	0.6	0.3	1.4	7.8
2- 3	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.4	1.3
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.9</b>	<b>4.2</b>	<b>3.7</b>	<b>1.9</b>	<b>1.7</b>	<b>1.3</b>	<b>0.8</b>	<b>2.8</b>	<b>18.3</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>APRIL</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.2	0.3	0.1	0.1	0.2	0.4	0.5	0.6	2.5
1- 2	0.4	0.2	0.1	0.1	0.6	1.7	1.1	0.9	5.1
2- 3	0.3	0.1	0.1	0.0	0.5	1.7	0.6	0.7	3.9
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.9</b>	<b>0.5</b>	<b>0.3</b>	<b>0.3</b>	<b>1.3</b>	<b>3.8</b>	<b>2.2</b>	<b>2.2</b>	<b>11.5</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.5
1- 2	0.1	0.1	0.0	0.1	0.2	0.3	0.1	0.1	1.0
2- 3	0.2	0.0	0.0	0.0	0.4	0.7	0.2	0.2	1.7
3- 4	0.3	0.1	0.0	0.1	0.4	1.5	0.4	0.6	3.3
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.6</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>1.0</b>	<b>2.5</b>	<b>0.7</b>	<b>1.1</b>	<b>6.4</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.5
1- 2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.9
2- 3	0.3	0.0	0.0	0.0	0.5	0.5	0.1	0.3	1.8
3- 4	0.7	0.1	0.0	0.1	1.0	1.5	0.3	0.3	3.9
4- 5	0.4	0.1	0.0	0.0	1.1	1.7	0.2	0.5	4.0
5- 6	0.1	0.0	0.0	0.0	0.4	0.6	0.2	0.3	1.5
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.6</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>	<b>3.2</b>	<b>4.3</b>	<b>0.9</b>	<b>1.7</b>	<b>12.5</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
APRIL									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.4
1- 2	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.6
2- 3	0.4	0.2	0.0	0.1	0.5	0.3	0.0	0.1	1.6
3- 4	0.4	0.1	0.0	0.1	1.1	0.9	0.0	0.2	2.8
4- 5	0.5	0.2	0.0	0.1	1.7	1.5	0.2	0.3	4.4
5- 6	0.0	0.0	0.0	0.0	1.4	1.3	0.2	0.2	3.2
6- 7	0.1	0.0	0.0	0.0	1.3	1.2	0.2	0.3	3.0
> 7	0.1	0.0	0.0	0.0	0.5	0.3	0.0	0.7	1.5
Totals	1.8	0.6	0.2	0.5	6.5	5.4	0.7	1.9	17.4
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.2	1.3	1.0	0.1	0.0	0.0	0.1	0.0	2.8
1- 2	0.2	1.3	1.1	1.2	1.2	0.5	0.1	0.1	5.5
2- 3	0.1	0.4	0.2	0.7	3.8	1.1	0.1	0.0	6.3
3- 4	0.0	0.1	0.0	0.2	3.9	1.3	0.1	0.0	5.6
4- 5	0.0	0.0	0.0	0.0	2.5	0.7	0.1	0.1	3.4
5- 6	0.0	0.0	0.0	0.0	0.9	0.5	0.0	0.1	1.6
6- 7	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.5
> 7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.5
Totals	0.5	3.1	2.3	2.2	12.7	4.3	0.4	0.6	26.2
	P-G CLASS= E				Slightly Stable				
0- 1	0.2	2.2	1.3	0.1	0.1	0.1	0.1	0.1	4.1
1- 2	0.1	1.2	1.0	0.9	0.7	0.3	0.0	0.0	4.2
2- 3	0.0	0.3	0.1	0.3	0.8	0.4	0.1	0.0	2.0
3- 4	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.0	0.7
4- 5	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.3	3.7	2.4	1.4	2.2	1.0	0.2	0.1	11.4

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
APRIL									
	P-G CLASS= F				Moderately Stable				
0- 1	0.6	1.8	1.5	0.7	0.6	0.5	0.3	0.5	6.6
1- 2	0.4	1.4	1.7	1.1	1.0	0.8	0.3	0.1	6.8
2- 3	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.0	1.1
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.2	3.3	3.4	1.9	1.9	1.6	0.6	0.7	14.6



Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>MAY</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.2	0.2	0.2	0.2	0.4	0.7	0.6	0.5	2.9
1- 2	0.1	0.1	0.1	0.0	0.7	1.5	0.7	0.5	3.7
2- 3	0.1	0.0	0.0	0.0	0.3	1.5	0.6	0.5	3.1
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.4</b>	<b>0.3</b>	<b>0.3</b>	<b>0.2</b>	<b>1.4</b>	<b>3.8</b>	<b>1.9</b>	<b>1.5</b>	<b>9.8</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.1	0.6
1- 2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.4
2- 3	0.0	0.0	0.0	0.0	0.2	1.0	0.1	0.2	1.5
3- 4	0.1	0.0	0.0	0.0	0.4	1.6	0.3	0.6	3.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.8</b>	<b>2.8</b>	<b>0.7</b>	<b>0.9</b>	<b>5.5</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.1	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.7
1- 2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.4
2- 3	0.2	0.0	0.0	0.0	0.7	0.4	0.1	0.2	1.6
3- 4	0.0	0.0	0.0	0.0	1.3	1.4	0.2	0.3	3.2
4- 5	0.2	0.0	0.0	0.0	1.6	3.3	0.1	0.7	5.9
5- 6	0.2	0.0	0.0	0.0	1.0	2.1	0.2	0.3	3.7
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.6</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>4.7</b>	<b>7.6</b>	<b>0.7</b>	<b>1.7</b>	<b>15.4</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>MAY</b>									
	<b>P-G CLASS= DD</b>				<b>Daytime Neutral</b>				
0- 1	0.1	0.0	0.0	0.0	0.0	0.7	0.3	0.1	1.3
1- 2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
2- 3	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.6
3- 4	0.0	0.0	0.0	0.0	0.9	0.6	0.0	0.2	1.7
4- 5	0.0	0.0	0.0	0.0	1.9	1.8	0.0	0.2	4.0
5- 6	0.2	0.0	0.0	0.0	1.9	2.3	0.2	0.2	4.9
6- 7	0.0	0.0	0.0	0.0	1.9	1.9	0.4	0.2	4.4
> 7	0.0	0.0	0.0	0.0	1.6	0.7	0.2	0.0	2.5
<b>Totals</b>	<b>0.5</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>8.7</b>	<b>8.2</b>	<b>1.1</b>	<b>1.0</b>	<b>19.6</b>
	<b>P-G CLASS= DN</b>				<b>Nighttime Neutral</b>				
0- 1	0.1	0.5	0.4	0.1	0.2	0.8	0.2	0.0	2.3
1- 2	0.0	0.7	0.7	0.8	1.4	0.5	0.1	0.0	4.3
2- 3	0.0	0.0	0.0	0.2	3.8	1.6	0.2	0.0	5.8
3- 4	0.0	0.0	0.0	0.1	5.5	2.5	0.1	0.0	8.2
4- 5	0.0	0.0	0.0	0.0	4.5	1.5	0.1	0.0	6.1
5- 6	0.0	0.0	0.0	0.0	1.4	0.7	0.0	0.0	2.2
6- 7	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.0	0.8
> 7	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.6
<b>Totals</b>	<b>0.1</b>	<b>1.2</b>	<b>1.1</b>	<b>1.3</b>	<b>17.6</b>	<b>8.1</b>	<b>0.7</b>	<b>0.1</b>	<b>30.2</b>
	<b>P-G CLASS= E</b>				<b>Slightly Stable</b>				
0- 1	0.1	1.0	0.9	0.2	0.3	0.2	0.1	0.1	2.9
1- 2	0.0	0.8	1.0	0.5	0.7	0.3	0.0	0.0	3.5
2- 3	0.0	0.0	0.0	0.1	0.7	0.4	0.0	0.0	1.4
3- 4	0.0	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.9
4- 5	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.2</b>	<b>1.9</b>	<b>2.0</b>	<b>0.9</b>	<b>2.5</b>	<b>1.2</b>	<b>0.2</b>	<b>0.1</b>	<b>9.0</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
MAY									
	P-G CLASS= F				Moderately Stable				
0- 1	0.5	1.8	1.1	0.7	0.8	0.3	0.2	0.1	5.6
1- 2	0.2	1.1	1.0	0.6	0.9	0.5	0.1	0.1	4.4
2- 3	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.4
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.7	3.0	2.1	1.4	1.8	0.9	0.3	0.2	10.4

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>JUNE</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.2	0.2	0.1	0.1	0.4	0.6	0.4	0.3	2.3
1- 2	0.1	0.0	0.0	0.0	0.7	1.7	0.7	0.3	3.5
2- 3	0.1	0.0	0.0	0.0	0.5	1.4	0.4	0.3	2.9
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.4</b>	<b>0.2</b>	<b>0.1</b>	<b>0.2</b>	<b>1.7</b>	<b>3.7</b>	<b>1.6</b>	<b>1.0</b>	<b>8.7</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.4
1- 2	0.0	0.0	0.0	0.0	0.4	0.3	0.1	0.1	0.9
2- 3	0.0	0.0	0.0	0.0	0.4	0.9	0.1	0.1	1.5
3- 4	0.3	0.0	0.0	0.0	0.9	2.1	0.2	0.6	4.2
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	<b>1.8</b>	<b>3.4</b>	<b>0.5</b>	<b>0.7</b>	<b>6.9</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
1- 2	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.4
2- 3	0.0	0.0	0.0	0.0	0.6	0.7	0.0	0.0	1.4
3- 4	0.0	0.0	0.0	0.0	1.2	2.2	0.1	0.1	3.7
4- 5	0.4	0.0	0.0	0.0	1.9	4.8	0.2	0.6	7.8
5- 6	0.0	0.0	0.0	0.0	1.2	2.9	0.3	0.2	4.7
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.5</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>5.1</b>	<b>10.8</b>	<b>0.7</b>	<b>1.1</b>	<b>18.3</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals	
	0	45	90	135	180	225	270	315		
JUNE										
	P-G CLASS= DD				Daytime Neutral					
0- 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
1- 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2- 3	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.8
3- 4	0.1	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	2.2
4- 5	0.1	0.0	0.0	0.0	0.0	1.9	1.9	0.1	0.0	4.2
5- 6	0.1	0.0	0.0	0.0	0.0	1.8	2.4	0.2	0.2	4.7
6- 7	0.1	0.0	0.0	0.0	0.0	1.8	1.9	0.3	0.2	4.4
> 7	0.2	0.0	0.0	0.0	0.0	0.9	0.6	0.4	0.3	2.4
Totals	0.6	0.0	0.0	0.1	8.0	8.2	1.1	0.8		18.8
	P-G CLASS= DN				Nighttime Neutral					
0- 1	0.1	0.7	0.4	0.2	0.1	0.1	0.0	0.0		1.6
1- 2	0.1	0.5	0.5	0.4	2.3	0.6	0.0	0.0		4.3
2- 3	0.1	0.1	0.0	0.2	4.9	2.8	0.1	0.0		8.4
3- 4	0.0	0.0	0.0	0.0	4.3	2.9	0.1	0.0		7.4
4- 5	0.0	0.0	0.0	0.0	3.1	1.4	0.1	0.0		4.5
5- 6	0.0	0.0	0.0	0.0	1.7	0.5	0.1	0.0		2.4
6- 7	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0		0.7
> 7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0		0.2
Totals	0.4	1.3	0.9	0.8	17.0	8.4	0.4	0.1		29.5
	P-G CLASS= E				Slightly Stable					
0- 1	0.2	1.2	0.9	0.2	0.2	0.1	0.0	0.0		2.8
1- 2	0.0	0.5	0.6	0.4	1.0	0.6	0.0	0.0		3.2
2- 3	0.0	0.0	0.0	0.0	0.7	0.7	0.1	0.0		1.6
3- 4	0.0	0.0	0.0	0.0	0.5	0.4	0.0	0.0		1.1
4- 5	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0		0.5
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Totals	0.2	1.7	1.5	0.6	2.8	2.0	0.1	0.1		9.0

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>JUNE</b>									
	<b>P-G CLASS= F</b>				<b>Moderately Stable</b>				
0- 1	0.4	1.7	0.9	0.7	0.5	0.2	0.2	0.1	4.7
1- 2	0.0	0.6	0.7	0.4	1.1	0.4	0.1	0.1	3.4
2- 3	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.6
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.5</b>	<b>2.3</b>	<b>1.6</b>	<b>1.2</b>	<b>1.9</b>	<b>0.6</b>	<b>0.4</b>	<b>0.2</b>	<b>8.7</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
JULY									
	P-G CLASS= A				Very Unstable				
0- 1	0.1	0.1	0.2	0.2	0.5	2.0	0.6	0.3	4.1
1- 2	0.1	0.0	0.1	0.0	1.8	2.5	0.2	0.1	4.9
2- 3	0.2	0.0	0.0	0.0	0.7	3.0	0.1	0.1	4.2
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.4	0.2	0.3	0.3	3.0	7.4	1.0	0.5	13.2
	P-G CLASS= B				Moderately Unstable				
0- 1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.4
1- 2	0.0	0.0	0.0	0.1	0.5	0.3	0.0	0.0	1.0
2- 3	0.1	0.0	0.0	0.1	0.8	1.2	0.0	0.0	2.2
3- 4	0.2	0.0	0.0	0.0	0.6	3.5	0.2	0.0	4.5
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.3	0.0	0.0	0.2	2.0	5.1	0.3	0.1	8.1
	P-G CLASS= C				Slightly Unstable				
0- 1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2
1- 2	0.0	0.0	0.0	0.0	0.6	0.2	0.1	0.0	0.9
2- 3	0.0	0.0	0.0	0.1	1.2	0.5	0.0	0.0	1.9
3- 4	0.0	0.0	0.0	0.0	1.2	2.1	0.1	0.0	3.5
4- 5	0.0	0.0	0.0	0.0	2.2	4.3	0.4	0.1	7.1
5- 6	0.0	0.0	0.0	0.0	0.5	2.1	0.2	0.1	2.9
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.1	0.1	0.0	0.1	5.8	9.3	0.8	0.3	16.5

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
JULY									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
1- 2	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.5
2- 3	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.7
3- 4	0.0	0.0	0.0	0.0	1.2	1.0	0.1	0.0	2.4
4- 5	0.0	0.0	0.0	0.0	2.0	1.4	0.2	0.0	3.6
5- 6	0.0	0.0	0.0	0.0	1.8	1.5	0.4	0.0	3.7
6- 7	0.0	0.0	0.0	0.0	1.2	1.3	0.3	0.0	2.8
> 7	0.0	0.0	0.0	0.0	0.6	0.1	0.1	0.0	0.9
Totals	0.1	0.2	0.1	0.1	7.6	5.6	1.2	0.1	14.9
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.3	0.7	0.5	0.2	0.0	0.0	0.0	0.1	1.8
1- 2	0.0	0.2	0.2	0.4	3.2	1.0	0.3	0.1	5.5
2- 3	0.0	0.0	0.0	0.2	5.9	2.0	0.3	0.0	8.4
3- 4	0.0	0.0	0.0	0.0	3.7	1.4	0.3	0.0	5.4
4- 5	0.0	0.0	0.0	0.0	2.7	0.6	0.3	0.0	3.5
5- 6	0.0	0.0	0.0	0.0	1.0	0.2	0.2	0.0	1.4
6- 7	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4
> 7	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2
Totals	0.3	1.0	0.6	0.7	17.0	5.2	1.5	0.2	26.6
	P-G CLASS= E				Slightly Stable				
0- 1	0.1	1.0	0.7	0.2	0.3	0.1	0.0	0.0	2.4
1- 2	0.1	0.4	0.3	0.3	1.7	0.7	0.0	0.1	3.6
2- 3	0.0	0.0	0.0	0.0	1.8	0.7	0.1	0.0	2.6
3- 4	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.7
4- 5	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.5
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.1	1.4	1.0	0.5	4.4	1.9	0.2	0.2	9.7



Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals	
	0	45	90	135	180	225	270	315		
JULY										
	P-G CLASS= F			Moderately Stable						
0- 1	0.5	1.0	1.0	0.6	1.7	1.5	0.3	0.3	6.9	
1- 2	0.1	0.2	0.2	0.2	1.5	1.2	0.2	0.0	3.5	
2- 3	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.6	
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Totals	0.6	1.2	1.2	0.8	3.5	3.0	0.4	0.3	11.0	

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>AUGUST</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.1	0.1	0.1	0.2	0.7	1.6	0.4	0.2	3.3
1- 2	0.0	0.0	0.0	0.1	2.0	3.4	0.4	0.2	6.1
2- 3	0.1	0.0	0.0	0.0	0.8	3.2	0.2	0.2	4.5
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.3</b>	<b>0.1</b>	<b>0.1</b>	<b>0.3</b>	<b>3.5</b>	<b>8.2</b>	<b>1.0</b>	<b>0.5</b>	<b>13.9</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.4
1- 2	0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	1.2
2- 3	0.1	0.0	0.0	0.0	1.3	1.6	0.0	0.1	3.0
3- 4	0.0	0.0	0.0	0.0	0.7	4.6	0.0	0.0	5.4
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>2.8</b>	<b>6.7</b>	<b>0.1</b>	<b>0.1</b>	<b>10.0</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1- 2	0.0	0.0	0.0	0.0	0.6	0.2	0.0	0.0	0.8
2- 3	0.0	0.0	0.0	0.0	1.2	1.6	0.0	0.0	1.9
3- 4	0.1	0.0	0.0	0.0	1.6	2.0	0.0	0.0	3.8
4- 5	0.0	0.0	0.0	0.0	1.8	4.1	0.2	0.0	6.1
5- 6	0.0	0.0	0.0	0.0	0.2	1.1	0.1	0.0	1.4
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.2</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>5.5</b>	<b>8.0</b>	<b>0.3</b>	<b>0.1</b>	<b>14.2</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
AUGUST									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3
1- 2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
2- 3	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	1.0
3- 4	0.0	0.0	0.0	0.0	1.0	0.7	0.0	0.0	1.7
4- 5	0.0	0.0	0.0	0.0	1.7	1.5	0.0	0.0	3.3
5- 6	0.0	0.0	0.0	0.0	1.5	1.1	0.1	0.0	2.7
6- 7	0.0	0.0	0.0	0.0	0.6	1.2	0.0	0.0	1.8
> 7	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.6
Totals	0.0	0.2	0.1	0.1	6.2	5.0	0.2	0.0	11.7
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.1	0.4	0.2	0.2	0.1	0.1	0.0	0.0	1.1
1- 2	0.0	0.4	0.3	0.4	4.6	1.0	0.1	0.0	6.9
2- 3	0.0	0.0	0.0	0.1	6.3	2.6	0.0	0.0	9.0
3- 4	0.0	0.0	0.0	0.0	3.5	2.0	0.0	0.0	5.6
4- 5	0.0	0.0	0.0	0.0	1.9	1.0	0.0	0.0	2.9
5- 6	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	1.1
6- 7	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.6
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.1	0.8	0.6	0.8	17.7	7.2	0.1	0.0	27.3
	P-G CLASS= E				Slightly Stable				
0- 1	0.1	0.5	0.5	0.3	0.2	0.2	0.0	0.0	1.9
1- 2	0.1	0.4	0.3	0.6	2.2	1.0	0.1	0.0	4.7
2- 3	0.0	0.0	0.0	0.1	1.5	1.1	0.0	0.0	2.6
3- 4	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	1.0
4- 5	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.2	1.0	0.8	1.0	4.7	2.8	0.1	0.0	10.6

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals	
	0	45	90	135	180	225	270	315		
AUGUST										
	P-G CLASS= F			Moderately Stable						
0- 1	0.5	1.3	1.0	0.9	1.9	1.3	0.3	0.1	7.3	
1- 2	0.2	0.2	0.3	0.3	1.4	1.4	0.0	0.1	3.9	
2- 3	0.0	0.0	0.0	0.0	0.4	0.6	0.0	0.0	1.0	
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Totals	0.7	1.4	1.3	1.2	3.8	3.4	0.3	0.2	12.3	

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>SEPTEMBER</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.2	0.1	0.2	0.2	0.4	0.6	0.8	0.6	3.1
1- 2	0.4	0.0	0.0	0.1	1.3	2.2	0.9	0.5	5.5
2- 3	0.6	0.0	0.0	0.0	0.6	1.9	0.4	0.7	4.2
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>2.3</b>	<b>4.7</b>	<b>2.1</b>	<b>1.8</b>	<b>12.8</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.5
1- 2	0.0	0.0	0.0	0.0	0.3	0.3	0.1	0.1	1.0
2- 3	0.2	0.0	0.0	0.0	0.4	1.0	0.0	0.2	1.9
3- 4	0.3	0.0	0.0	0.0	0.4	1.7	0.1	0.4	3.1
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.3</b>	<b>3.2</b>	<b>0.4</b>	<b>0.9</b>	<b>6.5</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3
1- 2	0.2	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.7
2- 3	0.2	0.0	0.0	0.0	0.6	0.6	0.0	0.1	1.5
3- 4	0.5	0.0	0.0	0.0	1.1	1.6	0.1	0.2	3.5
4- 5	0.2	0.0	0.0	0.0	1.3	2.8	0.1	0.4	4.9
5- 6	0.0	0.0	0.0	0.0	0.6	1.1	0.1	0.1	1.8
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>3.9</b>	<b>6.2</b>	<b>0.3</b>	<b>0.9</b>	<b>12.7</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>SEPTEMBER</b>									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.4
1- 2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3
2- 3	0.1	0.0	0.0	0.1	0.5	0.1	0.0	0.1	0.9
3- 4	0.2	0.0	0.0	0.0	0.9	0.5	0.0	0.2	1.8
4- 5	0.2	0.0	0.0	0.0	1.9	1.1	0.1	0.2	3.5
5- 6	0.1	0.0	0.0	0.0	1.1	0.5	0.0	0.2	2.0
6- 7	0.1	0.0	0.0	0.0	0.6	0.3	0.0	0.0	1.1
> 7	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.2	0.7
<b>Totals</b>	<b>0.9</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>5.7</b>	<b>2.7</b>	<b>0.2</b>	<b>1.0</b>	<b>10.7</b>
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.3	1.2	1.3	0.2	0.1	0.0	0.0	0.0	3.2
1- 2	0.2	0.4	0.6	1.0	2.7	0.6	0.0	0.0	5.6
2- 3	0.1	0.0	0.0	0.2	4.4	2.4	0.1	0.1	7.3
3- 4	0.2	0.0	0.0	0.0	3.7	2.1	0.1	0.1	6.2
4- 5	0.0	0.0	0.0	0.0	2.1	0.8	0.0	0.0	3.0
5- 6	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.0	1.0
6- 7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.9</b>	<b>1.6</b>	<b>2.0</b>	<b>1.4</b>	<b>14.2</b>	<b>6.1</b>	<b>0.2</b>	<b>0.2</b>	<b>26.6</b>
	P-G CLASS= E				Slightly Stable				
0- 1	0.5	2.1	1.8	0.5	0.2	0.1	0.1	0.0	5.3
1- 2	0.2	0.7	1.0	0.9	1.6	1.1	0.1	0.0	5.6
2- 3	0.0	0.0	0.1	0.3	1.5	1.0	0.0	0.0	2.9
3- 4	0.0	0.0	0.0	0.0	0.7	0.2	0.0	0.1	1.0
4- 5	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.7</b>	<b>2.8</b>	<b>2.9</b>	<b>1.7</b>	<b>4.3</b>	<b>2.4</b>	<b>0.2</b>	<b>0.2</b>	<b>15.2</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
SEPTEMBER									
	P-G CLASS= F				Moderately Stable				
0- 1	1.2	3.6	1.8	1.0	0.7	0.7	0.2	0.6	9.9
1- 2	0.4	0.6	0.7	0.7	1.3	0.9	0.2	0.2	4.9
2- 3	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.6
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.6	4.2	2.6	1.6	2.2	1.9	0.5	0.9	15.5

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
OCTOBER									
	P-G CLASS= A				Very Unstable				
0- 1	0.5	0.5	0.4	0.4	0.7	1.2	1.0	0.8	5.3
1- 2	0.6	0.1	0.1	0.1	1.2	2.3	1.0	0.7	6.1
2- 3	0.6	0.1	0.0	0.0	0.2	0.9	0.2	0.5	2.5
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.7	0.7	0.5	0.5	2.0	4.5	2.2	1.9	13.9
	P-G CLASS= B				Moderately Unstable				
0- 1	0.1	0.1	0.0	0.1	0.1	0.3	0.2	0.2	1.1
1- 2	0.1	0.1	0.0	0.1	0.3	0.3	0.1	0.2	1.2
2- 3	0.5	0.0	0.0	0.0	0.4	0.6	0.1	0.4	1.9
3- 4	0.3	0.0	0.0	0.0	0.1	0.7	0.1	0.2	1.6
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.0	0.3	0.0	0.2	0.9	1.9	0.6	1.0	5.8
	P-G CLASS= C				Slightly Unstable				
0- 1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7
1- 2	0.2	0.0	0.0	0.0	0.2	0.3	0.2	0.1	1.2
2- 3	0.6	0.0	0.0	0.0	0.5	0.6	0.1	0.2	2.1
3- 4	1.3	0.1	0.0	0.0	0.6	1.1	0.1	0.4	3.6
4- 5	0.7	0.0	0.0	0.0	0.3	0.8	0.1	0.4	2.2
5- 6	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.3	0.9
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	3.1	0.3	0.1	0.1	1.8	3.2	0.6	1.5	10.7



Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
OCTOBER									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.2	0.8
1- 2	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.6
2- 3	0.4	0.0	0.0	0.0	0.6	0.1	0.1	0.1	1.2
3- 4	0.8	0.1	0.0	0.0	0.7	0.3	0.0	0.2	2.1
4- 5	0.6	0.1	0.0	0.0	0.6	0.5	0.1	0.2	2.0
5- 6	0.2	0.1	0.0	0.0	0.6	0.3	0.0	0.1	1.4
6- 7	0.1	0.0	0.0	0.0	0.5	0.1	0.0	0.4	1.1
> 7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.5
Totals	2.2	0.5	0.3	0.1	3.3	1.5	0.3	1.5	9.7
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.2	1.7	1.4	0.3	0.1	0.1	0.1	0.1	4.0
1- 2	0.3	1.4	0.9	0.8	2.1	0.6	0.1	0.1	6.4
2- 3	0.4	0.4	0.0	0.3	2.6	1.6	0.1	0.0	5.5
3- 4	0.1	0.0	0.0	0.3	2.0	0.9	0.1	0.0	3.4
4- 5	0.0	0.0	0.0	0.1	1.2	0.5	0.1	0.1	1.9
5- 6	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.2	1.0
6- 7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.3
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Totals	1.1	3.6	2.4	1.7	9.0	3.7	0.4	0.7	22.6
	P-G CLASS= E				Slightly Stable				
0- 1	0.5	2.8	2.0	0.5	0.3	0.1	0.1	0.2	6.5
1- 2	0.4	1.5	0.9	0.8	1.3	0.6	0.2	0.0	5.7
2- 3	0.2	0.2	0.1	0.1	0.7	0.6	0.1	0.1	2.0
3- 4	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.1	0.7
4- 5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.2	4.5	3.0	1.4	2.8	1.4	0.3	0.4	15.1

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>OCTOBER</b>									
	<b>P-G CLASS= F</b>				<b>Moderately Stable</b>				
0- 1	1.6	4.9	3.1	1.4	1.2	0.6	0.6	0.8	14.2
1- 2	0.6	1.6	1.2	0.8	1.5	0.9	0.3	0.3	7.0
2- 3	0.0	0.1	0.0	0.1	0.3	0.2	0.0	0.1	0.9
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>2.2</b>	<b>6.7</b>	<b>4.3</b>	<b>2.2</b>	<b>2.9</b>	<b>1.7</b>	<b>0.9</b>	<b>1.2</b>	<b>22.2</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
NOVEMBER									
	P-G CLASS= A				Very Unstable				
0- 1	0.3	0.3	0.3	0.3	0.5	0.4	0.8	0.5	3.2
1- 2	0.7	0.3	0.3	0.2	0.4	0.9	0.8	0.8	4.4
2- 3	0.3	0.0	0.0	0.0	0.1	0.2	0.1	0.3	0.9
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	1.3	0.6	0.5	0.5	1.0	1.5	1.6	1.6	8.5
	P-G CLASS= B				Moderately Unstable				
0- 1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.8
1- 2	0.2	0.1	0.0	0.1	0.2	0.3	0.2	0.2	1.3
2- 3	0.2	0.0	0.0	0.0	0.1	0.3	0.0	0.1	0.8
3- 4	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.1
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.8	0.2	0.2	0.2	0.3	0.9	0.4	1.0	4.0
	P-G CLASS= C				Slightly Unstable				
0- 1	0.2	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.6
1- 2	0.3	0.1	0.1	0.1	0.3	0.4	0.3	0.3	1.9
2- 3	1.0	0.1	0.0	0.0	0.3	0.5	0.1	0.3	2.3
3- 4	0.9	0.1	0.0	0.0	0.3	0.3	0.0	0.1	1.7
4- 5	0.6	0.1	0.0	0.1	0.2	0.3	0.0	0.4	1.7
5- 6	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	2.9	0.4	0.2	0.3	1.3	1.6	0.4	1.3	8.5

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>NOVEMBER</b>									
	P-G CLASS= DD				Daytime Neutral				
0- 1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.6
1- 2	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.3	1.5
2- 3	0.7	0.2	0.0	0.2	0.3	0.1	0.0	0.2	1.8
3- 4	1.3	0.3	0.0	0.1	0.5	0.2	0.0	0.3	2.6
4- 5	1.5	0.2	0.0	0.1	0.9	0.3	0.0	0.3	3.3
5- 6	0.6	0.0	0.0	0.1	0.4	0.1	0.0	0.1	1.3
6- 7	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.3	0.8
> 7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.4
Totals	4.6	1.0	0.3	0.7	2.7	0.9	0.3	2.0	12.4
	P-G CLASS= DN				Nighttime Neutral				
0- 1	0.3	1.3	1.4	0.4	0.2	0.0	0.1	0.1	3.7
1- 2	0.6	1.7	1.4	0.9	1.0	0.3	0.1	0.1	6.1
2- 3	1.1	1.1	0.4	0.4	2.2	0.6	0.1	0.2	6.1
3- 4	0.8	0.3	0.0	0.2	1.6	0.4	0.1	0.1	3.5
4- 5	0.1	0.0	0.0	0.1	0.7	0.2	0.0	0.3	1.3
5- 6	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.3	0.8
6- 7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.6
> 7	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.4	0.5
Totals	2.9	4.3	3.2	2.1	6.6	1.5	0.3	1.5	22.6
	P-G CLASS= E				Slightly Stable				
0- 1	0.6	1.9	2.0	0.4	0.2	0.1	0.2	0.3	5.6
1- 2	0.7	1.9	1.2	0.8	0.6	0.5	0.3	0.3	6.2
2- 3	0.4	0.8	0.5	0.4	0.5	0.2	0.0	0.1	2.9
3- 4	0.3	0.1	0.0	0.1	0.4	0.0	0.0	0.1	1.0
4- 5	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	2.0	4.8	3.7	1.8	1.8	0.8	0.5	0.8	16.2

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
NOVEMBER									
	P-G CLASS= F				Moderately Stable				
0- 1	2.2	4.8	3.8	1.7	1.2	0.7	0.8	1.0	16.2
1- 2	1.3	2.6	2.1	1.0	1.0	0.7	0.7	0.8	10.2
2- 3	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.4	1.5
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	3.7	7.7	6.0	2.8	2.3	1.6	1.6	2.2	27.9

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>DECEMBER</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.2	0.2	0.2	0.5	0.5	0.6	0.5	0.6	3.4
1- 2	0.4	0.4	0.2	0.2	0.5	0.7	0.6	0.5	3.5
2- 3	0.7	0.2	0.0	0.0	0.2	0.1	0.1	0.5	1.9
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.3</b>	<b>0.8</b>	<b>0.5</b>	<b>0.7</b>	<b>1.2</b>	<b>1.4</b>	<b>1.3</b>	<b>1.6</b>	<b>8.7</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.7
1- 2	0.1	0.0	0.1	0.1	0.2	0.3	0.0	0.2	1.1
2- 3	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.8
3- 4	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.3	1.1
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.0</b>	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.3</b>	<b>0.6</b>	<b>0.1</b>	<b>0.8</b>	<b>3.5</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.5
1- 2	0.2	0.1	0.1	0.1	0.1	0.3	0.3	0.2	1.6
2- 3	0.7	0.3	0.0	0.0	0.0	0.2	0.0	0.2	1.6
3- 4	0.7	0.1	0.0	0.0	0.0	0.2	0.0	0.1	1.3
4- 5	0.5	0.1	0.0	0.0	0.0	0.1	0.0	0.4	1.1
5- 6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>2.2</b>	<b>0.6</b>	<b>0.2</b>	<b>0.2</b>	<b>0.9</b>	<b>0.9</b>	<b>0.4</b>	<b>1.1</b>	<b>6.3</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>DECEMBER</b>									
	<b>P-G CLASS= DD</b>				<b>Daytime Neutral</b>				
0- 1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.3	0.8
1- 2	0.1	0.2	0.2	0.2	0.3	0.4	0.4	0.1	1.9
2- 3	0.8	0.3	0.0	0.0	0.3	0.3	0.1	0.3	2.2
3- 4	1.3	0.3	0.0	0.1	0.2	0.3	0.0	0.2	2.5
4- 5	2.0	0.4	0.0	0.2	0.4	0.1	0.0	0.1	3.3
5- 6	1.4	0.3	0.0	0.0	0.2	0.1	0.0	0.1	2.1
6- 7	0.4	0.1	0.0	0.1	0.4	0.1	0.0	0.1	1.3
> 7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.8
<b>Totals</b>	<b>6.2</b>	<b>1.8</b>	<b>0.4</b>	<b>0.7</b>	<b>2.3</b>	<b>1.3</b>	<b>0.6</b>	<b>1.6</b>	<b>14.8</b>
	<b>P-G CLASS= DN</b>				<b>Nighttime Neutral</b>				
0- 1	0.3	0.7	0.8	0.6	0.2	0.1	0.0	0.0	2.7
1- 2	0.6	1.3	0.9	0.5	0.8	0.1	0.1	0.1	4.4
2- 3	1.0	1.6	0.4	0.1	0.6	0.3	0.1	0.0	4.1
3- 4	0.7	0.9	0.1	0.2	0.6	0.2	0.0	0.2	2.8
4- 5	0.6	0.2	0.0	0.2	0.4	0.1	0.0	0.0	1.5
5- 6	0.2	0.1	0.0	0.1	0.5	0.0	0.0	0.1	1.2
6- 7	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.1	0.8
> 7	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.4	0.8
<b>Totals</b>	<b>3.4</b>	<b>4.8</b>	<b>2.3</b>	<b>1.9</b>	<b>3.7</b>	<b>0.8</b>	<b>0.2</b>	<b>1.1</b>	<b>18.4</b>
	<b>P-G CLASS= E</b>				<b>Slightly Stable</b>				
0- 1	0.3	1.1	1.3	0.7	0.4	0.1	0.1	0.1	4.0
1- 2	0.6	1.8	0.5	0.8	0.9	0.3	0.0	0.1	6.1
2- 3	0.5	0.8	0.3	0.3	0.5	0.1	0.0	0.2	2.6
3- 4	0.1	0.2	0.1	0.1	0.3	0.0	0.0	0.1	0.8
4- 5	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.6</b>	<b>3.9</b>	<b>3.1</b>	<b>1.8</b>	<b>2.4</b>	<b>0.5</b>	<b>0.2</b>	<b>0.5</b>	<b>14.0</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals	
	0	45	90	135	180	225	270	315		
DECEMBER										
	P-G CLASS= F			Moderately Stable						
0- 1	1.6	3.2	3.6	2.5	2.3	1.0	1.2	1.2	16.5	
1- 2	1.8	3.6	3.1	2.1	2.0	0.9	0.8	1.4	15.7	
2- 3	0.5	0.7	0.1	0.2	0.1	0.0	0.1	0.3	2.0	
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Totals	3.8	7.5	6.9	4.8	4.4	1.9	2.0	2.8	34.2	



Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>ANNUAL</b>									
	<b>P-G CLASS= A</b>				<b>Very Unstable</b>				
0- 1	0.3	0.3	0.2	0.2	0.4	0.8	0.7	0.5	3.4
1- 2	0.4	0.2	0.1	0.1	0.8	1.7	0.8	0.6	4.6
2- 3	0.3	0.1	0.0	0.0	0.4	1.3	0.3	0.4	2.7
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.0</b>	<b>0.5</b>	<b>0.4</b>	<b>0.4</b>	<b>1.6</b>	<b>3.7</b>	<b>1.7</b>	<b>1.5</b>	<b>10.8</b>
	<b>P-G CLASS= B</b>				<b>Moderately Unstable</b>				
0- 1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.6
1- 2	0.1	0.1	0.0	0.1	0.3	0.3	0.1	0.1	1.1
2- 3	0.2	0.0	0.0	0.0	0.4	0.7	0.1	0.2	1.6
3- 4	0.3	0.0	0.0	0.0	0.3	1.3	0.1	0.4	2.5
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.6</b>	<b>0.2</b>	<b>0.1</b>	<b>0.2</b>	<b>1.0</b>	<b>2.4</b>	<b>0.5</b>	<b>0.8</b>	<b>5.8</b>
	<b>P-G CLASS= C</b>				<b>Slightly Unstable</b>				
0- 1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.5
1- 2	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.2	1.1
2- 3	0.4	0.1	0.0	0.0	0.6	0.5	0.1	0.2	1.9
3- 4	0.6	0.1	0.0	0.0	0.8	1.2	0.1	0.2	2.9
4- 5	0.3	0.0	0.0	0.0	0.9	2.0	0.1	0.4	3.7
5- 6	0.0	0.0	0.0	0.0	0.4	0.9	0.1	0.2	1.6
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>1.6</b>	<b>0.3</b>	<b>0.1</b>	<b>0.2</b>	<b>3.0</b>	<b>4.8</b>	<b>0.6</b>	<b>1.2</b>	<b>11.7</b>

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	Wind Direction								Totals
	0	45	90	135	180	225	270	315	
<b>ANNUAL</b>									
	P-G CLASS= DD			Daytime Neutral					
0- 1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.6
1- 2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8
2- 3	0.4	0.1	0.0	0.1	0.5	0.2	0.0	0.1	1.5
3- 4	0.7	0.1	0.0	0.1	0.8	0.6	0.0	0.2	2.5
4- 5	0.6	0.2	0.0	0.1	1.3	0.9	0.1	0.2	3.4
5- 6	0.3	0.1	0.0	0.0	1.1	0.9	0.1	0.1	2.6
6- 7	0.1	0.0	0.0	0.0	0.8	0.7	0.1	0.2	2.1
> 7	0.0	0.0	0.0	0.0	0.5	0.2	0.1	0.3	1.2
Totals	2.4	0.7	0.3	0.4	5.1	3.7	0.6	1.4	14.7
	P-G CLASS= DN			Nighttime Neutral					
0- 1	0.2	1.0	1.0	0.2	0.1	0.1	0.1	0.1	2.8
1- 2	0.3	1.0	0.8	0.8	1.8	0.5	0.1	0.1	5.4
2- 3	0.4	0.5	0.2	0.4	3.3	1.4	0.1	0.1	6.4
3- 4	0.3	0.2	0.1	0.2	2.9	1.3	0.1	0.1	5.1
4- 5	0.1	0.1	0.0	0.1	1.9	0.6	0.1	0.1	3.0
5- 6	0.0	0.0	0.0	0.0	0.9	0.3	0.0	0.1	1.4
6- 7	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.1	0.6
> 7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.5
Totals	1.4	2.9	2.2	1.7	11.4	4.4	0.4	0.8	25.2
	P-G CLASS= E			Slightly Stable					
0- 1	0.3	1.7	1.4	0.4	0.2	0.1	0.1	0.1	4.3
1- 2	0.3	1.1	0.9	0.7	1.0	0.5	0.1	0.1	4.8
2- 3	0.2	0.3	0.2	0.2	0.9	0.5	0.0	0.1	2.4
3- 4	0.1	0.1	0.0	0.1	0.4	0.2	0.0	0.1	0.9
4- 5	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.4
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.9	3.2	2.6	1.4	2.8	1.4	0.2	0.4	12.8

Table D-2. (Continued).

Speed (ms <sup>-1</sup> )	<u>Wind Direction</u>								Totals
	0	45	90	135	180	225	270	315	
<b>ANNUAL</b>									
	<b>P-G CLASS= F</b>				<b>Moderatly Stable</b>				
0- 1	1.2	2.9	2.2	1.2	1.1	0.7	0.5	0.7	10.5
1- 2	0.7	1.6	1.3	0.9	1.3	0.8	0.3	0.5	7.4
2- 3	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	1.1
3- 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5- 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>2.0</b>	<b>4.6</b>	<b>3.7</b>	<b>2.2</b>	<b>2.6</b>	<b>1.7</b>	<b>0.9</b>	<b>1.4</b>	<b>19.0</b>

Table D-3. Diurnal variation of P-G stability frequency distribution (%).  
From the LLNL data set (1979-1987).

		A	B	C	DD	DN	E	F	NUM
JAN.	1	0.0	0.0	0.0	0.0	31.3	25.4	43.3	201
	2	0.0	0.0	0.0	0.0	32.3	20.7	47.0	198
	3	0.0	0.0	0.0	0.0	30.3	22.2	47.5	198
	4	0.0	0.0	0.0	0.0	30.3	20.7	49.0	198
	5	0.0	0.0	0.0	0.0	31.8	21.4	46.8	201
	6	0.0	0.0	0.0	0.0	28.1	19.6	52.3	199
	7	0.0	0.0	0.0	0.0	29.6	16.1	54.3	199
	8	0.0	0.0	0.0	0.0	33.2	19.6	47.2	199
	9	37.1	8.9	18.3	35.6	0.0	0.0	0.0	202
	10	29.9	12.9	18.6	38.7	0.0	0.0	0.0	194
	11	26.8	13.4	17.5	42.3	0.0	0.0	0.0	194
	12	24.3	11.4	24.8	39.6	0.0	0.0	0.0	202
	13	23.4	11.0	22.5	43.1	0.0	0.0	0.0	209
	14	15.9	11.4	18.4	54.2	0.0	0.0	0.0	201
	15	15.0	9.5	20.5	55.0	0.0	0.0	0.0	200
	16	13.9	6.0	15.9	64.2	0.0	0.0	0.0	201
	17	1.0	2.4	2.4	6.3	54.6	18.0	15.1	205
	18	0.0	0.0	0.0	0.0	48.0	25.8	26.3	198
	19	0.0	0.0	0.0	0.0	37.4	28.3	34.3	198
	20	0.0	0.0	0.0	0.0	31.3	21.2	47.5	198
	21	0.0	0.0	0.0	0.0	34.2	18.3	47.5	202
	22	0.0	0.0	0.0	0.0	34.7	22.4	42.9	196
	23	0.0	0.0	0.0	0.0	36.7	18.4	44.9	196
	24	0.0	0.0	0.0	0.0	30.6	20.9	48.5	196
FEB.	1	0.0	0.0	0.0	0.0	38.9	21.1	40.0	180
	2	0.0	0.0	0.0	0.0	29.6	27.4	43.0	179
	3	0.0	0.0	0.0	0.0	32.8	23.9	43.3	180
	4	0.0	0.0	0.0	0.0	29.4	18.3	52.2	180
	5	0.0	0.0	0.0	0.0	29.8	26.0	44.2	181
	6	0.0	0.0	0.0	0.0	29.4	22.6	48.0	177
	7	0.0	0.0	0.0	0.0	29.4	26.6	44.1	177
	8	0.0	0.0	0.0	0.0	33.9	20.9	45.2	177
	9	38.3	8.2	18.0	35.5	0.0	0.0	0.0	183
	10	36.5	14.4	15.5	33.7	0.0	0.0	0.0	181
	11	34.6	17.6	18.7	29.1	0.0	0.0	0.0	182
	12	30.4	9.2	27.2	33.2	0.0	0.0	0.0	184
	13	28.3	8.2	28.3	35.3	0.0	0.0	0.0	184
	14	23.9	7.8	26.1	42.2	0.0	0.0	0.0	180
	15	21.5	9.9	26.5	42.0	0.0	0.0	0.0	181
	16	16.0	8.3	30.9	44.8	0.0	0.0	0.0	181
	17	8.6	11.3	20.4	59.7	0.0	0.0	0.0	186
	18	0.0	0.0	0.0	0.0	63.8	20.5	15.7	185
	19	0.0	0.0	0.0	0.0	40.0	30.8	29.2	185
	20	0.0	0.0	0.0	0.0	41.6	27.0	31.4	185
	21	0.0	0.0	0.0	0.0	36.8	25.9	37.3	185
	22	0.0	0.0	0.0	0.0	38.0	21.2	40.8	179
	23	0.0	0.0	0.0	0.0	31.3	25.7	43.0	179
	24	0.0	0.0	0.0	0.0	32.0	23.6	44.4	178

Table D-3. (Continued).

	A	B	C	DD	DN	E	F	NUM
MARCH 1	0.0	0.0	0.0	0.0	40.4	28.4	31.2	218
2	0.0	0.0	0.0	0.0	41.7	23.6	34.7	216
3	0.0	0.0	0.0	0.0	40.7	22.4	36.9	214
4	0.0	0.0	0.0	0.0	43.0	21.0	36.0	214
5	0.0	0.0	0.0	0.0	35.6	26.4	38.0	216
6	0.0	0.0	0.0	0.0	35.2	20.4	44.4	216
7	0.0	0.0	0.0	0.0	32.7	25.2	42.1	214
8	25.8	11.5	14.3	30.4	0.0	0.0	0.0	217
9	35.4	15.2	17.0	32.3	0.0	0.0	0.0	223
10	33.8	13.9	24.1	28.2	0.0	0.0	0.0	216
11	30.0	14.3	24.9	30.9	0.0	0.0	0.0	217
12	29.5	11.1	24.0	35.5	0.0	0.0	0.0	217
13	27.7	13.8	23.7	34.8	0.0	0.0	0.0	224
14	23.6	13.7	23.1	39.6	0.0	0.0	0.0	212
15	21.3	13.3	29.4	36.0	0.0	0.0	0.0	211
16	14.2	13.2	26.9	45.8	0.0	0.0	0.0	212
17	9.2	5.5	20.6	64.7	0.0	0.0	0.0	218
18	0.0	0.0	1.4	5.6	63.8	17.4	11.7	213
19	0.0	0.0	0.0	0.0	55.2	21.7	23.1	212
20	0.0	0.0	0.0	0.0	53.5	23.0	23.5	213
21	0.0	0.0	0.0	0.0	45.4	29.2	25.5	216
22	0.0	0.0	0.0	0.0	44.4	26.6	29.0	214
23	0.0	0.0	0.0	0.0	43.7	30.2	26.0	215
24	0.0	0.0	0.0	0.0	41.1	28.5	30.4	214
APRIL 1	0.0	0.0	0.0	0.0	47.9	25.0	27.1	240
2	0.0	0.0	0.0	0.0	43.5	28.9	27.6	239
3	0.0	0.0	0.0	0.0	43.8	24.6	31.7	240
4	0.0	0.0	0.0	0.0	46.3	24.2	29.6	240
5	0.0	0.0	0.0	0.0	36.3	23.8	40.0	240
6	0.0	0.0	0.0	0.0	43.7	20.6	35.7	238
7	16.3	5.4	7.9	18.8	20.1	10.5	20.9	239
8	30.5	15.5	21.3	32.6	0.0	0.0	0.0	239
9	29.0	15.5	23.7	31.8	0.0	0.0	0.0	245
10	35.6	13.8	22.6	28.0	0.0	0.0	0.0	239
11	31.8	16.9	31.0	20.2	0.0	0.0	0.0	242
12	31.7	13.8	30.0	24.6	0.0	0.0	0.0	240
13	29.3	19.4	25.6	25.6	0.0	0.0	0.0	242
14	23.9	16.7	35.5	23.9	0.0	0.0	0.0	234
15	21.1	15.6	30.4	32.9	0.0	0.0	0.0	237
16	16.0	11.3	26.1	46.6	0.0	0.0	0.0	238
17	6.2	6.6	27.3	59.9	0.0	0.0	0.0	242
18	5.4	3.7	17.8	73.0	0.0	0.0	0.0	241
19	0.0	0.0	0.0	0.0	76.3	14.5	9.1	241
20	0.0	0.0	0.0	0.0	62.7	14.9	22.4	241
21	0.0	0.0	0.0	0.0	56.2	21.5	22.3	242
22	0.0	0.0	0.0	0.0	50.6	22.6	26.8	239
23	0.0	0.0	0.0	0.0	50.0	23.8	26.3	240
24	0.0	0.0	0.0	0.0	51.5	18.4	30.1	239

Table D-3. (Continued).

		A	B	C	DD	DN	E	F	NUM
MAY	1	0.0	0.0	0.0	0.0	56.8	21.6	21.6	222
	2	0.0	0.0	0.0	0.0	50.0	23.4	26.6	218
	3	0.0	0.0	0.0	0.0	51.4	22.5	26.1	218
	4	0.0	0.0	0.0	0.0	53.0	18.3	28.8	219
	5	0.0	0.0	0.0	0.0	52.5	18.8	28.7	223
	6	0.0	0.0	0.0	0.0	50.9	17.9	31.2	218
	7	28.8	6.4	18.7	46.1	0.0	0.0	0.0	219
	8	31.7	9.4	24.6	34.4	0.0	0.0	0.0	224
	9	28.4	9.2	32.3	30.1	0.0	0.0	0.0	229
	10	29.2	11.4	35.2	24.2	0.0	0.0	0.0	219
	11	29.7	15.5	32.9	21.9	0.0	0.0	0.0	219
	12	26.2	19.5	35.3	19.0	0.0	0.0	0.0	221
	13	24.8	16.4	33.2	25.7	0.0	0.0	0.0	226
	14	16.0	16.9	34.7	32.4	0.0	0.0	0.0	219
	15	11.3	14.5	38.0	36.2	0.0	0.0	0.0	221
	16	6.4	6.8	38.4	48.4	0.0	0.0	0.0	219
	17	0.9	3.5	24.7	70.9	0.0	0.0	0.0	227
	18	0.9	1.3	20.0	77.8	0.0	0.0	0.0	225
	19	0.0	0.0	0.0	0.0	93.2	5.9	0.9	221
	20	0.0	0.0	0.0	0.0	82.0	10.4	7.7	222
	21	0.0	0.0	0.0	0.0	65.8	16.2	18.0	222
	22	0.0	0.0	0.0	0.0	59.2	19.3	21.6	218
	23	0.0	0.0	0.0	0.0	58.7	19.7	21.6	218
	24	0.0	0.0	0.0	0.0	56.2	24.0	19.8	217
JUNE	1	0.0	0.0	0.0	0.0	57.8	24.5	17.6	204
	2	0.0	0.0	0.0	0.0	56.0	22.0	22.0	200
	3	0.0	0.0	0.0	0.0	55.7	22.9	21.4	201
	4	0.0	0.0	0.0	0.0	54.2	24.9	20.9	201
	5	0.0	0.0	0.0	0.0	55.4	21.8	22.8	202
	6	0.0	0.0	0.0	0.0	52.3	20.7	26.9	193
	7	23.7	9.8	20.6	45.9	0.0	0.0	0.0	194
	8	25.1	14.1	31.2	29.6	0.0	0.0	0.0	199
	9	31.5	14.3	29.6	24.6	0.0	0.0	0.0	203
	10	28.8	15.7	37.4	18.2	0.0	0.0	0.0	198
	11	30.3	18.2	34.3	17.2	0.0	0.0	0.0	198
	12	23.2	25.3	32.3	19.2	0.0	0.0	0.0	198
	13	20.6	18.1	38.7	22.5	0.0	0.0	0.0	204
	14	14.7	19.8	40.1	25.4	0.0	0.0	0.0	197
	15	10.0	14.0	45.0	31.0	0.0	0.0	0.0	200
	16	2.5	9.5	43.5	44.5	0.0	0.0	0.0	200
	17	0.5	2.4	38.3	58.9	0.0	0.0	0.0	209
	18	0.0	2.4	30.1	67.5	0.0	0.0	0.0	206
	19	0.5	3.9	18.5	45.4	30.2	1.0	0.5	205
	20	0.0	0.0	0.0	0.0	85.7	9.4	4.9	203
	21	0.0	0.0	0.0	0.0	71.8	16.4	12.1	206
	22	0.0	0.0	0.0	0.0	61.7	17.9	20.4	201
	23	0.0	0.0	0.0	0.0	64.2	14.9	20.9	201
	24	0.0	0.0	0.0	0.0	60.2	20.9	18.9	201

Table D-3. (Continued).

		A	B	C	DD	DN	E	F	NUM
JULY	1	0.0	0.0	0.0	0.0	55.8	24.4	19.8	197
	2	0.0	0.0	0.0	0.0	54.3	23.9	21.7	184
	3	0.0	0.0	0.0	0.0	56.3	23.5	20.2	183
	4	0.0	0.0	0.0	0.0	53.3	25.3	21.4	182
	5	0.0	0.0	0.0	0.0	52.6	23.2	24.2	190
	6	0.0	0.0	0.0	0.0	44.9	23.3	31.8	176
	7	24.3	9.0	24.9	41.8	0.0	0.0	0.0	177
	8	35.2	12.6	28.0	24.2	0.0	0.0	0.0	182
	9	42.3	16.5	28.4	12.9	0.0	0.0	0.0	194
	10	46.2	16.1	23.7	14.0	0.0	0.0	0.0	186
	11	45.2	20.2	26.1	8.5	0.0	0.0	0.0	188
	12	37.2	23.4	29.8	9.6	0.0	0.0	0.0	188
	13	32.1	22.3	32.6	13.0	0.0	0.0	0.0	193
	14	22.2	22.2	36.8	18.9	0.0	0.0	0.0	185
	15	14.5	15.1	42.5	28.0	0.0	0.0	0.0	186
	16	8.5	15.3	39.7	36.5	0.0	0.0	0.0	189
	17	4.5	9.0	38.5	48.0	0.0	0.0	0.0	200
	18	2.1	8.4	29.5	60.0	0.0	0.0	0.0	190
	19	2.6	3.7	13.7	40.0	28.9	8.4	2.6	190
	20	0.0	0.0	0.0	0.0	73.0	12.7	14.3	189
	21	0.0	0.0	0.0	0.0	59.0	17.4	23.6	195
	22	0.0	0.0	0.0	0.0	56.8	17.3	25.9	185
	23	0.0	0.0	0.0	0.0	51.1	16.1	32.8	186
	24	0.0	0.0	0.0	0.0	53.8	17.7	28.5	186
AUG.	1	0.0	0.0	0.0	0.0	50.8	20.9	28.3	187
	2	0.0	0.0	0.0	0.0	53.8	19.9	26.3	186
	3	0.0	0.0	0.0	0.0	52.2	20.4	27.4	186
	4	0.0	0.0	0.0	0.0	49.5	24.7	25.8	186
	5	0.0	0.0	0.0	0.0	48.1	26.2	25.7	187
	6	0.0	0.0	0.0	0.0	50.0	21.7	28.3	184
	7	19.6	8.7	20.1	34.8	8.7	3.3	4.9	184
	8	28.3	16.6	29.9	25.1	0.0	0.0	0.0	187
	9	40.1	19.8	24.0	16.1	0.0	0.0	0.0	192
	10	44.7	24.7	21.6	8.9	0.0	0.0	0.0	190
	11	51.1	22.1	21.1	5.8	0.0	0.0	0.0	190
	12	46.3	25.8	21.1	6.8	0.0	0.0	0.0	190
	13	35.2	32.6	22.8	9.3	0.0	0.0	0.0	193
	14	27.4	30.6	28.0	14.0	0.0	0.0	0.0	186
	15	17.0	20.7	37.8	24.5	0.0	0.0	0.0	188
	16	8.5	16.0	43.1	32.4	0.0	0.0	0.0	188
	17	5.2	13.6	35.1	46.1	0.0	0.0	0.0	191
	18	5.4	6.5	33.3	54.8	0.0	0.0	0.0	186
	19	0.0	0.0	0.0	0.0	81.1	10.3	8.6	185
	20	0.0	0.0	0.0	0.0	66.5	17.3	16.2	185
	21	0.0	0.0	0.0	0.0	50.3	25.4	24.3	189
	22	0.0	0.0	0.0	0.0	51.1	23.6	25.3	182
	23	0.0	0.0	0.0	0.0	48.1	23.2	28.7	181
	24	0.0	0.0	0.0	0.0	51.4	21.0	27.6	181

Table D-3. (Continued).

	A	B	C	DD	DN	E	F	NUM
SEPT. 1	0.0	0.0	0.0	0.0	39.3	26.1	34.6	211
2	0.0	0.0	0.0	0.0	43.1	26.3	30.6	209
3	0.0	0.0	0.0	0.0	46.4	27.8	25.8	209
4	0.0	0.0	0.0	0.0	37.8	30.6	31.6	209
5	0.0	0.0	0.0	0.0	43.6	24.6	31.8	211
6	0.0	0.0	0.0	0.0	40.6	25.6	33.8	207
7	0.0	0.0	0.0	0.0	38.6	30.0	31.4	207
8	30.9	11.6	23.7	33.8	0.0	0.0	0.0	207
9	37.0	17.1	23.7	22.3	0.0	0.0	0.0	211
10	46.1	12.3	21.1	20.6	0.0	0.0	0.0	204
11	43.9	20.0	23.9	12.2	0.0	0.0	0.0	205
12	39.0	22.9	24.9	13.2	0.0	0.0	0.0	205
13	34.4	21.1	29.2	15.3	0.0	0.0	0.0	209
14	31.7	14.9	36.1	17.3	0.0	0.0	0.0	208
15	25.0	13.9	35.6	25.5	0.0	0.0	0.0	208
16	15.3	12.9	38.8	33.0	0.0	0.0	0.0	209
17	5.2	9.0	39.5	46.2	0.0	0.0	0.0	210
18	0.5	0.0	8.2	17.8	59.6	7.7	6.3	208
19	0.0	0.0	0.0	0.0	66.3	18.8	14.9	208
20	0.0	0.0	0.0	0.0	49.0	26.0	25.0	208
21	0.0	0.0	0.0	0.0	46.9	30.6	22.5	209
22	0.0	0.0	0.0	0.0	40.8	33.0	26.2	206
23	0.0	0.0	0.0	0.0	44.2	26.2	29.6	206
24	0.0	0.0	0.0	0.0	40.8	32.0	27.2	206
OCT. 1	0.0	0.0	0.0	0.0	34.8	25.3	39.9	233
2	0.0	0.0	0.0	0.0	33.5	26.5	40.0	230
3	0.0	0.0	0.0	0.0	33.0	27.4	39.6	230
4	0.0	0.0	0.0	0.0	32.9	29.4	37.7	231
5	0.0	0.0	0.0	0.0	31.1	24.7	44.3	235
6	0.0	0.0	0.0	0.0	29.4	25.4	45.2	228
7	0.0	0.0	0.0	0.0	27.3	26.0	46.7	227
8	37.9	14.7	18.5	28.9	0.0	0.0	0.0	232
9	40.8	16.3	19.3	23.6	0.0	0.0	0.0	233
10	48.0	14.0	19.2	18.8	0.0	0.0	0.0	229
11	46.6	12.5	23.3	17.7	0.0	0.0	0.0	232
12	41.8	15.5	25.9	16.8	0.0	0.0	0.0	232
13	36.0	17.4	30.5	16.1	0.0	0.0	0.0	236
14	36.3	13.3	30.1	20.4	0.0	0.0	0.0	226
15	28.9	16.7	30.7	23.7	0.0	0.0	0.0	228
16	14.5	13.2	37.0	35.2	0.0	0.0	0.0	227
17	3.8	5.9	22.0	32.6	24.6	7.6	3.4	236
18	0.0	0.0	0.0	0.0	65.7	17.6	16.7	233
19	0.0	0.0	0.0	0.0	44.9	24.8	30.3	234
20	0.0	0.0	0.0	0.0	41.7	26.1	32.2	230
21	0.0	0.0	0.0	0.0	40.2	23.9	35.9	234
22	0.0	0.0	0.0	0.0	34.8	26.9	38.3	227
23	0.0	0.0	0.0	0.0	34.9	23.7	41.4	232
24	0.0	0.0	0.0	0.0	31.5	27.2	41.4	232



Table D-3. (Continued).

		A	B	C	DD	DN	E	F	NUM
NOV.	1	0.0	0.0	0.0	0.0	28.1	24.4	47.5	221
	2	0.0	0.0	0.0	0.0	30.4	22.1	47.5	217
	3	0.0	0.0	0.0	0.0	26.7	23.5	49.8	217
	4	0.0	0.0	0.0	0.0	22.6	23.0	54.4	217
	5	0.0	0.0	0.0	0.0	23.9	27.1	49.1	218
	6	0.0	0.0	0.0	0.0	26.7	20.5	52.9	210
	7	0.0	0.0	0.0	0.0	31.0	19.5	49.5	210
	8	2.4	1.4	1.4	1.9	24.6	25.6	42.7	211
	9	32.4	14.6	24.2	28.8	0.0	0.0	0.0	219
	10	33.8	11.9	23.3	31.0	0.0	0.0	0.0	210
	11	33.2	11.8	24.2	30.8	0.0	0.0	0.0	211
	12	27.1	13.6	22.9	36.4	0.0	0.0	0.0	214
	13	25.9	10.9	29.5	33.6	0.0	0.0	0.0	220
	14	21.0	14.0	28.5	36.4	0.0	0.0	0.0	214
	15	17.8	11.7	27.7	42.7	0.0	0.0	0.0	213
	16	13.0	6.0	22.8	58.1	0.0	0.0	0.0	215
	17	0.0	0.0	0.0	0.0	62.0	20.8	17.2	221
	18	0.0	0.0	0.0	0.0	52.8	23.6	23.6	216
	19	0.0	0.0	0.0	0.0	41.7	27.8	30.6	216
	20	0.0	0.0	0.0	0.0	40.1	25.3	34.6	217
	21	0.0	0.0	0.0	0.0	40.6	27.2	32.1	224
	22	0.0	0.0	0.0	0.0	31.1	26.5	42.5	219
	23	0.0	0.0	0.0	0.0	28.3	25.1	46.6	219
	24	0.0	0.0	0.0	0.0	28.4	24.3	47.2	218
DEC.	1	0.0	0.0	0.0	0.0	21.3	21.3	57.3	211
	2	0.0	0.0	0.0	0.0	21.1	21.5	57.4	209
	3	0.0	0.0	0.0	0.0	23.0	19.1	57.9	209
	4	0.0	0.0	0.0	0.0	23.4	19.6	56.9	209
	5	0.0	0.0	0.0	0.0	26.1	24.2	49.8	211
	6	0.0	0.0	0.0	0.0	28.0	17.4	54.6	207
	7	0.0	0.0	0.0	0.0	28.1	20.0	51.9	210
	8	0.0	0.0	0.0	0.0	26.8	20.6	52.6	209
	9	35.2	11.7	19.2	33.8	0.0	0.0	0.0	213
	10	35.6	12.7	16.1	35.6	0.0	0.0	0.0	205
	11	33.3	14.0	17.4	35.3	0.0	0.0	0.0	207
	12	25.4	7.7	22.0	45.0	0.0	0.0	0.0	209
	13	19.9	10.4	27.5	42.2	0.0	0.0	0.0	211
	14	18.8	10.6	22.1	48.6	0.0	0.0	0.0	208
	15	16.3	10.6	20.2	52.9	0.0	0.0	0.0	208
	16	16.9	9.7	19.3	54.1	0.0	0.0	0.0	207
	17	0.0	0.0	0.0	0.0	57.3	16.9	25.8	213
	18	0.0	0.0	0.0	0.0	40.1	22.7	37.2	207
	19	0.0	0.0	0.0	0.0	39.6	22.7	37.7	207
	20	0.0	0.0	0.0	0.0	35.4	18.0	46.6	206
	21	0.0	0.0	0.0	0.0	29.2	24.4	46.4	209
	22	0.0	0.0	0.0	0.0	29.8	22.0	48.3	205
	23	0.0	0.0	0.0	0.0	26.3	19.5	54.1	205
	24	0.0	0.0	0.0	0.0	26.0	20.6	53.4	204

Table D-3. (Continued).

	A	B	C	DD	DN	E	F	NUM
<b>ANNUAL</b>								
1	0.0	0.0	0.0	0.0	41.8	24.1	34.1	2525
2	0.0	0.0	0.0	0.0	40.6	23.9	35.5	2485
3	0.0	0.0	0.0	0.0	40.8	23.4	35.8	2485
4	0.0	0.0	0.0	0.0	39.5	23.4	37.0	2486
5	0.0	0.0	0.0	0.0	38.7	24.0	37.3	2515
6	0.0	0.0	0.0	0.0	38.2	21.3	40.6	2453
7	9.2	3.2	7.4	15.2	20.8	15.0	29.3	2457
8	21.1	9.1	16.1	20.6	10.0	7.3	15.7	2483
9	35.4	14.0	23.2	27.4	0.0	0.0	0.0	2547
10	37.3	14.4	23.3	25.1	0.0	0.0	0.0	2471
11	36.3	16.3	24.8	22.7	0.0	0.0	0.0	2485
12	31.8	16.4	26.7	25.0	0.0	0.0	0.0	2500
13	28.1	16.7	28.7	26.5	0.0	0.0	0.0	2551
14	23.0	15.9	30.0	31.1	0.0	0.0	0.0	2470
15	18.5	13.8	31.9	35.8	0.0	0.0	0.0	2481
16	12.2	10.7	31.7	45.4	0.0	0.0	0.0	2486
17	3.7	5.6	22.2	41.1	16.8	5.4	5.2	2558
18	1.2	1.8	11.5	30.1	32.8	11.2	11.4	2508
19	0.2	0.6	2.6	6.8	53.4	17.9	18.5	2502
20	0.0	0.0	0.0	0.0	55.2	19.3	25.5	2497
21	0.0	0.0	0.0	0.0	48.1	23.0	28.9	2533
22	0.0	0.0	0.0	0.0	44.3	23.4	32.3	2471
23	0.0	0.0	0.0	0.0	43.1	22.3	34.5	2478
24	0.0	0.0	0.0	0.0	41.9	23.3	34.7	2472

**Appendix E**

**Sigma v**

Table E-1. Diurnal variation of sigma v percentiles  $\text{ms}^{-1}$  from the LLNL tower (1979 to 1987).

Hour (PST)		10	25	50	75	90
JAN.	0	0.088	0.230	0.466	0.739	1.084
	1	0.097	0.226	0.421	0.736	1.188
	2	0.101	0.198	0.438	0.771	1.196
	3	0.091	0.265	0.398	0.746	1.078
	4	0.082	0.238	0.437	0.706	1.082
	5	0.133	0.247	0.456	0.726	1.099
	6	0.124	0.266	0.489	0.754	1.117
	7	0.126	0.234	0.442	0.763	1.122
	8	0.149	0.269	0.453	0.749	1.131
	9	0.140	0.337	0.569	0.833	1.174
	10	0.275	0.442	0.704	1.092	1.597
	11	0.404	0.590	0.901	1.141	1.426
	12	0.437	0.646	0.893	1.222	1.540
	13	0.493	0.663	0.881	1.079	1.457
	14	0.468	0.631	0.821	1.063	1.347
	15	0.366	0.547	0.705	0.922	1.235
	16	0.255	0.399	0.594	0.845	1.106
	17	0.125	0.310	0.465	0.681	1.039
	18	0.119	0.266	0.453	0.670	0.986
	19	0.129	0.261	0.440	0.673	1.044
	20	0.090	0.225	0.411	0.684	1.041
	21	0.099	0.203	0.416	0.676	1.070
	22	0.117	0.227	0.423	0.703	1.140
	23	0.088	0.236	0.465	0.784	1.194
FEB.	0	0.066	0.171	0.420	0.821	1.190
	1	0.070	0.163	0.373	0.728	1.127
	2	0.097	0.212	0.505	0.745	1.183
	3	0.093	0.230	0.486	0.810	1.228
	4	0.085	0.202	0.424	0.777	1.157
	5	0.097	0.224	0.458	0.737	1.209
	6	0.086	0.249	0.514	0.789	1.128
	7	0.105	0.237	0.461	0.815	1.331
	8	0.109	0.223	0.470	0.757	1.198
	9	0.192	0.369	0.660	1.020	1.655
	10	0.314	0.534	0.899	1.263	1.867
	11	0.456	0.682	0.985	1.257	2.071
	12	0.574	0.783	1.053	1.405	2.168
	13	0.617	0.808	1.066	1.407	1.803
	14	0.560	0.833	1.072	1.339	1.809
	15	0.477	0.734	0.952	1.241	1.788
	16	0.343	0.499	0.698	0.987	1.472
	17	0.201	0.340	0.570	0.889	1.264
	18	0.190	0.318	0.528	0.779	1.126
	19	0.125	0.296	0.495	0.790	1.172
	20	0.094	0.236	0.458	0.778	1.269
	21	0.151	0.265	0.461	0.782	1.169
	22	0.090	0.205	0.406	0.745	1.166
	23	0.078	0.190	0.465	0.756	1.095

Table E-1. (Continued).

Hour (PST)	10	25	50	75	90
MARCH 0	0.102	0.230	0.440	0.662	0.974
1	0.079	0.220	0.432	0.681	0.951
2	0.122	0.243	0.432	0.671	1.010
3	0.074	0.223	0.413	0.614	0.998
4	0.090	0.229	0.388	0.658	0.944
5	0.107	0.256	0.450	0.738	1.081
6	0.087	0.251	0.436	0.627	1.044
7	0.108	0.273	0.457	0.698	1.084
8	0.183	0.377	0.553	0.812	1.272
9	0.354	0.565	0.801	1.060	1.605
10	0.535	0.740	0.935	1.192	2.018
11	0.654	0.831	1.025	1.331	2.144
12	0.676	0.897	1.131	1.422	2.250
13	0.674	0.881	1.173	1.543	2.269
14	0.649	0.862	1.145	1.446	2.093
15	0.598	0.795	0.995	1.345	1.742
16	0.468	0.630	0.905	1.122	1.501
17	0.297	0.473	0.703	0.909	1.200
18	0.251	0.446	0.635	0.870	1.161
19	0.210	0.375	0.540	0.769	1.038
20	0.165	0.335	0.484	0.723	0.970
21	0.106	0.272	0.478	0.681	0.926
22	0.119	0.265	0.428	0.669	0.924
23	0.096	0.248	0.449	0.683	0.965
APRIL 0	0.105	0.242	0.432	0.721	0.992
1	0.082	0.205	0.435	0.697	1.004
2	0.071	0.232	0.432	0.670	1.003
3	0.077	0.229	0.449	0.670	0.940
4	0.085	0.244	0.474	0.736	1.054
5	0.118	0.203	0.454	0.703	1.014
6	0.113	0.264	0.486	0.724	1.204
7	0.192	0.362	0.571	0.903	1.338
8	0.339	0.584	0.855	1.096	1.703
9	0.653	0.876	1.108	1.388	2.225
10	0.830	1.022	1.253	1.533	2.739
11	0.888	1.063	1.249	1.579	2.408
12	0.925	1.138	1.363	1.739	2.713
13	0.933	1.117	1.382	1.774	2.751
14	0.866	1.137	1.405	1.770	3.023
15	0.807	1.019	1.252	1.559	2.040
16	0.687	0.903	1.115	1.337	1.833
17	0.541	0.772	0.941	1.172	1.527
18	0.395	0.604	0.744	0.974	1.288
19	0.315	0.491	0.674	0.894	1.102
20	0.233	0.404	0.586	0.779	1.039
21	0.175	0.332	0.547	0.792	1.156
22	0.143	0.312	0.494	0.753	1.130
23	0.112	0.271	0.479	0.675	1.042

Table E-1. (Continued).

	Hour (PST)	10	25	50	75	90
MAY	0	0.116	0.237	0.500	0.735	0.968
	1	0.109	0.246	0.524	0.746	0.914
	2	0.094	0.276	0.483	0.749	0.960
	3	0.122	0.247	0.496	0.781	1.015
	4	0.091	0.239	0.468	0.777	1.018
	5	0.121	0.237	0.476	0.747	0.968
	6	0.140	0.353	0.643	0.887	1.045
	7	0.297	0.577	0.830	1.085	1.250
	8	0.510	0.794	1.015	1.240	1.516
	9	0.742	0.981	1.212	1.470	1.813
	10	0.942	1.112	1.291	1.535	2.133
	11	0.990	1.201	1.426	1.670	2.243
	12	0.947	1.261	1.484	1.721	2.278
	13	1.027	1.258	1.457	1.677	1.985
	14	0.982	1.263	1.470	1.699	1.981
	15	1.009	1.212	1.370	1.561	1.791
	16	0.923	1.068	1.237	1.425	1.680
	17	0.753	0.944	1.098	1.295	1.516
	18	0.605	0.731	0.922	1.089	1.271
	19	0.384	0.542	0.732	0.935	1.145
	20	0.271	0.484	0.661	0.878	1.086
	21	0.172	0.374	0.616	0.790	1.056
	22	0.147	0.358	0.560	0.694	0.950
	23	0.131	0.316	0.491	0.684	0.915
JUNE	0	0.137	0.297	0.492	0.754	0.964
	1	0.151	0.298	0.487	0.753	1.007
	2	0.104	0.261	0.511	0.758	1.021
	3	0.099	0.265	0.513	0.761	0.942
	4	0.102	0.239	0.522	0.760	1.019
	5	0.084	0.290	0.550	0.792	1.047
	6	0.193	0.408	0.679	0.879	1.144
	7	0.314	0.602	0.872	1.044	1.276
	8	0.537	0.788	1.006	1.253	1.514
	9	0.712	0.962	1.199	1.429	1.746
	10	0.884	1.125	1.364	1.613	2.340
	11	1.065	1.253	1.451	1.623	1.979
	12	1.145	1.291	1.485	1.728	2.167
	13	1.191	1.376	1.582	1.810	2.217
	14	1.216	1.382	1.549	1.776	2.222
	15	1.137	1.308	1.460	1.641	1.947
	16	1.056	1.189	1.331	1.490	1.699
	17	0.919	1.012	1.171	1.367	1.561
	18	0.682	0.825	1.008	1.248	1.418
	19	0.475	0.599	0.817	1.033	1.252
	20	0.335	0.499	0.669	0.907	1.095
	21	0.247	0.410	0.601	0.832	1.032
	22	0.238	0.385	0.567	0.788	0.961
	23	0.191	0.312	0.529	0.724	0.913

Table E-1. (Continued).

	Hour (PST)	10	25	50	75	90
JULY	0	0.137	0.314	0.433	0.691	0.939
	1	0.130	0.264	0.449	0.659	0.977
	2	0.104	0.276	0.417	0.666	0.942
	3	0.103	0.242	0.411	0.697	0.902
	4	0.084	0.235	0.371	0.637	0.842
	5	0.092	0.237	0.411	0.611	0.851
	6	0.113	0.303	0.538	0.758	1.031
	7	0.232	0.440	0.718	0.914	1.164
	8	0.331	0.633	0.897	1.169	1.393
	9	0.545	0.855	1.060	1.346	1.510
	10	0.777	1.006	1.225	1.425	1.680
	11	0.927	1.074	1.325	1.556	1.779
	12	1.029	1.253	1.445	1.640	2.003
	13	1.091	1.287	1.468	1.701	1.983
	14	1.163	1.298	1.437	1.646	1.905
	15	1.110	1.235	1.405	1.601	1.772
	16	0.984	1.144	1.309	1.508	1.748
	17	0.898	0.998	1.143	1.330	1.549
	18	0.679	0.787	0.931	1.134	1.354
	19	0.461	0.573	0.735	0.946	1.100
	20	0.365	0.462	0.635	0.802	1.062
	21	0.247	0.414	0.560	0.740	0.953
	22	0.166	0.360	0.479	0.731	0.984
	23	0.183	0.307	0.454	0.633	0.952
AUG.	0	0.161	0.281	0.434	0.579	0.825
	1	0.165	0.274	0.410	0.562	0.892
	2	0.159	0.270	0.394	0.607	0.911
	3	0.133	0.255	0.397	0.627	0.864
	4	0.121	0.228	0.421	0.691	0.888
	5	0.115	0.254	0.429	0.711	0.900
	6	0.156	0.340	0.480	0.751	0.957
	7	0.321	0.482	0.694	0.845	1.108
	8	0.442	0.635	0.850	1.050	1.276
	9	0.629	0.810	1.016	1.210	1.490
	10	0.839	0.964	1.179	1.403	1.938
	11	0.874	1.072	1.261	1.516	1.970
	12	1.041	1.203	1.383	1.652	2.063
	13	1.116	1.263	1.441	1.636	2.032
	14	1.084	1.286	1.432	1.665	2.112
	15	1.056	1.189	1.382	1.587	2.005
	16	0.986	1.098	1.266	1.476	1.773
	17	0.835	0.931	1.089	1.261	1.550
	18	0.660	0.730	0.875	1.091	1.419
	19	0.456	0.569	0.703	0.934	1.240
	20	0.357	0.441	0.565	0.764	1.125
	21	0.310	0.402	0.507	0.740	1.040
	22	0.238	0.339	0.471	0.635	0.879
	23	0.199	0.327	0.415	0.573	0.846

Table E-1. (Continued).

Hour (PST)	10	25	50	75	90
SEPT. 0	0.094	0.184	0.352	0.550	0.806
1	0.078	0.160	0.314	0.553	0.852
2	0.088	0.153	0.291	0.537	0.814
3	0.078	0.147	0.332	0.584	0.784
4	0.085	0.161	0.338	0.603	0.802
5	0.079	0.151	0.379	0.627	0.837
6	0.066	0.174	0.380	0.629	0.878
7	0.138	0.301	0.492	0.706	0.961
8	0.244	0.468	0.724	0.973	1.229
9	0.470	0.736	0.985	1.228	1.610
10	0.735	0.965	1.152	1.419	1.969
11	0.931	1.096	1.266	1.538	2.133
12	0.951	1.153	1.344	1.587	2.116
13	1.002	1.192	1.415	1.690	2.084
14	1.014	1.166	1.384	1.640	2.004
15	0.875	1.107	1.275	1.484	1.670
16	0.836	0.982	1.141	1.334	1.575
17	0.618	0.745	0.917	1.150	1.386
18	0.421	0.570	0.720	0.903	1.128
19	0.269	0.415	0.575	0.780	1.044
20	0.161	0.316	0.510	0.714	0.974
21	0.155	0.288	0.452	0.665	0.921
22	0.118	0.250	0.420	0.678	0.886
23	0.094	0.217	0.376	0.605	0.902
OCT. 0	0.078	0.146	0.307	0.518	0.900
1	0.071	0.138	0.291	0.574	0.929
2	0.055	0.126	0.286	0.533	0.804
3	0.057	0.144	0.310	0.511	0.851
4	0.063	0.150	0.320	0.566	0.812
5	0.074	0.139	0.340	0.562	0.784
6	0.058	0.154	0.314	0.527	0.819
7	0.082	0.165	0.333	0.592	0.952
8	0.144	0.280	0.457	0.697	1.028
9	0.294	0.467	0.719	0.987	1.302
10	0.547	0.779	0.989	1.185	1.669
11	0.685	0.896	1.127	1.359	1.863
12	0.774	0.974	1.195	1.478	2.070
13	0.709	0.999	1.218	1.424	2.208
14	0.770	0.933	1.163	1.437	1.965
15	0.650	0.812	0.983	1.275	1.531
16	0.530	0.650	0.822	1.062	1.329
17	0.324	0.434	0.633	0.862	1.082
18	0.246	0.374	0.536	0.740	1.021
19	0.143	0.275	0.457	0.715	0.979
20	0.091	0.220	0.396	0.626	0.881
21	0.076	0.199	0.363	0.581	0.827
22	0.073	0.188	0.356	0.611	0.873
23	0.080	0.144	0.347	0.612	0.841



Table E-1. (Continued).

Hour (PST)		10	25	50	75	90
NOV.	0	0.091	0.212	0.365	0.605	1.080
	1	0.067	0.193	0.360	0.629	0.986
	2	0.085	0.212	0.408	0.667	1.029
	3	0.064	0.179	0.386	0.682	1.015
	4	0.091	0.188	0.388	0.626	0.988
	5	0.080	0.212	0.403	0.651	1.054
	6	0.111	0.204	0.410	0.673	0.993
	7	0.097	0.200	0.390	0.649	0.980
	8	0.114	0.257	0.461	0.751	0.988
	9	0.206	0.373	0.612	0.860	1.399
	10	0.337	0.525	0.821	1.112	1.546
	11	0.386	0.676	0.964	1.239	1.560
	12	0.474	0.759	0.984	1.203	1.917
	13	0.527	0.730	0.949	1.228	1.871
	14	0.485	0.701	0.944	1.138	1.533
	15	0.416	0.596	0.789	0.967	1.422
	16	0.296	0.436	0.584	0.847	1.143
	17	0.198	0.305	0.487	0.643	0.904
	18	0.168	0.273	0.431	0.635	0.891
	19	0.150	0.223	0.386	0.605	0.871
	20	0.095	0.173	0.344	0.557	0.833
	21	0.089	0.192	0.333	0.586	0.855
	22	0.095	0.177	0.332	0.576	0.854
	23	0.063	0.182	0.348	0.574	0.810
DEC.	0	0.102	0.227	0.463	0.692	1.156
	1	0.084	0.234	0.454	0.801	1.190
	2	0.090	0.233	0.465	0.867	1.537
	3	0.080	0.219	0.450	0.818	1.809
	4	0.120	0.264	0.445	0.798	1.265
	5	0.084	0.287	0.506	0.835	1.305
	6	0.089	0.256	0.463	0.822	1.551
	7	0.087	0.272	0.503	0.791	1.375
	8	0.165	0.311	0.490	0.847	1.270
	9	0.188	0.363	0.647	0.920	1.617
	10	0.258	0.545	0.872	1.252	2.379
	11	0.355	0.652	0.906	1.232	2.388
	12	0.422	0.708	0.953	1.214	1.892
	13	0.479	0.700	0.976	1.236	3.097
	14	0.453	0.680	0.883	1.169	1.718
	15	0.392	0.559	0.768	1.038	1.852
	16	0.240	0.417	0.598	0.887	1.321
	17	0.183	0.359	0.556	0.842	1.370
	18	0.131	0.257	0.457	0.760	1.173
	19	0.125	0.250	0.467	0.777	1.148
	20	0.092	0.209	0.398	0.717	1.057
	21	0.091	0.210	0.395	0.687	1.164
	22	0.067	0.197	0.435	0.706	1.114
	23	0.097	0.228	0.414	0.776	1.071

Table E-1. (Continued).

Hour (PST)	10	25	50	75	90
<b>ANNUAL</b>					
0	0.099	0.231	0.418	0.684	0.973
1	0.092	0.214	0.413	0.681	0.976
2	0.089	0.211	0.415	0.682	0.991
3	0.085	0.213	0.418	0.684	0.984
4	0.088	0.212	0.416	0.691	0.983
5	0.094	0.217	0.441	0.696	0.997
6	0.104	0.247	0.476	0.744	1.047
7	0.135	0.303	0.557	0.850	1.164
8	0.198	0.401	0.701	1.015	1.325
9	0.319	0.592	0.908	1.232	1.620
10	0.494	0.792	1.093	1.394	1.966
11	0.621	0.915	1.178	1.480	2.010
12	0.682	0.960	1.261	1.559	2.102
13	0.688	0.974	1.288	1.608	2.121
14	0.678	0.947	1.271	1.565	2.031
15	0.584	0.840	1.167	1.457	1.759
16	0.434	0.670	1.033	1.314	1.597
17	0.315	0.531	0.880	1.140	1.416
18	0.262	0.457	0.715	0.968	1.240
19	0.208	0.389	0.593	0.843	1.089
20	0.159	0.318	0.522	0.762	1.037
21	0.135	0.285	0.475	0.724	0.997
22	0.116	0.264	0.450	0.687	0.973
23	0.104	0.244	0.433	0.670	0.958

**Appendix F**  
**Temperature**

Table F-1. Diurnal variation of mean, standard deviation, maximum and minimum temperature (C) from the LLNL tower data set (1979 to 1987).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>JANUARY</b>						
0	5.9	3.6	80 12	17.1	83 13	-1.0
1	5.7	3.8	80 12	18.4	83 13	-2.4
2	5.6	3.8	80 12	17.9	83 13	-3.2
3	5.3	3.9	80 12	18.1	83 13	-3.1
4	5.2	4.0	80 12	17.6	83 13	-3.5
5	5.0	4.0	80 12	16.1	83 13	-3.0
6	4.8	4.0	81 22	16.9	83 13	-3.4
7	4.8	4.1	81 22	17.3	83 13	-3.2
8	5.7	3.9	81 22	17.8	82 14	-1.3
9	7.3	3.5	81 22	18.1	85 18	0.5
10	8.7	3.4	81 22	18.3	82 17	2.2
11	9.7	3.3	81 19	18.3	82 17	2.9
12	10.4	3.3	86 17	18.8	79 30	3.4
13	10.8	3.3	84 23	19.9	79 30	3.7
14	11.1	3.4	84 30	20.3	79 30	4.0
15	11.1	3.4	84 24	19.6	85 23	3.9
16	10.6	3.3	84 25	19.1	85 24	4.1
17	9.3	3.2	84 25	17.5	82 8	2.5
18	8.3	3.2	80 13	16.5	82 8	1.2
19	7.7	3.3	80 13	16.6	82 8	0.6
20	7.1	3.3	80 13	16.4	82 8	0.2
21	6.7	3.2	80 13	16.0	82 17	0.0
22	6.4	3.3	80 12	15.3	82 17	-.4
23	6.1	3.5	80 12	16.6	82 17	-1.2
<b>FEBRUARY</b>						
0	8.1	3.3	87 44	16.7	85 36	-.1
1	7.8	3.4	86 45	16.2	85 36	-.5
2	7.6	3.5	86 45	16.5	85 36	-.8
3	7.4	3.5	86 49	16.0	85 36	-.8
4	7.1	3.6	86 49	16.0	85 36	-1.1
5	7.0	3.6	86 49	16.2	85 36	-1.4
6	6.9	3.6	86 49	16.0	85 36	-1.5
7	7.1	3.6	86 45	16.8	85 34	-.9
8	8.6	3.3	86 45	17.2	85 36	0.6
9	10.5	3.1	86 57	18.4	79 33	2.5
10	12.1	3.0	86 59	19.2	79 33	3.2
11	13.1	3.0	85 59	19.8	79 33	4.6
12	13.9	3.2	85 59	21.0	79 33	4.8
13	14.5	3.4	85 46	21.7	79 33	6.0
14	14.8	3.5	85 55	22.4	79 33	7.3
15	14.7	3.5	86 58	24.0	79 32	6.1
16	14.1	3.5	86 59	23.5	79 32	5.0
17	12.9	3.2	86 59	22.5	79 32	5.0
18	11.4	3.0	86 59	20.2	79 32	4.8
19	10.6	3.1	86 57	19.4	85 36	4.1
20	10.0	3.1	86 57	19.4	85 36	2.1
21	9.4	3.1	85 54	19.3	85 36	1.6
22	9.0	3.2	85 54	18.0	85 36	0.3
23	8.5	3.3	85 54	16.6	85 36	-.1

Table F-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date		Max	Julian Year Date		Min
<b>MARCH</b>								
0	8.4	2.7	86	67	16.3	80	86	2.3
1	8.1	2.8	86	67	16.5	87	79	2.0
2	7.8	2.8	87	86	16.2	80	86	0.8
3	7.6	2.8	86	67	15.4	82	79	0.9
4	7.4	2.9	87	86	14.8	82	79	0.6
5	7.2	3.0	84	62	15.4	82	79	0.2
6	7.2	3.0	84	62	16.8	82	79	0.2
7	8.1	2.7	84	62	18.2	82	79	2.0
8	10.1	2.6	84	73	17.1	82	75	4.0
9	11.6	2.9	87	90	19.1	82	75	4.7
10	12.7	3.1	84	68	21.0	82	88	4.8
11	13.6	3.2	84	72	21.9	82	90	4.8
12	14.2	3.3	84	72	23.4	82	90	4.6
13	14.7	3.5	84	72	24.0	85	64	7.0
14	15.1	3.7	81	87	24.6	80	85	6.8
15	15.0	3.8	81	87	25.0	83	83	6.3
16	14.5	3.8	86	88	23.5	80	86	6.0
17	13.7	3.5	86	88	23.4	85	65	5.3
18	12.1	3.2	86	88	22.3	82	88	4.6
19	11.0	2.9	86	88	21.3	82	88	4.4
20	10.2	2.8	86	88	19.7	82	88	4.8
21	9.7	2.6	86	88	17.7	85	67	4.6
22	9.2	2.7	86	88	17.5	82	81	3.6
23	8.8	2.7	86	88	17.5	80	86	2.3
<b>APRIL</b>								
0	9.1	2.9	81	119	21.8	82	91	2.9
1	8.8	2.8	81	119	20.9	82	91	2.1
2	8.5	2.8	81	118	19.6	79	109	1.9
3	8.2	2.8	81	118	18.8	79	109	1.2
4	7.9	2.8	85	94	18.2	82	91	1.0
5	7.8	2.8	85	94	17.8	83	103	1.2
6	8.6	3.0	81	118	19.9	82	96	1.6
7	10.8	3.2	81	120	23.2	82	91	4.1
8	12.8	3.5	81	120	26.6	82	91	6.3
9	14.4	3.8	81	120	29.8	80	112	6.7
10	15.7	4.2	81	120	32.8	82	91	8.0
11	16.8	4.3	81	120	33.9	82	91	9.0
12	17.8	4.6	81	120	34.4	82	91	6.1
13	18.4	5.0	81	120	34.2	82	91	4.8
14	18.7	5.2	81	119	34.3	82	91	4.8
15	18.6	5.3	81	119	34.9	82	91	6.4
16	17.9	5.3	81	120	34.5	82	91	4.2
17	16.7	5.0	81	120	33.5	82	91	4.0
18	14.9	4.6	81	119	30.9	82	91	3.9
19	12.9	3.9	81	120	26.8	82	107	2.8
20	11.7	3.5	81	119	24.2	82	91	4.1
21	10.9	3.2	81	119	23.7	82	91	4.3
22	10.2	3.0	81	120	22.0	82	91	3.9
23	9.7	2.9	81	120	20.5	82	91	3.2

Table F-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>MAY</b>						
0	10.5	2.8	84 150	19.4	85 132	4.9
1	10.1	2.7	84 149	18.9	82 122	4.0
2	9.8	2.8	84 150	18.1	82 122	3.4
3	9.5	2.9	81 131	19.4	85 132	3.1
4	9.3	3.2	82 144	20.4	82 130	2.8
5	9.4	3.3	82 144	21.6	82 130	2.8
6	11.1	3.4	84 148	25.5	82 122	4.1
7	13.2	3.8	84 149	28.2	79 128	8.0
8	15.1	4.3	84 149	32.3	79 128	9.1
9	17.0	4.6	84 149	34.7	80 132	9.8
10	18.6	4.8	84 149	36.6	85 130	9.4
11	19.8	5.0	84 149	37.5	80 132	10.6
12	20.9	5.3	84 149	38.8	80 132	10.8
13	21.5	5.5	84 149	39.1	80 145	7.6
14	21.8	5.7	84 149	39.2	86 126	10.3
15	21.6	5.8	84 149	38.4	80 145	8.5
16	20.7	5.7	84 149	37.3	80 131	9.3
17	19.4	5.6	84 149	36.2	80 131	10.3
18	17.3	5.3	84 149	34.5	85 130	9.6
19	14.9	4.5	84 149	30.0	85 130	8.4
20	13.3	3.9	84 149	26.1	85 132	7.4
21	12.3	3.4	84 149	23.5	85 132	6.9
22	11.6	3.1	84 149	21.3	84 127	6.5
23	11.0	2.9	84 150	20.3	85 132	5.9
<b>JUNE</b>						
0	13.7	3.3	81 166	24.6	82 157	7.7
1	13.3	3.1	81 173	23.1	82 157	7.3
2	12.9	2.9	81 173	21.4	82 159	6.6
3	12.6	2.9	81 166	22.1	82 159	5.4
4	12.3	2.8	81 166	21.8	82 156	5.7
5	12.5	2.8	85 162	22.1	82 159	6.0
6	14.5	3.5	85 162	27.6	80 157	8.9
7	16.7	4.5	81 172	29.5	82 153	9.5
8	18.7	5.1	81 170	31.0	82 153	10.1
9	20.6	5.3	81 173	33.3	82 153	10.6
10	22.4	5.6	81 173	34.8	82 153	11.8
11	23.8	5.8	81 178	36.2	80 164	10.3
12	25.0	5.9	81 178	37.9	80 164	10.4
13	25.8	6.1	81 178	39.5	80 164	10.4
14	26.1	6.1	81 178	39.2	80 156	15.1
15	25.9	6.2	81 170	39.6	80 156	14.7
16	25.0	6.2	81 171	39.5	80 155	13.3
17	23.6	6.2	81 171	38.7	80 155	12.1
18	21.6	6.0	81 171	37.4	80 155	11.0
19	19.1	5.5	81 171	33.4	82 154	10.3
20	17.1	4.9	81 156	30.2	82 154	9.4
21	15.8	4.4	81 171	28.9	82 154	9.1
22	14.9	3.9	81 171	27.4	82 158	8.8
23	14.3	3.6	81 166	25.3	82 159	8.3

Table F-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
JULY						
0	14.9	3.2	84 198	24.2	85 204	8.9
1	14.3	2.9	84 198	22.9	83 184	8.3
2	13.8	2.8	84 196	22.7	85 212	8.1
3	13.4	2.7	84 196	22.5	83 184	8.4
4	13.1	2.7	84 196	22.5	85 204	4.6
5	13.2	2.6	84 196	22.0	83 190	7.6
6	14.9	3.1	84 184	25.8	85 194	10.3
7	17.2	4.2	84 184	31.4	85 200	11.6
8	19.3	4.7	84 184	34.7	80 185	12.6
9	21.6	5.0	84 184	37.2	80 185	13.7
10	23.7	5.3	84 184	37.9	82 182	15.0
11	25.6	5.4	84 184	38.9	80 184	15.6
12	26.9	5.5	84 184	40.3	80 184	15.9
13	28.0	5.5	84 184	41.8	82 182	16.3
14	28.5	5.5	84 184	41.0	82 182	16.2
15	28.3	5.7	84 195	40.5	87 198	16.1
16	27.4	5.8	84 196	40.7	82 183	15.6
17	26.0	5.8	84 196	39.2	83 184	14.3
18	23.9	5.4	84 196	36.7	82 183	14.4
19	21.1	5.0	84 196	33.1	83 198	12.5
20	18.7	4.5	84 196	30.0	85 210	11.5
21	17.4	4.1	84 196	28.0	83 199	11.0
22	16.4	3.8	84 196	26.6	85 204	10.6
23	15.6	3.5	84 196	25.1	85 209	9.0
AUGUST						
0	14.8	2.4	80 214	22.3	80 241	9.9
1	14.3	2.3	80 214	21.7	80 241	9.6
2	13.9	2.1	80 214	21.0	80 241	8.3
3	13.6	2.0	80 214	20.2	80 241	7.6
4	13.4	1.9	84 226	19.8	80 241	8.7
5	13.3	1.9	84 226	19.1	81 238	8.8
6	14.1	2.1	84 221	21.8	80 241	9.6
7	16.2	3.2	84 221	27.3	80 241	10.2
8	18.4	3.7	84 221	30.7	80 241	12.0
9	20.9	4.1	84 221	33.5	79 225	13.6
10	23.3	4.3	84 222	36.5	79 225	14.3
11	25.3	4.5	84 222	38.5	79 225	15.7
12	27.1	4.6	84 222	40.5	79 225	17.5
13	28.3	4.8	84 222	42.1	79 224	18.0
14	28.6	4.8	84 221	40.2	79 224	17.4
15	28.5	4.9	84 220	39.8	80 226	16.9
16	27.6	5.0	84 221	39.8	80 227	15.5
17	25.8	4.9	84 222	36.9	80 227	14.0
18	23.2	4.6	84 222	34.2	80 227	12.8
19	20.2	4.2	84 221	30.9	80 228	11.5
20	18.3	3.7	84 221	29.4	80 228	11.0
21	17.1	3.3	81 219	25.9	80 228	10.8
22	16.1	2.9	80 214	24.5	80 242	10.7
23	15.4	2.6	80 214	23.3	80 241	9.9

Table F-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>SEPTEMBER</b>						
0	14.4	2.9	84 262	25.1	86 265	8.9
1	13.9	2.8	84 262	24.7	86 271	8.5
2	13.5	2.8	84 262	24.3	85 254	7.8
3	13.2	2.9	84 252	25.2	85 252	7.1
4	13.0	2.9	84 252	24.4	86 271	7.1
5	12.9	3.0	84 252	24.0	86 271	6.9
6	13.2	3.1	79 254	23.7	86 271	7.1
7	15.4	3.4	84 252	27.5	85 273	9.4
8	17.9	4.2	84 252	30.8	85 272	10.3
9	20.2	4.7	84 253	35.3	85 272	10.8
10	22.2	5.0	84 253	37.5	85 272	11.3
11	23.8	5.2	84 253	39.4	85 272	11.9
12	25.2	5.3	84 253	39.8	85 272	12.4
13	26.1	5.4	84 253	40.2	85 272	13.2
14	26.6	5.5	84 253	40.7	85 272	14.0
15	26.4	5.6	84 253	40.4	85 272	14.9
16	25.5	5.4	84 254	38.8	86 268	14.8
17	23.7	5.3	84 253	37.3	85 273	14.2
18	21.0	4.8	84 253	33.9	85 272	11.9
19	18.9	4.3	79 256	31.1	85 273	11.0
20	17.5	3.8	84 262	29.4	85 273	10.3
21	16.5	3.5	84 262	27.8	85 273	9.4
22	15.5	3.2	84 262	26.2	85 273	8.8
23	14.8	3.0	84 262	25.6	85 259	9.2
<b>OCTOBER</b>						
0	12.6	3.3	87 279	21.7	81 286	5.0
1	12.3	3.3	85 276	21.9	81 286	4.1
2	12.0	3.2	87 279	20.8	81 286	4.4
3	11.6	3.2	87 279	20.1	81 286	4.1
4	11.3	3.3	87 278	23.7	85 286	2.5
5	11.1	3.3	87 278	23.3	85 286	2.8
6	11.0	3.4	87 278	26.0	85 286	2.8
7	12.5	3.4	87 278	27.0	85 304	4.6
8	15.4	3.8	87 278	28.9	85 304	5.2
9	17.7	4.2	87 278	30.5	85 304	7.8
10	19.5	4.4	80 276	32.3	85 302	8.9
11	21.0	4.6	80 277	34.0	85 294	8.8
12	22.2	4.7	87 279	34.7	85 294	9.9
13	23.0	4.8	80 277	35.9	85 294	12.0
14	23.3	5.1	80 278	36.8	84 282	4.2
15	23.1	5.0	80 277	37.1	85 292	12.5
16	22.0	5.0	80 278	36.2	85 293	9.6
17	19.9	4.8	80 278	34.3	85 303	8.8
18	17.7	4.2	80 278	30.8	85 303	9.1
19	16.3	3.8	87 279	28.8	85 303	7.9
20	15.2	3.6	87 279	27.7	81 278	7.5
21	14.4	3.4	87 279	24.8	85 302	5.7
22	13.7	3.2	87 279	23.8	81 286	6.3
23	13.1	3.3	87 279	22.7	81 286	5.6



Table F-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>NOVEMBER</b>						
0	9.0	3.5	86 310	17.7	85 323	-1.4
1	8.8	3.5	85 306	17.1	85 317	-.5
2	8.5	3.5	86 310	16.1	85 323	-2.1
3	8.3	3.6	80 309	17.7	85 317	-1.7
4	8.2	3.6	80 309	17.4	85 317	-2.3
5	8.0	3.7	83 320	16.6	85 317	-2.0
6	7.8	3.8	83 314	16.9	85 326	-2.3
7	8.1	3.9	81 305	19.0	85 317	-1.4
8	10.0	3.9	81 305	20.1	82 320	1.4
9	11.7	3.9	80 309	20.7	82 334	1.8
10	13.2	4.0	83 310	22.4	82 334	1.8
11	14.5	4.2	83 307	25.1	82 334	1.5
12	15.2	4.4	83 307	25.6	82 317	2.8
13	15.6	4.5	86 307	25.5	82 317	2.9
14	15.7	4.6	86 307	25.3	82 317	3.3
15	15.4	4.5	86 308	25.9	82 334	4.1
16	14.9	4.3	86 309	25.6	85 316	3.9
17	13.0	3.9	86 309	22.3	85 316	3.3
18	11.9	3.6	86 306	20.4	82 320	2.9
19	11.1	3.5	86 306	20.4	85 316	1.9
20	10.5	3.4	86 306	20.0	85 317	1.2
21	10.0	3.4	86 306	19.6	85 317	1.0
22	9.6	3.4	86 306	18.6	85 323	-.4
23	9.3	3.4	86 306	17.5	85 323	-1.6
<b>DECEMBER</b>						
0	6.5	3.7	87 336	14.4	85 360	-4.6
1	6.3	3.7	87 336	14.8	85 358	-4.2
2	6.0	3.9	81 354	14.9	85 359	-4.6
3	5.9	4.0	81 354	15.7	85 359	-4.7
4	5.8	4.1	81 354	15.9	85 362	-5.0
5	5.9	4.2	83 340	16.7	85 362	-5.6
6	5.7	4.2	83 340	16.1	85 362	-5.2
7	5.7	4.2	83 340	15.9	85 360	-5.2
8	6.6	3.9	81 353	15.1	85 360	-4.1
9	8.0	3.7	87 336	16.5	85 360	-2.3
10	9.6	3.5	87 343	18.0	85 362	0.5
11	10.9	3.4	81 353	19.3	85 355	2.6
12	11.7	3.4	79 339	19.0	79 361	2.9
13	12.1	3.4	79 338	19.3	85 344	2.0
14	12.2	3.4	79 339	19.5	85 344	2.6
15	11.9	3.4	79 339	19.5	85 363	3.2
16	11.1	3.2	79 340	18.1	85 348	3.5
17	9.6	3.1	81 354	17.9	85 347	2.7
18	8.8	3.1	81 354	17.6	85 346	0.9
19	8.3	3.1	81 354	17.4	85 362	0.3
20	7.9	3.2	81 354	17.4	85 362	-.6
21	7.4	3.3	81 354	16.2	85 347	-.8
22	7.1	3.4	87 336	15.3	85 362	-1.5
23	6.7	3.7	87 336	15.1	85 354	-4.0

Table F-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>ANNUAL</b>						
0	10.6	4.4	84 262	25.1	85 360	-4.6
1	10.3	4.3	84 262	24.7	85 358	-4.2
2	9.9	4.3	84 262	24.3	85 359	-4.6
3	9.7	4.3	84 252	25.2	85 359	-4.7
4	9.5	4.3	84 252	24.4	85 362	-5.0
5	9.4	4.3	84 252	24.0	85 362	-5.6
6	9.9	4.8	85 162	27.6	85 362	-5.2
7	11.3	5.6	84 184	31.4	85 360	-5.2
8	13.2	6.1	84 184	34.7	85 360	-4.1
9	15.1	6.4	84 184	37.2	85 360	-2.3
10	16.8	6.7	84 184	37.9	85 362	0.5
11	18.1	7.0	84 253	39.4	82 334	1.5
12	19.1	7.3	84 222	40.5	82 317	2.8
13	19.8	7.6	84 222	42.1	85 344	2.0
14	20.1	7.7	84 184	41.0	85 344	2.6
15	20.0	7.7	84 195	40.5	85 363	3.2
16	19.2	7.6	84 196	40.7	85 348	3.5
17	17.7	7.4	84 196	39.2	82 8	2.5
18	15.9	6.8	81 171	37.4	85 346	0.9
19	14.3	6.0	81 171	33.4	85 362	0.3
20	13.1	5.3	81 156	30.2	85 362	-0.6
21	12.2	4.9	81 171	28.9	85 347	-0.8
22	11.6	4.7	81 171	27.4	85 362	-1.5
23	11.1	4.5	84 262	25.6	85 354	-4.0

**Appendix G**  
**Relative Humidity**

Table G-1. Diurnal variation of mean, standard deviation, maximum, and minimum of relative humidity (%) from the LLNL tower data set (1986 to 1987).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>JANUARY</b>						
0	92.4	13.8	88	1	100	88 24 39
1	92.8	13.8	88	1	100	88 24 39
2	91.9	14.8	88	1	100	88 24 37
3	91.7	15.3	88	1	100	88 24 31
4	92.4	14.5	88	1	100	88 24 34
5	92.7	13.8	88	1	100	88 24 43
6	93.4	12.8	88	1	100	88 24 46
7	93.7	12.1	88	1	100	88 24 50
8	91.7	13.2	88	1	100	88 24 49
9	90.1	13.6	88	1	100	88 24 47
10	86.9	14.7	88	1	100	88 24 40
11	81.4	14.8	88	3	100	88 24 41
12	78.4	15.5	88	2	100	88 24 44
13	77.3	16.0	88	2	100	88 21 45
14	77.8	16.7	88	2	100	88 21 46
15	79.2	16.7	88	1	100	88 21 47
16	81.6	16.2	88	2	100	88 25 46
17	86.3	13.8	88	2	100	88 25 49
18	88.7	14.0	88	2	100	88 25 49
19	89.5	14.7	88	2	100	88 25 44
20	89.7	14.9	88	1	100	88 25 48
21	90.3	15.8	88	1	100	88 24 45
22	90.8	15.4	88	1	100	88 24 42
23	91.5	15.5	88	1	100	88 24 38
<b>FEBRUARY</b>						
0	83.4	17.8	88	32	100	88 50 38
1	83.6	17.7	88	32	100	88 45 37
2	81.9	18.9	88	32	100	88 45 36
3	81.5	19.7	88	33	100	88 45 36
4	80.7	20.3	88	33	100	88 47 30
5	81.2	20.8	88	33	100	88 47 28
6	82.0	20.4	88	39	100	88 47 30
7	80.5	20.8	88	32	100	88 47 33
8	75.1	21.3	88	53	100	88 47 33
9	69.6	21.2	88	53	100	88 47 31
10	64.8	18.8	88	54	97	88 47 29
11	60.0	15.7	88	55	91	88 47 30
12	56.2	14.1	88	55	86	88 48 29
13	54.0	14.5	88	60	88	88 48 26
14	53.0	14.7	88	60	98	88 48 26
15	52.6	14.6	88	60	98	88 48 29
16	53.4	13.0	88	32	78	88 48 30
17	59.3	14.9	88	32	84	88 48 32
18	67.8	16.7	88	32	94	88 48 33
19	71.5	18.6	88	32	100	88 48 33
20	73.6	18.6	88	32	100	88 48 35
21	76.4	18.9	88	32	100	88 50 34
22	80.1	18.3	88	32	100	88 50 34
23	82.1	17.7	88	32	100	88 50 35

Table G-1. (Continued).

Hour (PST)	Mean	StdDev	Julian			Julian		
			Year	Date	Max	Year	Date	Min
<b>MARCH</b>								
0	85.6	19.3	87	60	100	88	88	26
1	86.2	19.5	87	60	100	88	88	28
2	86.8	20.3	87	60	100	87	86	18
3	86.8	19.8	87	60	100	87	86	20
4	87.7	19.8	87	60	100	87	86	20
5	88.1	19.6	87	60	100	87	86	21
6	86.2	21.2	87	60	100	87	86	22
7	82.6	22.0	87	60	100	87	86	23
8	76.1	22.7	87	60	100	87	86	24
9	69.6	22.5	87	60	100	88	87	24
10	64.3	21.3	87	64	100	88	87	23
11	60.2	19.7	87	64	100	88	87	22
12	56.3	19.3	87	64	100	88	87	21
13	53.7	19.3	87	64	100	88	87	19
14	52.3	19.3	87	64	100	88	87	19
15	51.9	20.4	87	64	100	88	87	19
16	55.2	22.2	87	65	100	88	88	20
17	59.5	21.8	87	65	100	88	88	21
18	67.6	20.8	87	65	100	88	88	22
19	73.3	20.1	87	65	100	88	88	22
20	77.0	20.7	87	65	100	88	88	21
21	80.5	20.3	87	60	100	88	88	21
22	82.3	20.2	87	60	100	88	88	22
23	84.6	19.3	87	60	100	88	88	24

April  
No Data

May  
No Data

Table G-1. (Continued).

Hour (PST)	Mean	StdDev	Julian		Max	Julian		Min
			Year	Date		Year	Date	
JUNE								
0	82.6	18.8	87	159	100	86	157	34
1	84.7	18.1	87	155	100	86	157	35
2	86.1	17.2	87	155	100	86	157	36
3	86.9	16.6	87	155	100	86	157	37
4	87.3	16.3	87	155	100	86	157	38
5	87.0	16.2	86	162	100	86	157	39
6	82.3	17.5	87	158	100	86	157	37
7	75.5	20.4	87	159	100	86	156	26
8	67.6	20.5	87	180	100	86	156	24
9	59.6	20.1	87	181	97	86	156	23
10	53.4	18.7	87	181	89	86	156	22
11	48.5	17.4	87	181	81	86	155	19
12	44.1	16.2	87	181	75	86	155	14
13	41.6	15.5	87	181	73	86	155	13
14	40.9	15.0	87	181	72	86	155	12
15	41.2	14.8	87	181	71	86	156	14
16	42.4	14.9	87	171	67	86	157	14
17	46.6	16.2	87	171	76	86	157	14
18	52.6	18.0	87	171	82	86	157	14
19	60.6	20.5	87	181	95	86	157	19
20	67.8	21.3	87	181	100	86	157	23
21	72.6	20.9	87	172	100	86	157	24
22	77.1	20.1	87	160	100	86	157	29
23	80.0	19.8	87	160	100	86	157	31
JULY								
0	93.7	8.2	87	182	100	87	195	64
1	95.1	6.7	87	182	100	87	195	72
2	96.2	5.8	87	183	100	87	195	78
3	96.9	4.6	87	186	100	87	202	85
4	96.9	4.8	87	182	100	87	202	84
5	97.3	4.4	87	182	100	87	202	84
6	93.9	7.4	87	186	100	87	212	73
7	88.3	9.2	87	196	100	87	212	63
8	79.2	9.9	87	182	95	87	212	47
9	69.9	9.8	87	182	91	87	212	42
10	62.2	9.5	87	182	86	87	212	39
11	56.1	10.1	87	182	84	87	212	36
12	51.7	10.0	87	182	80	87	212	29
13	48.5	9.1	87	182	72	87	212	27
14	46.5	9.2	87	198	68	87	212	26
15	46.2	9.5	87	198	71	87	212	26
16	50.6	9.5	87	182	74	87	189	36
17	55.9	10.3	87	182	83	87	195	36
18	62.6	11.4	87	182	90	87	195	37
19	72.7	13.0	87	182	98	87	195	42
20	81.1	12.2	87	182	100	87	195	51
21	85.8	10.5	87	182	100	87	195	57
22	89.0	9.7	87	182	100	87	195	56
23	91.7	9.0	87	182	100	87	195	60

Table G-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>AUGUST</b>						
0	86.8	17.0	86 221	100	87 214	40
1	89.1	15.8	86 218	100	87 214	38
2	90.9	14.4	86 218	100	87 214	40
3	92.4	13.0	86 218	100	87 214	41
4	93.5	11.7	86 218	100	87 214	46
5	94.4	11.1	86 214	100	87 214	44
6	93.1	12.3	86 214	100	87 214	41
7	88.5	14.2	86 220	100	87 214	37
8	79.7	14.5	87 230	99	87 214	33
9	68.8	14.0	87 230	94	87 213	29
10	59.0	13.2	87 230	83	87 214	26
11	51.6	12.4	87 230	74	86 231	24
12	45.5	11.4	87 226	71	86 231	21
13	41.4	11.2	87 226	69	86 231	18
14	39.5	12.0	87 226	71	87 217	17
15	39.7	12.2	87 226	71	87 217	15
16	41.4	12.9	87 227	75	87 216	17
17	45.4	13.7	87 227	80	87 216	19
18	52.3	15.7	87 227	87	86 232	22
19	61.0	17.7	87 226	97	87 216	26
20	68.2	18.0	87 226	98	87 214	31
21	74.0	18.8	86 241	100	87 214	34
22	78.9	18.5	86 241	100	87 215	35
23	83.2	18.0	86 221	100	87 215	38
<b>SEPTEMBER</b>						
0	84.5	17.8	86 250	100	87 252	41
1	86.1	16.9	86 246	100	87 263	44
2	87.2	16.4	86 246	100	87 263	45
3	88.3	16.1	86 246	100	87 263	47
4	88.8	16.0	86 246	100	87 263	47
5	89.9	15.6	86 245	100	87 259	49
6	89.1	15.8	86 246	100	87 259	39
7	83.5	17.8	86 246	100	87 259	34
8	75.8	18.9	87 266	100	87 259	32
9	66.0	18.0	86 260	93	87 270	27
10	57.7	17.2	86 260	90	87 264	23
11	51.8	16.4	86 260	95	87 264	19
12	47.7	15.8	86 260	93	87 264	17
13	45.2	15.7	86 260	84	87 264	16
14	44.3	15.6	86 260	82	87 264	16
15	45.1	15.9	86 267	90	87 263	19
16	47.8	16.9	86 268	95	87 263	19
17	53.0	16.9	86 268	85	87 271	22
18	61.2	18.4	87 257	90	87 265	27
19	68.5	19.9	87 267	99	87 265	31
20	73.6	20.1	87 267	100	87 252	33
21	77.8	19.7	86 251	100	87 252	36
22	80.7	18.8	86 251	100	86 254	39
23	82.8	18.2	86 250	100	87 252	40

Table G-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
<b>OCTOBER</b>						
0	82.8	21.2	86 283	100	87 279	33
1	84.1	20.9	86 283	100	86 275	35
2	85.0	20.7	86 274	100	87 279	34
3	85.8	20.1	86 274	100	87 279	37
4	85.8	20.1	86 283	100	87 278	32
5	85.5	19.9	86 283	100	87 278	32
6	85.6	20.3	86 283	100	87 278	26
7	83.1	21.7	86 283	100	87 278	25
8	76.3	23.7	86 289	100	87 278	23
9	69.1	23.6	87 296	100	87 278	22
10	62.5	22.0	87 296	100	87 278	22
11	56.5	20.3	87 296	99	87 279	21
12	52.0	19.1	87 301	99	87 279	20
13	49.7	19.2	87 301	100	87 279	19
14	48.5	19.2	87 301	100	87 278	19
15	49.0	19.2	87 301	99	87 278	20
16	51.4	19.4	87 302	100	86 278	22
17	57.4	21.1	87 302	100	86 278	22
18	65.3	22.4	87 302	100	87 278	27
19	70.2	23.0	86 284	100	87 278	29
20	73.5	23.3	86 284	100	87 278	28
21	76.1	23.3	86 284	100	86 276	30
22	78.3	22.5	86 284	100	87 279	29
23	80.8	21.9	86 285	100	87 279	32
<b>NOVEMBER</b>						
0	76.6	21.6	87 305	100	86 310	24
1	78.1	20.9	87 305	100	86 310	21
2	78.4	20.4	87 305	100	86 310	20
3	77.6	20.4	87 305	100	86 310	22
4	78.1	20.2	87 305	100	86 310	23
5	78.5	20.3	87 305	100	86 310	24
6	79.7	20.3	87 305	100	86 310	23
7	79.2	20.2	87 305	100	86 310	23
8	75.5	20.9	87 310	100	86 310	22
9	70.6	21.2	87 310	100	86 310	23
10	65.9	21.2	87 317	100	86 310	22
11	61.3	21.3	87 317	100	86 329	20
12	58.6	21.6	87 309	100	86 329	19
13	56.7	22.1	87 309	100	88 310	14
14	55.7	21.2	87 321	100	86 329	16
15	55.9	21.2	87 322	100	86 329	16
16	58.5	22.1	87 322	100	86 330	16
17	65.1	21.9	87 310	100	86 330	19
18	68.5	21.7	87 310	100	86 311	23
19	71.4	21.4	87 310	100	86 330	26
20	73.9	20.7	87 310	100	86 330	24
21	74.9	20.8	87 305	100	86 330	24
22	76.7	20.6	87 305	100	86 330	24
23	76.9	21.3	87 305	100	86 330	24



Table G-1. (Continued).

Hour (PST)	Mean	StdDev	Julian Year	Julian Date	Max	Julian Year	Julian Date	Min
<b>DECEMBER</b>								
0	73.8	19.4	87	335	100	88	350	24
1	73.9	19.5	87	335	100	88	351	26
2	74.4	19.2	87	335	100	88	351	28
3	74.4	19.4	87	335	100	88	351	24
4	74.8	19.4	87	335	100	88	351	21
5	74.7	19.7	87	335	100	88	351	21
6	75.4	19.7	87	335	100	88	351	22
7	76.0	19.6	87	335	100	88	351	26
8	73.9	19.8	87	335	100	88	351	25
9	69.2	19.8	87	335	100	88	351	26
10	64.6	20.7	87	339	100	88	351	22
11	61.8	20.9	87	342	100	88	351	21
12	59.8	21.4	87	340	100	88	350	18
13	58.9	21.7	87	338	100	88	350	19
14	58.3	21.4	87	338	100	88	350	23
15	58.8	21.4	87	338	100	88	349	26
16	61.2	21.0	87	335	100	88	350	23
17	65.3	20.5	87	335	100	88	350	16
18	67.6	20.8	87	335	100	88	350	17
19	69.2	21.0	87	341	100	88	350	18
20	70.2	21.0	87	335	100	88	350	19
21	70.8	20.1	87	335	100	88	350	18
22	71.1	21.4	87	335	100	88	366	3
23	73.1	19.6	87	335	100	88	350	22
<b>ANNUAL</b>								
0	82.5	19.6	86	221	100	86	310	24
1	83.6	19.2	86	218	100	86	310	21
2	84.3	19.1	86	218	100	87	86	18
3	84.6	19.0	86	218	100	87	86	20
4	85.1	18.9	86	218	100	87	86	20
5	85.4	18.9	86	162	100	87	86	21
6	84.7	19.0	86	214	100	87	86	22
7	82.0	19.5	86	220	100	86	310	23
8	76.3	20.1	86	289	100	86	310	22
9	69.5	20.3	87	60	100	87	278	22
10	63.3	20.1	87	64	100	86	156	22
11	58.3	19.5	87	64	100	86	155	19
12	54.6	19.6	87	64	100	86	155	14
13	52.3	19.9	87	64	100	86	155	13
14	51.3	20.0	87	64	100	86	155	12
15	51.6	20.2	87	64	100	86	156	14
16	53.9	20.6	87	65	100	86	157	14
17	59.0	20.9	87	65	100	86	157	14
18	64.7	20.9	87	65	100	86	157	14
19	69.8	20.9	86	284	100	88	350	18
20	73.7	20.6	86	284	100	88	350	19
21	76.5	20.4	86	241	100	88	350	18
22	78.9	20.3	86	241	100	88	366	3
23	81.0	19.8	86	221	100	88	350	22

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**Appendix H**  
**Absolute Humidity**

Table H-1. Absolute humidity frequency distributions (%) for each month from the LLNL tower data set (1986 to 1987). (Note: No data available for April and May.)

Abs. Hum. (g·m <sup>-3</sup> )	Jan	Feb	Mar	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
< 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
3	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	1.0	3.2	0.9
4	0.4	6.6	7.7	0.2	0.0	0.0	0.0	0.0	2.8	5.6	2.5
5	2.7	12.5	3.6	0.4	0.0	0.0	0.0	0.1	12.7	40.5	9.8
6	13.4	15.5	5.3	3.7	0.0	0.0	1.0	5.9	9.8	12.9	6.8
7	20.7	17.0	14.6	4.2	0.0	0.8	4.9	6.0	14.2	15.7	10.0
8	22.9	17.1	23.4	8.5	0.3	2.6	7.6	7.5	15.5	7.2	10.9
9	22.3	8.6	17.7	14.0	2.6	3.0	10.8	10.7	13.4	4.1	10.3
10	10.6	10.2	14.9	17.0	10.9	6.6	14.1	11.4	11.4	2.7	10.4
11	5.1	8.6	8.0	26.4	33.1	15.8	18.5	19.9	8.7	2.9	13.4
12	1.5	3.9	2.3	20.1	35.0	39.8	21.8	21.4	6.6	2.2	14.7
13	0.4	0.0	0.7	5.4	13.8	25.9	17.9	11.1	3.2	1.9	8.2
14	0.0	0.0	0.0	0.3	3.9	5.0	3.2	3.7	0.4	0.5	1.7
15	0.0	0.0	0.0	0.0	0.5	0.4	0.2	1.5	0.2	0.2	0.3
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table H-2. Diurnal variation of mean, standard deviation, maximum and minimum of absolute humidity ( $\text{g}\cdot\text{m}^{-3}$ ) from the LLNL tower data set (1986 to 1987).

Hour (PST)	Mean	StdDev	Julian Year	Julian Date	Max	Julian Year	Julian Date	Min
JANUARY								
0	7.299	1.412	88	10	10.723	88	24	4.529
1	7.164	1.411	88	10	10.592	88	24	4.313
2	6.963	1.427	88	10	10.080	88	24	3.968
3	6.896	1.434	88	10	10.080	88	24	3.535
4	6.948	1.523	88	10	10.080	88	24	3.646
5	6.906	1.490	88	10	9.955	88	24	4.021
6	6.930	1.442	88	10	9.469	88	24	4.168
7	6.941	1.405	88	10	9.469	88	19	4.405
8	7.128	1.428	88	10	9.649	88	19	4.486
9	7.595	1.405	88	10	10.592	88	19	4.537
10	7.986	1.516	88	10	10.923	88	19	4.588
11	8.185	1.623	88	9	11.632	88	19	4.801
12	8.237	1.581	88	27	11.799	88	19	4.956
13	8.201	1.630	88	9	12.116	88	19	4.829
14	8.222	1.596	88	9	12.116	88	19	5.307
15	8.297	1.600	88	9	12.116	88	19	5.645
16	8.268	1.591	88	10	11.970	88	2	5.621
17	8.227	1.528	88	28	11.570	88	2	5.621
18	7.917	1.490	88	10	11.263	88	25	5.190
19	7.761	1.504	88	10	10.723	88	25	4.575
20	7.635	1.428	88	10	10.723	88	25	4.838
21	7.564	1.429	88	10	10.723	88	24	5.552
22	7.491	1.455	88	10	10.723	88	24	5.089
23	7.466	1.530	88	10	10.723	88	24	4.604
FEBRUARY								
0	6.816	1.833	88	57	10.294	88	48	3.703
1	6.759	1.844	88	58	10.178	88	48	3.617
2	6.572	1.774	88	58	9.986	88	48	3.617
3	6.435	1.764	88	58	9.870	88	48	3.687
4	6.334	1.835	88	60	10.187	88	48	3.599
5	6.245	1.852	88	60	10.269	88	47	3.192
6	6.190	1.810	88	60	10.080	88	47	3.277
7	6.180	1.767	88	60	10.080	88	48	3.467
8	6.526	1.824	88	58	11.032	88	48	3.629
9	6.925	1.916	88	60	10.723	88	47	3.600
10	7.299	2.022	88	60	10.932	88	48	3.761
11	7.589	2.114	88	56	10.933	88	47	3.930
12	7.685	2.173	88	56	11.062	88	48	4.080
13	7.745	2.247	88	56	11.217	88	48	3.995
14	7.809	2.271	88	60	11.380	88	48	4.308
15	7.871	2.385	88	60	11.519	88	47	4.492
16	7.785	2.347	88	56	11.229	88	48	4.098
17	7.869	2.369	88	41	11.694	88	48	3.996
18	7.650	2.368	88	41	11.952	88	48	3.998
19	7.384	2.247	88	58	11.263	88	48	3.879
20	7.203	2.175	88	58	11.201	88	48	3.991
21	7.056	2.018	88	59	11.136	88	48	3.823
22	7.032	1.991	88	59	11.239	88	50	3.646
23	6.975	1.964	88	59	10.683	88	50	3.639

Table H-2. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date		Max	Julian Year Date		Min
<b>MARCH</b>								
0	7.517	1.847	87	70	10.333	88	88	2.928
1	7.403	1.861	88	61	10.080	88	88	3.003
2	7.302	1.937	87	70	10.462	87	86	2.488
3	7.235	1.922	87	70	10.551	87	86	2.620
4	7.175	1.969	87	64	10.705	87	86	2.543
5	7.102	1.944	87	64	10.923	87	86	2.670
6	6.919	1.929	87	64	10.783	87	86	2.714
7	7.202	1.962	87	64	11.049	87	86	2.942
8	7.659	2.121	87	70	11.471	88	87	2.895
9	7.712	2.134	87	70	11.730	88	87	2.821
10	7.685	2.123	87	64	11.612	88	87	2.924
11	7.702	2.146	87	71	12.139	88	87	2.917
12	7.695	2.165	87	71	12.245	88	70	3.003
13	7.655	2.231	87	71	12.504	88	87	2.802
14	7.661	2.180	87	71	12.264	88	87	2.919
15	7.555	2.183	87	71	12.312	88	70	2.908
16	7.727	2.327	87	72	12.164	88	71	2.787
17	7.909	2.176	88	64	12.020	88	71	2.993
18	8.129	2.085	88	64	11.613	88	71	2.788
19	8.018	2.033	87	72	11.357	88	71	2.787
20	7.917	1.990	87	71	10.982	88	88	2.702
21	7.855	1.922	87	71	10.856	88	88	2.670
22	7.724	1.864	87	70	10.411	88	88	2.666
23	7.651	1.824	87	70	10.705	88	88	2.873

April  
No Data

May  
No Data

Table H-2. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
JUNE						
0	9.881	1.667	87 172	12.412	86 156	5.805
1	9.930	1.676	87 172	12.487	86 157	5.866
2	9.919	1.655	87 172	12.639	86 157	5.795
3	9.827	1.663	87 172	12.487	86 157	5.785
4	9.775	1.658	87 172	12.116	86 157	5.839
5	9.811	1.615	87 172	12.338	86 157	5.993
6	10.114	1.463	87 172	12.715	87 153	6.650
7	10.187	1.572	87 172	12.970	86 156	6.130
8	10.110	1.639	87 172	13.070	86 156	6.038
9	9.877	1.775	87 180	12.504	86 156	6.104
10	9.729	1.886	87 180	12.643	87 152	5.894
11	9.622	1.870	87 180	12.706	86 155	5.179
12	9.421	1.966	87 180	12.629	86 155	4.023
13	9.377	2.005	87 180	12.745	86 155	3.977
14	9.409	2.050	87 157	12.684	86 155	3.847
15	9.486	1.892	87 157	12.414	86 166	4.678
16	9.361	1.766	87 180	12.365	86 157	5.176
17	9.475	1.799	87 158	13.136	87 153	4.985
18	9.576	1.682	87 158	13.200	86 157	4.921
19	9.583	1.613	86 165	12.302	86 157	5.575
20	9.589	1.617	86 165	12.463	87 153	5.642
21	9.658	1.594	87 172	12.338	86 157	5.446
22	9.808	1.628	87 172	12.487	87 153	5.712
23	9.846	1.671	87 172	12.563	86 157	5.757
JULY						
0	11.316	0.724	87 197	13.126	87 198	10.221
1	11.279	0.749	87 197	12.946	87 198	9.819
2	11.196	0.769	87 197	12.791	87 212	9.744
3	11.068	0.836	87 197	12.715	87 212	9.506
4	10.943	0.843	87 195	12.430	87 212	9.206
5	10.937	0.850	87 196	12.487	87 212	8.981
6	11.242	0.844	87 196	12.791	87 212	9.116
7	11.533	0.995	87 196	13.741	87 212	9.457
8	11.511	1.083	87 196	14.165	87 212	9.235
9	11.392	1.056	87 196	14.195	87 198	9.630
10	11.271	1.135	87 196	14.412	87 212	9.499
11	11.077	1.160	87 196	14.109	87 203	9.092
12	10.998	1.273	87 196	13.932	87 203	8.591
13	10.846	1.281	87 196	13.674	87 212	8.745
14	10.627	1.353	87 196	13.674	87 211	8.225
15	10.468	1.445	87 196	13.498	87 197	7.355
16	10.638	1.315	87 197	13.363	87 198	8.164
17	10.791	1.240	87 197	13.464	87 198	7.933
18	10.918	1.144	87 197	13.077	87 198	8.504
19	11.041	0.990	87 197	13.017	87 201	8.805
20	11.179	0.833	87 197	12.905	87 198	9.273
21	11.253	0.777	87 197	12.985	87 198	9.463
22	11.277	0.776	87 197	12.966	87 198	9.346
23	11.319	0.703	87 197	13.054	87 198	10.034

Table H-2. (Continued).

Hour (PST)	Mean	StdDev	Year	Julian Date	Max	Year	Julian Date	Min
<b>AUGUST</b>								
0	11.329	1.321	87	243	13.864	87	214	7.180
1	11.343	1.335	87	243	13.974	87	214	6.554
2	11.358	1.285	87	243	14.070	87	214	6.627
3	11.392	1.220	87	243	13.741	87	214	6.486
4	11.356	1.127	87	243	13.259	87	214	7.027
5	11.331	1.144	87	243	13.180	87	214	6.605
6	11.547	1.101	87	243	13.498	87	214	7.072
7	11.977	0.980	87	243	13.905	87	214	8.214
8	12.066	0.976	87	243	14.560	87	214	8.665
9	11.943	1.049	87	243	14.636	87	214	8.908
10	11.763	1.153	87	243	14.705	86	231	7.713
11	11.542	1.129	87	243	14.459	86	231	7.458
12	11.357	1.155	87	243	14.293	86	231	7.381
13	11.121	1.239	87	239	13.505	86	231	6.927
14	10.931	1.427	87	238	13.628	87	217	7.048
15	10.955	1.394	87	238	13.696	87	217	6.311
16	11.000	1.397	87	239	13.787	87	216	6.317
17	11.086	1.362	87	239	13.542	87	216	6.412
18	11.115	1.420	87	243	13.462	87	216	6.592
19	11.051	1.412	87	243	13.537	87	216	6.719
20	11.127	1.321	87	243	13.481	87	214	7.632
21	11.155	1.412	87	243	13.548	87	214	7.715
22	11.170	1.420	87	243	13.524	87	215	7.072
23	11.248	1.390	87	243	13.749	87	214	7.081
<b>SEPTEMBER</b>								
0	10.396	1.827	86	246	12.816	87	263	5.770
1	10.319	1.839	87	244	13.123	87	263	5.662
2	10.241	1.801	87	244	13.134	87	263	5.485
3	10.198	1.822	87	244	13.569	87	263	5.425
4	10.100	1.849	87	244	13.686	87	263	5.458
5	10.094	1.871	87	244	13.741	87	263	5.587
6	10.150	1.935	87	244	13.659	87	263	5.736
7	10.621	1.882	87	244	14.307	87	259	5.864
8	10.865	1.907	87	244	14.331	87	259	5.843
9	10.690	1.983	87	244	14.263	87	259	6.125
10	10.324	2.063	87	244	13.599	87	259	6.479
11	10.167	2.002	86	260	13.606	87	259	6.365
12	10.059	1.955	86	246	13.038	86	253	6.370
13	9.981	2.006	87	244	13.205	86	271	6.079
14	9.977	2.007	87	244	13.909	86	253	5.869
15	10.082	1.920	87	244	13.537	86	253	6.056
16	10.149	1.881	87	268	13.448	87	263	6.282
17	10.303	1.638	87	268	13.548	87	271	6.801
18	10.423	1.555	87	268	13.843	87	247	6.874
19	10.502	1.588	87	268	13.994	86	254	6.916
20	10.522	1.694	87	268	13.659	86	254	6.554
21	10.540	1.695	87	268	13.259	86	254	6.227
22	10.542	1.716	87	251	13.270	86	254	6.098
23	10.463	1.781	86	246	12.900	86	254	6.012



Table H-2. (Continued).

Hour (PST)	Mean	StdDev	Julian Year Date	Max	Julian Year Date	Min
OCTOBER						
0	9.935	2.104	87 301	13.987	86 275	4.956
1	9.931	2.168	87 301	14.070	86 275	4.954
2	9.855	2.146	87 301	13.905	86 275	5.145
3	9.781	2.114	87 296	13.659	86 276	5.221
4	9.658	2.052	87 301	13.659	86 276	5.175
5	9.570	2.018	87 301	13.741	86 276	5.114
6	9.500	2.085	87 301	13.822	86 276	5.304
7	9.811	2.124	87 301	14.070	86 276	5.572
8	10.226	2.144	87 301	14.070	86 276	5.685
9	10.332	2.212	87 301	15.276	86 275	5.921
10	10.328	2.264	87 301	16.004	86 275	6.103
11	10.260	2.239	87 301	15.958	86 304	5.866
12	10.166	2.300	87 301	16.028	86 304	5.502
13	10.055	2.325	87 301	15.187	86 304	5.356
14	10.020	2.331	87 301	15.099	86 304	5.319
15	10.118	2.345	87 301	15.752	86 304	5.023
16	10.227	2.187	87 302	15.011	86 275	5.626
17	10.352	2.187	87 297	14.665	86 278	5.416
18	10.415	2.211	87 301	15.058	86 276	5.416
19	10.316	2.186	87 301	14.577	86 275	5.347
20	10.165	2.204	87 301	14.406	86 275	5.226
21	10.019	2.201	87 301	14.322	86 276	5.174
22	9.941	2.137	87 301	14.070	86 276	5.332
23	9.928	2.123	87 301	13.905	86 275	5.134
NOVEMBER						
0	7.464	2.319	87 317	12.190	86 330	2.821
1	7.419	2.263	87 317	12.338	86 310	2.937
2	7.367	2.271	87 317	12.412	86 310	2.748
3	7.247	2.290	87 317	12.715	86 310	2.952
4	7.239	2.290	87 317	12.563	86 310	2.960
5	7.223	2.309	87 317	12.116	86 310	3.015
6	7.280	2.291	87 317	12.116	86 310	2.924
7	7.288	2.289	87 317	12.264	86 310	2.924
8	7.732	2.344	87 317	12.946	86 310	3.059
9	8.039	2.382	87 317	14.262	86 310	3.255
10	8.142	2.376	87 317	13.338	86 310	3.361
11	8.040	2.425	87 317	14.070	86 329	3.037
12	7.931	2.370	87 317	13.363	86 329	3.130
13	7.856	2.464	87 322	12.791	86 329	2.840
14	7.857	2.472	87 323	13.929	86 329	2.856
15	7.858	2.525	87 323	14.177	86 329	2.872
16	7.977	2.587	87 324	13.622	86 330	2.728
17	8.098	2.538	87 324	13.071	86 330	2.753
18	7.947	2.467	87 305	12.993	86 330	2.720
19	7.901	2.400	87 305	12.805	86 330	2.771
20	7.896	2.326	87 305	12.557	86 330	2.654
21	7.761	2.354	87 305	12.412	86 330	2.736
22	7.749	2.332	88 309	12.641	86 330	2.821
23	7.654	2.370	88 311	12.479	86 330	2.838

Table H-2. (Continued).

Hour (PST)	Mean	StdDev	Julian Year	Julian Date	Max	Julian Year	Julian Date	Min
<b>DECEMBER</b>								
0	5.692	2.029	87	336	12.412	88	350	1.926
1	5.666	2.005	87	336	12.715	88	350	2.112
2	5.673	1.984	87	336	12.563	88	350	2.239
3	5.661	2.005	87	336	12.791	88	351	2.244
4	5.675	2.011	87	336	12.412	88	351	2.065
5	5.670	2.054	87	336	12.190	88	351	2.170
6	5.666	2.043	87	336	11.826	88	351	2.176
7	5.694	2.063	87	336	12.338	88	350	2.361
8	5.822	2.163	87	336	12.611	88	351	2.338
9	6.046	2.238	87	344	13.023	88	350	2.455
10	6.186	2.357	87	344	13.659	88	351	2.374
11	6.275	2.404	87	344	13.994	88	351	2.365
12	6.255	2.392	87	344	13.878	88	350	1.942
13	6.235	2.343	87	344	14.307	88	350	2.153
14	6.207	2.327	87	344	14.687	87	358	2.488
15	6.199	2.304	87	344	14.861	87	358	2.649
16	6.256	2.311	87	345	14.070	87	359	2.798
17	6.167	2.298	87	344	13.338	88	350	2.059
18	6.083	2.293	87	344	12.791	88	350	2.023
19	6.037	2.296	87	344	12.639	88	350	1.918
20	5.957	2.243	87	344	12.563	88	350	1.845
21	5.869	2.192	87	344	12.338	88	350	1.621
22	5.740	2.226	87	344	12.338	88	366	0.209
23	5.738	2.073	87	336	12.816	88	350	1.812
<b>ANNUAL</b>								
0	8.565	2.710	87	301	13.987	88	350	1.926
1	8.531	2.721	87	301	14.070	88	350	2.112
2	8.471	2.721	87	243	14.070	88	350	2.239
3	8.410	2.728	87	243	13.741	88	351	2.244
4	8.362	2.706	87	244	13.686	88	351	2.065
5	8.334	2.713	87	244	13.741	88	351	2.170
6	8.386	2.774	87	301	13.822	88	351	2.176
7	8.577	2.882	87	244	14.307	88	350	2.361
8	8.817	2.878	87	243	14.560	88	351	2.338
9	8.906	2.794	87	301	15.276	88	350	2.455
10	8.905	2.736	87	301	16.004	88	351	2.374
11	8.864	2.680	87	301	15.958	88	351	2.365
12	8.785	2.651	87	301	16.028	88	350	1.942
13	8.708	2.646	87	301	15.187	88	350	2.153
14	8.674	2.630	87	301	15.099	87	358	2.488
15	8.693	2.638	87	301	15.752	87	358	2.649
16	8.754	2.629	87	302	15.011	86	330	2.728
17	8.835	2.620	87	297	14.665	88	350	2.059
18	8.833	2.636	87	301	15.058	88	350	2.023
19	8.780	2.632	87	301	14.577	88	350	1.918
20	8.740	2.640	87	301	14.406	88	350	1.845
21	8.686	2.660	87	301	14.322	88	350	1.621
22	8.651	2.689	87	301	14.070	88	366	0.000
23	8.628	2.691	87	301	13.9050	88	350	1.812

**Appendix I**  
**"STAR" Format**

Table I-1. "Star" format for LLNL tower (10-m level) including all data from Jan 1979 to Dec 1987.

N A	.004508.003139.000000.000000.000000.000000	LLNL0111779018712
NNE A	.003205.003456.000000.000000.000000.000000	LLNL0211779018712
NE A	.002688.002437.000000.000000.000000.000000	LLNL0311779018712
ENE A	.001887.001252.000000.000000.000000.000000	LLNL0411779018712
E A	.001807.000551.000000.000000.000000.000000	LLNL0511779018712
ESE A	.001736.000234.000000.000000.000000.000000	LLNL0611779018712
SE A	.001653.000250.000000.000000.000000.000000	LLNL0711779018712
SSE A	.001352.000217.000000.000000.000000.000000	LLNL0811779018712
S A	.001735.000250.000000.000000.000000.000000	LLNL0911779018712
SSW A	.002287.000351.000000.000000.000000.000000	LLNL1011779018712
SW A	.005042.002003.000000.000000.000000.000000	LLNL1111779018712
WSW A	.007796.009382.000000.000000.000000.000000	LLNL1211779018712
W A	.009382.011636.000000.000000.000000.000000	LLNL1311779018712
WNW A	.006912.004658.000000.000000.000000.000000	LLNL1411779018712
NW A	.005862.002454.000000.000000.000000.000000	LLNL1511779018712
NNW A	.005125.002404.000000.000000.000000.000000	LLNL1611779018712
N B	.000851.001219.001937.000000.000000.000000	LLNL0121779018712
NNE B	.000801.001820.001686.000000.000000.000000	LLNL0221779018712
NE B	.000684.001686.001169.000000.000000.000000	LLNL0321779018712
ENE B	.000434.000735.000284.000000.000000.000000	LLNL0421779018712
E B	.000501.000301.000117.000000.000000.000000	LLNL0521779018712
ESE B	.000267.000083.000083.000000.000000.000000	LLNL0621779018712
SE B	.000434.000033.000000.000000.000000.000000	LLNL0721779018712
SSE B	.000467.000117.000100.000000.000000.000000	LLNL0821779018712
S B	.000417.000150.000167.000000.000000.000000	LLNL0921779018712
SSW B	.000417.000250.000117.000000.000000.000000	LLNL1021779018712
SW B	.001152.002187.000935.000000.000000.000000	LLNL1121779018712
WSW B	.001469.007179.004758.000000.000000.000000	LLNL1221779018712
W B	.001035.005877.007195.000000.000000.000000	LLNL1321779018712
WNW B	.001202.001219.001419.000000.000000.000000	LLNL1421779018712
NW B	.001152.000684.000618.000000.000000.000000	LLNL1521779018712
NNW B	.001085.000618.000668.000000.000000.000000	LLNL1621779018712
N C	.001002.001185.003189.001068.000000.000000	LLNL0131779018712
NNE C	.000952.002554.004023.000534.000000.000000	LLNL0231779018712
NE C	.000801.003306.004140.000067.000000.000000	LLNL0331779018712
ENE C	.000417.001352.002220.000117.000000.000000	LLNL0431779018712
E C	.000484.000451.000167.000017.000000.000000	LLNL0531779018712
ESE C	.000401.000250.000050.000000.000000.000000	LLNL0631779018712
SE C	.000417.000150.000083.000017.000000.000000	LLNL0731779018712
SSE C	.000401.000200.000134.000000.000000.000000	LLNL0831779018712
S C	.000317.000250.000167.000033.000000.000000	LLNL0931779018712
SSW C	.000467.000534.000568.000050.000000.000000	LLNL1031779018712
SW C	.001052.003907.008164.001269.000000.000000	LLNL1131779018712
WSW C	.000985.005843.017580.002855.000000.000000	LLNL1231779018712
W C	.000885.003856.021353.003856.000000.000000	LLNL1331779018712
WNW C	.000968.001219.004174.001052.000000.000000	LLNL1431779018712
NW C	.000668.000467.000851.000301.000000.000000	LLNL1531779018712
NNW C	.001002.000568.001119.000401.000000.000000	LLNL1631779018712

Table I-1. (Continued).

N D	.001753.001586.003322.004691.001720.000217	LLNL0141779018712
NNE D	.002053.003122.004691.001987.000284.000067	LLNL0241779018712
NE D	.002421.006294.010234.002137.000050.000000	LLNL0341779018712
ENE D	.005125.006845.007429.002053.000000.000000	LLNL0441779018712
E D	.009483.005259.001586.000284.000017.000000	LLNL0541779018712
ESE D	.013706.003372.000601.000351.000083.000000	LLNL0641779018712
SE D	.008464.001753.000902.000467.000067.000000	LLNL0741779018712
SSE D	.003957.001319.001018.000434.000117.000100	LLNL0841779018712
S D	.003890.003322.001803.000551.000033.000000	LLNL0941779018712
SSW D	.003740.011386.006995.003623.000518.000017	LLNL1041779018712
SW D	.004958.031804.048014.022671.001235.000067	LLNL1141779018712
WSW D	.003556.023239.027296.010301.000267.000017	LLNL1241779018712
W D	.002204.010768.020568.011953.000317.000000	LLNL1341779018712
WNW D	.001720.002220.004925.003773.000184.000000	LLNL1441779018712
NW D	.001319.000885.000868.001619.000117.000000	LLNL1541779018712
NNW D	.001302.000768.001219.001937.000384.000017	LLNL1641779018712
N E	.000935.000551.000684.000000.000000.000000	LLNL0151779018712
NNE E	.001636.000751.000100.000000.000000.000000	LLNL0251779018712
NE E	.002471.001603.000351.000000.000000.000000	LLNL0351779018712
ENE E	.004608.002070.000401.000000.000000.000000	LLNL0451779018712
E E	.012605.003072.000267.000000.000000.000000	LLNL0551779018712
ESE E	.019282.003255.000301.000000.000000.000000	LLNL0651779018712
SE E	.010401.001452.000150.000000.000000.000000	LLNL0751779018712
SSE E	.004658.000952.000200.000000.000000.000000	LLNL0851779018712
S E	.004424.002538.000317.000000.000000.000000	LLNL0951779018712
SSW E	.003556.005159.001369.000000.000000.000000	LLNL1051779018712
SW E	.004374.006962.004157.000000.000000.000000	LLNL1151779018712
WSW E	.002872.007229.001836.000000.000000.000000	LLNL1251779018712
W E	.001669.003873.001252.000000.000000.000000	LLNL1351779018712
WNW E	.000801.000568.000134.000000.000000.000000	LLNL1451779018712
NW E	.000501.000267.000050.000000.000000.000000	LLNL1551779018712
NNW E	.000885.000351.000317.000000.000000.000000	LLNL1651779018712
N F	.005993.001636.000000.000000.000000.000000	LLNL0161779018712
NNE F	.006411.001285.000000.000000.000000.000000	LLNL0261779018712
NE F	.008130.001352.000000.000000.000000.000000	LLNL0361779018712
ENE F	.012354.001786.000000.000000.000000.000000	LLNL0461779018712
E F	.021136.002154.000000.000000.000000.000000	LLNL0561779018712
ESE F	.024291.001953.000000.000000.000000.000000	LLNL0661779018712
SE F	.016528.001135.000000.000000.000000.000000	LLNL0761779018712
SSE F	.011703.000868.000000.000000.000000.000000	LLNL0861779018712
S F	.010000.001068.000000.000000.000000.000000	LLNL0961779018712
SSW F	.009115.001753.000000.000000.000000.000000	LLNL1061779018712
SW F	.010651.002788.000000.000000.000000.000000	LLNL1161779018712
WSW F	.009266.003322.000000.000000.000000.000000	LLNL1261779018712
W F	.006862.002037.000000.000000.000000.000000	LLNL1361779018712
WNW F	.003890.000618.000000.000000.000000.000000	LLNL1461779018712
NW F	.003907.000568.000000.000000.000000.000000	LLNL1561779018712
NNW F	.004190.000835.000000.000000.000000.000000	LLNL1661779018712

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