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A CLIMATOLOGICAL DESCRIPTION OF THE SAVANNAH RIVER SITE (U)

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SAFETY • RESPONSIBILITY • SECURITY
SRS
SAVANNAH RIVER SITE

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EXECUTIVE SUMMARY

This report provides a general climatological description of the Savannah River Site. The format and content of this description is based on Nuclear Regulatory Commission (NRC) guidance for meteorology sections of Safety Analysis Reports (SAR's) contained in Regulatory Guide (RG) 1.70 for nuclear power reactors and RG 3.26 for fuel processing facilities. The content also satisfies NRC guidance for meteorological sections of environmental documents, such as Environmental Impact Statements (EIS's), given in RG 4.2. Although the description is site generic, relatively few changes would be required to use this material as the meteorological input to regulatory-based documents for specific SRS facilities.

The description provides both regional and local scale climatology. The regional climatology includes a general regional climatic description and presents information on occurrence frequencies of the severe meteorological phenomena that are important considerations in the design and siting of a facility. These phenomena include tornadoes, thunderstorms, hurricanes, and ice/snow storms. Occurrence probabilities given for extreme tornado and non-tornado winds are based on previous site specific studies.

Local climatological conditions that are significant with respect to the impact of facility operations on the environment are described using on-site or near-site meteorological data. Summaries of wind speed, wind direction, and atmospheric stability are primarily based on the most recently generated five-year set of data collected from the onsite meteorological tower network (1982-86). Temperature, humidity, and precipitation summaries include data from SRL's standard meteorological instrument shelter and the Augusta National Weather Service office at Bush Field through 1986. A brief description of the onsite meteorological monitoring program is also provided.

REGIONAL CLIMATOLOGY

General Climate

The climate of the southeastern United States, including the Savannah River Site area, is classified as humid subtropical (ref. 1). This climate is characterized by relatively short, mild winters and long, warm, and humid summers.

Summer weather usually lasts from May through September, when the area is strongly influenced by the western extension of the semi-permanent Atlantic sub-tropical anticyclone (the "Bermuda high" pressure system). Winds are relatively light and weather associated with migratory low pressure systems and fronts usually remains well to the north of the area. The "Bermuda high" is a relatively persistent feature, resulting in few breaks in the summer heat. Daytime temperatures are frequently above 90° F, and temperatures of 100° F or greater occur once per year on the average (ref. 2). The relatively hot and humid conditions often result in scattered afternoon and evening thunderstorms.

The influence of the "Bermuda high" begins to diminish during the fall, resulting in relatively dry weather and moderate temperatures. Fall days are frequently characterized by cool, clear mornings and warm, sunny afternoons.

During the winter, low pressure systems and associated fronts frequently affect the weather of the SRS area. Conditions often alternate between warm, moist subtropical air from the Gulf of Mexico region and cool, dry polar air. The Appalachian Mountains to the north and northwest of the SRS moderate the extremely cold temperatures associated with occasional outbreaks of arctic air. Consequently, less than one-third of all winter days have minimum temperatures below freezing and temperatures below 20° F occur infrequently. Frozen precipitation occurs less than once per year on the average (ref. 2).

Outbreaks of severe thunderstorms and tornadoes occur more frequently during the spring than during the other seasons. Although spring weather is changeable and relatively windy, temperatures are usually mild.

Regional Meteorological Conditions Significant to Facility Design and Operation

Ice and Snow

Winter storms that produce accumulations of ice or snow are rare. Snowfalls of one inch or greater occur once every five years on the average. Furthermore, any accumulation of snow would rarely last longer than three days (ref. 3).

A summary of maximum total snowfalls, observed at the National Weather Service (NWS) office at Bush Field, Augusta, Georgia, is given in Table 1 (ref. 2). For this 36-year period (1951-1986), the greatest single snowfall occurred in February 1973. This storm produced a total accumulation of 14.0 inches, including 13.7 inches in a 24-hour period. Total snow accumulation for any other storm during this period of record was less than five inches. The maximum ground snow load for the SRS area for a 100-year mean recurrence interval has been estimated to be about 5 lb-force/ft^2 (ref. 4).

For a nine-year period of record reported by Tattelman (ref. 5), storms resulting in an accumulation of ice on exposed surfaces occurred in the SRS vicinity an average of about once every two years. Average ice accumulations for various recurrence intervals for a region

consisting of the Gulf Coast and South Atlantic states are given in Table 2. Based on the 50-year period of record that was analyzed (1920-1969), a one-half inch accumulation of ice would be expected to occur once every 25 years.

Thunderstorms

Monthly and annual average thunderstorm days observed at Augusta from 1951-86 are listed in Table 3. Over 50 percent of the average annual total occurred during the months of June, July, and August. Thunderstorm occurrence was least frequent during the months of October through January, with an average occurrence of about one day per month (ref. 2).

The occurrence of hail with thunderstorms is infrequent. Based on observations in a one degree square of latitude and longitude that includes SRS, hail occurred once every two years on the average (ref. 6).

The frequency of cloud to ground lightning strikes has been estimated using an empirical relationship described by Marshall (ref. 7). The estimated average number of lightning strikes per square kilometer (km^2) per year is given by:

$$NE = (0.1 + 0.35 \sin (L))A$$

where:
NE is the number of flashes to earth/km^2/thunderstorm day,
L is the average SRS latitude, and
A is given by (0.4 +/- 0.2)

Assuming the most conservative value for A, the number of flashes per square kilometer (one-third square mile) were estimated to be six per year. Four of the six strikes would be expected to occur in the summer months.

Tornadoes

Tornado statistics given in Nuclear Regulatory Commission (NRC) NUREG/CR-4461 (ref.8) show that a total of 37 tornadoes were reported during a thirty-year period (1954-83) for a one degree square of latitude and longitude that includes the SRS. Based on these data, the average frequency of a tornado striking any given location in South Carolina was estimated to be 7.11×10^{-5} per year. This results in a point-strike recurrence interval of about once every 14,000 years. Tornado statistics compiled by McDonald and reported by Hoel (ref. 3) for a three degree square area centered on the SRS for the period 1950-78 resulted in occurrence frequency estimates similar to the more recent data set. These earlier data are summarized in Table 4, stratified by month and F-scale intensity categories. The F-scale intensity categories are defined in Table 5. These data indicate that about half of the total number of observed tornadoes, and most of the tornadoes resulting in severe or devastating damage, occurred in the months of March, April, and May. However, tornadoes have been observed in the SRS area every month of the year.

Since operations began at the SRS, there have been six occurrences of a confirmed tornado on or in close proximity of the site: late June 1952, May 28, 1976, July 2, 1976, April 23,1983, August 26, 1985, and October 1, 1989. On all occasions, only light to moderate damage was reported; however, none of this damage was to onsite production facilities. Investigations of tornadoes occurring near SRS in 1975 and 1976 indicated that maximum wind speeds were between 100 and 175 mph (ref. 3).

A site specific analysis of tornado wind risk was performed by Fujita using a methodology similar

to that recommended by the NRC (ref. 9). The results of this analysis are reported by Huang (ref. 10). The study was based on a compilation of tornado observations within a 100 mile radius of SRS for the period 1916-1978. Estimated probabilities of a given location experiencing a tornado-produced wind in excess of various wind speed values are provided in Table 6 and shown graphically in Figure 1. The given wind speed values represent a sum of the rotational and translational wind speed components of the tornado.

The design basis tornado for SRS facilities has a wind speed of 280 mph, a 230 mph rotational component, and a 50 mph translational component (ref. 11). Based on Fujita's analysis, the estimated probability of any location on the SRS experiencing wind speeds equal to or greater than the design basis tornado wind speed is 1.2×10^{-7}/yr. The resulting recurrence interval is about once every ten million years.

Extreme winds

Extreme winds in the SRS area that are not associated with tornadoes occur during tropical weather systems, thunderstorms, or strong winter storms. Annual extreme fastest one-minute wind speeds for Augusta for the period 1950-1986 are summarized in Table 7 (ref. 2). The maximum observed value, 83 mph, was recorded in May 1950. These data are appropriate for a 33 foot anemometer height.

Recurrence probabilities for extreme "straight-line" winds (non-tornadic) for the SRS were analyzed by McDonald and reported by Huang(ref. 10). The analysis was based on annual extreme wind speed data from Augusta for the period 1950-78 and a Fischer-Tippett Type I extreme value distribution function. This method is consistent with guidance given in references 4 and 12. Table 8 shows the expected fastest-mile wind speed corresponding to selected point-recurrence intervals. These data are shown graphically in Figure 2. The extreme fastest-mile wind speed for any location on the SRS for a 100 year recurrence interval was estimated to be 87 mph.

Hurricanes

A total of 36 hurricanes have caused damage in South Carolina over the past 290 years (1700-1989). The average frequency of occurrence of a hurricane in the state is once every eight years; however, the observed interval between hurricane occurrences has ranged from two months to 27 years. The percent occurrence of hurricanes in South Carolina by month is given in Table 9. Eighty percent have occurred in August and September.

Because the SRS is approximately 100 miles inland, winds associated with tropical weather systems can usually be expected to have diminished below hurricane force (sustained speeds of 75 mph or greater). Winds associated with hurricane Gracie, which passed to the north of the plant site on September 29, 1959, were measured as high as 75 mph on an anemometer located in F-Area. No other hurricane force wind has been measured on the site. Extreme rainfall and tornadoes, which frequently accompany tropical weather systems, will usually have the most significant hurricane related impact on SRS operations.

Extreme Precipitation

Estimated extreme rainfalls for the SRS region over accumulation periods from 30 minutes to 48 hours for selected recurrence intervals are listed in Table 10. These estimates, calculated using a Fisher-Tippett Type II extreme value distribution function, were taken from the Georgia Power Company Plant Vogtle Final Safety Analysis Report and were based on information given in references 13, 14, and 15. The extreme rainfalls for the shorter periods would be produced

primarily by spring and summer thunderstorms. For the longer periods, the remnants of tropical weather systems would be expected to produce the given rainfall totals.

Extreme Air Pollution Episodes

High air pollution potential in the southeastern U. S. is frequently associated with stagnating anticyclones (high pressure systems). According to routine rawinsonde (upper air) data summarized by Holzworth (ref. 16), episodes of poor dispersion conditions in the SRS area lasted for two days on twelve occasions over a five-year period (1960-64). Episodes lasting at least five days occurred on two occasions. An episode is defined by mixing heights less than 5000 feet and an average boundary layer wind speed less than nine mph. Results of a study reported by Korshover (ref. 17) indicate that an average of two air stagnation episodes occurred in the SRS area each year over the 40-year period from 1936-1975. The total number of stagnation days averaged about 10 per year. Korshover defined stagnation days as conditions characterized by limited dispersion lasting four days or more.

LOCAL CLIMATOLOGY

Data Sources

Summary

Sources of data used to describe the local climatology include an onsite meteorological tower network, an instrumented television tower near the SRS, an onsite standard meteorological instrument shelter, and the NWS office located at Bush Field approximately fifteen miles west-northwest of the SRS. The data collection program for the onsite tower network and the television tower is described in the following section. The onsite instrument shelter, located in A area, is equipped with instrumentation to measure temperature, precipitation, and relative humidity. These instruments are maintained in accordance with manufacturers specifications. Summarized NWS data were taken from reference 2.

Onsite Meteorological Monitoring Program

An extensive meteorological data base has been collected from instrumentation on a network of eight 200-ft towers, one located adjacent to each major production facility at SRS, and on the 1,000 ft WJBF-TV tower located about nine miles northwest of the SRS boundary. The location of these towers is shown on Figure 3. The SRS meteorological monitoring program has been conducted in a manner generally consistent with guidance given in ANSI/ANS-2.5 (ref. 18). Meteorological tower data that are summarized and discussed in subsequent sections of this report were collected during the five year period 1982 through 1986. Consequently, monitoring program characteristics during this five year period are emphasized in this section. However, significant changes to the program since 1986 are also briefly described.

Program Description, 1982-86

During the period 1982 through 1986, the eight onsite towers were instrumented with wind vector vanes located 200 ft above ground. The TV tower was instrumented at seven levels with bivanes and fast-response cup anemometers to provide the same type of information that was received from the onsite towers. In addition, temperature sensors were mounted on the TV tower at eight levels. More detailed descriptions of the meteorological instrumentation, including performance specifications, are given in Table 11.

Each area tower was located within three-fourths of a mile from the primary production area

facility. Tower base elevation at each location was approximately the same elevation as facility grade. A Digital Equipment Corporation (DEC) VAX 11/750 minicomputer, located in the Weather Center Analysis Laboratory (WCAL) at the Savannah River Laboratory (SRL), was used for data acquisition and storage. A signal from each instrument was transmitted to the computer every 1.5 seconds. These instantaneous signals were processed and used to compute 15-minute and hourly averages of wind speed and wind direction (vector and scalar). The signals were also used to calculate fifteen minute and hourly values of sigma-azimuth and sigma-elevation (the standard deviation of the fluctuations of the horizontal and vertical component of wind direction, respectively). Scalar hourly average winds were used for summaries contained in this report.

The data collected from the SRS meteorological tower system are used primarily for real time emergency response applications. Since good data must be reliably available, instrument technicians visited the site each work day to inspect the data and equipment, and perform needed maintenance. Furthermore, the data were frequently inspected by SRL meteorologists. Any major system malfunction was corrected on a timely basis. An adequate supply of spare calibrated instrumentation was maintained so replacement sensors would be readily available.

The instrumentation was calibrated, as needed, at the SRL by trained instrument mechanics. A wind tunnel at SRL was used for calibrations of the wind sensors. All calibrations were conducted according to manufacturers specifications using procedures that met or exceeded ASTM calibration methods (ref. 19).

Quality control of the data was performed by combining a real-time screening algorithm with statistical checks (ref. 20). The real-time screening consisted of instrument voltage range checks and a check that sufficient instantaneous data were received during a fifteen-minute period. Subsequently, the Dixon ratio test with a 99% confidence level was used to check for statistical outliers. A final screening consisted of comparisons of the components of the wind turbulence. Valid data recovery for all towers ranged from 71 to 81 percent of the total number of hours during the five year period.

Current Program

Several significant improvements have been made to the meteorological monitoring program since 1986. The onsite towers have been equipped with more accurate, sensitive, and reliable anemometers and bivanes. In addition, these towers are now equipped with temperature and dewpoint sensors at 200 ft above ground. A ninth 200 ft tower, located near the center of SRS, has been commissioned. This tower is instrumented with cup anemometers, bivanes, temperature, and dewpoint sensors at 7, 60, 120, and 200 ft above ground. Atmospheric pressure, precipitation, and radiation data are collected at ground level adjacent to the tower.

Semi-portable doppler sound radar (SODAR) units are being installed at three onsite locations. These units will remotely measure wind speed, wind direction, and turbulence between 150 ft and 2000 ft above ground. Data from these units will be transmitted to the WCAL computer every two minutes and 15-minute averages will be archived. Data from the ninth onsite tower and the SODAR's provide additional information for use in emergency response and enhance SRS climatological data bases.

Improvements have also been made to the remote data acquisition and transmission hardware and the WCAL computers that control data acquisition and archival have been upgraded to DEC VAX 8550 minicomputers. These system changes are expected to improve data collection reliability.

Average and Extreme Values for Local Meteorological Data

Temperature

Monthly and annual average temperatures for SRS and for Augusta are given in Tables 12 and 13, respectively. At the SRS, the annual average temperature was 64.0° F. July was the warmest month with an average maximum temperature of 91.5°F and an average minimum of 70.5°F. January was the coldest month with an average maximum temperature of 55.0°F and an average minimum temperature of 35.0°F. Monthly and annual extreme temperatures for both locations are also listed in Tables 12 and 13. Observed temperature extremes for SRS ranged from 107°F to -3°F. Average and extreme temperatures for Augusta differ little from the SRS data.

Table 14 shows the average number of days in each month that Augusta's maximum and minimum temperatures were above and below specified values. These data indicate that prolonged periods of cold weather seldom occur. Daytime high temperatures during the winter months were rarely less than 32°F. Conversely, high temperatures in the summer months were greater than 90°F on more than half of all days. The average dates of the first and last freeze are November 12 and March 16, respectively (ref. 2).

Humidity

Monthly and annual average values of relative humidity for Augusta and for the SRS are summarized in Table 15. The data for the SRS are averages of the observed relative humidity at the time of occurrence of the minimum and maximum temperatures, respectively. Consequently, the SRS and Augusta data are not directly comparable because of differences in the time of day that the data are recorded. In general, average relative humidities were greatest during the summer months and lowest during the spring months. The average daily relative humidity was about 90 percent in the early morning and around 43 percent in the afternoon.

Precipitation

Annual average precipitation for the SRS and for Augusta was 48.2 inches and 43.1 inches, respectively. Monthly average and extreme precipitation amounts for both locations are shown in Tables 16 and 17. Precipitation is fairly well distributed throughout the year. Average precipitation during the fall months (September, October and November) was slightly less than averages for the other seasons, accounting for about 18 percent of the average annual total. For Augusta, precipitation totals greater than 0.01 inches occurred on an average of 107 days per year. The number of days per month with measurable precipitation ranged from an average of about 6 days in October to about 12 days in July.

Monthly precipitation extremes for Augusta varied from a maximum of 11.92 inches, recorded in March 1980, to a trace, observed in October 1959. The greatest observed rainfall for a 24-hour period was 5.98 inches in August 1964. Hourly observations from Augusta indicate that rainfall rates are usually less than 0.5 in/hr, although rates greater than 0.5 in/hr can be expected during spring and summer thunderstorms.

A summary of snowfall statistics for Augusta (1951-86) is shown in Table 18. The average annual snowfall was 1.2 inches per year and the average number of days per year with snow was 0.5 days. Significant snowfalls generally occurred in February. For the reported period of record, snow was observed in each of the months from November through March.

Fog

Heavy fog, defined as fog that reduces visibility to less than 1/4 mile, occurred at Augusta on an average of about 28 days per year during the period of 1951 through 1986. Monthly occurrence frequencies ranged from an average of about three days per month during the fall and winter months to slightly more than one day per month during the spring and summer months. The heavy fog observed at Augusta is often due to the proximity of the Savannah River. The frequency of naturally occurring fog at most of the SRS production areas would be expected to be less than that at Augusta since these facilities are located higher above river elevation than the Augusta NWS station.

Winds

Hourly averaged wind data collected from the onsite meteorological tower network during the period January 1982 through December 1986 are used to describe the local wind climatology. Joint frequency distribution (JFD) summaries for the A, C, D, F, H, K, and P area towers for this period are shown in Figures 4-10, respectively. Data from the L-area tower are not provided, since this tower was not operational during the entire five year period of record. These figures show the joint occurrence of each of sixteen 22.5^{o} wind direction sectors for six wind speed categories.

The JFD's indicate that the observed wind directions at all locations were fairly well distributed among the 16 wind direction sectors. Winds from the northeast, east-northeast, and south-southeast clockwise through the west-northwest sectors occurred with relatively high frequencies (generally seven to ten percent of the time). Small differences in the actual occurrence frequencies among each tower's data set are believed to be primarily due to non-concurrent periods of unavailable data during the 5-year period of record.

Seasonal JFD's for the H-area tower, based on data collected from January 1975 through December 1979, are shown in Figures 11-14. These data are provided since seasonal summaries for the 1982-1986 period were not readily available. However, a qualitative comparison of the annual JFD's for each of these five year data periods showed similar wind frequency patterns. The seasonal patterns indicate that the wind climatology at SRS is primarily influenced by synoptic scale meteorological features. The relatively high frequency of east and northeasterly winds observed during the summer and fall (8 to 9 percent of the time) is due to a tendency for high pressure to persist over the Appalachians during the late August, September, and October (ref. 21). During the late fall, winter, and spring months, the relatively high frequencies of south through northwest winds are associated with the migration of cold fronts through the SRS area.

Wind direction persistence summaries were also available for the 1975-79 data. Table 19 shows occurrence frequencies for consecutive hours that a seven-tower average of the hourly averaged wind direction differed by no more than the indicated ranges. For the difference range most closely approximating a 22.5 degree sector ($\pm$ 15 degrees), the wind direction persisted no longer than one hour for about half of the hours of data. Persistence events lasting more than six hours accounted for about 13 percent of the hours.

The average wind speed for each tower during the 1982-86 period ranged from 6.0 to 7.4 mph. The JFD's in Figures 4-10 show that hourly averaged wind speeds less than 4.5 mph generally occurred around 10 percent of the hours. For about half of the hours, wind speeds were less than 9 mph. During the 1975-79 period, the average speed was greatest during the winter season, 8.1 mph, and least during the summer season, 6.3 mph. The average wind speed for Augusta for data collected from 1951 through 1986 was 6.5 mph . The highest monthly average wind speed

occurred in March, 8.1 mph, and the lowest monthly average speed occurred in August and September, 5.6 mph. Augusta wind data were collected at 20 feet above ground during this period.

Local Topography

The topography of the SRS area is characterized by gently rolling, forested hills. In general, terrain elevations decrease gradually from the Appalachian foothills northwest of the site, toward the Atlantic coastal plain to the southeast. The local SRS terrain elevations also decrease gradually toward the Savannah River which runs along the southwestern boundary of the site. Site elevations range from 100 feet to about 400 feet above sea level. Terrain elevations along 16 radials extending from a point near the center of the SRS to 50 miles are given in Table 20. Values in this table are the maximum elevation for each 22.5 degree sector between the SRS center and each of the indicated distances.

Since there are no pronounced topographic features within 50 miles of the site, the local terrain has little effect on SRS's wind climatology. During stable atmospheric conditions, some channeling or air flow stagnation could occur in some of the more pronounced valleys; however, any terrain-included increase in pollutant concentrations would be very localized and short-lived.

ATMOSPHERIC DISPERSION CLIMATOLOGY

Local Dispersion

Wind data collected from the onsite meteorological towers for 1982 through 1986 were used to summarize conditions which determine local dispersion of air pollutants.

Table 21 provides a summary of the percent occurrence of the Pasquill-Gifford (P-G) turbulence (stability) classes for each tower location. The P-G classes A through G were assigned according to criteria given in ANSI/ANS-2.5 (ref. 18) using hourly values of sigma-azimuth. Stability class D, indicative of relatively neutral diffusion conditions, occurred more frequently than any other class (28 to 30 percent of the hours). Conditions favorable for turbulent diffusion, represented by the unstable P-G classes (A, B, and C), occurred nearly half of the time. The stable P-G classes (E, F, and G), representing conditions relatively unfavorable for turbulent diffusion, occurred less than one-third of the hours.

Joint frequency distributions of hourly averaged wind speed and wind direction stratified by P-G stability class for the 1982-86 data period for each onsite tower are given in Appendix A. In general, winds at SRS were more frequently from the south-southwest through south-southeast sectors, and the east through northeast sectors during hours characterized by stable conditions (E, F, and G). These conditions usually occur at night and are typically associated with the presence of a synoptic scale high pressure area in the southeastern U. S. Winds during unstable conditions were more frequently from the west through southwest sectors.

Low-Level Inversions

The P-G classes are also defined by ANSI/ANS-2.5 in terms of the change of temperature with height above ground. Using this classification method, the stable classes (E, F, and G) generally correspond to inversion conditions, i.e. an increase in temperature with height. Pendergast (ref. 22) analyzed temperature data from multiple levels of the WJBF television tower for a one year period (1974). For approximately 30 percent of the time, an inversion extended through the entire 10 to 1,000 ft layer for which temperature measurements were made. For about 12 percent of the time, an inversion was observed through the upper portion of the 10 to 1,000 ft layer and unstable

conditions were observed through the lower portion. For about 9 percent of the time, the ground based inversion layer was less than the height of the tower. The latter two cases generally were found to represent the transition periods from night to day and from day to night, respectively.

Pendergast's results agree with inversion statistics given by Hosler (ref. 23). Hosler's statistics, based on two years of NWS radiosonde and surface observations, show that ground based inversions occurred in the SRS area approximately 40 percent of all hours and 70 percent of all nights annually.

Mixing Height

Estimates of seasonally averaged morning and afternoon mixing heights for SRS, shown in Table 22, were interpolated from data presented in Holzworth (ref. 16). These data were derived from upper air data collected during the 5-year period, 1960-1964. Garrett conducted an examination of 1978 rawinsonde and surface observations for Athens, GA, Greensboro, NC, Charleston, SC, and Jacksonville, FL (ref. 24). Monthly average afternoon mixing heights based on these data are shown in Figure 15. The afternoon mixing height values calculated by Garrett generally agree with values interpolated from Holzworth, except for summer afternoons. Garrett's estimated average summer afternoon mixing height, about 4000 ft, is considerably less than the estimate based on Holzworth's data because convective cloud formation, prevalent in the SRS region during the summer, was considered in the methodology.

CONCLUSIONS

This report provides a climatological description of the SRS that meets NRC guidance on format and content for meteorology sections of Safety Analysis Reports. The discussion on regional climatology emphasizes extreme meteorological occurrences that should be considered in facility design and siting. Onsite and near site meteorological data are summarized to describe local climatological conditions that are important in assessing the impact of facility operations on the environment.

Although the description is site generic, relatively few changes would be required to use this report as input to meteorology sections of facility specific SAR's and EIS's. This description is also intended as a general resource for any application at SRS requiring basic climatological information.

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TABLE 1. Maximum Accumulation of Snow and Ice Pellets at Augusta, GA[a]

Month	Maximum[b] (inches)	Maximum[b] in 24 hours (inches)
January	1.5 (1970)	1.5 (1970)
February	14.0 (1973)	13.7 (1973)
March	1.1 (1980)	1.1 (1980)
April	0.0	0.0
May	0.0	0.0
June	0.0	0.0
July	0.0	0.0
August	0.0	0.0
September	0.0	0.0
October	0.8	0.0
November	Trace (1968)	Trace (1968)
December	0.9 (1958)	0.9 (1958)
Record	14.0 (1973)	13.7 (1973)

a) Period of record, 1951-1987

b) Year of occurrence given in parentheses

TABLE 2. Estimated Ice Accumulation at SRS for Various Recurrence Intervals.

Recurrence Interval (years)	Accumulation (inches)
2	0
5	0.25
10	0.40
25	0.50
50	0.60
100	0.67

TABLE 3. Average Number of Thunderstorm Days at Augusta, GA[a]

Month	Thunderstorm Days
January	1
February	2
March	3
April	4
May	7
June	9
July	13
August	10
September	4
October	1
November	1
December	1
Annual	56

a) Period of record, 1951-1986

TABLE 4. Number of Tornadoes Reported Between 1950 and 1978 by Month and F-Scale for a 3^0 Square Area Centered on SRS

Month	F-0	F-1	F-2	F-3	F-4	F-5	Total	Percent
January	1	5	6	1	0	0	13	5.2
February	3	9	3	2	0	0	17	6.9
March	6	15	8	3	1	0	33	13.3
April	16	9	12	3	1	0	41	16.5
May	5	33	10	2	1	0	51	20.6
June	6	11	3	1	0	0	21	8.5
July	8	8	2	1	0	0	19	7.7
August	6	6	3	0	0	0	15	6.1
September	3	5	5	0	0	0	13	5.2
October	0	3	3	0	0	0	6	2.4
November	3	5	3	0	0	0	11	4.4
December	1	4	1	2	0	0	8	3.2
Total	58	113	59	15	3	0	248	100.0

TABLE 5. Fujita Scale for Damaging Tornado Winds

Scale	Rotational Wind Speed(mph)	Expected Damage
F-0	40 - 72	Light damage
F-1	73 - 112	Moderate damage
F-2	113 - 157	Considerable damage
F-3	158 - 206	Severe damage
F-4	207 - 260	Devastating damage
F-5	261 - 318	Incredible damage

TABLE 6. Estimated Probabilities of Exceeding Indicated Tornado Wind Speeds at SRS

Wind Speed (mph)	Probability (Events/Yr)
50	7.2×10^{-4}
60	5.2×10^{-4}
70	4.0×10^{-4}
80	3.0×10^{-4}
90	2.1×10^{-4}
100	1.5×10^{-4}
110	1.0×10^{-4}
120	6.8×10^{-5}
130	5.0×10^{-5}
140	3.8×10^{-5}
150	2.6×10^{-5}
160	1.6×10^{-5}
170	1.2×10^{-5}
180	8.0×10^{-6}
190	5.0×10^{-6}
200	4.1×10^{-6}
210	2.2×10^{-6}
220	1.5×10^{-6}
230	1.0×10^{-6}
240	7.2×10^{-7}
250	4.6×10^{-7}
260	3.0×10^{-7}
270	2.0×10^{-7}
280	1.2×10^{-7}
290	7.8×10^{-8}
300	5.6×10^{-8}

TABLE 7. Annual Observed Fastest One-Minute Wind Speeds at Augusta, GA

Year	Wind Speed (mph)[a]	Direction	Date
1950	83	SW	5/28
1951	34	W	2/7
1952	42	E	7/25
1953	73	NE	6/10
1954	44	NW	8/28
1955	48	S	5/29
1956	48	W	7/15
1957	31	W	11/30[b]
1958	36	NW	11/28
1959	36	NW	9/29[b]
1960	36	W	7/22
1961	48	N	6/11
1962	41	NW	4/11
1963	40	W	11/29
1964	43	S	5/21
1965	67	E	6/10
1966	37	NW	5/27[b]
1967	52	W	5/8
1968	43	NW	7/16
1969	43	NE	7/8
1970	52	NW	7/16
1971	34	SW	7/11
1972	56	SW	3/2
1973	37	NW	11/21
1974	49	W	3/21
1975	37	W	7/6[b]
1976	32	NW	3/9
1977	43	S	10/2
1978	39	SW	1/26
1979	30	W	5/12
1980	32	S	7/9
1981	33	NW	3/16
1982	40	NW	2/16
1983	32	NW	12/31
1984	32	SW	3/28
1985	35	W	2/11
1986	32	NE	7/2

a) Wind speeds corrected to 33 ft. anemometer height.

b) Wind speed occurred more than once during the year.

TABLE 8. Estimated Expected "Straightline" Wind Speed at SRS for Various Recurrence Intervals

Recurrence Interval (years)	Occurrence Probability (events/yr)	Expected Fastest-mile Wind Speed (mph)
10	1×10^{-1}	61
50	2×10^{-2}	79
100	1×10^{-2}	87
200	5×10^{-3}	95
500	2×10^{-3}	105
1,000	1×10^{-3}	113
10,000	1×10^{-4}	139
100,000	1×10^{-5}	163
1,000,000	1×10^{-6}	189

TABLE 9. Total Occurrences of Hurricanes in South Carolina by Month[a]

Month	Number	Percent of Total
June	1	2.8
July	2	5.6
August	11	30.6
September	18	50.0
October	4	11.1

a) Period of record, 1700-1989

TABLE 10. Estimated Extreme Total Rainfall[a] at SRS for Various Recurrence Intervals

Recurrence Interval (Years)	Rainfall Duration							
	30 Min	1 Hour	2 Hours	3 Hours	6 Hours	12 Hours	24 Hours	48 Hours
1	1.3	1.6	1.9	2.1	2.3	2.5	3.2	--
2	1.5	2.0	2.2	2.4	2.5	3.4	3.9	4.4
5	1.7	2.3	2.5	3.0	3.7	4.4	5.0	5.5
10	2.1	2.6	3.2	3.5	4.4	5.0	5.5	6.5
25	2.4	3.0	3.7	4.0	5.0	6.0	6.8	7.9
50	2.6	3.3	4.0	4.4	5.5	6.5	7.5	5.6
100	2.9	4.0	4.5	4.9	6.0	7.0	8.2	9.4

a) In inches, water equivalent

TABLE 11. Description of SRS Meteorological Instrumentation

SRS AREA TOWERS A, C, D, F, H, K, AND P

Sensor	Measurement	Height(ft)	Description
MRI (Meteorological Research Institute) Mark III Vector Vane, Model 1053 III-2	Azimuth	200	Accuracy, ±3°; starting threshold, 0.75 mph; damping ratio, 0.4-0.6; operating range 0-540°; linearity, ± 1%; delay distance, 2-3 feet
	Elevation	200	Accuracy, ±2°; starting threshold, 0.75 mph; damping ratio, 0.4-0.6; operating range, ± 60°; linearity, ± 1%
	Wind Speed	200	Accuracy, ± 0.35 mph; starting threshold, 0.75 mph; operating range, 0.5-100 mph; linearity, ± 1%; response distance, 2-3 feet

WJBF-TV TOWER

Sensor	Measurement	Height(ft)	Description
Climet Model 012-8A Bivane	Azimuth	60, 120, 300, 450, 600, 800, 1000	Accuracy, ±3°; starting threshold, 0.75 mph; damping ratio, 0.6; operating range, 0-540°; delay distance, 3 feet; linearity, ± 0.5%
	Elevation	60, 120, 300, 450, 600, 800, 1000	Accuracy, ±3; starting threshold, 0.75 mph; damping ratio, 0.6; operating range, ± 60°; linearity, ± 0.5%
Climet Model 011-1 Cup Anemometer	Wind Speed	60, 120, 300, 450, 600, 800, 1000	Accuracy, ±1% or 0.15 mph whichever is greater; starting threshold, 0.6 mph; range, 0.6-90 mph
Rosemont Model T-200 Platinum Resistance Thermometer	Temperature	7, 60, 120, 300, 450, 600, 800, 1000	Accuracy, ±1.8°F

TABLE 12. Monthly Average and Extreme Temperatures at the SRS[a]

Month	Average Daily Temperature (°F) Maximum	Minimum	Monthly	Extreme Temperature (°F) Highest	Lowest
January	55.0	35.0	45.0	86	-3
February	60.0	37.5	49.5	81	4
March	68.5	44.0	56.5	91	11
April	77.0	52.5	65.0	99	29
May	83.5	60.0	72.0	102	40
June	89.5	67.0	78.5	105	48
July	91.5	70.5	81.0	107	56
August	90.5	69.5	80.0	107	56
September	85.0	64.0	75.0	102	41
October	76.5	55.0	66.0	96	28
November	67.5	45.0	56.5	89	18
December	59.5	38.5	49.5	82	5
Year	75.5	53.0	64.0	107	-3

a) Period of record, 1961-1986

TABLE 13. Monthly Average and Extreme Temperatures for Augusta, GA

	Average Daily Temperature[a] (°F)			Extreme Temperatures[b,c] (°F)	
Month	Maximum	Minimum	Monthly	Highest	Lowest
January	57.0	36.6	46.8	80 (1985)	-1 (1985)
February	60.0	38.4	49.2	86 (1962)	9 (1973)
March	67.5	45.2	56.4	88 (1985)	12 (1980)
April	75.7	51.9	63.8	96 (1986)	26 (1982)
May	83.5	60.6	72.1	99 (1964)	35 (1971)
June	89.4	67.9	78.7	105 (1952)	47 (1984)
July	91.1	71.3	81.2	107 (1980)	55 (1951)
August	90.0	70.5	80.3	108 (1983)	54 (1968)
September	85.6	65.5	75.6	101 (1957)	36 (1967)
October	76.4	53.6	65.0	97 (1954)	22 (1952)
November	66.4	43.3	54.9	90 (1961)	15 (1970)
December	58.3	37.4	47.9	82 (1982)	5 (1981)
Year	75.1	53.5	64.3	108 (1983)	-1 (1985)

a) Period of record 1942-1986

b) Period of record 1950-1986

c) Year of occurrence given in parentheses

TABLE 14. Average Number of Days Maximum and Minimum Temperatures for Augusta, GA, Exceeded Indicated Values

Month	Maximum		Minimum	
	90°F and Above	32°F and Below	32°F and Below	0°F and Below
January	0	0.6	17.1	<0.5
February	0	<0.5	13.4	0
March	0	<0.5	5.5	0
April	1.	0	0.6	0
May	4.8	0	0	0
June	14.4	0	0	0
July	21.6	0	0	0
August	17.7	0	0	0
September	8.5	0	0	0
October	0.8	0	0.5	0
November	0	0	7.2	0
December	0	0	13.8	0
Year	68.7	0.7	58.2	<0.5

TABLE 15. Average Daily Relative Humidities, in Percent, at Augusta, GA, and at the SRS

	Augusta, GA[a]				SRS[b]	
Month	1 am	7am	1 pm	7pm	Minimum	Maximum
January	78	82	54	66	49	81
February	76	81	49	59	43	80
March	76	83	47	55	38	83
April	79	85	45	54	36	87
May	85	87	49	61	39	92
June	86	86	52	62	41	95
July	87	87	55	67	45	97
August	89	91	56	72	46	98
September	89	91	55	75	45	96
October	87	89	58	76	41	92
November	84	87	51	72	42	89
December	81	85	53	70	49	85
Annual	83	86	51	66	43	90

a) Period of record 1965-1986

b) Period of record 1964-1986

TABLE 16. Precipitation for the SRS [a, b]

Month	Average	Maximum[c]	Minimum[c]
January	4.17	10.02 (1978)	0.89 (1981)
February	4.61	7.94 (1956)	0.94 (1968)
March	5.02	10.96 (1980)	1.31 (1985)
April	3.49	8.20 (1961)	0.57 (1972)
May	4.23	10.90 (1976)	1.33 (1965)
June	4.36	10.89 (1973)	1.54 (1979)
July	5.02	11.48 (1982)	0.90 (1980)
August	4.85	12.34 (1964)	1.04 (1963)
September	3.74	8.71 (1959)	0.49 (1985)
October	2.49	10.86 (1959)	0.00 (1963)
November	2.60	6.46 (1957)	0.21 (1958)
December	3.63	9.55 (1981)	0.46 (1955)
Annual	48.19	73.47 (1964)	28.82 (1954)

a) Total inches, water equivalent

b) Period of record, 1952-1987

c) Year of occurrence given in parentheses

TABLE 17. Precipitation for Augusta, GA[a,b]

Month	Average	Maximum[c]	Minimum[c]
January	3.99	8.48 (1960)	0.75 (1981)
February	4.04	7.67 (1961)	0.69 (1968)
March	4.92	11.92 (1980)	0.88 (1968)
April	3.31	8.43 (1961)	0.60 (1970)
May	3.73	9.61 (1979)	0.48 (1951)
June	3.88	7.28 (1973)	0.68 (1984)
July	4.04	11.43 (1967)	1.44 (1983)
August	3.98	11.34 (1986)	0.65 (1980)
September	3.53	9.51 (1975)	0.31 (1984)
October	2.02	6.90 (1959)	Trace (1953)
November	2.07	7.76 (1985)	0.09 (1960)
December	3.20	8.65 (1981)	0.32 (1955)
Annual	43.07	66.04 (1964)	31.53 (1954)

a) Total inches, water equivalent

b) Period of record, 1951-1986

c) Year of occurrence given in parentheses

TABLE 18. Total Accumulation of Snow and Ice Pellets at Augusta, GA[a]

Month	Average (in)	Maximum (in)
January	0.2	1.5 (1982)
February	0.9	14.0 (1973)
March	0.1	1.1 (1980)
April	0.0	0
May	0.0	0
June	0.0	0
July	0.0	0
August	0.0	0
September	0.0	0
October	0.0	0
November	Trace	Trace (1968)
December	Trace	0.9 (1958)
Annual	1.2	

a) Period of record, 1951-1986

b) Year of occurrence given in parentheses

TABLE 19. Frequency of Wind Direction Persistence at SRS [a, b]

Persistence (Hours)	Sector Width (degrees) ±5	±15	±25	±35	±45
0	0.641	0.269	0.142	0.090	0.067
1	0.206	0.220	0.156	0.109	0.080
2	0.081	0.138	0.127	0.102	0.078
3	0.034	0.097	0.098	0.086	0.073
4	0.016	0.067	0.078	0.073	0.064
5	0.008	0.048	0.063	0.063	0.057
6	0.004	0.034	0.051	0.052	0.050
>6	0.008	0.128	0.285	0.425	0.531

a) Period of record, 1975-79.

b) Based on a spatial average of hourly wind directions from the onsite meteorological towers.

TABLE 20. Maximum Height in Feet of Topography in Each of 16 Sectors from Site to a Radius of 50 Miles*

Downwind Distance Miles	*N*	*NNE*	*NE*	*ENE*	*E*	*ESE*	*SE*	*SSE*	*S*	*SSW*	*SW*	*WSW*	*W*	*WNW*	*NW*	*NNW*
1	290	290	290	290	290	290	300	300	320	310	290	280	275	275	280	290
2	290	290	320	300	320	310	310	310	320	310	290	280	275	275	280	290
3	290	290	320	300	340	330	350	330	320	310	290	280	275	275	280	290
4	290	300	320	300	340	330	350	330	320	320	290	300	275	280	300	300
5	290	350	320	300	340	330	350	330	320	320	290	300	275	290	310	385
6	290	350	320	300	340	330	350	330	320	320	290	300	310	340	370	420
7	290	350	320	370	340	330	350	330	320	320	290	300	310	350	385	420
8	310	350	320	370	340	330	350	330	320	320	290	300	310	350	385	420
9	310	350	340	370	340	330	350	330	320	320	290	300	310	350	385	420
10	376	350	340	370	340	330	350	330	320	320	290	300	310	350	400	408
15	400	406	372	370	340	330	350	330	320	320	305	300	310	350	402	500
20	500	406	372	370	340	330	350	330	320	320	305	300	316	350	450	500
25	530	500	379	370	340	330	350	330	320	320	305	300	316	350	450	500
30	571	536	379	370	340	330	350	330	320	331	305	350	400	500	550	600
35	597	536	385	370	340	330	350	330	320	331	305	396	500	500	550	610
40	665	550	445	370	340	330	350	330	320	331	305	396	500	500	550	650
45	665	550	550	370	340	330	350	330	320	331	360	396	500	500	550	650
50	665	550	550	370	340	330	350	330	320	331	360	396	500	500	550	650

*The solid line gives the approximate location of the SRS boundary.

TABLE 21. Percent Occurrence of Pasquill-Gifford Atmospheric Stability Classes A through G.[a]

P-G Class	Percent Occurrence by Tower						
	A-Area	C-Area	D-Area	F-Area	H-Area	K-Area	P-Area
A (Extremely Unstable)	18	17	19	18	18	17	17
B (Moderately Unstable)	10	9	10	9	10	9	10
C (Slightly Unstable)	18	16	20	16	18	16	16
D (Neutral)	28	30	30	28	28	29	29
E ((Slightly Stable)	21	22	18	24	20	23	22
F (Moderately Stable)	5	6	2	5	5	6	5
G (Extremely Stable)	<1	<1	<1	<1	<1	<1	<1

a) Period of record, 1982-1986

Table 22. Estimated Average Annual and Seasonal Mixing Heights for SRS

	Mixing Height (feet)	
Season	Morning	Afternoon
Winter	1150	3360
Spring	1230	5575
Summer	1310	5900
Fall	980	5000
Annual	1230	4750

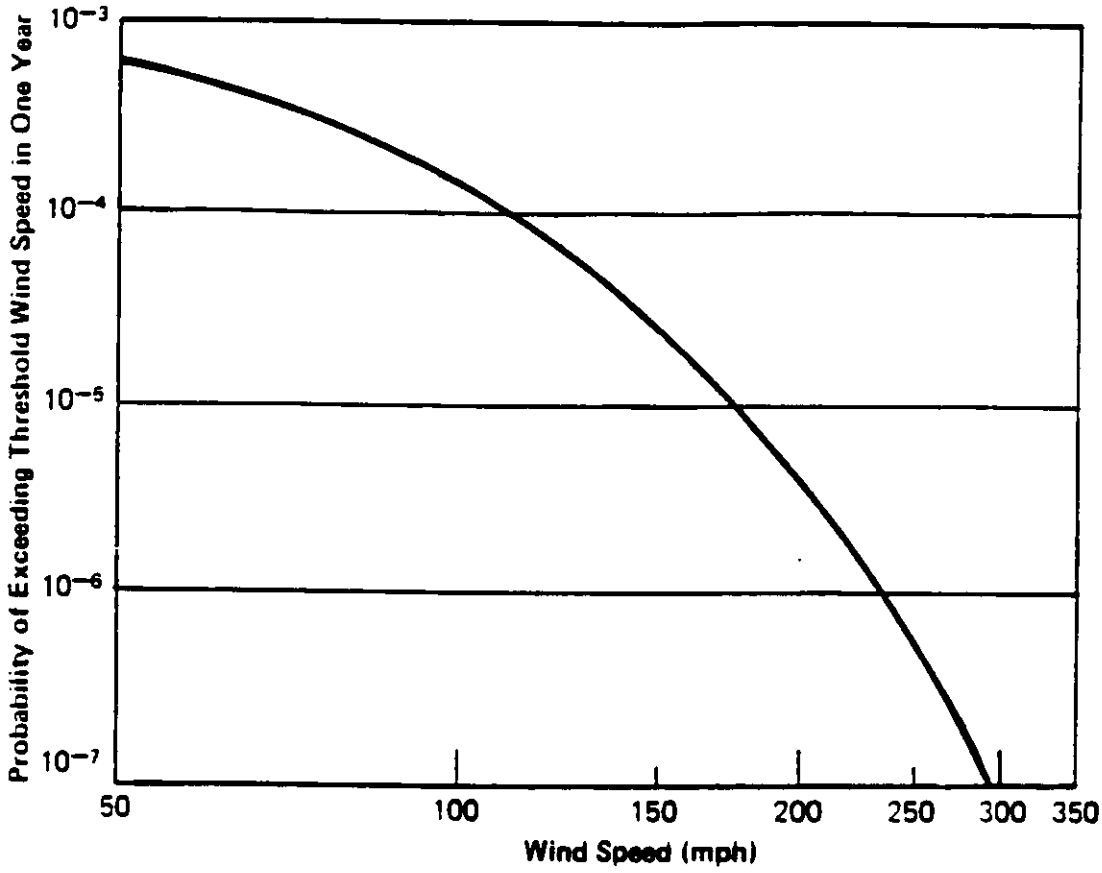


FIGURE 1. Annual Probability of Occurrence of Tornado-Produced Wind Speed within 100 Miles of SRS.

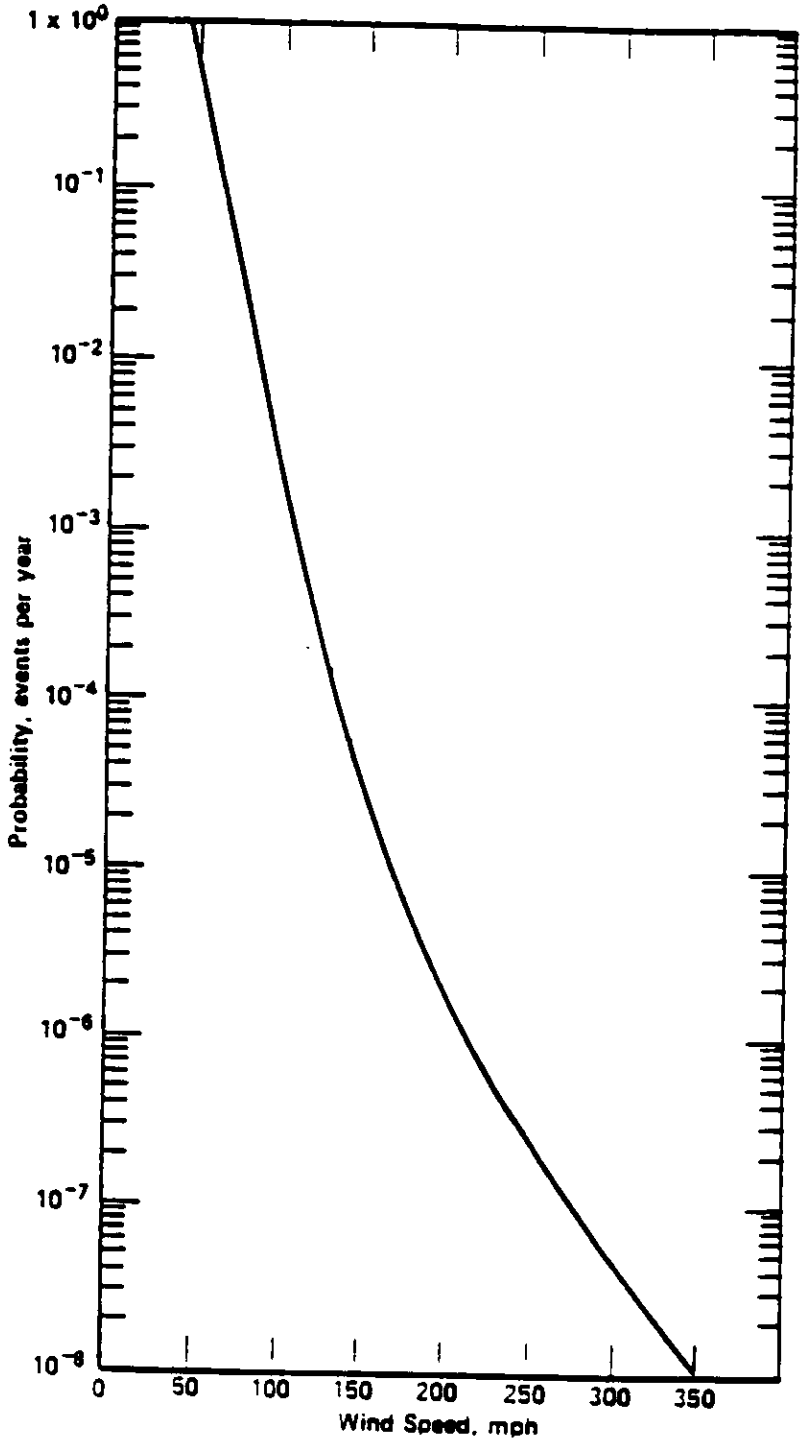


FIGURE 2. Expected Annual Probability of Occurrence of "Straight-Line" Fastest Mile Wind Speeds at SRS.

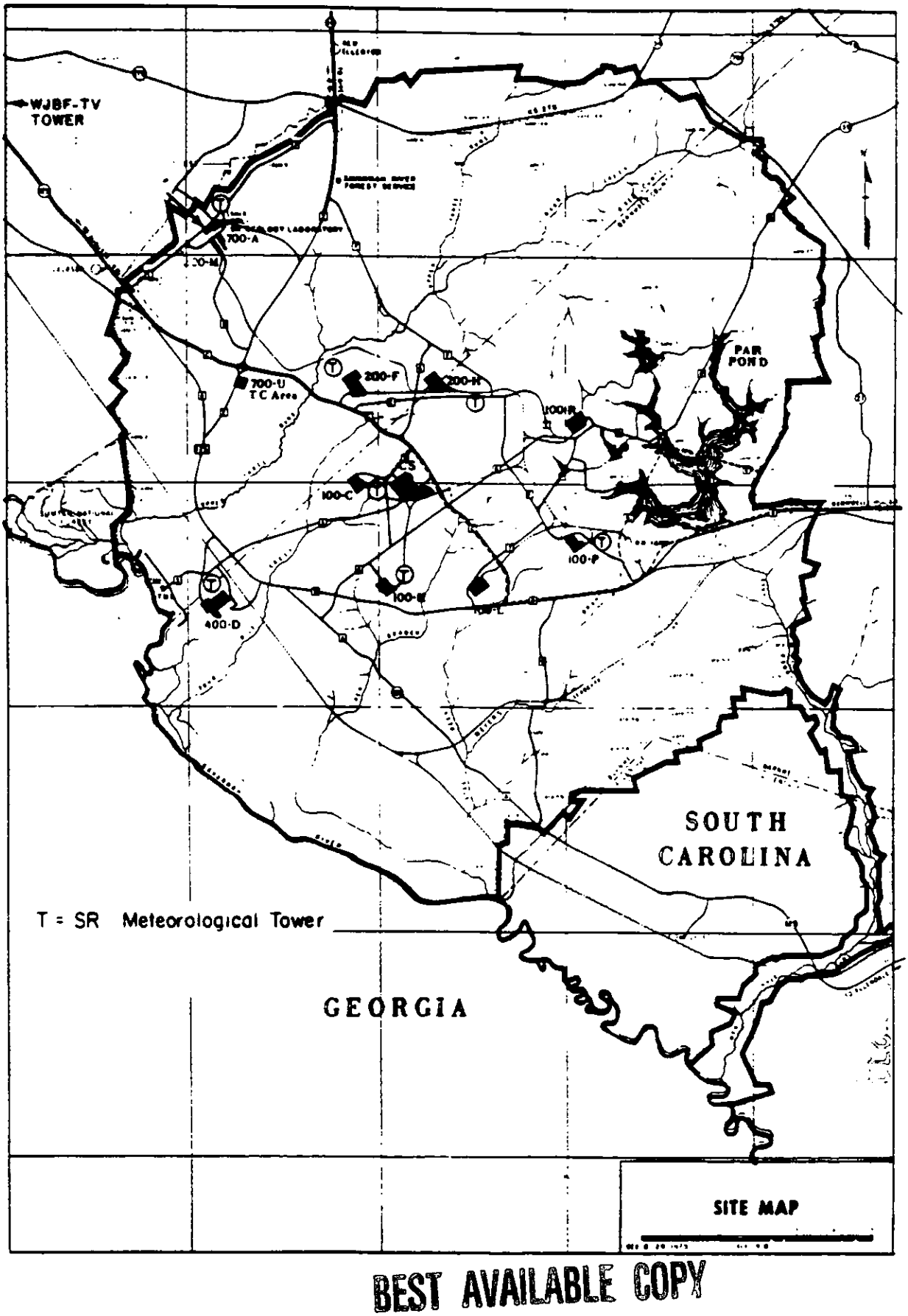
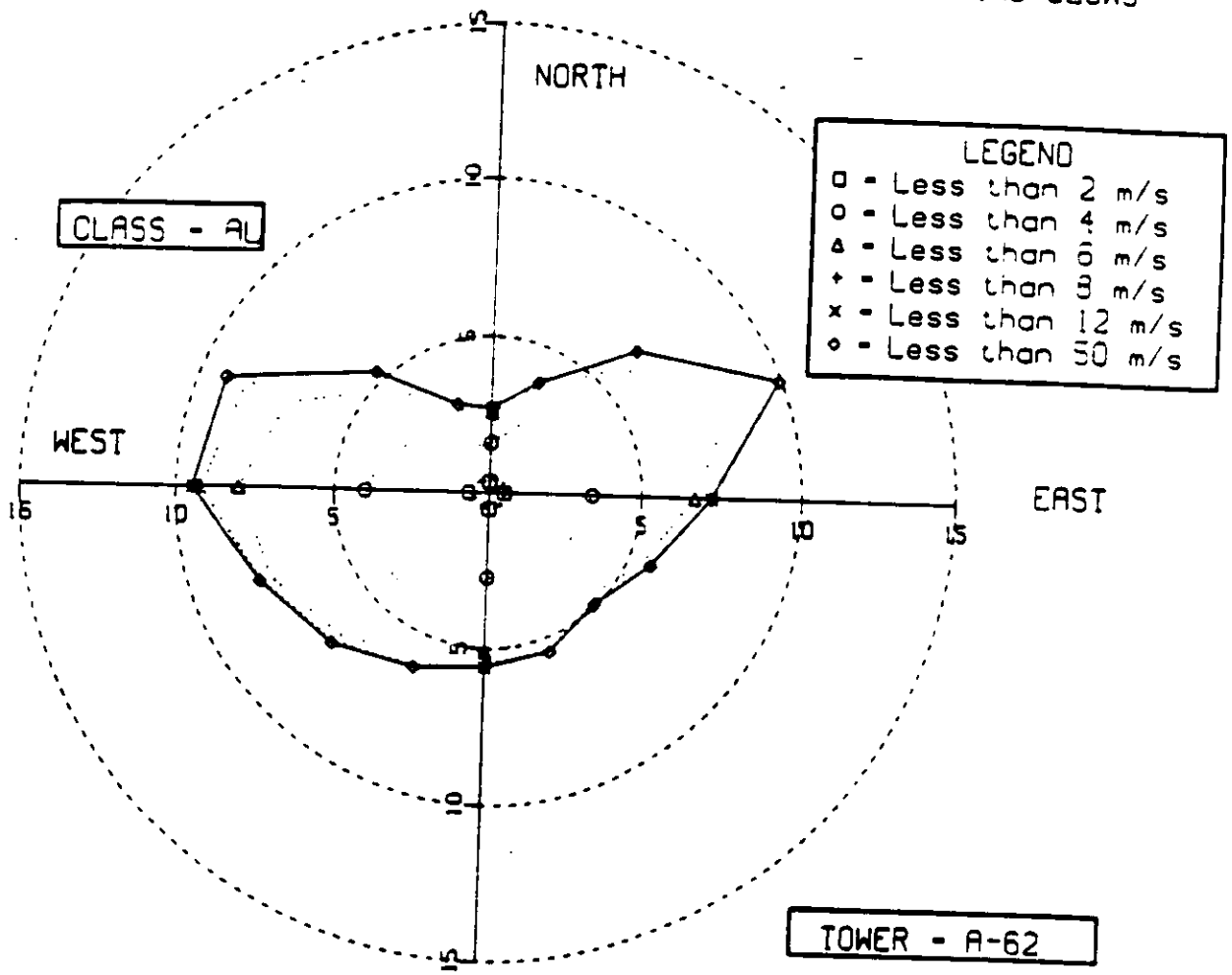


FIGURE 3. Approximate Locations of Onsite Meteorological Towers.



WINDROSE DATA

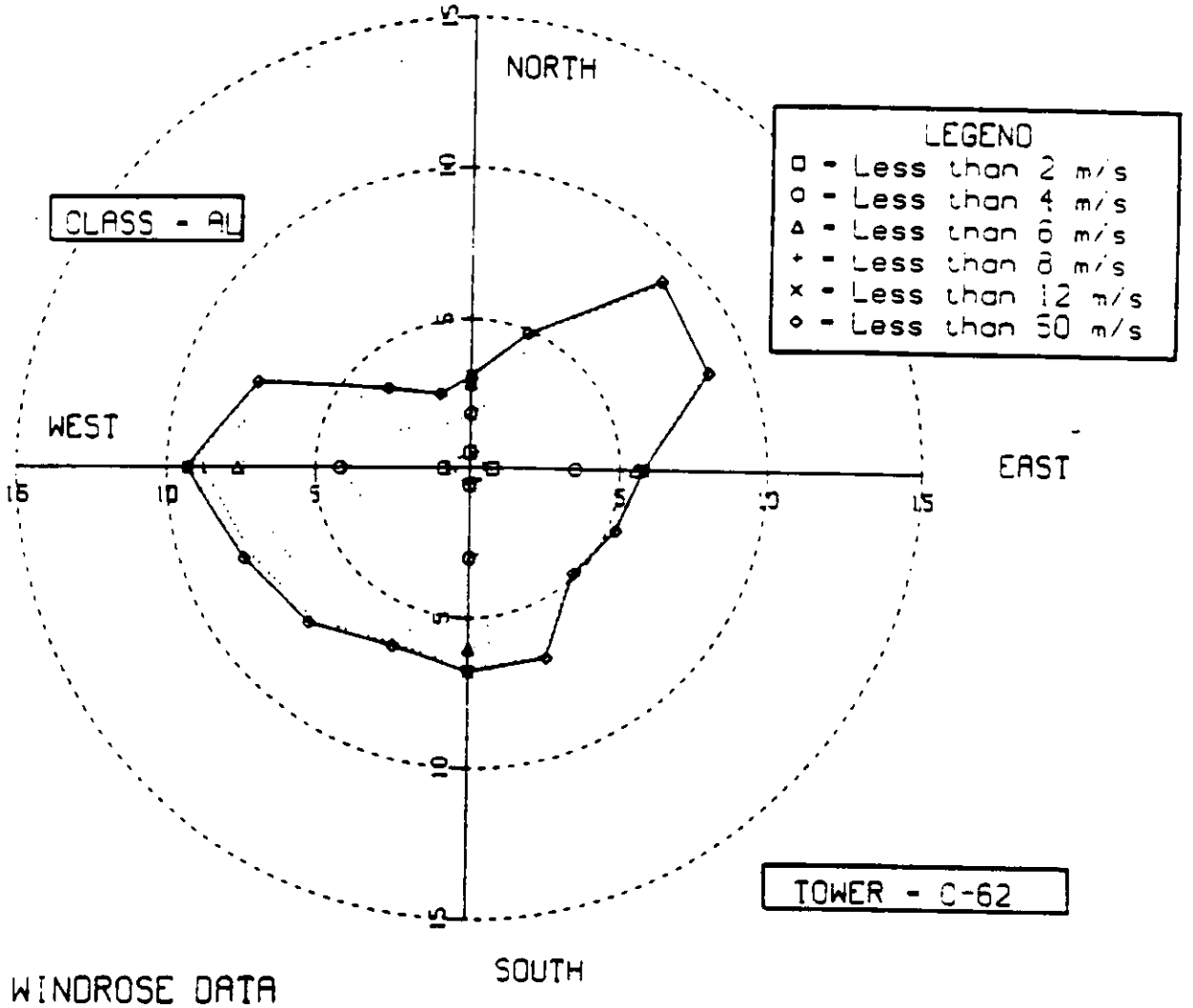
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31076

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	108	382	308	41	3	0	2.85	850
NNE	160	587	388	47	9	0	2.79	1201
NE	178	711	912	245	3	0	3.27	2049
ENE	169	905	1551	445	7	0	3.73	3077
E	147	882	1034	168	5	0	3.43	2237
ESE	146	842	726	75	5	0	3.22	1793
SE	169	675	577	88	21	0	2.98	1531
SSE	184	691	685	114	21	0	3.04	1695
S	162	682	744	128	20	0	3.16	1736
SSW	165	838	762	117	17	1	3.11	1898
SW	222	1038	732	98	21	0	2.94	2170
WSW	210	1111	1087	102	18	0	3.14	2448
W	218	1028	1246	358	91	2	3.43	2944
WNW	185	901	1108	448	192	1	3.82	2847
NW	161	571	683	188	54	0	3.28	1655
NNW	130	380	410	40	5	0	2.98	945
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.14	2.98	1.82	6.58	9.08	14.37	3.23	
TOT ENTRY	2723	2214	2942	2701	492	1		31076

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 31076

PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
0.35	1.28	0.98	0.13	0.01	0.00	2.74
0.51	1.88	1.28	0.15	0.03	0.00	3.86
0.57	2.28	2.93	0.79	0.01	0.00	6.59
0.54	2.91	4.99	1.43	0.02	0.00	9.90
0.47	2.84	3.33	0.54	0.02	0.00	7.20
0.47	2.71	2.34	0.24	0.02	0.00	5.77
0.54	2.17	1.86	0.29	0.07	0.00	4.93
0.59	2.22	2.20	0.37	0.07	0.00	5.45
0.52	2.19	2.39	0.41	0.06	0.00	5.59
0.53	2.69	2.45	0.38	0.05	0.00	6.11
0.71	3.34	2.55	0.31	0.07	0.00	6.98
0.68	3.58	3.24	0.33	0.06	0.00	7.88
0.70	3.31	4.01	1.15	0.29	0.01	9.47
0.83	2.80	3.57	1.44	0.62	0.00	9.16
0.52	1.84	2.20	0.60	0.17	0.00	5.33
0.42	1.16	1.32	0.13	0.02	0.00	3.04
0.00	0.00	0.00	0.00	0.00	0.00	0.00

FIGURE 4. Annual Windrose for A-Area Meteorological Tower, 1982-86, All Stabilities.



BEST AVAILABLE COPY

WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34686

SPEED IN METERS/SEC

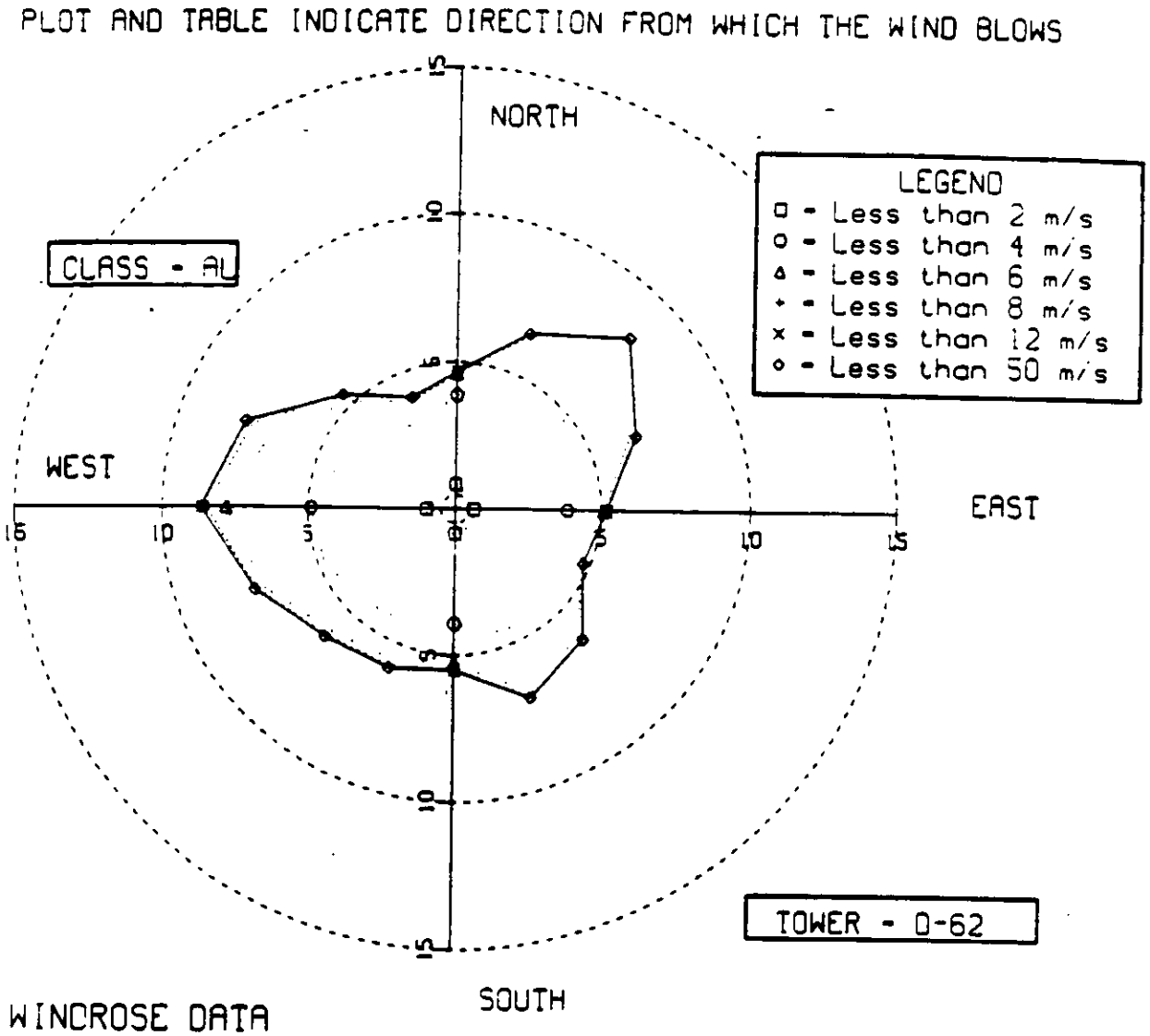
DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	182	451	356	78	4	0	2.76	1071
NNE	198	678	555	252	18	3	3.12	1702
NE	288	886	1278	602	67	1	3.42	3183
ENE	297	1080	1150	394	48	1	3.01	2978
E	288	947	695	91	4	0	2.65	2005
ESE	227	827	628	129	19	0	2.97	1828
SE	201	644	653	179	26	0	3.15	1703
SSE	178	774	1055	321	29	0	3.51	2357
S	192	853	1044	223	42	0	3.40	2354
SSW	188	877	923	208	28	1	3.34	2228
SW	283	965	970	288	65	1	3.23	2540
WSW	220	987	1112	338	91	7	3.42	2755
W	300	1150	1178	398	191	13	3.41	3231
WNW	275	774	1001	351	188	9	3.30	2598
NW	190	518	455	107	31	0	2.65	1302
NNW	170	394	315	44	9	0	2.73	932
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.17	2.99	4.04	6.07	9.07	12.74	3.20	
TOT ENTRY	3818	2808	3382	3985	859	36		34686

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 34686

PERCENT TIME WIND & SPEED

0-2	2-4	4-6	6-8	8-12	>12	TOTAL
0.52	1.30	1.03	0.22	0.01	0.00	3.09
0.57	1.95	1.60	0.73	0.05	0.01	4.91
0.77	2.55	3.68	1.74	0.19	0.00	8.94
0.86	3.11	3.34	1.14	0.14	0.00	8.59
0.77	2.73	2.00	0.26	0.01	0.00	5.78
0.65	2.38	1.80	0.37	0.05	0.00	5.27
0.58	1.86	1.88	0.52	0.07	0.00	4.91
0.51	2.23	3.04	0.93	0.08	0.00	6.80
0.55	2.46	3.01	0.84	0.12	0.00	6.79
0.54	2.53	2.66	0.60	0.08	0.00	6.42
0.78	2.78	2.82	0.77	0.19	0.00	7.32
0.83	2.85	3.21	0.97	0.28	0.02	7.94
0.88	3.32	3.40	1.15	0.55	0.04	9.31
0.79	2.23	2.88	1.01	0.54	0.03	7.49
0.55	1.50	1.31	0.31	0.08	0.00	3.75
0.49	1.14	0.91	0.13	0.03	0.00	2.69
0.00	0.00	0.00	0.00	0.00	0.00	0.00

FIGURE 5. Annual Windrose for C-Area Meteorological Tower, 1982-86, All Stabilities.



WINDROSE DATA

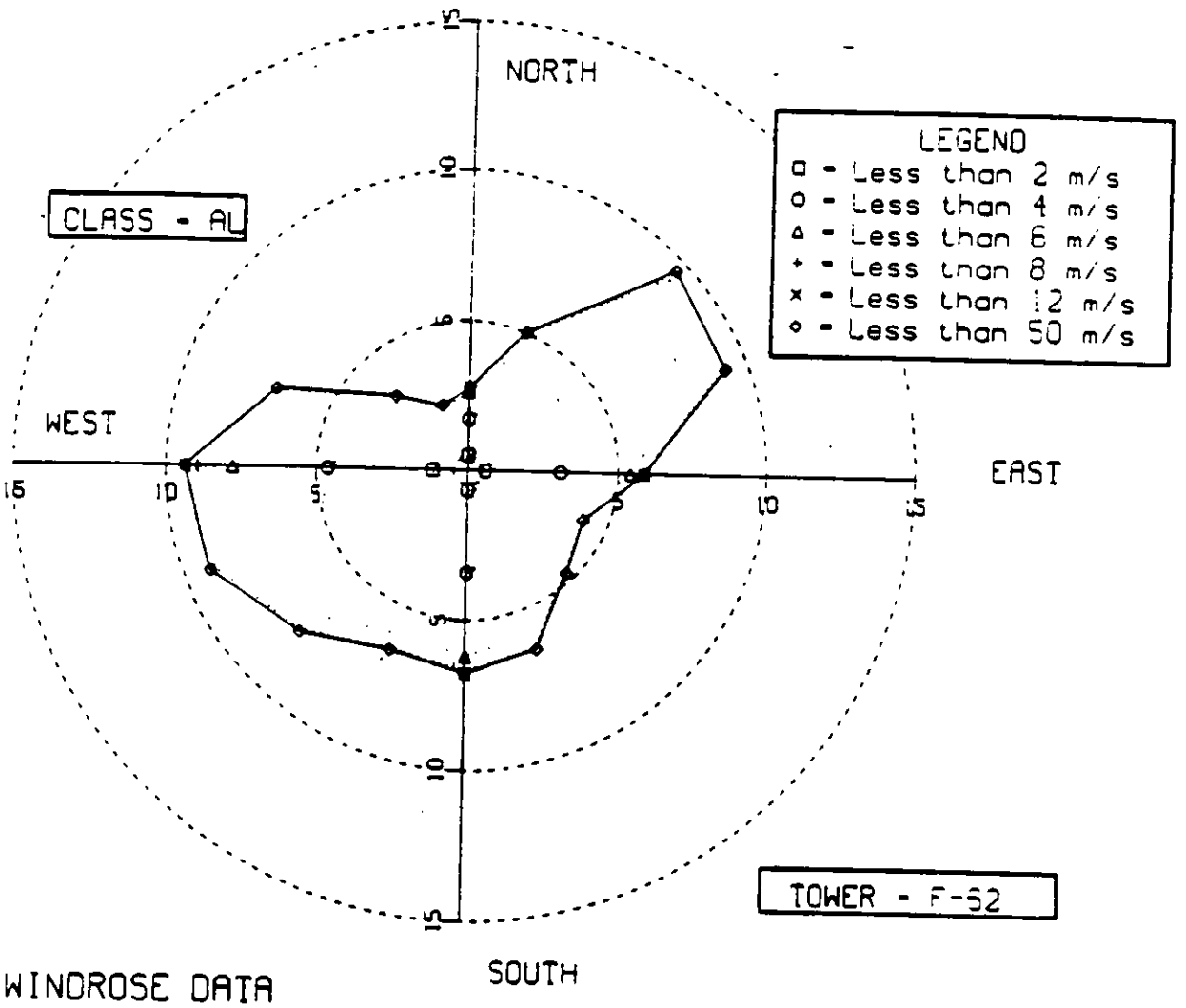
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35549

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 35549

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	302	1078	266	16	5	0	2.39	1665
NNE	259	1417	587	40	1	1	2.79	2305
NE	271	1503	1065	100	4	1	3.08	2944
ENE	288	1257	720	91	3	0	2.84	2357
E	231	1133	438	35	1	0	2.73	1838
ESE	228	1024	380	49	0	0	2.67	1682
SE	278	1235	642	57	6	0	2.72	2218
SSE	273	1345	751	88	11	0	2.82	2468
S	301	1094	472	81	11	1	2.60	1960
SSW	304	1195	479	82	28	3	2.70	2092
SW	327	1280	518	84	15	0	2.70	2202
WSW	347	1352	810	81	18	3	2.76	2811
W	355	1388	1021	230	84	2	2.95	3080
WNW	332	1153	925	248	81	5	2.93	2745
NW	288	987	550	102	28	2	2.73	1958
NNW	288	846	273	38	3	0	2.46	1458
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.18	2.95	4.66	6.85	8.88	16.18	2.78	
TOT ENTRY	4852	9245	9885	1421	278	18		35549

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.85	3.03	0.75	0.05	0.01	0.00	4.68
NNE	0.73	3.98	1.65	0.11	0.00	0.00	6.48
NE	0.76	4.23	3.00	0.28	0.01	0.00	8.28
ENE	0.80	3.54	2.03	0.26	0.01	0.00	6.63
E	0.65	3.19	1.23	0.10	0.00	0.00	5.17
ESE	0.67	2.88	1.07	0.14	0.00	0.00	4.76
SE	0.78	3.47	1.81	0.16	0.02	0.00	6.24
SSE	0.77	3.78	2.11	0.24	0.03	0.00	6.94
S	0.85	3.08	1.33	0.23	0.03	0.00	5.51
SSW	0.86	3.36	1.35	0.23	0.08	0.01	5.88
SW	0.92	3.54	1.45	0.24	0.04	0.00	6.19
WSW	0.98	3.80	2.28	0.23	0.05	0.01	7.34
W	1.00	3.90	2.87	0.65	0.18	0.01	8.61
WNW	0.93	3.24	2.60	0.70	0.23	0.01	7.72
NW	0.81	2.72	1.55	0.28	0.07	0.01	5.45
NNW	0.84	2.38	0.77	0.11	0.01	0.00	4.10
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FIGURE 6. Annual Windrose for D-Area Meteorological Tower, 1982-86, All Stabilities.



WINDROSE DATA

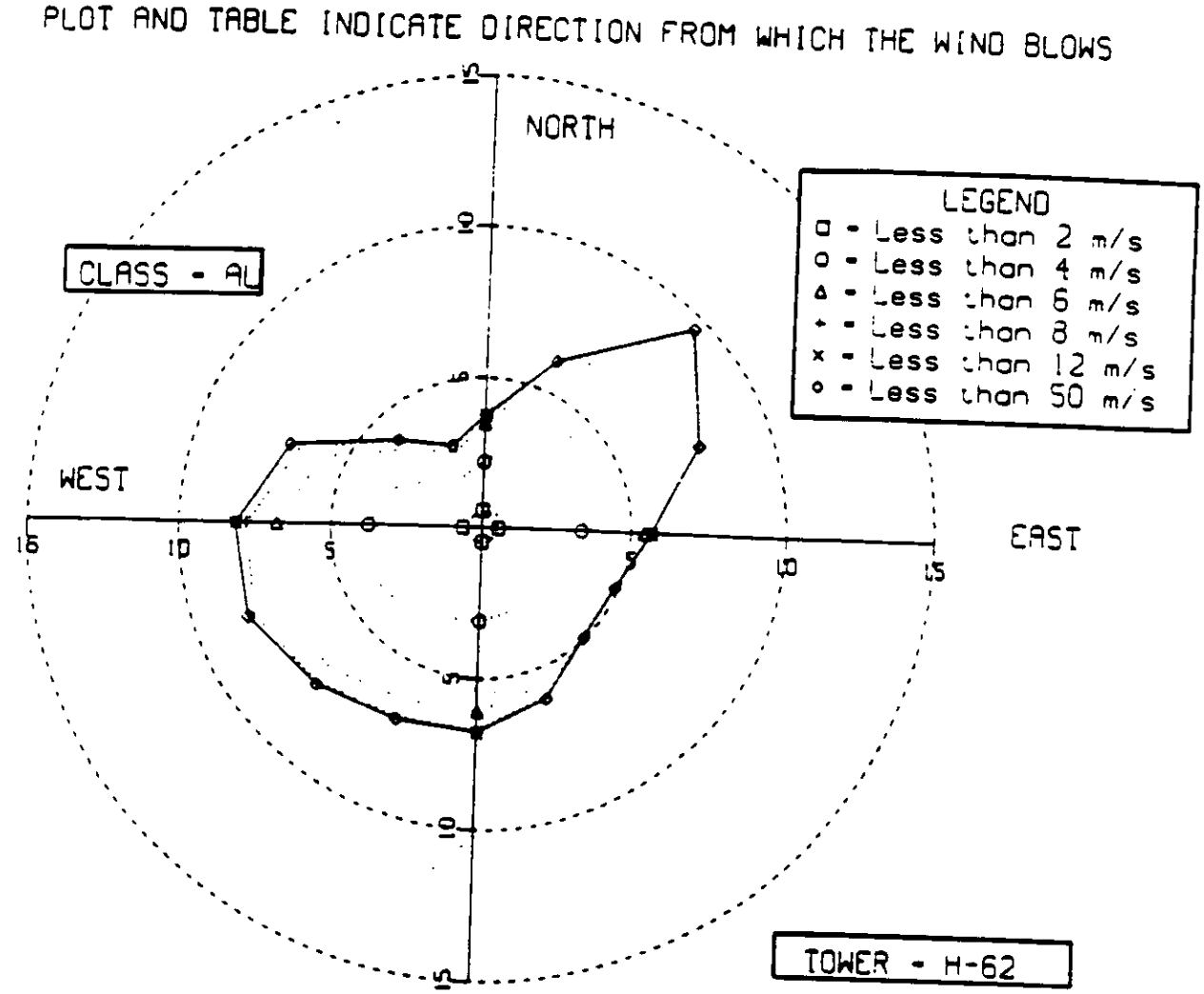
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 33331

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	168	400	305	43	7	0	2.58	923
NNE	216	624	620	207	12	1	3.04	1680
NE	273	975	1301	539	116	5	3.53	3209
ENE	281	1210	1217	310	68	0	3.20	3088
E	198	841	759	150	6	0	3.10	1955
ESE	195	664	435	87	5	0	2.81	1388
SE	188	666	581	110	28	0	3.02	1585
SSE	238	782	941	138	27	0	3.08	2128
S	222	920	917	168	28	0	3.08	2253
SSW	282	875	830	180	21	0	2.97	2188
SW	293	1073	954	231	29	0	2.95	2580
WSW	377	1365	967	274	54	2	2.92	3039
W	388	1148	1054	383	148	0	3.02	3121
WNW	315	798	816	258	105	0	3.04	2283
NW	214	441	398	95	9	0	2.68	1149
NNW	182	338	242	30	2	0	2.53	774
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.16	2.92	4.03	6.05	8.92	14.13	3.02	
TOT ENTRY	3994	3121	2339	3203	686	8		33331

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.50	1.20	0.92	0.13	0.02	0.00	2.77
NNE	0.65	1.87	1.86	0.62	0.04	0.00	5.04
NE	0.82	2.93	3.90	1.62	0.35	0.02	9.63
ENE	0.84	3.63	3.65	0.93	0.20	0.00	9.26
E	0.60	2.52	2.28	0.45	0.02	0.00	5.87
ESE	0.59	1.99	1.31	0.26	0.02	0.00	4.16
SE	0.57	2.00	1.77	0.33	0.09	0.00	4.76
SSE	0.72	2.35	2.82	0.42	0.08	0.00	6.38
S	0.67	2.76	2.75	0.50	0.08	0.00	6.76
SSW	0.79	2.63	2.49	0.54	0.08	0.00	6.50
SW	0.88	3.22	2.86	0.69	0.09	0.00	7.74
WSW	1.13	4.10	2.90	0.82	0.16	0.01	9.12
W	1.17	3.45	3.16	1.15	0.44	0.00	9.37
WNW	0.95	2.38	2.45	0.78	0.32	0.00	6.88
NW	0.64	1.32	1.17	0.28	0.03	0.00	3.45
NNW	0.46	1.01	0.73	0.09	0.01	0.00	2.32
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FIGURE 7. Annual Windrose for F-Area Meteorological Tower, 1982-86, All Stabilities.



WINDROSE DATA

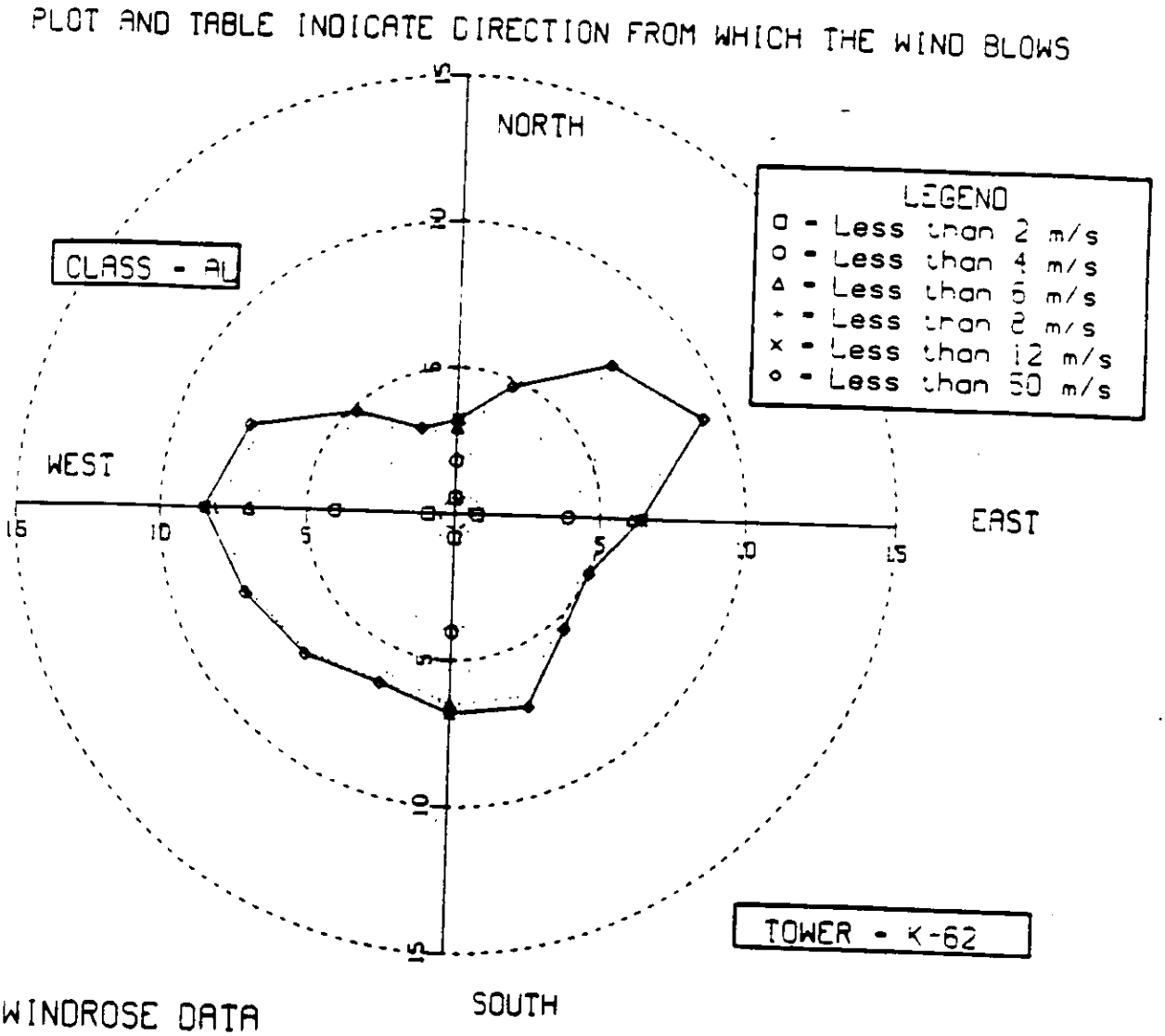
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	204	571	460	80	13	0	2.96	1328
NNE	198	898	911	131	13	0	3.31	2141
NE	234	1341	1559	229	18	0	3.38	3381
ENE	228	1288	1078	122	1	0	3.19	2698
E	191	980	737	85	2	0	3.13	1995
ESE	138	832	631	102	7	0	3.24	1710
SE	153	743	722	106	25	0	3.27	1749
SSE	171	861	927	140	25	0	3.21	2124
S	170	923	1050	228	16	0	3.46	2387
SSW	214	928	1051	218	33	1	3.36	2445
SW	228	1075	1105	220	31	0	3.30	2657
WSW	228	1197	1180	243	71	2	3.38	2901
W	234	1082	1074	342	124	2	3.55	2858
WNW	241	883	822	377	113	2	3.33	2438
NW	197	584	485	126	24	0	2.97	1416
NNW	175	483	288	75	17	0	2.88	1028
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.26	3.01	4.80	6.84	9.01	13.93	3.26	
TOT ENTRY	3195	4625	4169	2721	535	7		35252

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 35252

PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
0.58	1.62	1.30	0.23	0.04	0.00	3.77
0.94	2.54	2.58	0.37	0.04	0.00	6.07
0.68	3.80	4.42	0.65	0.05	0.00	9.59
0.85	3.59	3.08	0.35	0.00	0.00	7.85
0.54	2.78	2.08	0.24	0.01	0.00	5.66
0.38	2.36	1.79	0.29	0.02	0.00	4.85
0.43	2.11	2.05	0.30	0.07	0.00	4.96
0.48	2.44	2.83	0.40	0.07	0.00	6.03
0.48	2.62	2.98	0.64	0.05	0.00	6.77
0.61	2.83	2.98	0.62	0.08	0.00	6.94
0.64	3.05	3.13	0.62	0.08	0.00	7.54
0.85	3.40	3.29	0.69	0.20	0.01	8.23
0.88	3.07	3.05	0.97	0.35	0.01	8.11
0.88	2.50	2.62	0.78	0.32	0.01	6.82
0.58	1.88	1.37	0.35	0.07	0.00	4.01
0.50	1.31	0.85	0.21	0.05	0.00	2.92
0.00	0.00	0.00	0.00	0.00	0.00	0.00

FIGURE 8. Annual Windrose for H-Area Meteorological Tower, 1982-86, All Stabilities.



WINDROSE DATA

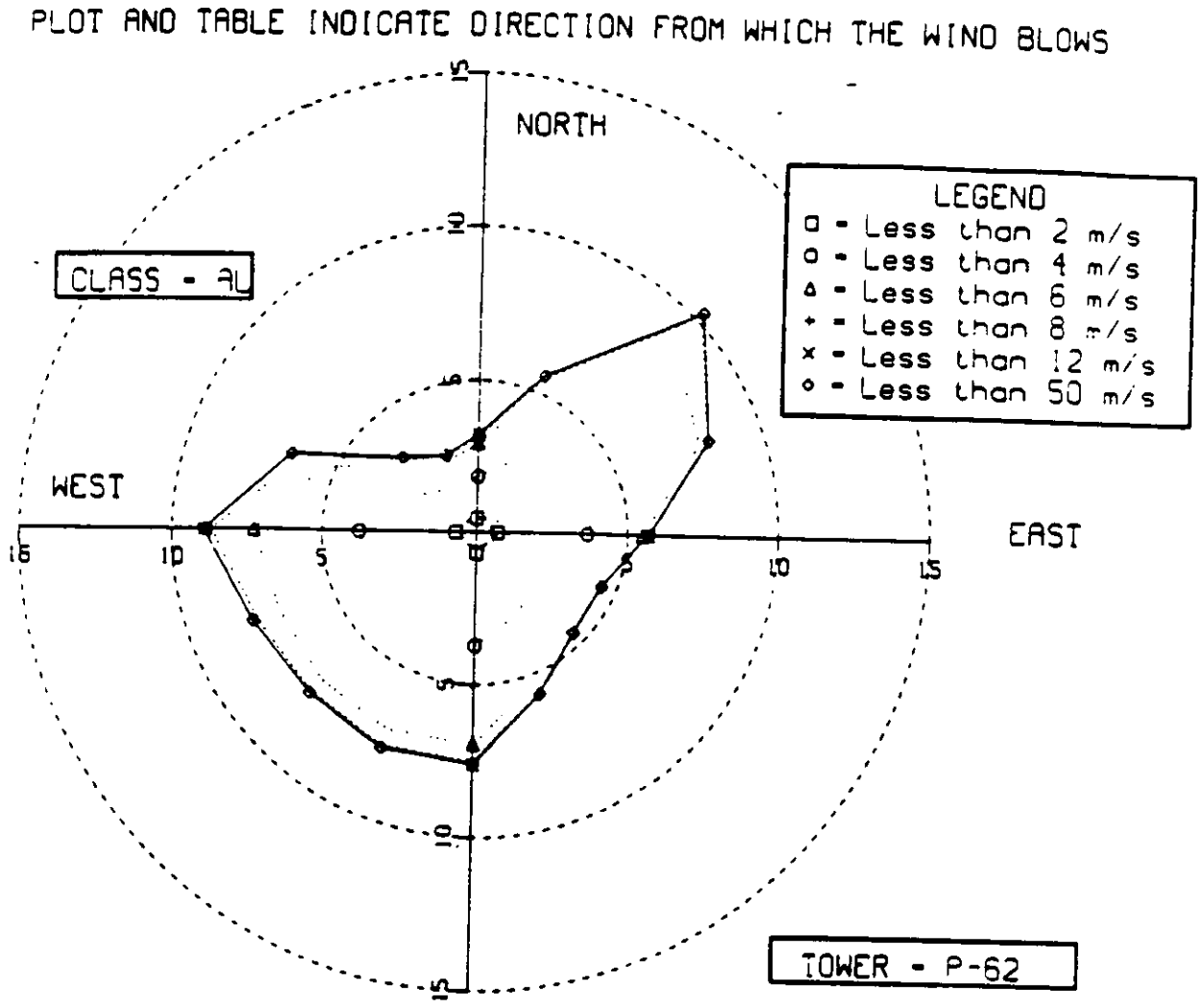
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35041

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 35841

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	197	457	412	86	7	0	2.67	1159
NNE	221	673	651	155	10	1	2.98	1711
NE	287	1073	1065	201	12	0	3.08	2648
ENE	329	1525	1265	153	9	0	3.02	3281
E	372	1107	811	122	3	0	2.90	2315
ESE	288	802	625	75	3	0	2.88	1793
SE	277	830	751	78	3	0	2.90	1938
SSE	270	1032	1080	128	12	0	3.04	2522
S	287	1150	887	92	10	0	2.86	2436
SSW	316	1026	763	135	19	0	2.77	2259
SW	324	1133	834	173	32	1	2.82	2497
WSW	349	1111	977	221	52	2	2.93	2712
W	323	1131	1032	350	138	2	3.17	3017
WNW	288	878	1021	388	133	3	3.33	2888
NW	248	881	588	188	45	1	2.92	1728
NNW	218	470	374	58	6	0	2.60	1126
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.16	2.95	4.80	6.81	9.03	13.32	2.94	
TOT ENTRY	4513	5087	3134	2605	492	10		35841

DIRECTION	PERCENT TIME WIND & SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.55	1.28	1.15	0.24	0.02	0.00	3.23
NNE	0.62	1.88	1.82	0.43	0.03	0.00	4.77
NE	0.83	2.99	2.97	0.56	0.03	0.00	7.38
ENE	0.92	4.25	3.53	0.43	0.03	0.00	9.15
E	0.78	3.09	2.26	0.34	0.01	0.00	6.46
ESE	0.80	2.24	1.74	0.21	0.01	0.00	5.00
SE	0.77	2.32	2.10	0.22	0.01	0.00	5.41
S	0.75	2.88	3.01	0.36	0.03	0.00	7.04
SSW	0.80	3.24	2.47	0.26	0.03	0.00	6.80
SW	0.88	2.88	2.13	0.38	0.05	0.00	6.30
WSW	0.90	3.16	2.33	0.48	0.09	0.00	6.97
W	0.97	3.10	2.73	0.62	0.15	0.01	7.57
WNW	0.80	3.18	2.88	1.10	0.38	0.01	8.42
NW	0.83	2.44	2.85	1.03	0.37	0.01	7.53
NNW	0.60	1.30	1.63	0.46	0.13	0.00	4.82
NO DIRECT	0.81	1.31	1.04	0.16	0.02	0.00	3.14
AVG SPEED	0.00	0.00	0.00	0.00	0.00	0.00	0.00

FIGURE 9. Annual Windrose for K-Area Meteorological Tower, 1982-86, All Stabilities.



WINDROSE DATA

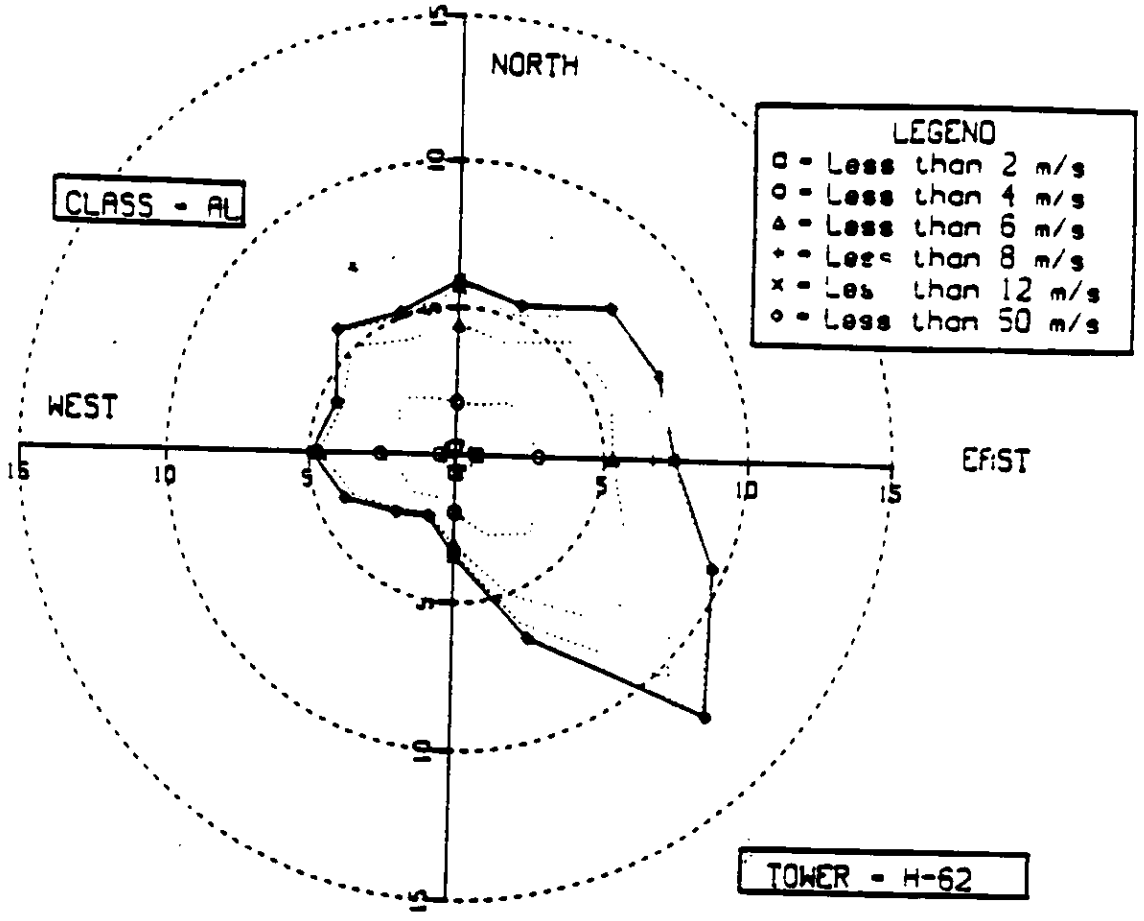
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31621

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	148	434	352	74	8	1	2.98	1018
NNE	151	824	737	226	32	0	3.32	1769
NE	238	1141	1467	380	38	0	3.54	3264
ENE	258	1230	989	105	2	0	3.14	2584
E	228	925	581	51	2	0	2.91	1785
ESE	192	723	449	49	8	0	2.93	1421
SE	221	640	518	59	11	0	2.90	1449
SSE	208	783	714	98	15	0	3.00	1799
S	221	961	1012	188	19	0	3.31	2401
SSW	178	968	1079	179	21	0	3.42	2425
SW	175	1006	1016	162	22	0	3.37	2381
WSW	195	918	1087	250	52	0	3.49	2480
W	212	979	1112	441	81	2	3.81	2827
WNW	188	718	838	245	101	0	3.51	2088
NW	151	435	373	98	28	0	3.09	1085
NNW	139	375	284	55	11	0	2.88	864
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.33	2.98	4.81	6.64	8.88	16.77	3.28	
TOT ENTRY	3080	2838	2589	2880	451	3		31621

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 31621

	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.47	1.37	1.11	0.23	0.03	0.00	3.22
NNE	0.48	1.97	2.33	0.71	0.10	0.00	5.59
NE	0.75	3.81	4.64	1.20	0.12	0.00	10.32
ENE	0.82	3.88	3.13	0.33	0.01	0.00	8.17
E	0.71	2.93	1.84	0.16	0.01	0.00	5.64
ESE	0.61	2.29	1.42	0.15	0.03	0.00	4.49
SE	0.70	2.02	1.64	0.19	0.03	0.00	4.58
S	0.88	2.41	2.28	0.31	0.05	0.00	5.89
SSW	0.70	3.04	3.20	0.59	0.06	0.00	7.59
SW	0.58	3.08	3.41	0.57	0.07	0.00	7.67
WSW	0.55	3.18	3.21	0.51	0.07	0.00	7.53
W	0.82	2.90	3.37	0.79	0.16	0.00	7.84
WNW	0.67	3.10	3.52	1.39	0.28	0.01	8.94
NW	0.52	2.27	2.65	0.77	0.32	0.00	6.54
NNW	0.48	1.38	1.18	0.31	0.09	0.00	3.43
NO DIRECT	0.44	1.19	0.90	0.17	0.03	0.00	2.73
AVG SPEED	0.00	0.00	0.00	0.00	0.00	0.00	0.00

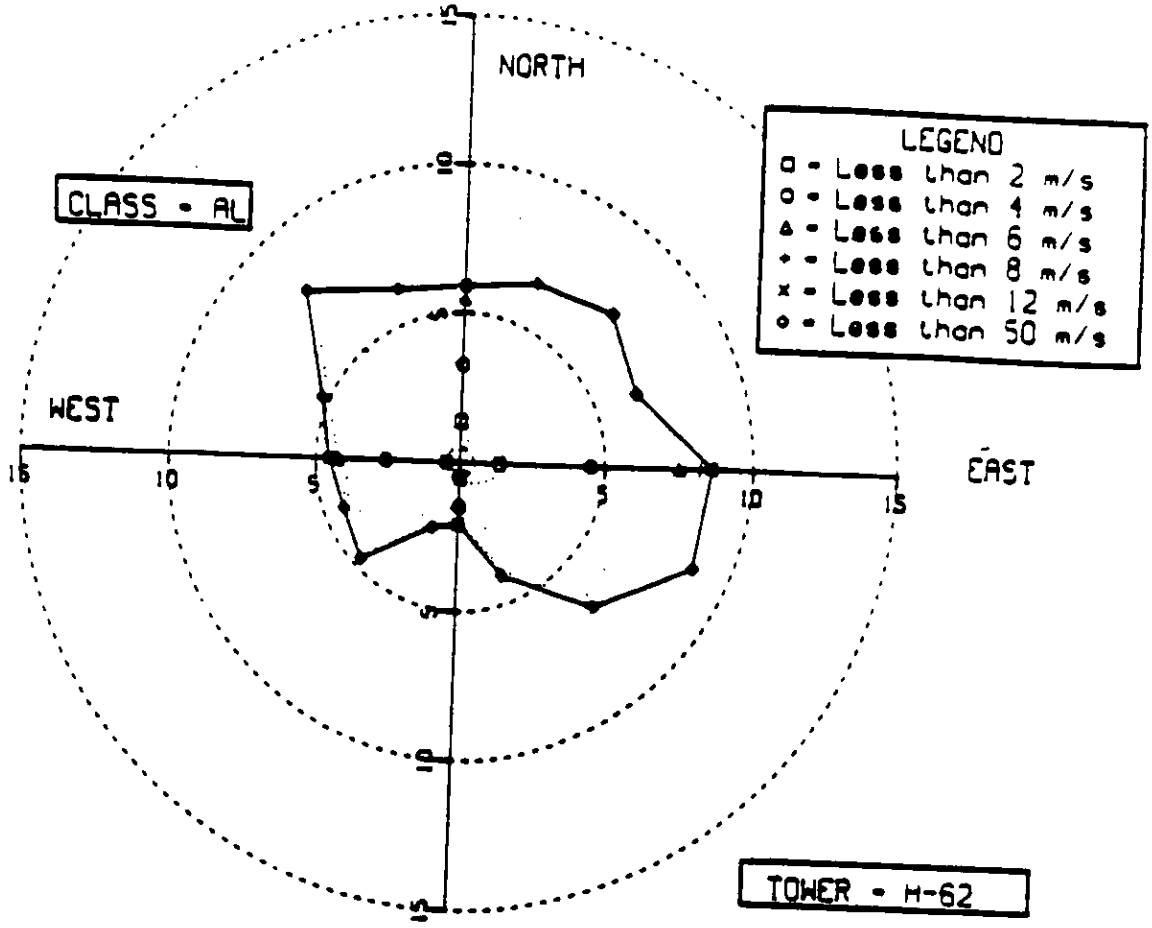
FIGURE 10. Annual Windrose for P-Area Meteorological Tower, 1982-86, All Stabilities.



WINDROSE DATA

Plot indicates direction toward which the wind blows
Table indicates direction from which the wind blows

FIGURE 11. Winter Windrose for H-Area Meteorological Tower, 1975-79, All Stabilities.

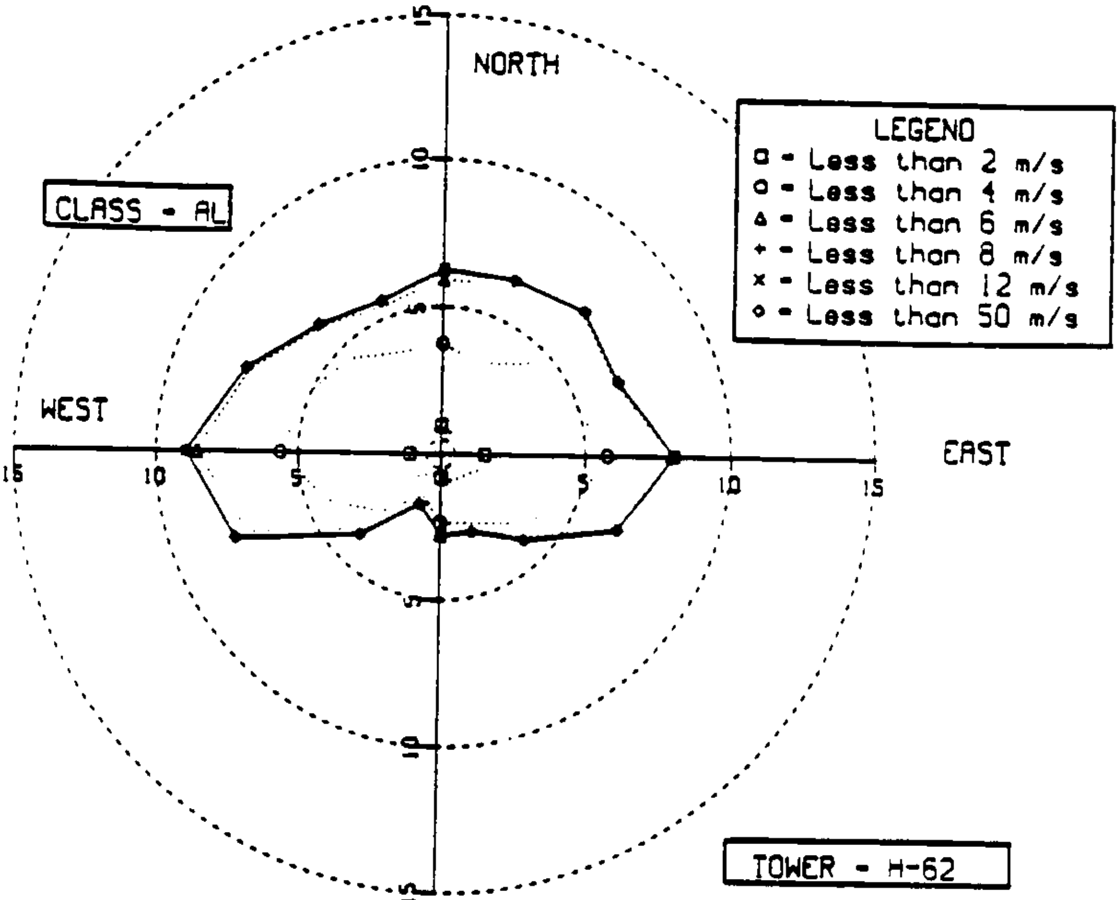


WINDROSE DATA

Plot indicates direction toward which the wind blows
Table indicates direction from which the wind blows

FIGURE 12. Spring Windrose for H-Area Meteorological Tower, 1975-79, All Stabilities.

BEST AVAILABLE COPY



WINDROSE DATA

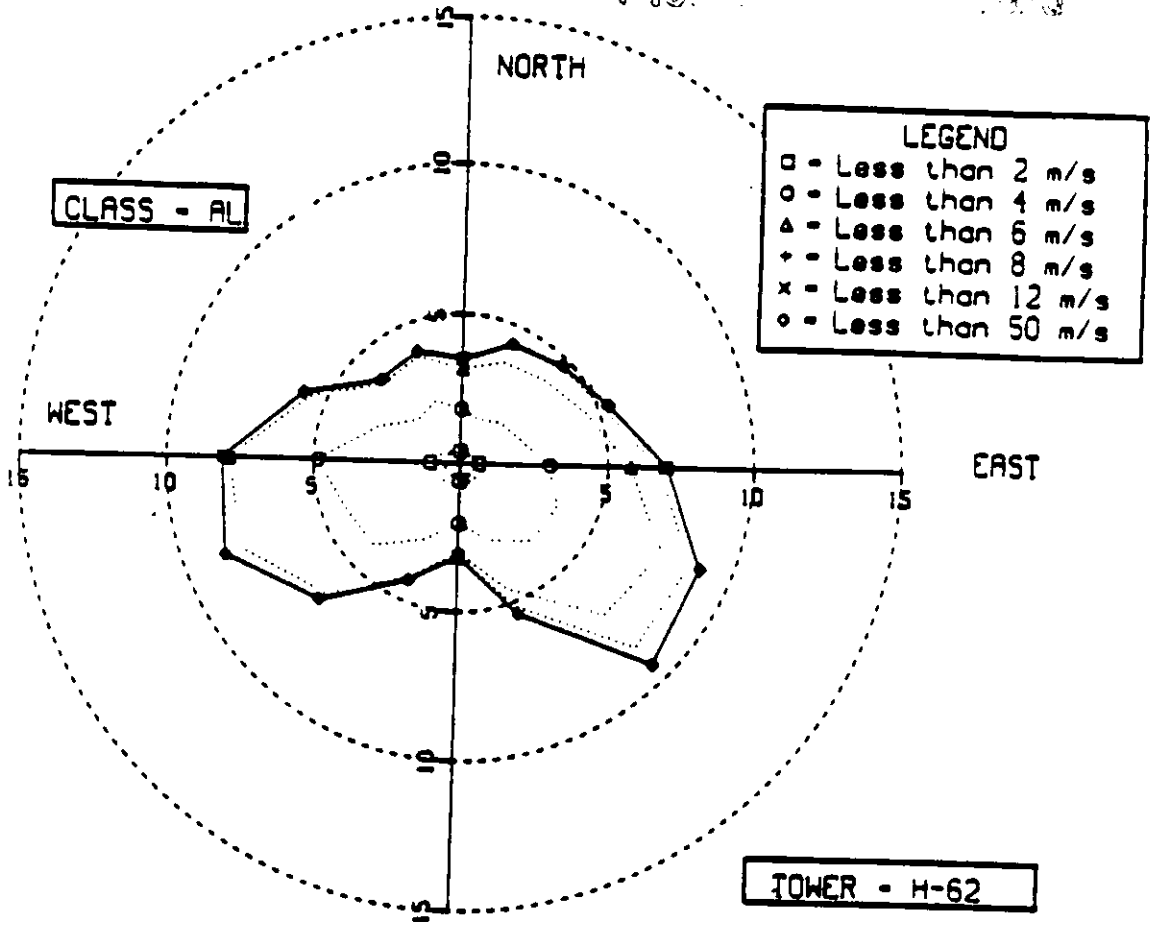
MINIMUM DATE MMDDYY 10175
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 25127

MAXIMUM DATE MMDDYY 123179
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 25127

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	207	387	98	8	1	0	2.07	702	.82	1.54	.39	.03	.00	0.00	2.79
NNE	188	195	74	8	0	0	1.78	465	.75	.78	.29	.03	0.00	0.00	1.85
NE	273	441	207	64	8	0	2.23	993	1.09	1.76	.82	.25	.03	0.00	3.95
ENE	254	823	745	119	7	0	2.91	1948	1.01	3.28	2.96	.47	.03	0.00	7.75
E	268	1150	734	92	5	0	2.88	2249	1.07	4.58	2.92	.37	.02	0.00	8.95
ESE	223	1060	544	42	0	0	2.83	1869	.89	4.22	2.17	.17	0.00	0.00	7.44
SE	232	908	381	24	2	0	2.86	1545	.92	3.61	1.52	.09	.00	0.00	6.15
SSE	219	717	418	45	11	0	2.78	1410	.87	2.85	1.66	.18	.04	0.00	5.61
S	242	703	547	76	6	0	2.70	1574	.96	2.80	2.18	.30	.02	0.00	6.26
SSW	205	637	714	56	3	0	2.89	1615	.82	2.54	2.84	.22	.01	0.00	6.43
SW	210	908	592	30	0	0	2.84	1738	.84	3.61	2.36	.12	0.00	0.00	6.92
WSW	281	957	388	23	3	0	2.57	1653	1.12	3.81	1.55	.09	.01	0.00	6.58
W	375	1070	542	38	2	0	2.55	2027	1.49	4.26	2.16	.15	.00	0.00	8.07
WNW	350	888	368	49	2	0	2.45	1658	1.39	3.54	1.47	.20	.00	0.00	6.60
NW	286	560	163	40	1	0	2.28	1030	1.08	2.23	.65	.16	.00	0.00	4.10
NNW	248	388	73	3	3	0	1.97	716	.99	1.55	.29	.01	.01	0.00	2.85
NO DIRECT	904	743	238	40	10	1	1.60	1934	3.60	2.96	.94	.16	.04	.00	2.79
AVG SPEED	1.16	2.94	4.64	6.61	8.73	13.54	2.48								
TOT ENTRY	4945	12533	6627	757	64	1		25127							

Plot indicates direction toward which the wind blows
Table indicates direction from which the wind blows

FIGURE 13. Summer Windrose For H-Area Tower, 1975-79, All Stabilities.



Plot indicates direction toward which the wind blows
Table indicates direction from which the wind blows

FIGURE 14. Fall Windrose For H-Area Tower, 1975-79, All Stabilities.

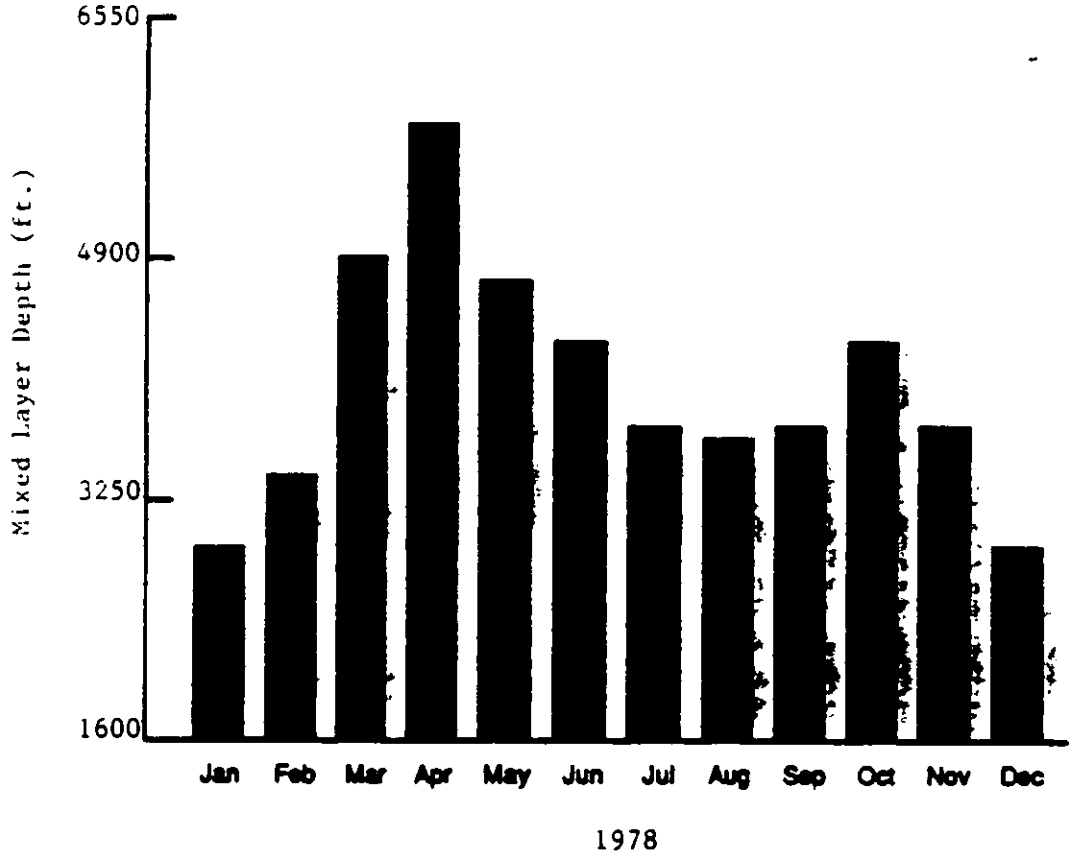


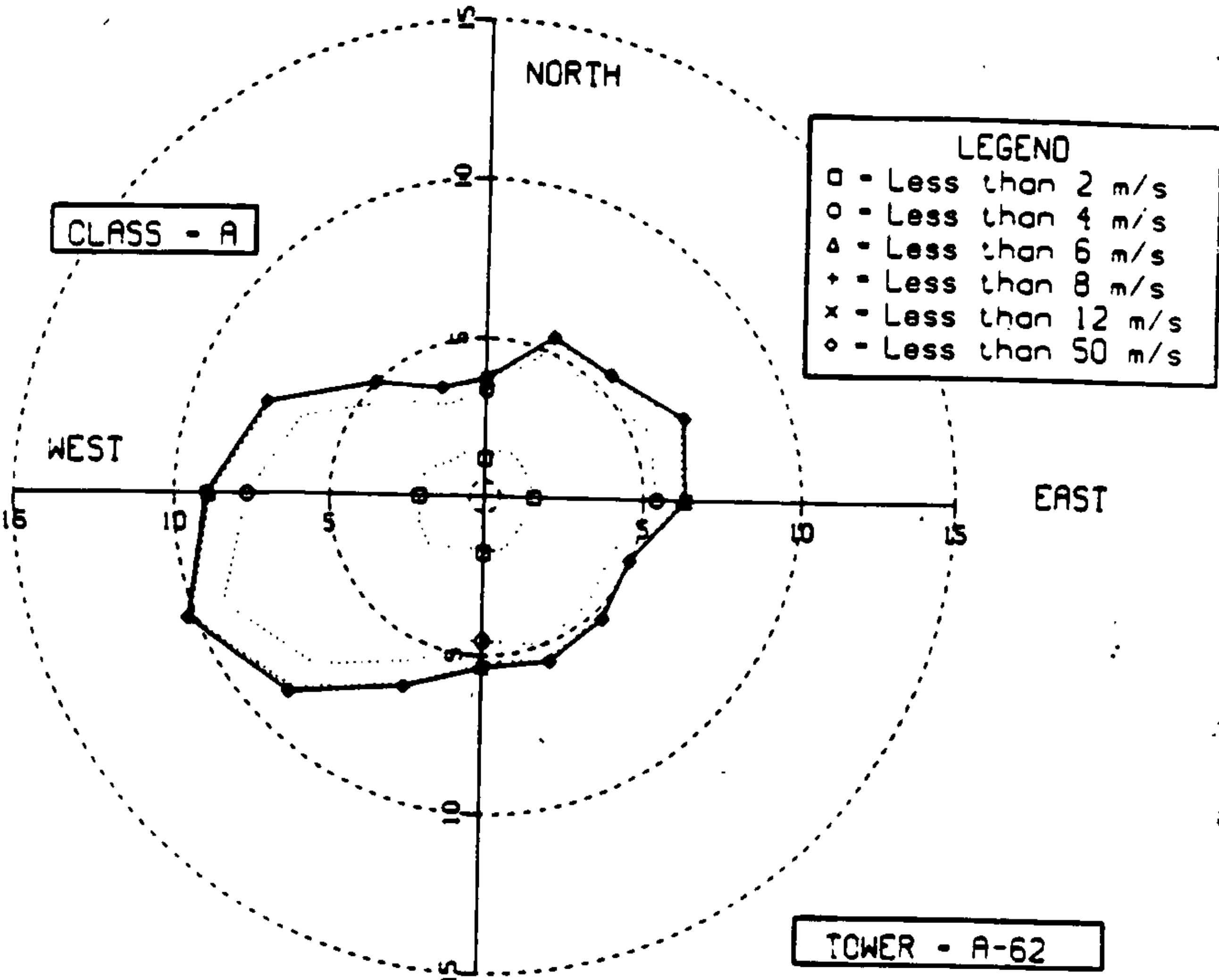
FIGURE 15. Estimated Monthly Average Mixing Heights at SRS.

APPENDIX A

Annual Windroses of hourly averaged winds for Pasquill-Gifford atmospheric stability categories A-G, 1982-1986 data for A, C, D, F, H, K, and P-Area Meteorological Towers. All directions are 22.5 degree sectors from which the wind blows.

WINDROSE 82-86 60-MIN A-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31076

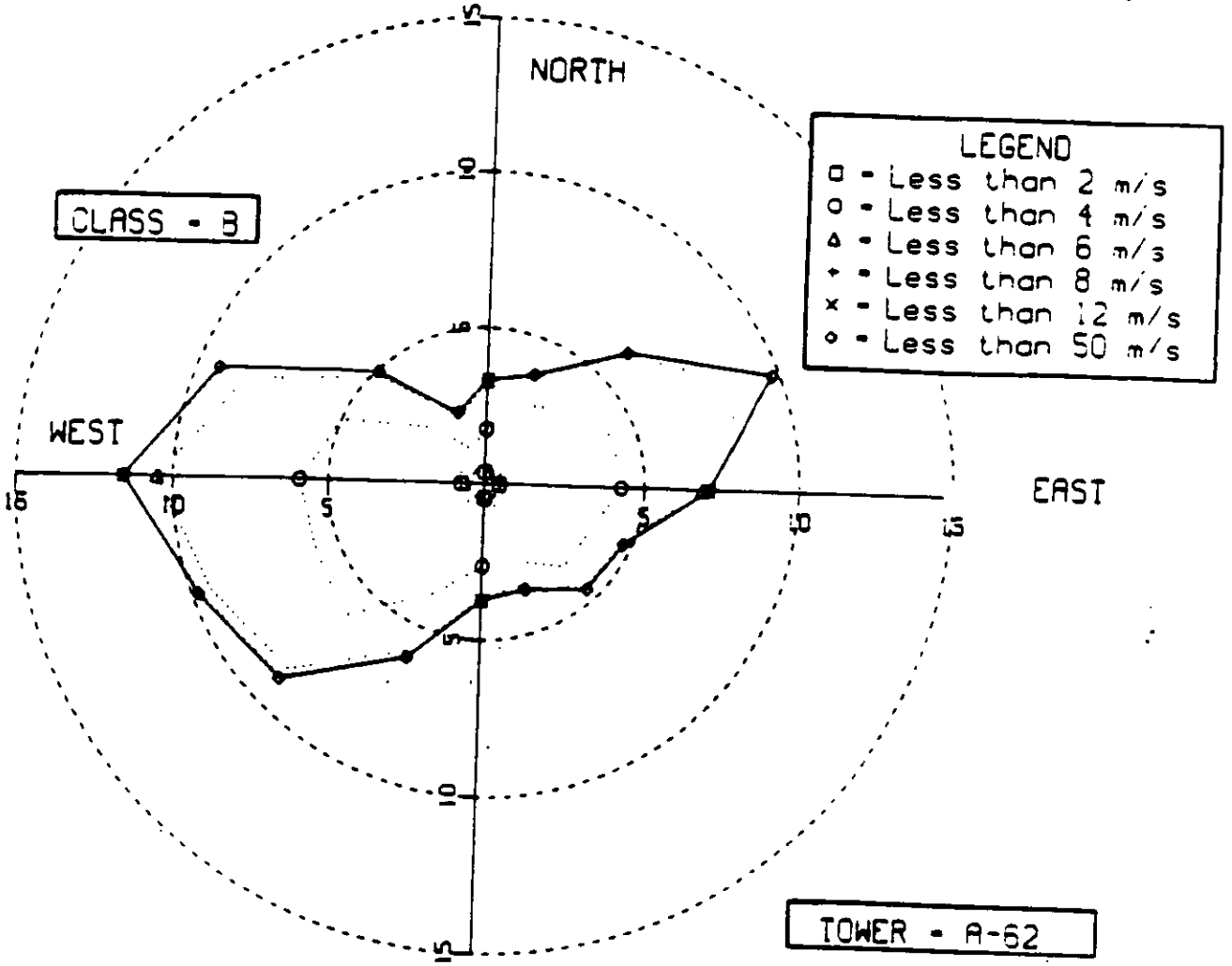
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5731

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
	===== SPEED IN METERS/SEC ====							
N	68	125	18	4	0	0	2.00	215
NNE	97	182	23	3	0	0	2.10	315
NE	88	188	35	4	0	0	2.12	317
ENE	86	234	62	6	0	0	2.35	388
E	88	222	48	6	0	0	2.32	364
ESE	83	167	34	0	1	0	2.15	285
SE	85	182	33	4	0	0	2.01	304
SSE	100	186	25	6	1	0	2.07	318
S	101	180	42	6	0	0	2.11	308
SSW	98	226	46	3	1	0	2.14	372
SW	138	288	58	8	3	0	2.14	504
WSW	127	389	68	3	1	0	2.37	588
W	119	319	70	3	1	2	2.31	514
WNW	119	249	64	5	1	0	2.17	438
NW	88	152	44	2	1	0	2.15	288
NNW	87	92	30	3	0	0	1.90	212
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.26	2.76	4.58	6.62	9.21	17.06	2.17	
TOT ENTRY	1570	3383	700	66	10	2		5731

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
	===== PERCENT TIME WIND @ SPEED =====						
N	1.19	2.18	0.31	0.07	0.00	0.00	3.75
NNE	1.80	3.35	0.40	0.05	0.00	0.00	5.50
NE	1.55	3.30	0.61	0.07	0.00	0.00	5.53
ENE	1.50	4.08	1.08	0.10	0.00	0.00	6.77
E	1.54	3.87	0.84	0.10	0.00	0.00	6.35
ESE	1.45	2.91	0.59	0.00	0.02	0.00	4.97
SE	1.48	3.18	0.58	0.07	0.00	0.00	5.30
SSE	1.74	3.25	0.44	0.10	0.02	0.00	5.55
S	1.76	2.79	0.73	0.10	0.00	0.00	5.39
SSW	1.88	3.94	0.80	0.05	0.02	0.00	6.49
SW	2.37	5.22	1.01	0.14	0.05	0.00	8.79
WSW	2.22	6.79	1.19	0.05	0.02	0.00	10.26
W	2.08	5.57	1.22	0.05	0.02	0.03	8.97
WNW	2.08	4.34	1.12	0.08	0.02	0.00	7.64
NW	1.55	2.65	0.77	0.03	0.02	0.00	5.03
NNW	1.52	1.61	0.52	0.05	0.00	0.00	3.70
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN A-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

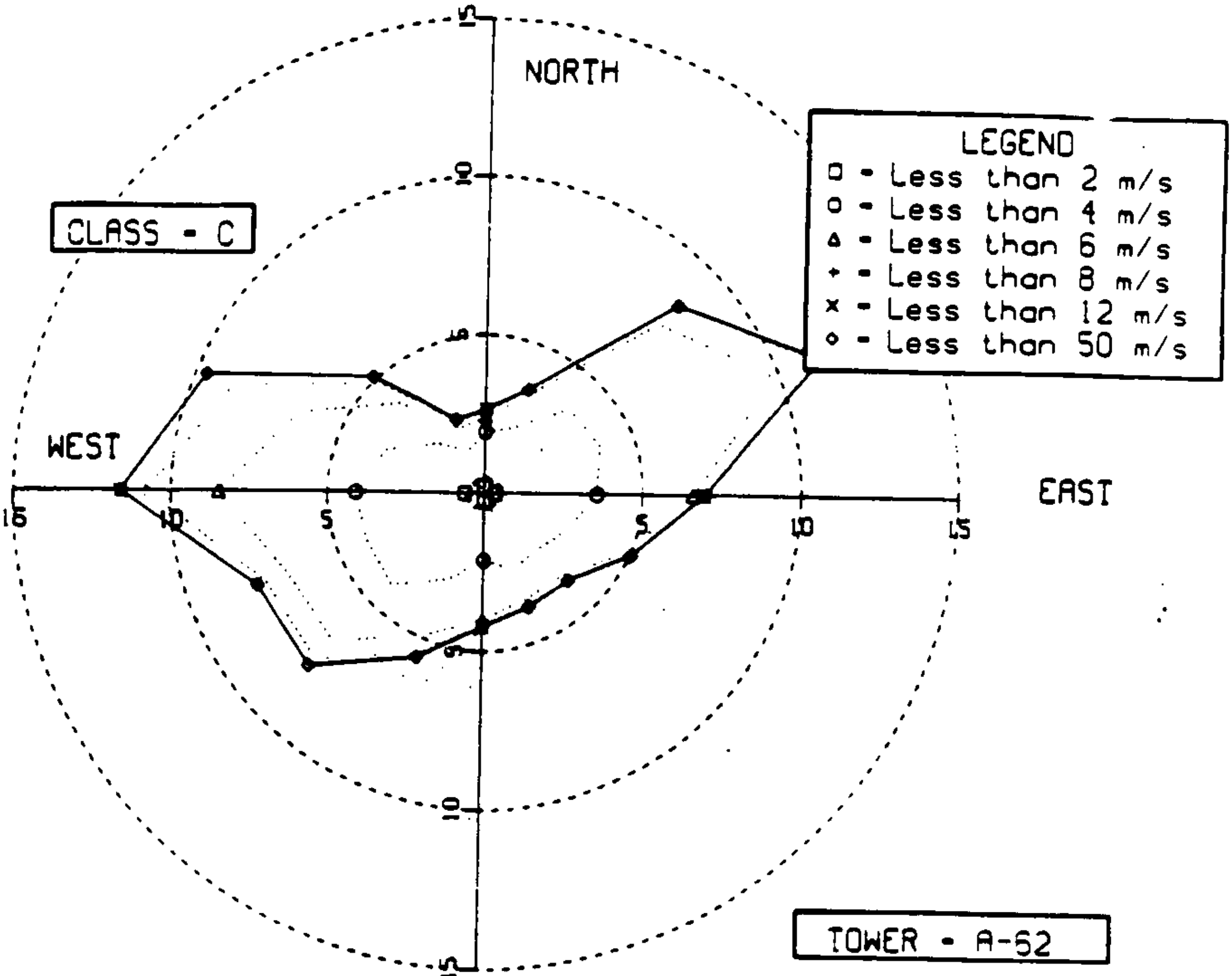
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31096

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 3195

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-6	8-12	>12	AVERAGE SPEED	TOTAL	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	12	44	50	1	0	0	2.92	107	0.38	1.38	1.56	0.03	0.00	0.00	3.35
NNE	11	78	31	2	0	0	2.82	122	0.34	2.44	0.97	0.06	0.00	0.00	3.82
ENE	16	94	83	3	0	0	3.08	196	0.50	2.94	2.60	0.09	0.00	0.00	6.13
E	22	114	148	28	0	0	3.57	312	0.69	3.57	4.63	0.88	0.00	0.00	9.77
ESE	15	121	83	8	0	0	3.10	227	0.47	3.79	2.60	0.25	0.00	0.00	7.10
SE	20	95	35	1	0	0	2.78	151	0.63	2.97	1.10	0.03	0.00	0.00	4.73
SSE	10	85	38	3	0	0	2.92	140	0.31	2.66	0.94	0.09	0.00	0.00	4.38
S	24	61	26	5	0	0	2.54	115	0.75	1.91	0.78	0.16	0.00	0.00	3.60
SSW	15	88	34	1	0	0	2.75	118	0.47	2.76	1.06	0.03	0.00	0.00	3.72
SW	12	110	64	7	1	0	3.12	194	0.38	3.44	2.00	0.22	0.00	0.00	6.07
WSW	30	165	78	12	2	0	2.78	288	0.94	5.16	2.47	0.38	0.00	0.00	9.01
W	25	158	115	13	1	0	3.08	313	0.78	4.98	3.60	0.41	0.00	0.00	9.80
WNW	24	165	147	34	0	0	3.18	370	0.75	5.16	4.60	1.06	0.00	0.00	11.58
NW	28	133	109	28	1	0	3.08	299	0.88	4.13	3.35	0.91	0.00	0.00	9.36
NNW	21	58	70	8	0	0	2.82	158	0.66	1.85	2.19	0.25	0.00	0.00	4.95
NO DIRECT	15	24	35	4	0	0	2.67	78	0.47	0.75	1.10	0.13	0.00	0.00	2.44
AVG SPEED	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT ENTRY	1.12	2.85	4.71	0.58	0.34	0.00	2.85								
	350	1575	1138	158	5	0		3195							

WINDROSE 82-86 60-MIN A-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

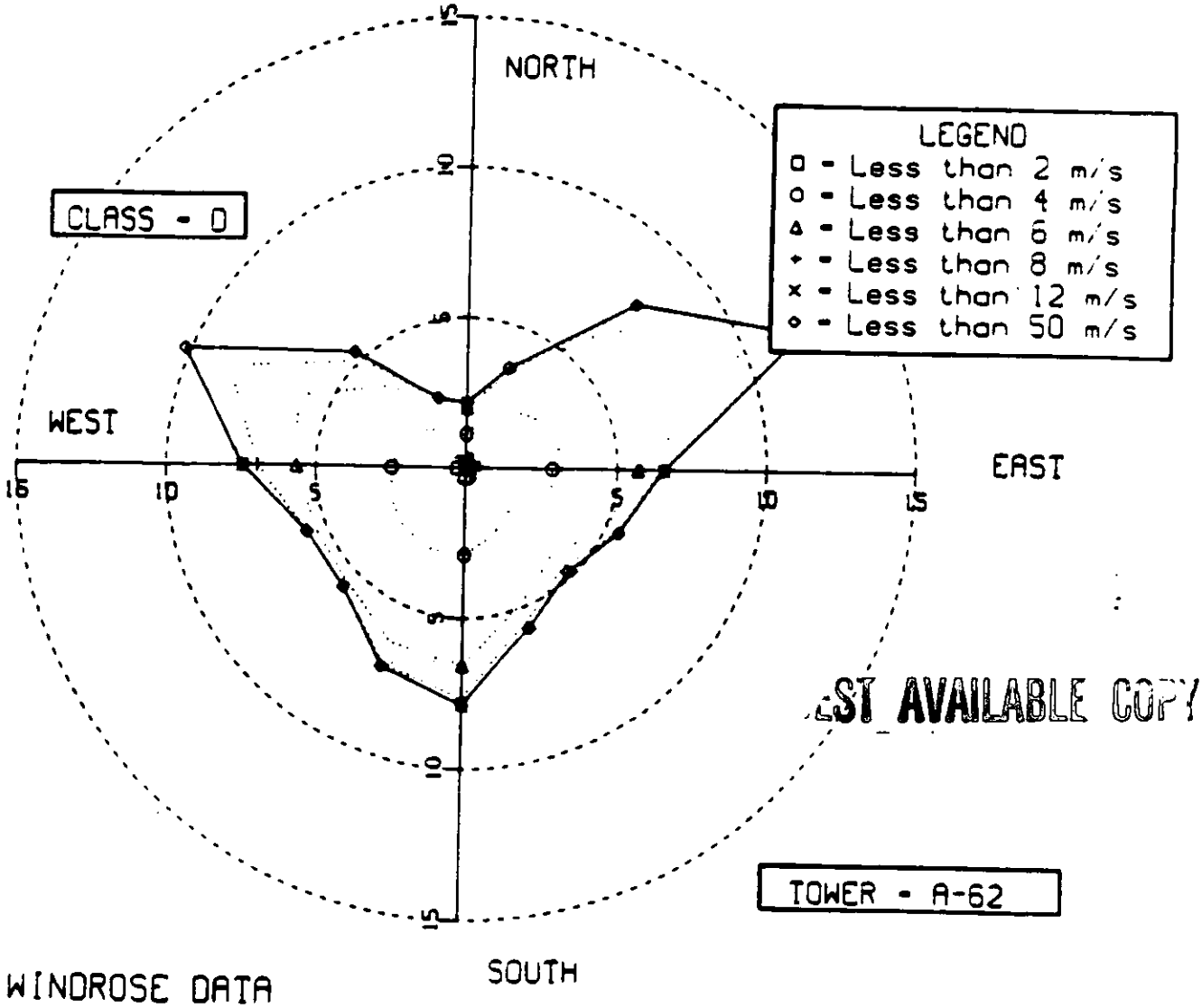
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31078

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5451

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	12	94	28	10	2	0	2.68	144	0.22	1.72	0.48	0.18	0.04	0.00	2.64
NNE	19	102	59	12	1	0	2.88	193	0.35	1.87	1.08	0.22	0.02	0.00	3.54
NE	28	178	210	45	0	0	3.35	461	0.51	3.27	3.85	0.83	0.00	0.00	8.46
ENE	32	184	321	81	5	0	3.75	623	0.58	3.38	5.88	1.49	0.09	0.00	11.43
E	20	175	162	20	0	0	3.42	377	0.37	3.21	2.97	0.37	0.00	0.00	6.92
ESE	15	143	106	10	0	0	3.37	274	0.28	2.62	1.94	0.18	0.00	0.00	5.03
SE	24	111	62	12	1	0	2.85	210	0.44	2.04	1.14	0.22	0.02	0.00	3.85
SSE	37	102	58	13	1	0	2.38	211	0.68	1.87	1.06	0.24	0.02	0.00	3.87
S	14	102	103	10	1	0	3.24	230	0.26	1.87	1.89	0.18	0.02	0.00	4.22
SSW	31	130	104	35	7	0	3.03	307	0.57	2.38	1.91	0.64	0.13	0.00	5.63
SW	32	194	138	44	16	0	2.98	424	0.59	3.56	2.53	0.81	0.29	0.00	7.78
WSW	30	188	140	38	16	0	3.11	422	0.55	3.47	2.72	0.72	0.29	0.00	7.74
W	35	188	237	128	45	0	3.74	634	0.64	3.47	4.35	2.35	0.83	0.00	11.63
WNW	21	168	162	124	51	0	4.00	526	0.38	3.08	2.97	2.27	0.94	0.00	9.65
NW	23	96	97	47	16	0	3.28	279	0.42	1.76	1.78	0.86	0.29	0.00	5.12
NNW	9	69	41	15	2	0	3.28	136	0.17	1.27	0.75	0.28	0.04	0.00	2.49
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.00	3.01	4.83	6.70	8.98	0.00	3.28								
TOT ENTRY	382	2228	2034	845	164	0		5451							

WINDROSE 82-86 60-MIN A-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31076

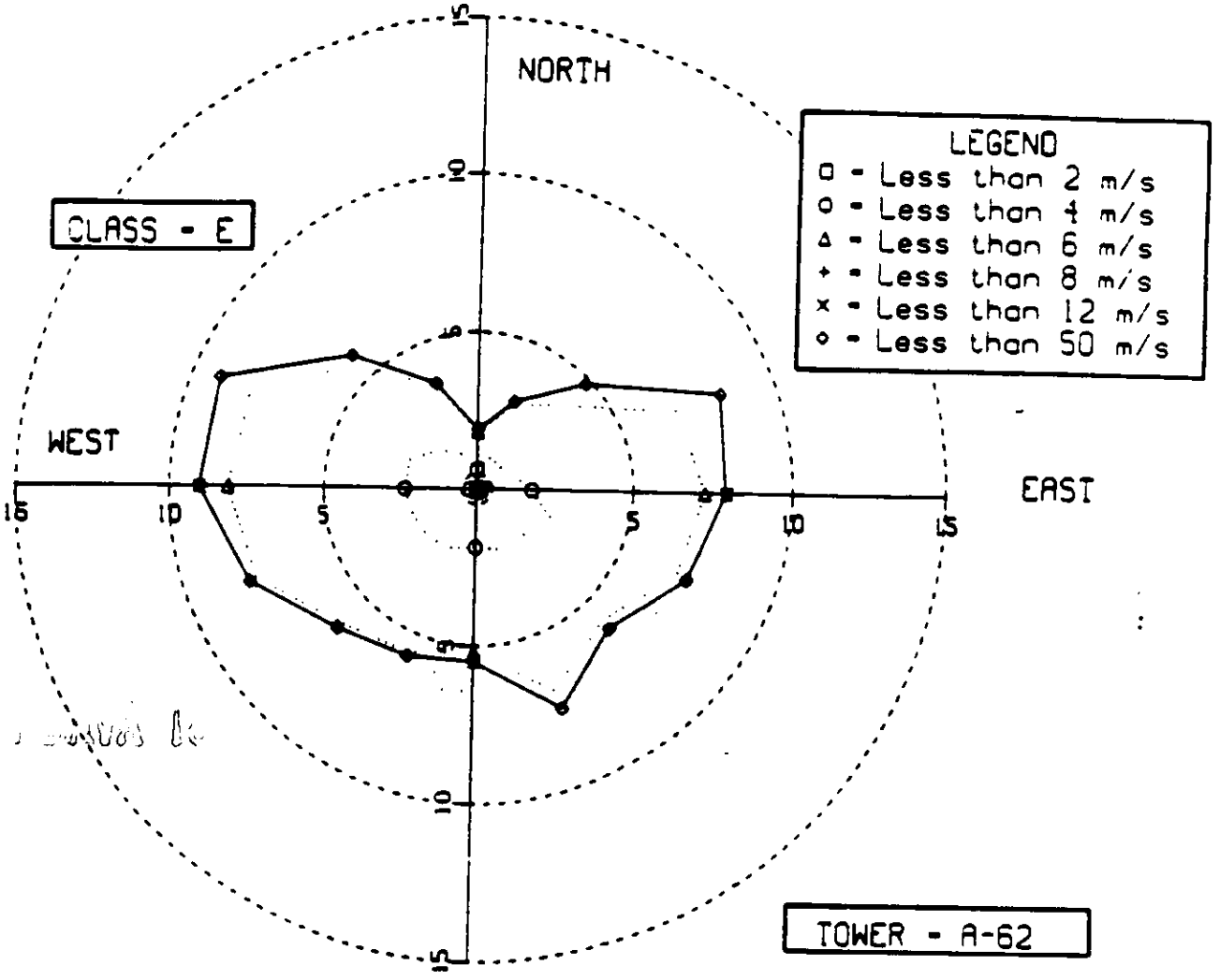
DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	14	82	78	13	1	0	3.36	188
NNE	25	141	123	15	8	0	2.97	312
NE	38	184	353	88	3	0	3.88	672
ENE	18	284	555	181	2	0	4.19	1040
E	12	234	242	88	5	0	3.84	583
ESE	19	245	170	35	4	0	3.40	473
SE	17	158	173	48	18	0	3.58	415
SSE	19	190	215	50	18	0	3.58	492
S	27	223	316	94	19	0	3.58	679
SSW	20	232	281	84	8	1	3.58	616
SW	20	224	222	18	0	0	3.37	488
WSW	20	212	222	24	0	0	3.48	480
W	22	182	373	111	45	0	3.88	833
WNW	13	178	332	217	138	1	4.71	888
NW	22	133	188	101	19	0	3.97	463
NNW	8	85	108	8	3	0	3.58	215
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.82	3.12	4.05	6.06	9.03	12.12	3.74	
TOT ENTRY	312	3008	3947	1148	308	2		8626

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 8626

PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
0.16	0.95	0.90	0.15	0.01	0.00	2.16
0.28	1.63	1.43	0.17	0.09	0.00	3.62
0.42	2.13	4.08	1.11	0.03	0.00	7.79
0.21	3.28	6.43	2.10	0.02	0.00	12.06
0.14	2.71	2.81	0.80	0.06	0.00	6.52
0.22	2.84	1.97	0.41	0.05	0.00	5.48
0.20	1.83	2.01	0.57	0.21	0.00	4.81
0.22	2.20	2.49	0.58	0.21	0.00	5.70
0.31	2.58	3.88	1.08	0.22	0.00	7.87
0.25	2.88	3.37	0.74	0.08	0.01	7.14
0.23	2.80	2.83	0.21	0.00	0.00	5.67
0.23	2.46	2.88	0.30	0.00	0.00	5.88
0.26	2.23	3.16	1.28	0.52	0.00	7.45
0.15	2.08	3.85	2.52	1.80	0.01	10.20
0.28	1.54	1.98	1.17	0.43	0.00	5.38
0.00	1.10	1.16	0.10	0.03	0.00	2.48
0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN A-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31078

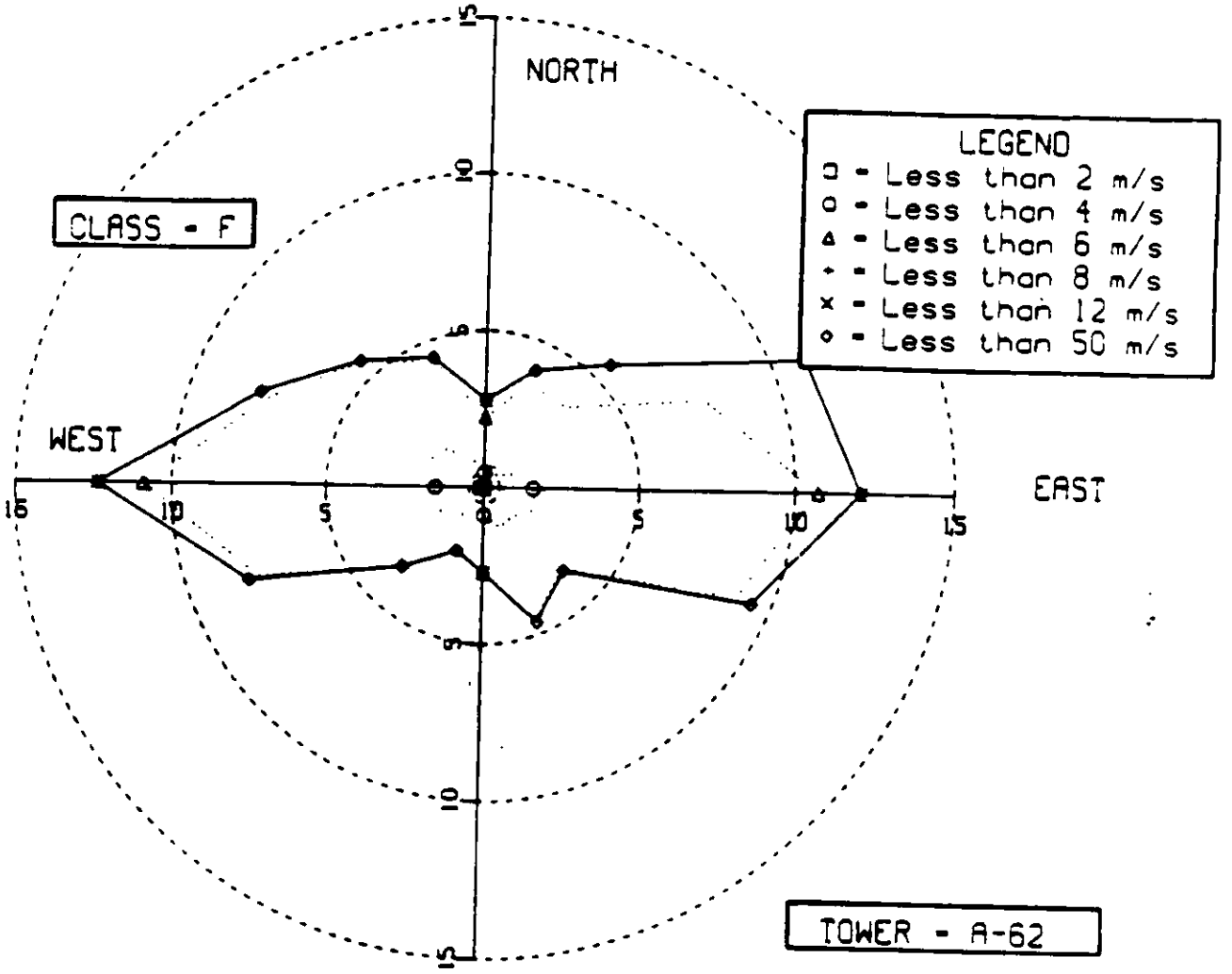
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6477

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	2	28	78	5	0	0	4.08	123
NNE	7	83	120	7	0	0	3.81	197
NE	9	57	180	66	0	0	4.24	312
ENE	10	70	361	96	0	0	4.62	537
E	9	105	352	45	0	0	4.28	511
ESE	6	108	272	21	0	0	3.98	407
SE	13	120	243	20	2	0	3.98	398
SSE	4	130	311	38	1	0	4.28	485
S	5	115	219	17	0	0	4.02	356
SSW	5	127	233	8	0	0	4.05	373
SW	2	138	255	14	0	0	4.15	410
WSW	7	138	354	16	0	0	4.15	515
W	13	141	372	60	0	0	4.22	586
WNW	11	145	388	88	1	0	4.20	681
NW	6	108	244	76	0	0	3.97	383
NNW	10	87	151	7	0	0	3.88	255
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.16	3.25	4.05	6.36	8.05	0.00	4.15	
TOT ENTRY	119	1728	4111	514	4	0		6477

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.03	0.58	1.20	0.08	0.00	0.00	1.90
NNE	0.11	0.97	1.85	0.11	0.00	0.00	3.04
NE	0.14	0.88	2.78	1.02	0.00	0.00	4.82
ENE	0.15	1.08	5.57	1.45	0.00	0.00	8.28
E	0.14	1.62	5.43	0.68	0.00	0.00	7.88
ESE	0.09	2.58	4.20	0.32	0.00	0.00	7.21
SE	0.20	1.85	3.75	0.31	0.03	0.00	6.14
SSE	0.06	2.01	4.80	0.60	0.02	0.00	7.49
S	0.08	1.78	3.38	0.26	0.00	0.00	5.50
SSW	0.08	1.98	3.80	0.12	0.00	0.00	5.76
SW	0.03	2.15	3.94	0.22	0.00	0.00	6.33
WSW	0.11	2.13	5.47	0.25	0.00	0.00	7.95
W	0.20	2.18	5.74	0.93	0.00	0.00	9.05
WNW	0.17	2.24	5.85	1.05	0.02	0.00	9.12
NW	0.09	1.84	3.77	0.42	0.00	0.00	5.91
NNW	0.15	1.03	2.33	0.11	0.00	0.00	3.93
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN A-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31076

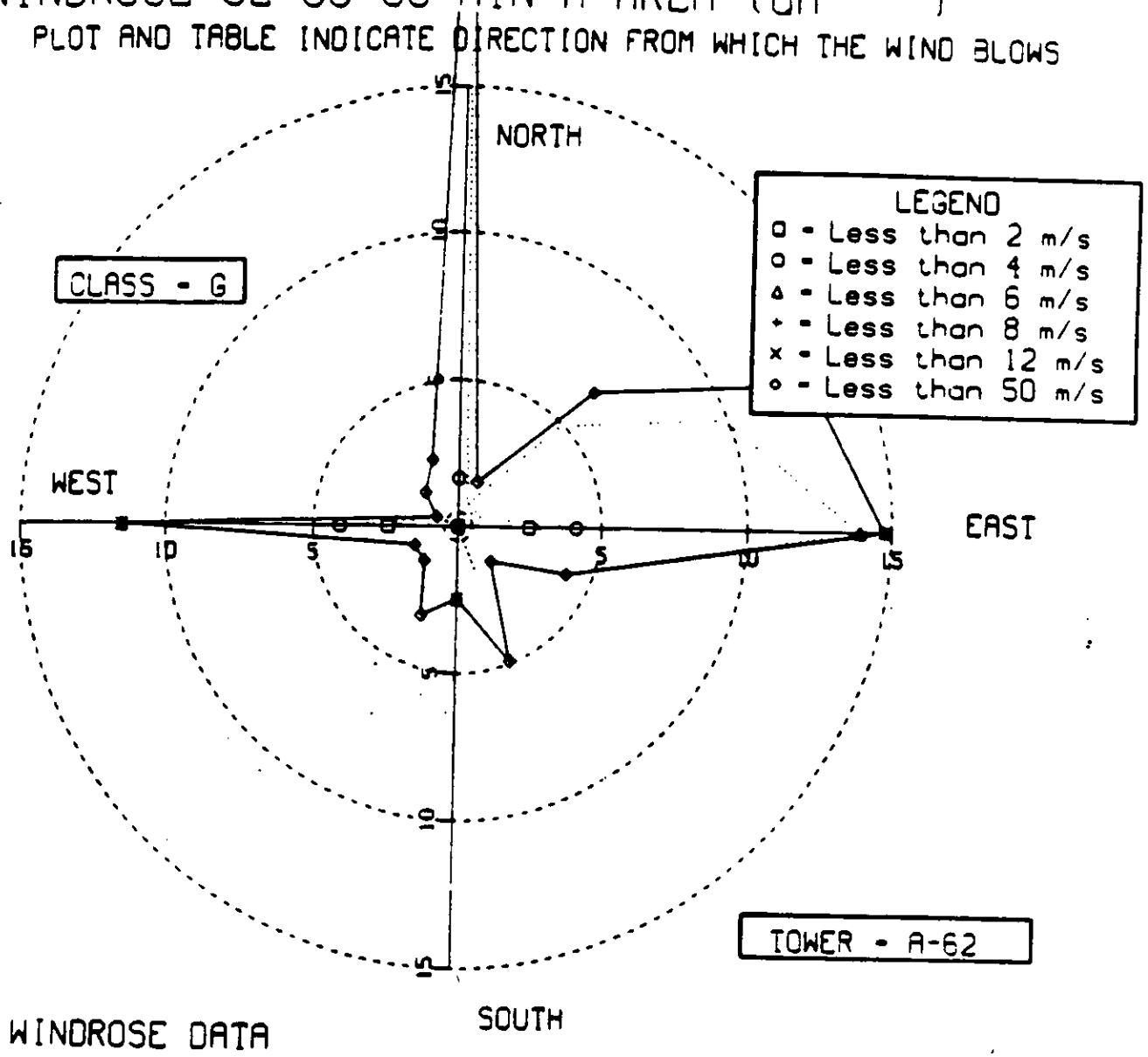
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 1474

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	0	7	26	8	0	0	4.79	41
NNE	1	11	41	7	0	0	4.59	60
NE	0	8	46	28	0	0	5.28	83
ENE	1	18	93	51	0	0	4.91	163
E	0	23	135	20	0	0	4.68	178
ESE	2	24	104	8	0	0	4.49	138
SE	0	19	34	1	0	0	4.05	54
SSE	0	20	47	1	0	0	4.17	68
S	0	13	27	0	0	0	4.20	40
SSW	1	11	20	0	0	0	3.94	32
SW	2	18	33	0	0	0	3.88	53
WSW	1	24	88	5	0	0	4.38	118
W	2	21	138	22	0	0	4.51	183
WNW	2	28	78	6	0	0	4.18	114
NW	0	28	97	1	0	0	4.21	83
NNW	1	15	58	2	0	0	4.28	88
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.89	3.34	4.83	6.34	0.00	0.00	4.48	
TOT ENTRY	13	283	1017	181	0	0		1474

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.00	0.47	1.76	0.54	0.00	0.00	2.78
NNE	0.00	0.75	2.78	0.47	0.00	0.00	4.07
NE	0.00	0.54	3.12	1.97	0.00	0.00	5.63
ENE	0.00	1.22	6.31	3.46	0.00	0.00	11.06
E	0.00	1.56	9.16	1.36	0.00	0.00	12.08
ESE	0.14	1.63	7.06	0.54	0.00	0.00	9.36
SE	0.00	1.28	2.31	0.07	0.00	0.00	3.66
SSE	0.00	1.36	3.19	0.07	0.00	0.00	4.61
S	0.00	0.88	1.83	0.00	0.00	0.00	2.71
SSW	0.07	0.75	1.36	0.00	0.00	0.00	2.17
SW	0.14	1.22	2.24	0.00	0.00	0.00	3.60
WSW	0.07	1.63	5.97	0.34	0.00	0.00	8.01
W	0.14	1.42	9.36	1.49	0.00	0.00	12.42
WNW	0.14	1.90	5.28	0.41	0.00	0.00	7.73
NW	0.00	1.70	3.87	0.07	0.00	0.00	5.63
NNW	0.00	0.88	3.38	0.14	0.00	0.00	4.48
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN A-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

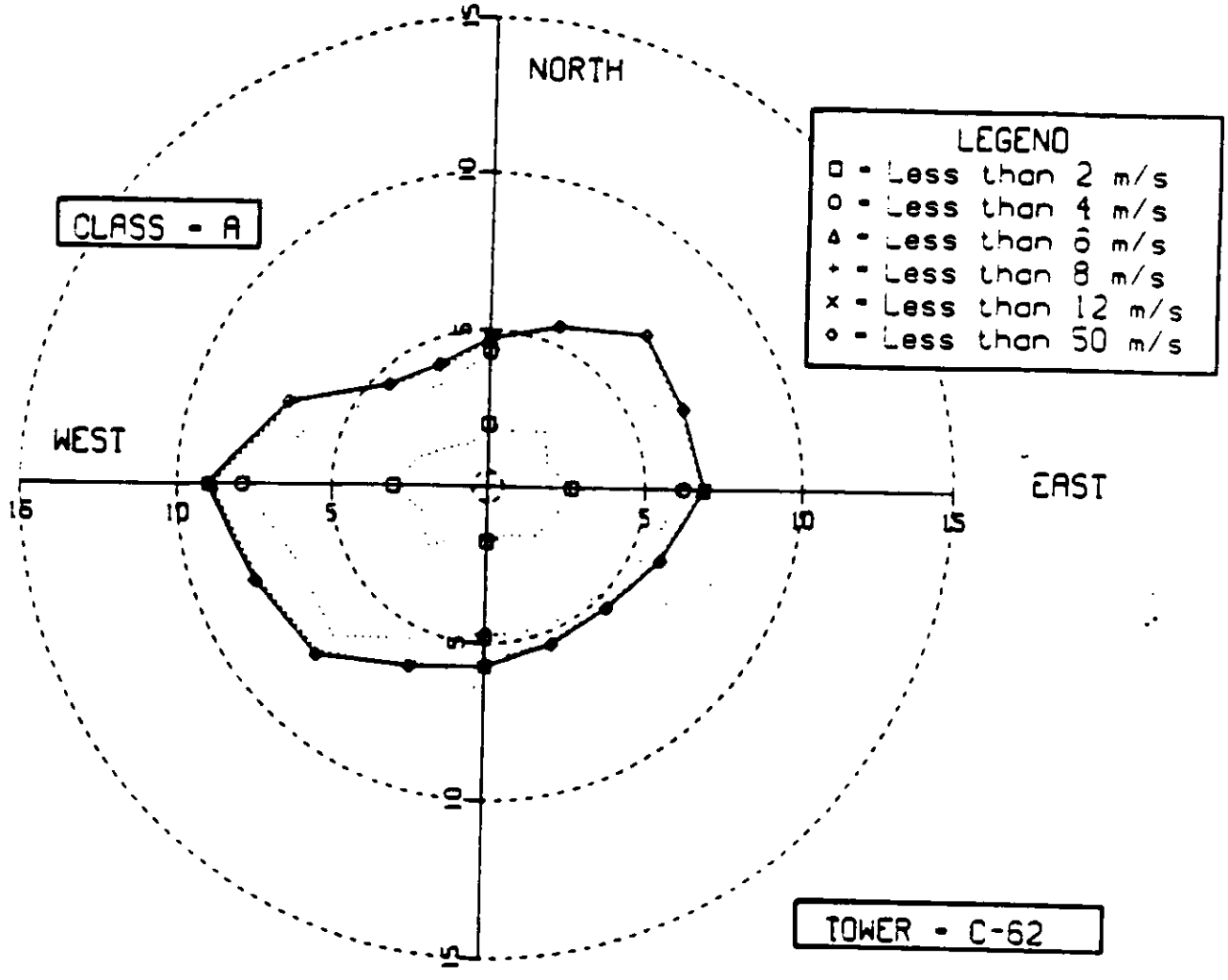
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31096

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 122

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0	2	32	0	0	0	4.78	34	0.00	1.64	26.23	0.00	0.00	0.00	27.87
NNE	0	0	2	0	0	0	5.00	2	0.00	0.00	1.64	0.00	0.00	0.00	1.64
NE	0	0	1	5	2	0	5.33	8	0.00	0.00	0.82	4.10	1.64	0.00	6.56
ENE	0	1	1	11	1	0	5.33	16	0.00	0.82	0.82	9.02	3.28	0.00	13.11
E	3	2	12	1	0	0	2.18	18	2.46	1.64	9.84	0.82	0.00	0.00	14.75
ESE	0	0	5	0	0	0	5.20	5	0.00	0.00	4.10	0.00	0.00	0.00	4.10
SE	0	0	2	0	0	0	4.50	2	0.00	0.00	1.64	0.00	0.00	0.00	1.64
SSE	0	0	2	4	0	0	4.50	6	0.00	1.64	3.28	0.00	0.00	0.00	4.92
S	0	0	3	0	0	0	4.74	3	0.00	0.00	2.46	0.00	0.00	0.00	2.46
SSW	0	0	4	0	0	0	4.67	4	0.00	0.00	3.28	0.00	0.00	0.00	3.28
SW	0	0	2	0	0	0	5.25	2	0.00	0.00	1.64	0.00	0.00	0.00	1.64
WSW	0	0	2	0	0	0	5.00	2	0.00	0.00	1.64	0.00	0.00	0.00	1.64
W	3	2	9	0	0	0	1.54	14	2.46	1.64	7.38	0.00	0.00	0.00	11.48
WNW	1	0	0	0	0	0	0.45	1	0.82	0.00	0.00	0.00	0.00	0.00	0.82
NW	0	0	2	0	0	0	4.25	2	0.00	0.00	1.64	0.00	0.00	0.00	1.64
NNW	0	0	3	0	0	0	4.58	3	0.00	0.00	2.46	0.00	0.00	0.00	2.46
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	0.48	3.77	4.94	6.45	0.00	0.00	3.24								
TOT ENTRY	7	10	97	8	0	0		122							

WINDROSE 82-86 60-MIN C-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34686

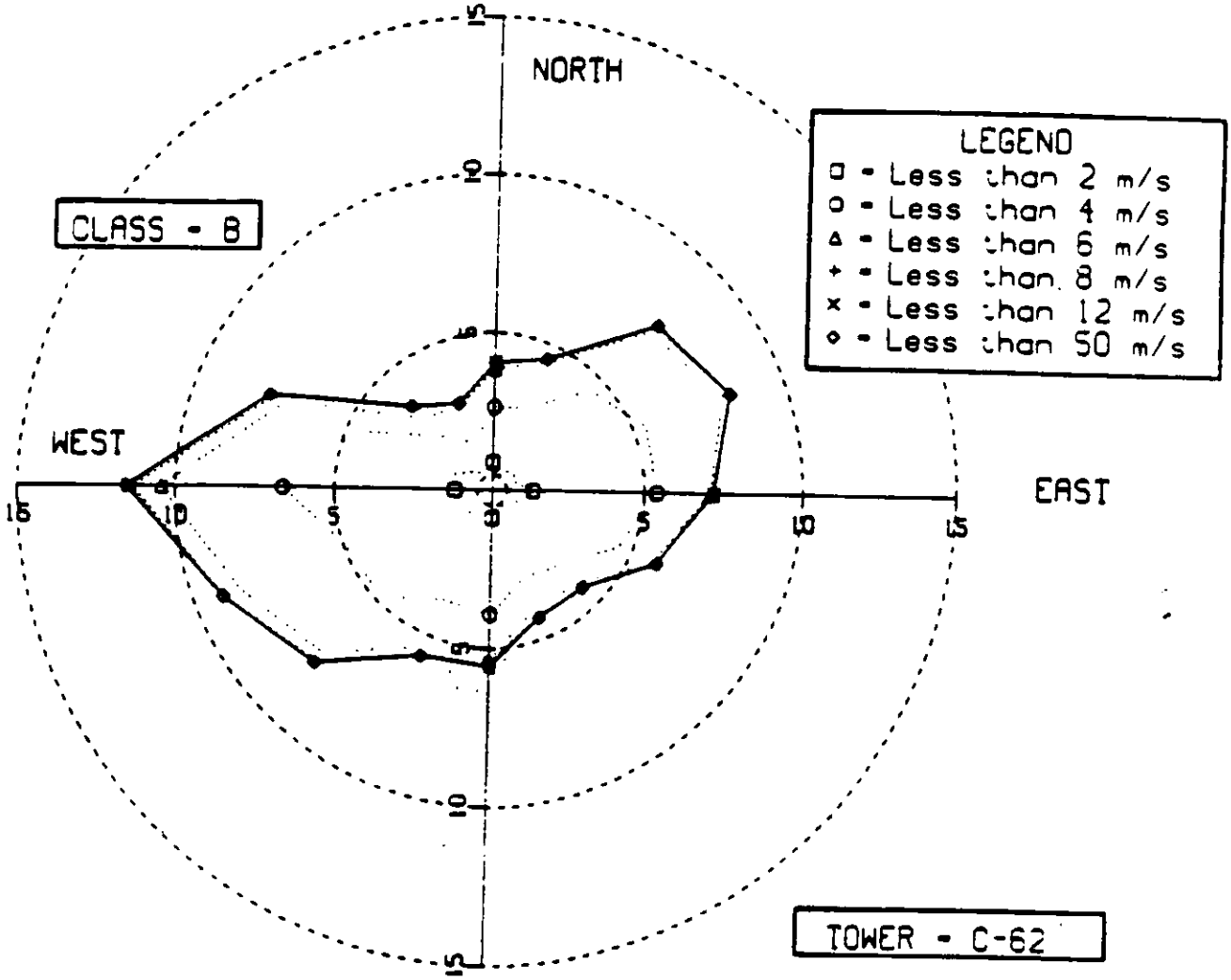
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5758

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	115	133	22	3	0	0	1.86	273
NNE	112	184	28	5	0	0	1.98	321
NE	144	206	37	4	0	0	1.88	402
ENE	115	220	36	5	0	0	2.05	384
E	152	205	38	3	0	0	1.88	388
ESE	134	165	33	4	0	0	1.88	344
SE	124	158	25	3	0	0	1.91	310
SSE	98	183	28	3	1	0	2.03	311
S	101	174	49	5	2	0	2.08	331
SSW	99	207	45	6	3	0	2.24	350
SW	138	230	41	5	1	0	1.86	441
WSW	138	230	58	4	2	0	2.13	482
W	173	281	58	6	1	1	2.08	521
WNW	138	188	58	5	2	0	2.08	401
NW	100	138	22	2	1	0	1.87	261
NNW	85	128	28	0	0	0	1.88	242
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.21	2.76	4.63	8.79	9.35	20.94	2.00	
TOT ENTRY	1988	3072	634	71	14	1		5758

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	2.00	2.31	0.38	0.05	0.00	0.00	4.74
NNE	1.95	3.20	0.55	0.00	0.00	0.00	5.57
NE	2.50	3.58	0.63	0.00	0.00	0.00	6.98
ENE	2.00	3.80	0.63	0.05	0.00	0.00	6.67
E	2.64	3.56	0.63	0.05	0.00	0.00	6.88
ESE	2.33	3.18	0.48	0.07	0.00	0.00	5.97
SE	2.15	2.74	0.43	0.05	0.00	0.00	5.38
SSE	1.67	3.18	0.48	0.05	0.00	0.00	5.40
S	1.75	3.02	0.85	0.08	0.00	0.00	5.75
SSW	1.80	3.58	0.78	0.10	0.05	0.00	6.32
SW	2.71	4.13	0.71	0.08	0.00	0.00	7.65
WSW	2.19	4.34	1.38	0.09	0.00	0.00	8.02
W	3.00	4.88	1.02	0.10	0.00	0.00	9.00
WNW	2.36	3.48	1.00	0.08	0.00	0.00	6.98
NW	1.74	2.19	0.58	0.05	0.00	0.00	4.52
NNW	1.48	2.08	0.58	0.14	0.00	0.00	4.20
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN C-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

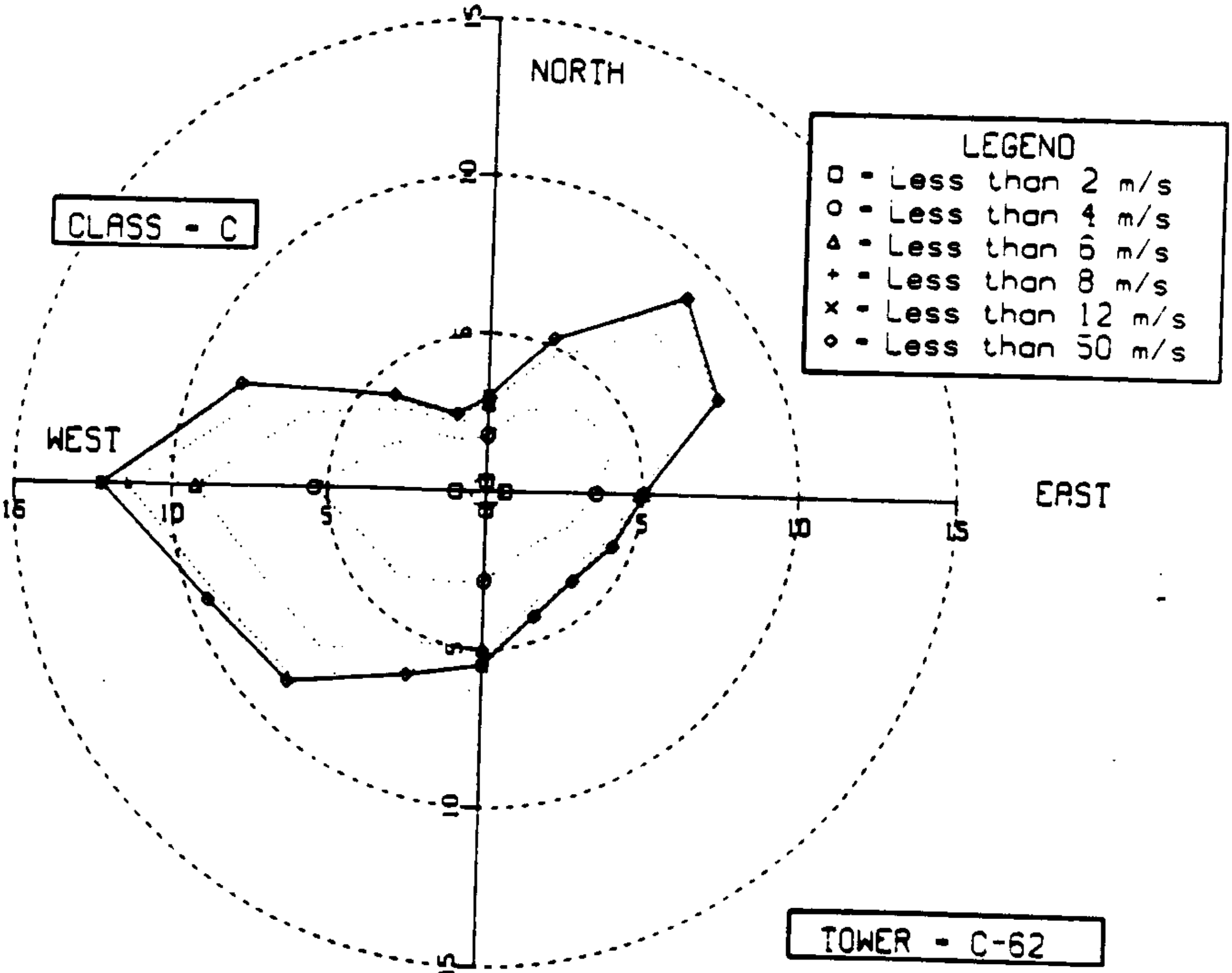
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34688

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 3177

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	28	56	35	6	0	0	2.50	129	0.88	1.76	1.13	0.19	0.00	0.00	4.06
NNE	18	74	50	4	0	0	2.81	144	0.57	2.33	1.57	0.13	0.00	0.00	4.53
NE	32	112	85	8	1	0	2.85	238	1.01	3.53	2.68	0.25	0.00	0.00	7.49
ENE	43	147	82	8	0	0	2.88	282	0.79	4.63	2.58	0.25	0.00	0.00	8.25
E	43	128	56	3	0	0	2.44	230	1.35	4.03	1.70	0.09	0.00	0.00	7.18
ESE	28	116	38	4	0	0	2.58	186	0.88	3.65	1.20	0.13	0.00	0.00	5.85
SE	20	84	28	6	0	0	2.58	136	0.63	2.64	0.82	0.19	0.00	0.00	4.28
SSE	18	78	33	8	1	0	2.77	137	0.57	2.38	1.04	0.28	0.03	0.00	4.31
S	28	97	46	3	3	0	2.70	177	0.88	3.05	1.45	0.09	0.09	0.00	5.57
SSW	18	103	51	9	1	0	3.02	181	0.57	3.21	1.61	0.28	0.03	0.00	5.70
SW	32	121	83	11	2	0	2.88	249	1.01	3.81	2.58	0.35	0.06	0.00	7.81
WSW	24	132	114	18	5	0	3.24	288	0.76	4.15	3.58	0.60	0.16	0.00	9.10
W	38	172	122	28	5	2	3.17	369	1.20	5.41	3.84	0.91	0.16	0.06	11.58
WNW	41	107	77	14	4	0	2.70	243	1.29	3.37	2.42	0.44	0.13	0.00	7.65
NW	22	48	35	14	3	0	2.85	117	0.69	1.51	0.78	0.44	0.09	0.00	3.68
NNW	18	34	38	3	0	0	2.84	94	0.57	1.07	1.23	0.09	0.00	0.00	2.96
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.24	2.82	4.74	8.58	8.84	14.28	2.82								
TOT ENTRY	438	1808	983	190	28	2		3177							

WINDROSE 82-86 60-MIN C-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

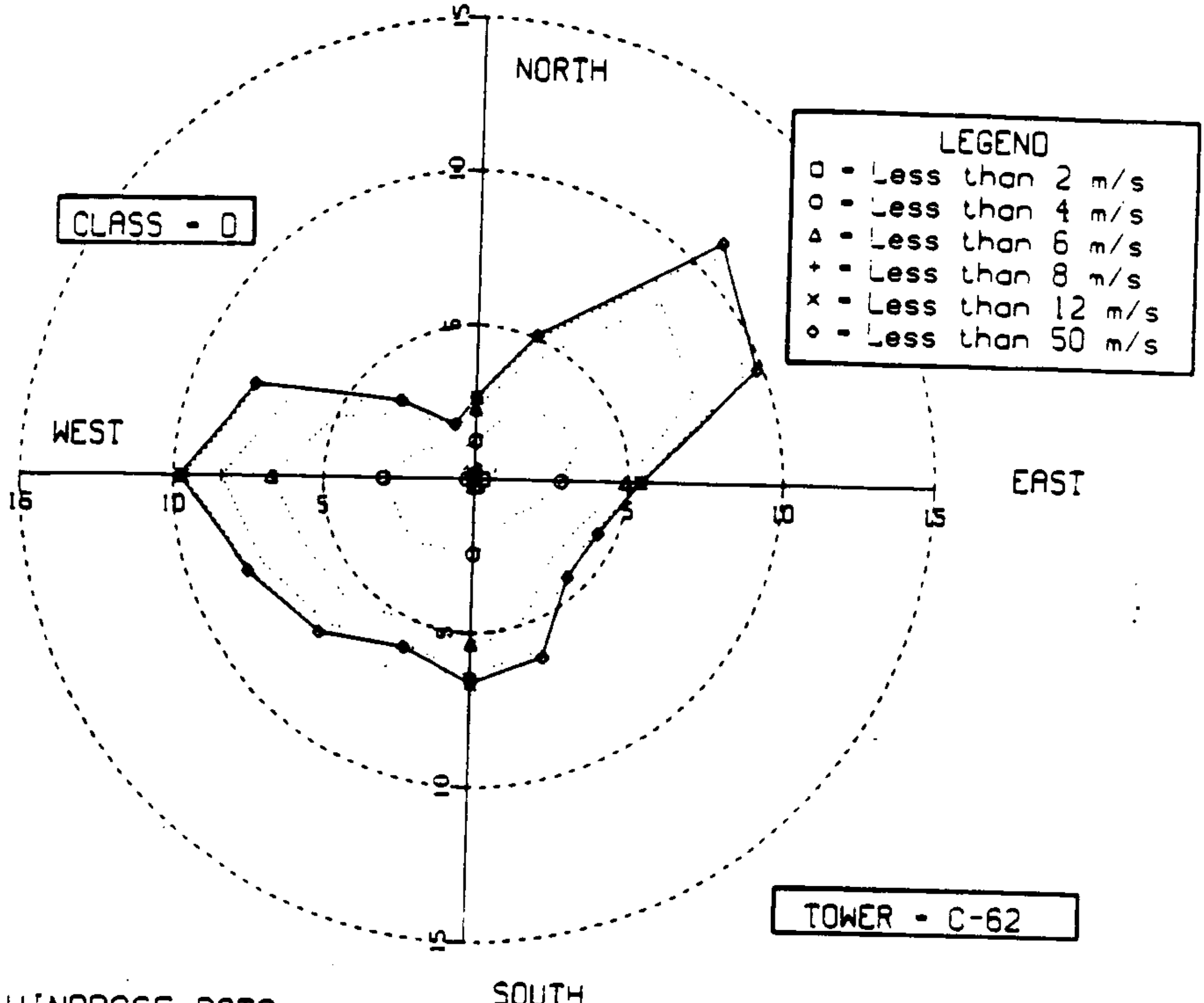
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34886

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5464

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	16	81	54	12	1	0	3.12	164	0.29	1.48	0.98	0.22	0.02	0.00	3.00
NNE	28	125	96	39	0	0	3.27	288	0.51	2.28	1.78	0.71	0.00	0.00	5.27
NE	28	178	196	75	6	0	3.53	483	0.51	3.25	3.59	1.37	0.11	0.00	8.84
ENE	38	201	174	18	4	1	3.13	434	0.68	3.68	3.18	0.33	0.07	0.02	7.94
E	33	156	77	9	1	0	2.93	276	0.60	2.86	1.41	0.16	0.02	0.00	5.05
ESE	27	126	70	10	5	0	2.88	238	0.49	2.31	1.28	0.18	0.09	0.00	4.36
SE	24	99	70	18	3	0	3.03	214	0.44	1.81	1.28	0.33	0.05	0.00	3.92
SSE	26	100	88	15	2	0	3.07	231	0.48	1.83	1.61	0.27	0.04	0.00	4.23
S	32	123	118	22	5	0	3.22	300	0.58	2.25	2.16	0.40	0.09	0.00	5.49
SSW	28	143	114	53	7	0	3.30	345	0.51	2.62	2.08	0.97	0.13	0.00	6.31
SW	30	180	182	68	11	1	3.60	473	0.55	3.29	3.33	1.24	0.20	0.02	8.66
WSW	38	184	189	88	18	0	3.47	517	0.70	3.37	3.46	1.61	0.33	0.00	9.46
W	55	242	208	118	43	1	3.47	667	1.01	4.43	3.81	2.16	0.79	0.02	12.21
WNW	41	149	146	77	47	2	3.54	462	0.75	2.73	2.67	1.41	0.86	0.04	8.46
NW	25	113	57	26	8	0	2.87	229	0.46	2.07	1.04	0.48	0.15	0.00	4.19
NNW	33	62	30	12	6	0	2.55	143	0.60	1.13	0.55	0.22	0.11	0.00	2.62
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.24	2.95	4.82	6.73	9.04	12.58	3.28								
TOT ENTRY	500	2282	1889	681	107	5		5464							

WINDROSE 82-86 60-MIN C-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34686

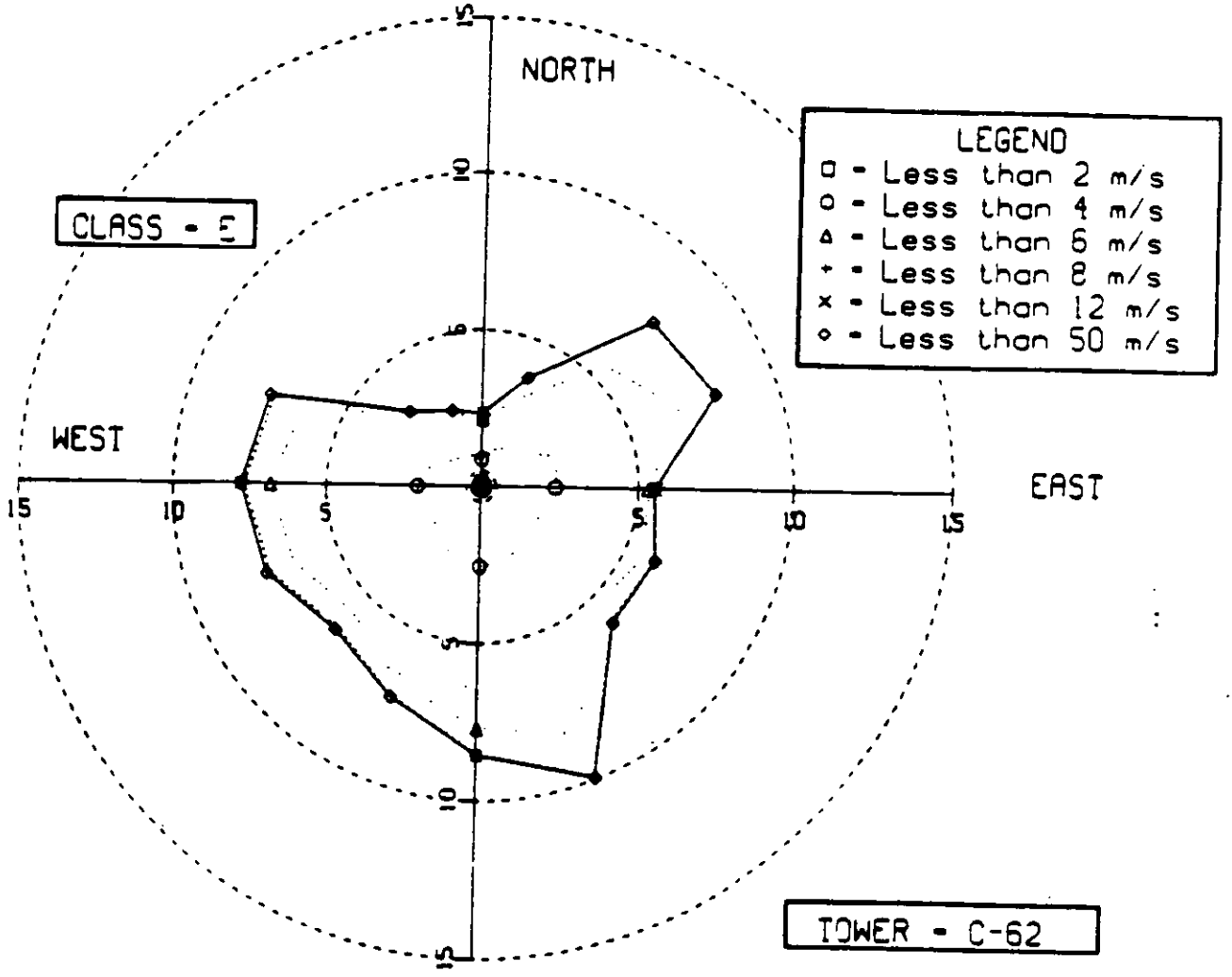
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 10300

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
	===== SPEED IN METERS/SEC ====							
N	13	115	108	34	3	0	3.70	274
NNE	23	187	204	94	15	3	3.88	526
NE	49	268	538	240	45	1	3.77	1142
ENE	91	282	394	188	43	0	2.94	1009
E	32	282	211	47	3	0	3.35	555
ESE	28	197	164	54	11	0	3.48	454
SE	22	152	198	86	16	0	3.80	455
SSE	18	191	284	122	23	0	4.12	638
S	22	230	299	104	28	0	3.92	683
SSW	29	223	287	80	13	1	3.78	613
SW	35	267	288	105	38	0	3.81	733
WSW	25	258	329	153	57	7	4.19	829
W	24	288	378	178	132	9	4.34	1010
WNW	33	193	298	162	121	7	4.22	814
NW	28	133	146	48	13	0	3.47	368
NNW	21	92	88	12	3	0	3.20	197
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.01	3.10	4.84	6.74	9.15	12.50	3.75	
TOT ENTRY	493	3348	4180	1886	585	28		10300

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
	===== PERCENT TIME WIND @ SPEED =====						
N	0.13	1.12	1.06	0.33	0.03	0.00	2.66
NNE	0.22	1.82	1.98	0.91	0.15	0.03	5.11
NE	0.48	2.60	5.23	2.33	0.44	0.31	11.09
ENE	0.88	2.83	3.83	1.83	0.42	0.00	9.80
E	0.31	2.54	2.05	0.46	0.03	0.00	5.39
ESE	0.27	1.91	1.59	0.52	0.11	0.00	4.41
SE	0.21	1.48	1.93	0.84	0.16	0.00	4.42
SSE	0.17	1.85	2.76	1.18	0.22	0.00	6.19
S	0.21	2.23	2.90	1.01	0.27	0.00	6.63
SSW	0.28	2.17	2.58	0.78	0.13	0.01	5.95
SW	0.34	2.59	2.81	1.00	0.38	0.00	7.12
WSW	0.24	2.50	3.19	1.49	0.55	0.07	8.05
W	0.23	2.80	3.68	1.73	1.28	0.09	9.81
WNW	0.32	1.87	2.88	1.57	1.17	0.07	7.90
NW	0.27	1.29	1.42	0.47	0.13	0.00	3.57
NNW	0.20	0.89	0.87	0.12	0.03	0.00	1.91
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN C-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34686

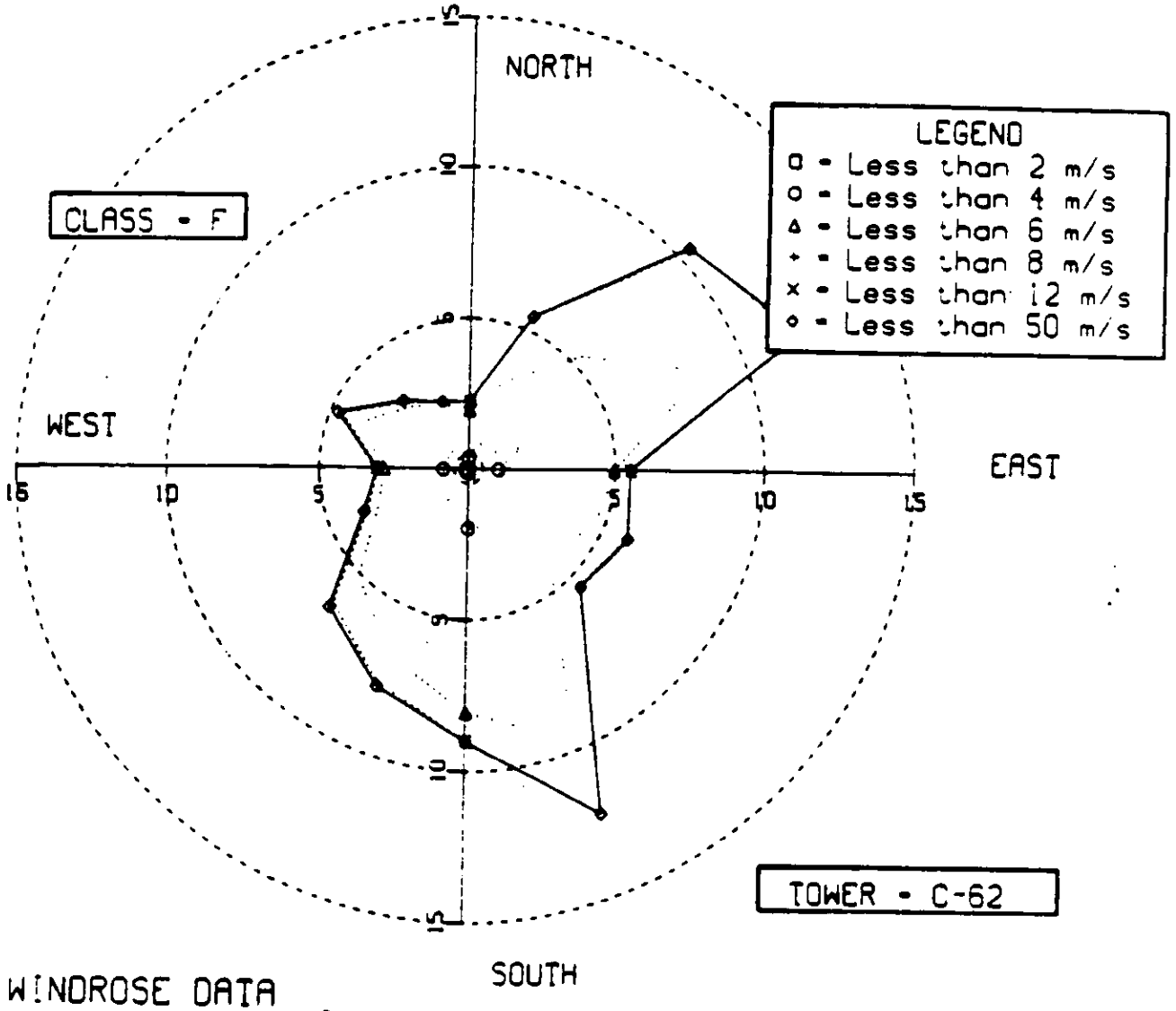
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 7732

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	9	58	98	15	0	0	3.62	181
[illegible]	16	88	132	45	1	0	3.76	282
[illegible]	13	106	308	152	3	0	4.42	583
[illegible]	27	175	318	94	1	0	3.81	615
E	8	174	230	15	0	0	3.71	427
[illegible]	10	167	258	28	2	0	3.97	465
[illegible]	10	128	270	52	6	0	4.19	467
[illegible]	16	184	452	115	2	0	4.26	788
S	7	190	387	83	4	0	4.25	681
[illegible]	16	174	330	38	2	0	3.91	561
[illegible]	8	137	287	54	8	0	4.28	504
[illegible]	6	147	342	64	11	0	4.32	575
[illegible]	8	151	388	64	9	0	4.38	620
[illegible]	22	113	350	78	10	0	3.88	574
[illegible]	9	83	148	11	5	0	3.70	257
[illegible]	11	75	108	6	0	0	3.08	201
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.03	3.22	4.07	6.55	8.07	0.00	4.04	
TOT ENTRY	198	2151	4415	1006	84	0		7732

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.12	0.75	1.28	0.19	0.00	0.00	2.34
[illegible]	0.21	1.14	1.71	0.71	0.01	0.00	3.78
[illegible]	0.17	1.37	4.00	1.97	0.04	0.00	7.54
[illegible]	0.35	2.26	4.11	1.22	0.01	0.00	7.95
E	0.10	2.25	2.97	0.19	0.00	0.00	5.52
[illegible]	0.13	2.16	3.34	0.36	0.03	0.00	6.01
[illegible]	0.13	1.67	3.48	0.67	0.08	0.00	6.04
[illegible]	0.21	2.38	5.85	1.48	0.03	0.00	9.95
S	0.09	2.46	5.13	0.81	0.05	0.00	8.55
[illegible]	0.21	2.25	4.27	0.50	0.03	0.00	7.26
[illegible]	0.10	1.77	3.84	0.70	0.10	0.00	6.52
[illegible]	0.08	1.90	4.48	0.83	0.14	0.00	7.44
[illegible]	0.10	1.85	4.76	0.83	0.12	0.00	7.76
[illegible]	0.28	1.46	4.53	1.02	0.13	0.00	7.42
[illegible]	0.12	1.07	1.83	0.14	0.08	0.00	3.33
[illegible]	0.14	0.97	1.41	0.08	0.00	0.00	2.60
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN C-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

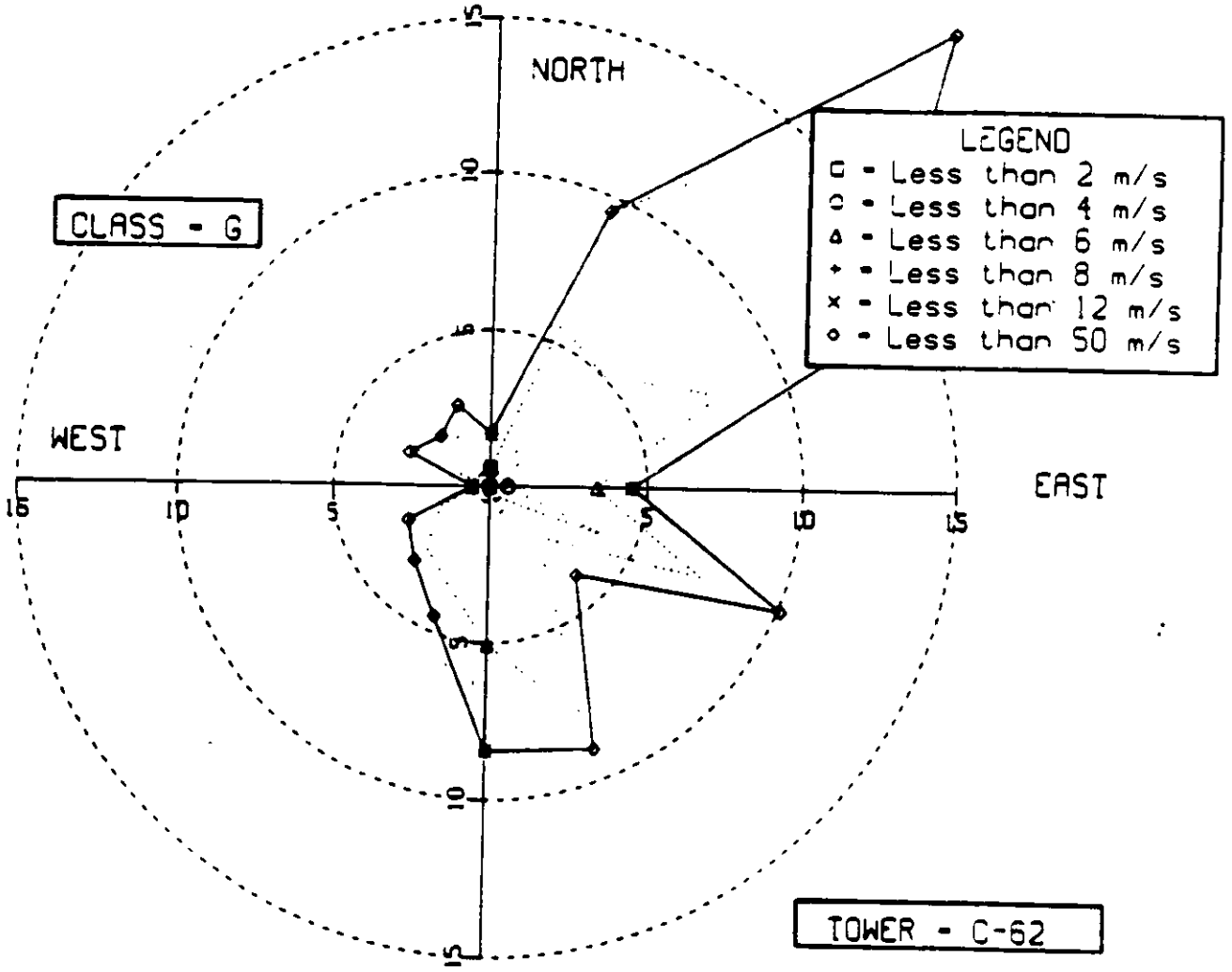
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34688

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 2077

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0	8	23	6	0	0	4.71	47	0.00	0.38	1.59	0.29	0.00	0.00	2.26
NNE	3	18	45	48	0	0	4.31	114	0.14	0.87	2.17	2.31	0.00	0.00	5.49
NE	2	13	98	103	1	0	5.30	217	0.10	0.63	4.62	4.91	0.19	0.00	10.45
ENE	3	38	141	71	0	0	4.49	251	0.14	1.73	6.79	3.42	0.00	0.00	12.08
E	0	21	82	12	0	0	4.58	115	0.00	1.01	3.95	0.58	0.00	0.00	5.54
ESE	0	31	87	24	1	0	4.58	123	0.00	1.49	3.23	1.16	0.05	0.00	5.92
SE	1	21	80	31	1	0	4.78	114	0.05	1.01	2.88	1.49	0.05	0.00	5.49
SSE	4	38	158	55	0	0	4.57	255	0.19	1.83	7.61	2.65	0.00	0.00	12.28
S	2	39	128	20	0	0	4.37	187	0.10	1.88	6.07	0.96	0.00	0.00	9.00
SSW	1	27	111	20	3	0	4.46	162	0.05	1.30	5.34	0.96	0.14	0.00	7.80
SW	2	22	82	25	4	0	4.47	135	0.10	1.06	3.95	1.20	0.19	0.00	6.50
WSW	1	16	50	8	3	0	4.00	78	0.05	0.77	2.41	0.38	0.14	0.00	3.76
W	2	16	41	4	1	0	3.52	64	0.10	0.77	1.97	0.19	0.05	0.00	3.08
WNW	2	14	83	14	4	0	4.62	98	0.10	0.67	3.13	0.67	0.19	0.00	4.77
NW	1	16	63	5	1	0	4.12	88	0.05	0.77	2.07	0.24	0.05	0.00	3.18
NNW	2	10	38	2	0	0	4.18	50	0.10	0.48	1.73	0.10	0.00	0.00	2.41
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	0.00	3.28	4.38	0.58	0.05	0.00	4.49								
TOT ENTRY	36	348	1238	447	22	0		2077							

WINDROSE 82-86 60-MIN C-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

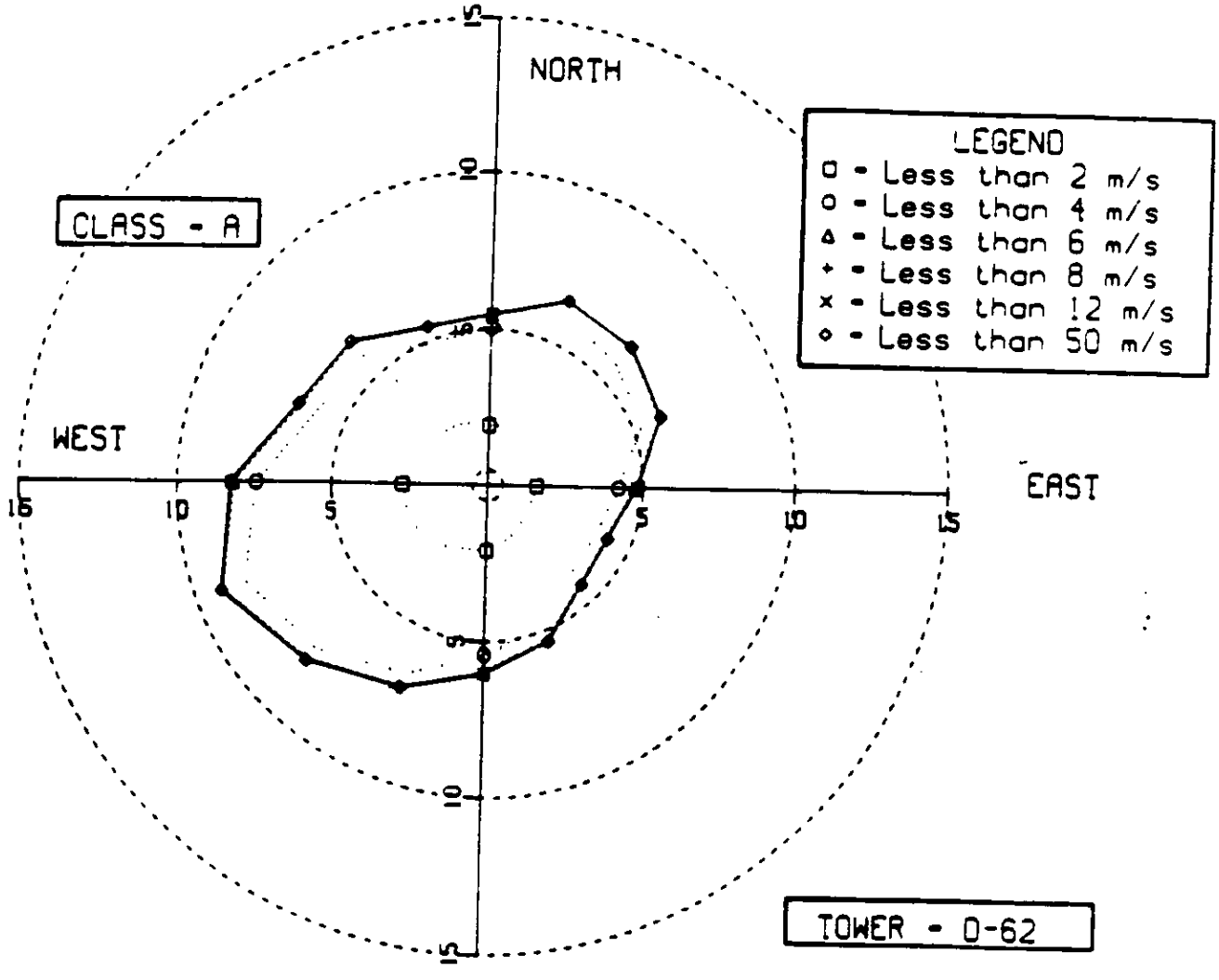
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 34688

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 178

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	1	0	0	2	0	0	1.18	3	0.56	0.00	0.00	1.12	0.00	0.00	1.69
NNE	1	2	8	7	0	0	5.26	17	0.00	1.12	4.49	3.93	0.00	0.00	9.55
NE	0	3	8	21	7	0	6.15	37	0.00	1.69	3.37	11.80	3.93	0.00	20.79
ENE	0	1	13	9	0	0	5.52	23	0.00	0.56	7.30	5.06	0.00	0.00	12.92
E	0	1	5	2	0	0	5.13	8	0.00	0.56	2.81	1.12	0.00	0.00	4.49
ESE	0	7	6	5	0	0	4.57	18	0.00	3.93	3.37	2.81	0.00	0.00	10.11
SE	0	1	3	3	0	0	5.40	7	0.00	0.56	1.69	1.69	0.00	0.00	3.93
SSE	0	2	12	2	0	0	4.71	16	0.00	1.12	6.74	1.12	0.00	0.00	8.99
S	0	0	9	6	0	0	5.20	15	0.00	0.00	5.06	3.37	0.00	0.00	8.43
SSW	0	1	5	2	0	0	5.08	8	0.00	0.56	2.81	1.12	0.00	0.00	4.49
SW	0	0	5	1	0	0	5.37	6	0.00	0.00	2.81	0.56	0.00	0.00	3.37
WSW	0	0	3	2	0	0	4.91	5	0.00	0.00	1.69	1.12	0.00	0.00	2.81
W	0	0	1	0	0	0	5.58	1	0.00	0.00	0.56	0.00	0.00	0.00	0.56
WNW	0	2	3	0	0	0	4.07	5	0.00	1.12	1.69	0.00	0.00	0.00	2.81
NW	0	0	3	1	0	0	5.31	4	0.00	0.00	1.69	0.56	0.00	0.00	2.25
NNW	0	1	3	1	0	0	4.54	5	0.00	0.56	1.69	0.56	0.00	0.00	2.81
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	0.45	3.37	4.98	6.05	8.42	0.00	4.95								
TOT ENTRY	1	21	85	84	7	0		178							

WINDROSE 82-86 60-MIN D-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35549

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6862

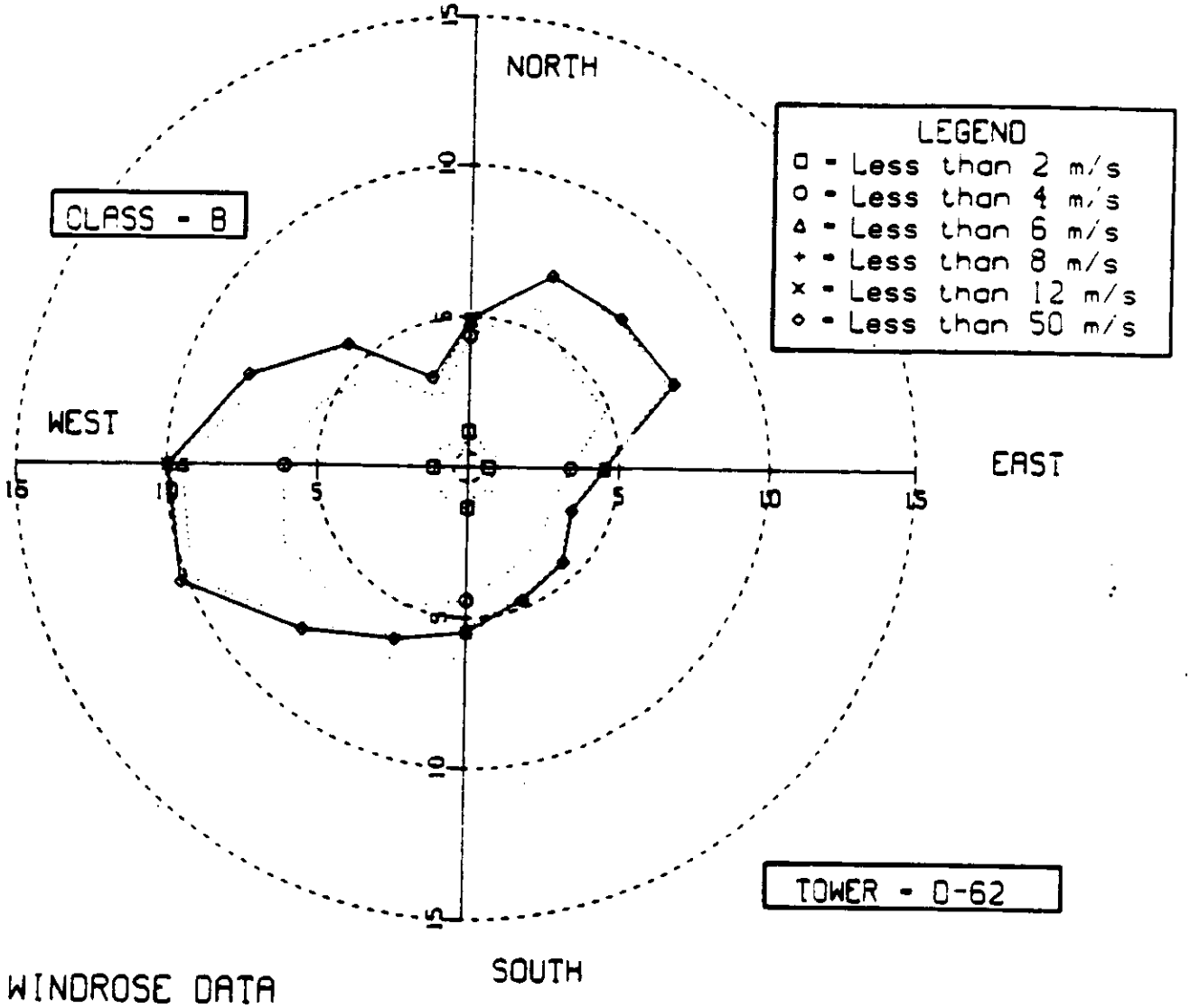
SPEED IN METERS/SEC

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	131	215	28	2	0	0	1.98	376
NNE	142	273	27	0	0	0	1.88	442
NE	133	258	47	1	0	0	2.05	439
ENE	143	222	40	5	0	0	1.92	410
E	108	182	37	3	0	0	1.98	330
ESE	102	182	23	3	0	0	1.88	310
SE	108	158	31	3	0	0	1.90	300
SSE	127	204	38	6	1	0	1.97	376
S	144	228	38	3	2	0	1.95	414
SSW	150	301	38	2	3	1	2.03	495
SW	183	335	38	3	1	0	2.00	562
WSW	188	381	53	1	1	2	2.03	628
W	188	318	51	3	1	1	2.03	563
WNW	154	268	38	3	0	0	2.00	465
NW	158	249	38	3	0	0	1.98	448
NNW	148	188	38	2	0	0	1.83	376
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.23	2.71	4.54	6.87	9.01	18.82	1.98	
TOT ENTRY	2388	3824	577	65	8	4		6862

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	1.91	3.13	0.41	0.03	0.00	0.00	5.48
NNE	2.07	3.98	0.39	0.00	0.00	0.00	6.44
NE	1.92	3.76	0.68	0.01	0.00	0.00	6.38
ENE	2.08	3.24	0.58	0.07	0.00	0.00	5.97
E	1.57	2.65	0.54	0.04	0.00	0.00	4.81
ESE	1.48	2.36	0.34	0.04	0.00	0.00	4.23
SE	1.58	2.32	0.45	0.04	0.00	0.00	4.40
SSE	1.85	2.97	0.44	0.08	0.01	0.00	5.36
S	2.10	3.34	0.52	0.04	0.03	0.00	6.03
SSW	2.19	4.38	0.44	0.03	0.00	0.01	7.05
SW	2.67	4.88	0.44	0.04	0.01	0.00	8.04
WSW	2.74	5.35	0.77	0.01	0.01	0.03	9.12
W	2.75	4.63	0.74	0.04	0.01	0.01	8.20
WNW	2.24	3.73	0.57	0.07	0.00	0.00	6.62
NW	2.27	3.50	0.57	0.04	0.00	0.00	6.38
NNW	2.16	2.75	0.52	0.03	0.00	0.00	5.46
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN D-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35549

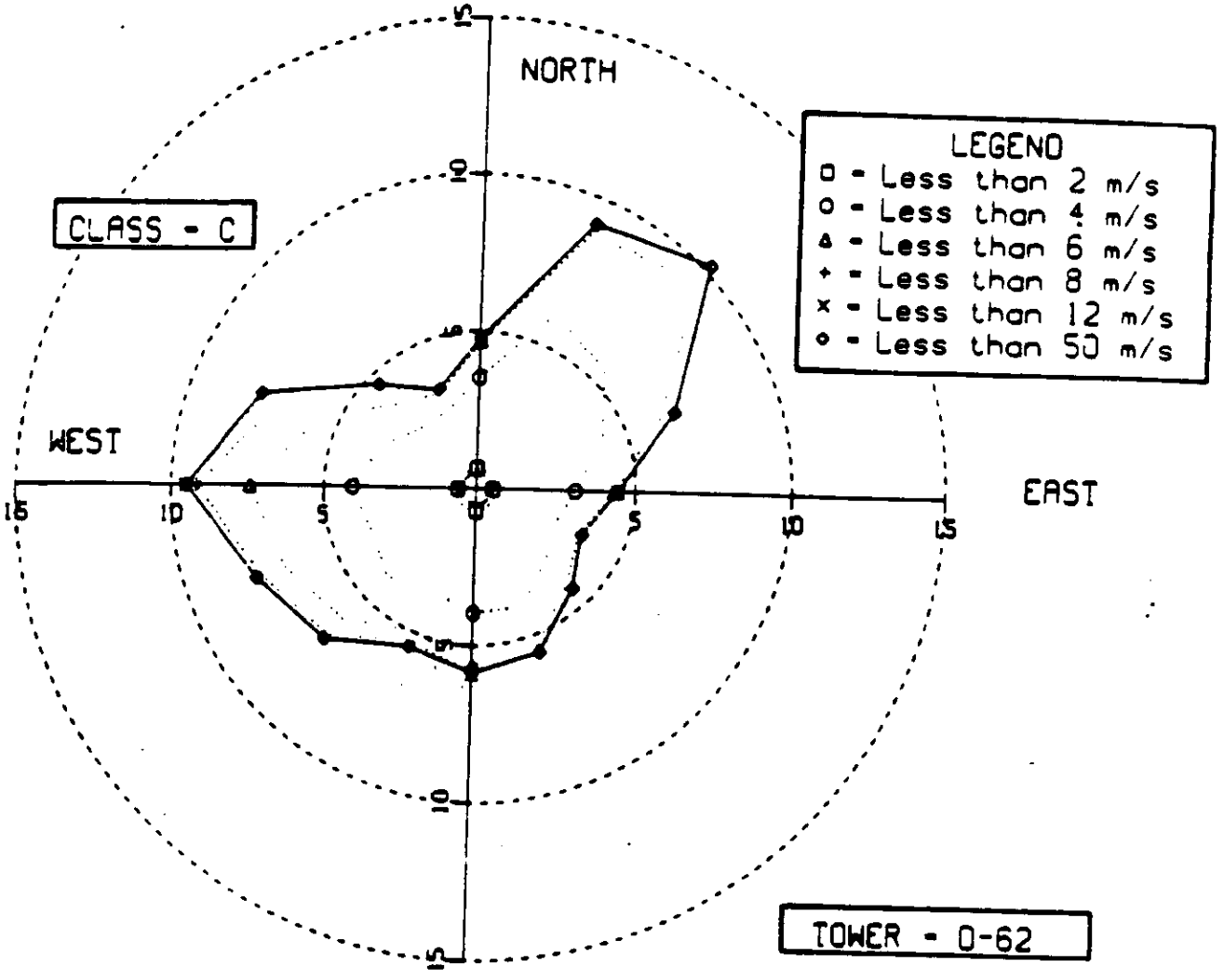
DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	43	118	19	2	0	0	2.19	182
NNE	35	177	42	0	0	0	2.63	254
NE	28	144	84	2	1	0	2.90	260
ENE	37	141	88	6	1	0	2.78	271
E	25	98	40	3	0	0	2.77	166
ESE	32	78	24	1	0	0	2.28	135
SE	42	82	37	2	0	0	2.37	163
SSE	31	105	38	3	0	0	2.40	175
S	50	113	34	5	0	0	2.44	202
SSW	50	134	38	4	1	0	2.48	228
SW	44	184	47	8	0	0	2.65	283
WSW	41	201	121	13	1	0	2.91	377
W	42	182	125	16	2	0	2.98	367
WNW	38	158	78	17	0	1	2.78	281
NW	44	114	41	9	2	0	2.42	210
NNW	21	70	18	8	0	0	2.58	118
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.27	2.58	4.67	6.48	8.65	17.08	2.83	
TOT ENTRY	805	2099	870	98	8	1		3882

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 3882

	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
	1.17	3.20	0.52	0.05	0.00	0.00	4.94
	0.95	4.81	1.14	0.08	0.00	0.00	6.90
	0.78	3.91	2.26	0.05	0.00	0.00	7.06
	1.00	3.85	2.34	0.16	0.00	0.00	7.36
	0.68	2.68	1.08	0.08	0.00	0.00	4.51
	0.87	2.12	0.65	0.03	0.00	0.00	3.67
	1.14	2.23	1.00	0.05	0.00	0.00	4.43
	0.84	2.85	0.98	0.08	0.00	0.00	4.75
	1.36	3.07	0.92	0.14	0.00	0.00	5.49
	1.36	3.84	1.06	0.11	0.00	0.00	6.19
	1.20	5.00	1.28	0.22	0.00	0.00	7.69
	1.11	5.46	3.28	0.35	0.00	0.00	10.24
	1.14	4.84	3.38	0.43	0.00	0.00	9.97
	1.08	4.28	2.08	0.46	0.00	0.00	7.90
	1.20	3.10	1.11	0.24	0.00	0.00	5.70
	0.57	1.88	0.52	0.22	0.00	0.00	3.20
	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN O-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35548

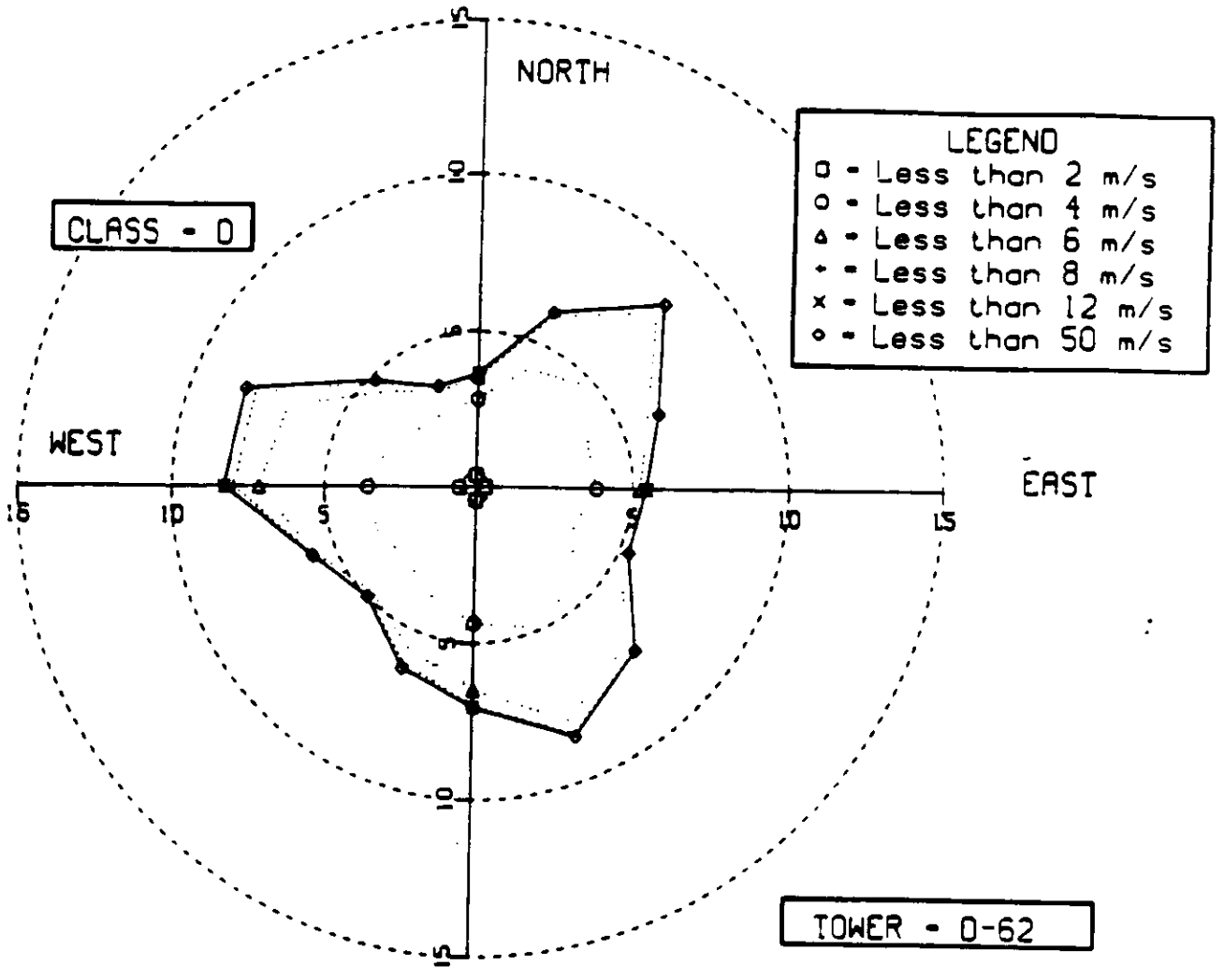
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6988

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N								
NNE								
NE								
ENE								
E								
ESE								
SE								
SSE								
S								
SSW								
SW								
WSW								
W								
WNW								
NW								
NNW								
NO DIRECT								
AVG SPEED	1.1	2.8	4.7	6.7	8.8	20.2	3.0	
TOT ENTRY	725	3478	2071	588	125	5		6988

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.08	2.88	1.18	0.08	0.08	0.08	4.78
NNE	0.08	5.48	2.88	0.33	0.01	0.08	9.18
NE	0.08	4.88	4.22	0.68	0.08	0.08	10.23
ENE	0.08	3.88	1.98	0.47	0.08	0.08	6.69
E	0.08	2.57	1.22	0.11	0.08	0.08	4.43
ESE	0.08	2.10	0.78	0.10	0.08	0.08	3.62
SE	0.08	2.51	0.98	0.20	0.04	0.08	4.38
SSE	0.72	3.38	1.36	0.18	0.08	0.08	5.57
S	0.72	3.24	1.68	0.22	0.08	0.08	5.88
SSW	0.08	2.88	1.38	0.34	0.17	0.08	5.47
SW	0.08	3.33	1.88	0.72	0.17	0.08	6.88
WSW	0.73	2.91	3.08	0.78	0.19	0.01	7.88
W	0.08	3.44	3.38	1.77	0.34	0.08	9.51
WNW	0.78	2.88	2.21	1.38	0.88	0.08	7.88
NW	0.48	2.38	1.08	0.78	0.17	0.08	4.82
NNW	0.78	1.88	0.88	0.13	0.01	0.08	3.48
NO DIRECT	0.08	0.08	0.08	0.08	0.08	0.08	0.08

WINDROSE 82-86 60-MIN D-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35548

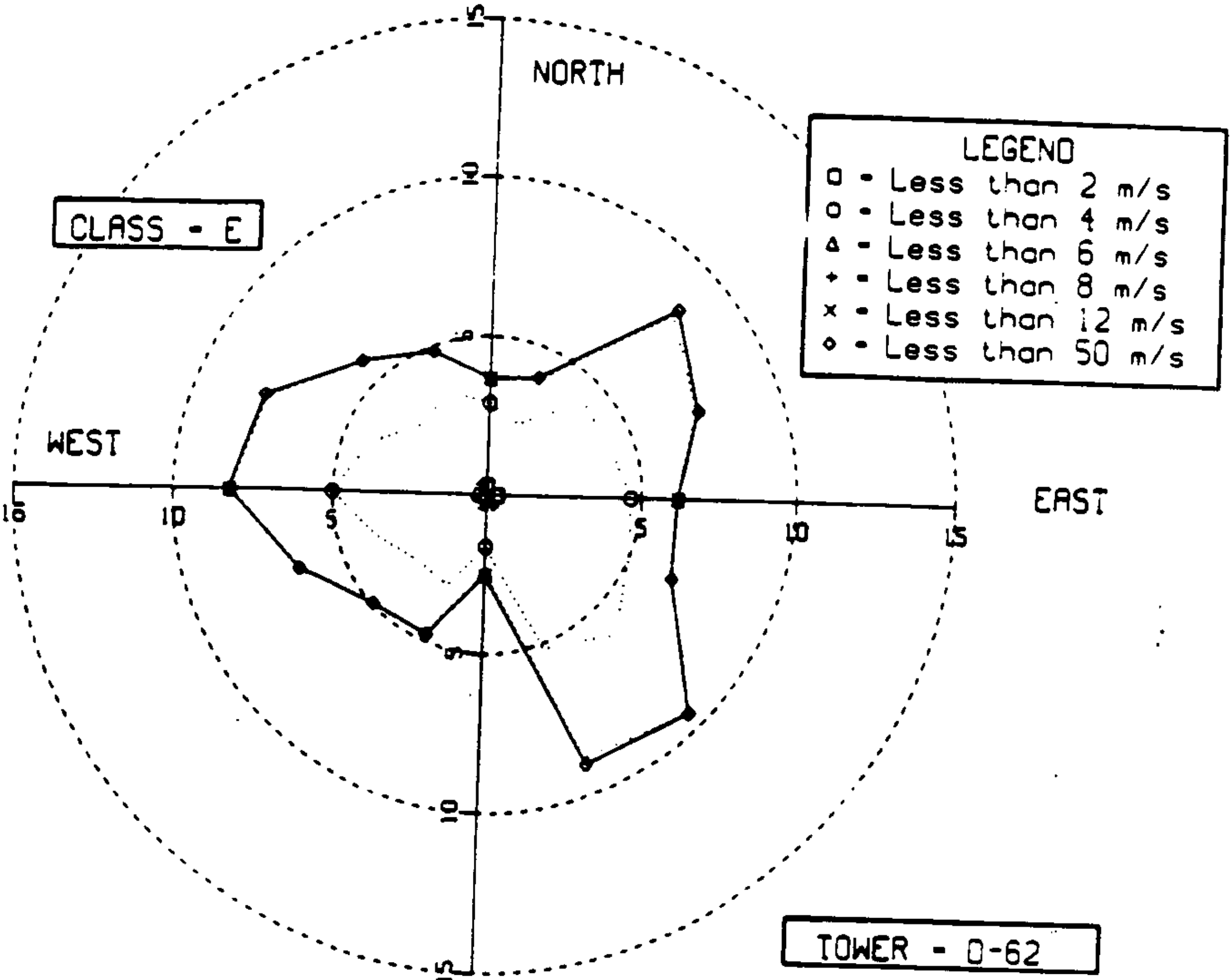
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 10916

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	41	288	78	8	5	0	2.81	398
NNE	19	432	201	14	0	1	3.33	667
NE	48	462	381	35	3	1	3.38	915
ENE	43	374	225	41	2	0	3.27	685
E	34	384	154	21	1	0	3.14	594
ESE	40	328	178	36	0	0	3.13	580
SE	51	431	276	36	3	0	3.04	799
SSE	51	477	347	52	10	0	3.25	937
S	47	428	233	53	7	1	3.07	770
SSW	47	388	282	58	16	2	3.16	883
SW	33	333	184	23	2	0	3.13	565
WSW	45	348	231	13	3	0	3.15	633
W	55	338	381	88	19	1	3.21	886
WNW	72	278	388	138	38	1	3.18	888
NW	48	248	177	41	12	2	3.04	528
NNW	46	243	75	16	2	0	2.74	382
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.08	3.83	4.78	6.85	8.58	14.45	3.15	
TOT ENTRY	727	5707	3888	854	138	9		10916

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.38	2.64	0.72	0.07	0.05	0.00	3.66
NNE	0.17	3.96	1.84	0.13	0.08	0.01	6.11
NE	0.44	4.28	3.31	0.32	0.03	0.01	8.38
ENE	0.38	3.43	2.08	0.38	0.02	0.00	6.28
E	0.31	3.52	1.41	0.19	0.01	0.00	5.44
ESE	0.37	2.98	1.63	0.33	0.00	0.00	5.31
SE	0.47	3.95	2.53	0.33	0.03	0.00	7.30
SSE	0.47	4.37	3.18	0.48	0.08	0.00	8.58
S	0.43	3.93	2.13	0.49	0.06	0.01	7.05
SSW	0.43	3.35	1.85	0.46	0.15	0.02	6.26
SW	0.30	2.98	1.50	0.21	0.02	0.00	4.98
WSW	0.41	3.11	2.12	0.12	0.03	0.00	5.79
W	0.50	2.98	3.50	0.79	0.34	0.01	8.28
WNW	0.64	2.95	3.54	1.18	0.35	0.01	8.24
NW	0.44	2.24	1.62	0.38	0.11	0.02	4.81
NNW	0.42	2.23	0.88	0.15	0.02	0.00	3.50
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN D-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35548

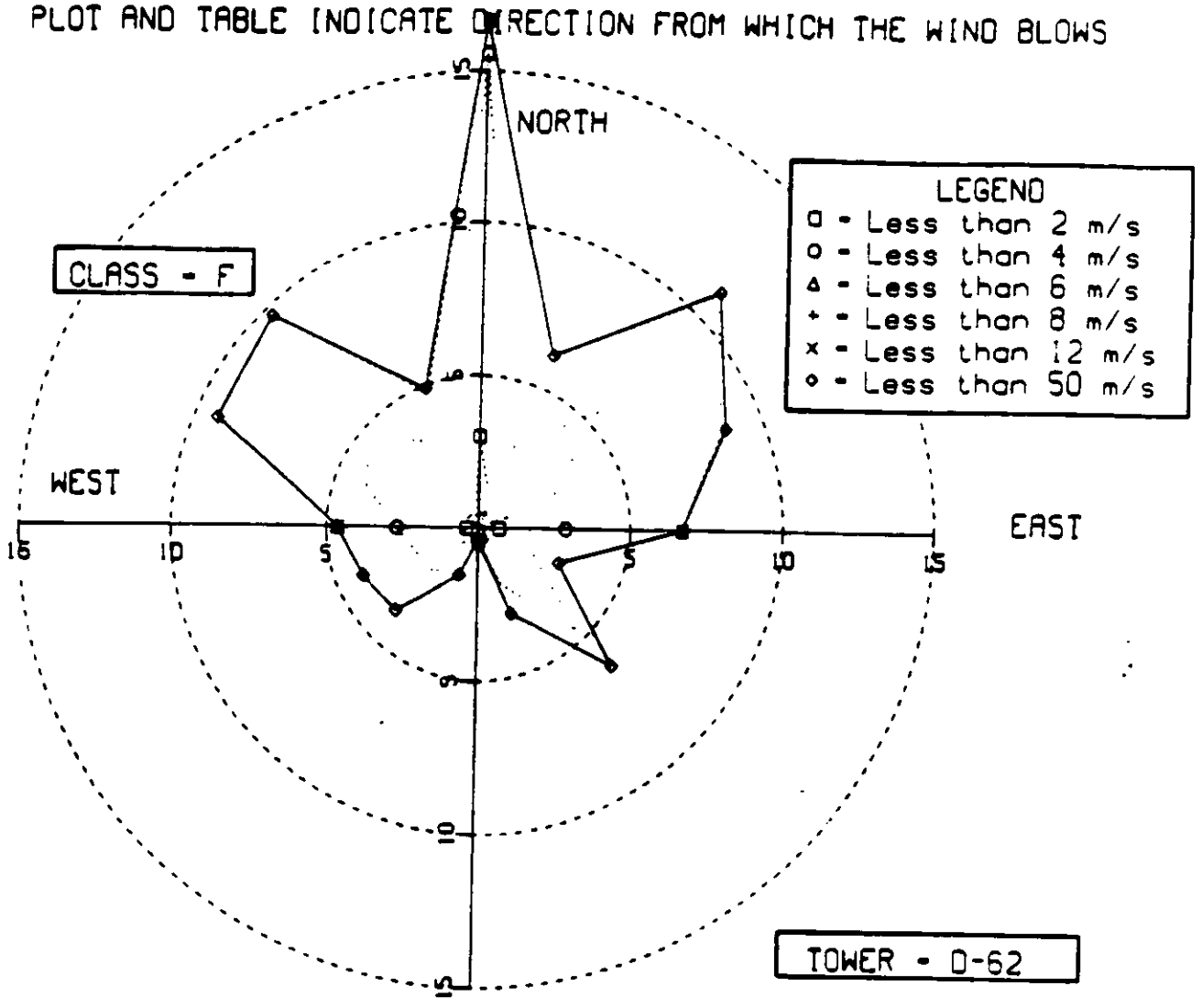
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6382

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
	===== SPEED IN METERS/SEC =====							
N	19	165	50	0	0	0	2.92	234
NNE	11	145	98	3	0	0	3.38	257
NE	18	253	253	13	0	0	3.62	537
ENE	16	254	186	5	0	0	3.52	461
E	22	274	94	0	0	0	3.04	390
ESE	20	299	93	2	0	0	3.05	414
SE	28	357	216	2	0	0	3.12	603
SSE	12	317	235	12	0	0	3.38	578
S	9	95	52	5	0	0	3.20	161
SSW	10	187	105	2	0	0	3.15	304
SW	13	177	125	0	0	0	3.31	315
WSW	19	214	178	1	0	0	3.14	410
W	14	306	205	2	0	0	3.45	528
WNW	12	247	233	3	0	1	3.58	486
NW	8	185	177	0	0	0	3.48	370
NNW	28	183	85	2	0	0	2.95	308
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.04	3.17	4.55	6.28	0.00	22.30	3.28	
TOT ENTRY	258	3087	2303	52	0	1		6382

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
	===== PERCENT TIME WIND @ SPEED =====						
N	0.30	2.58	0.79	0.00	0.00	0.00	3.68
NNE	0.17	2.28	1.54	0.05	0.00	0.00	4.04
NE	0.28	3.98	3.98	0.20	0.00	0.00	8.44
ENE	0.25	3.98	2.92	0.08	0.00	0.00	7.25
E	0.35	4.31	1.48	0.00	0.00	0.00	6.13
ESE	0.31	4.70	1.46	0.03	0.00	0.00	6.51
SE	0.44	5.61	3.40	0.03	0.00	0.00	9.48
SSE	0.19	4.98	3.69	0.19	0.00	0.00	9.05
S	0.14	1.48	0.82	0.08	0.00	0.00	2.53
SSW	0.16	2.94	1.65	0.03	0.00	0.00	4.78
SW	0.20	2.70	1.98	0.00	0.00	0.00	4.95
WSW	0.30	3.38	2.77	0.02	0.00	0.00	6.44
W	0.22	4.78	3.22	0.03	0.00	0.00	8.27
WNW	0.19	3.88	3.86	0.05	0.00	0.02	7.80
NW	0.13	2.91	2.78	0.00	0.00	0.00	5.82
NNW	0.44	3.05	1.34	0.03	0.00	0.00	4.84
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN D-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35548

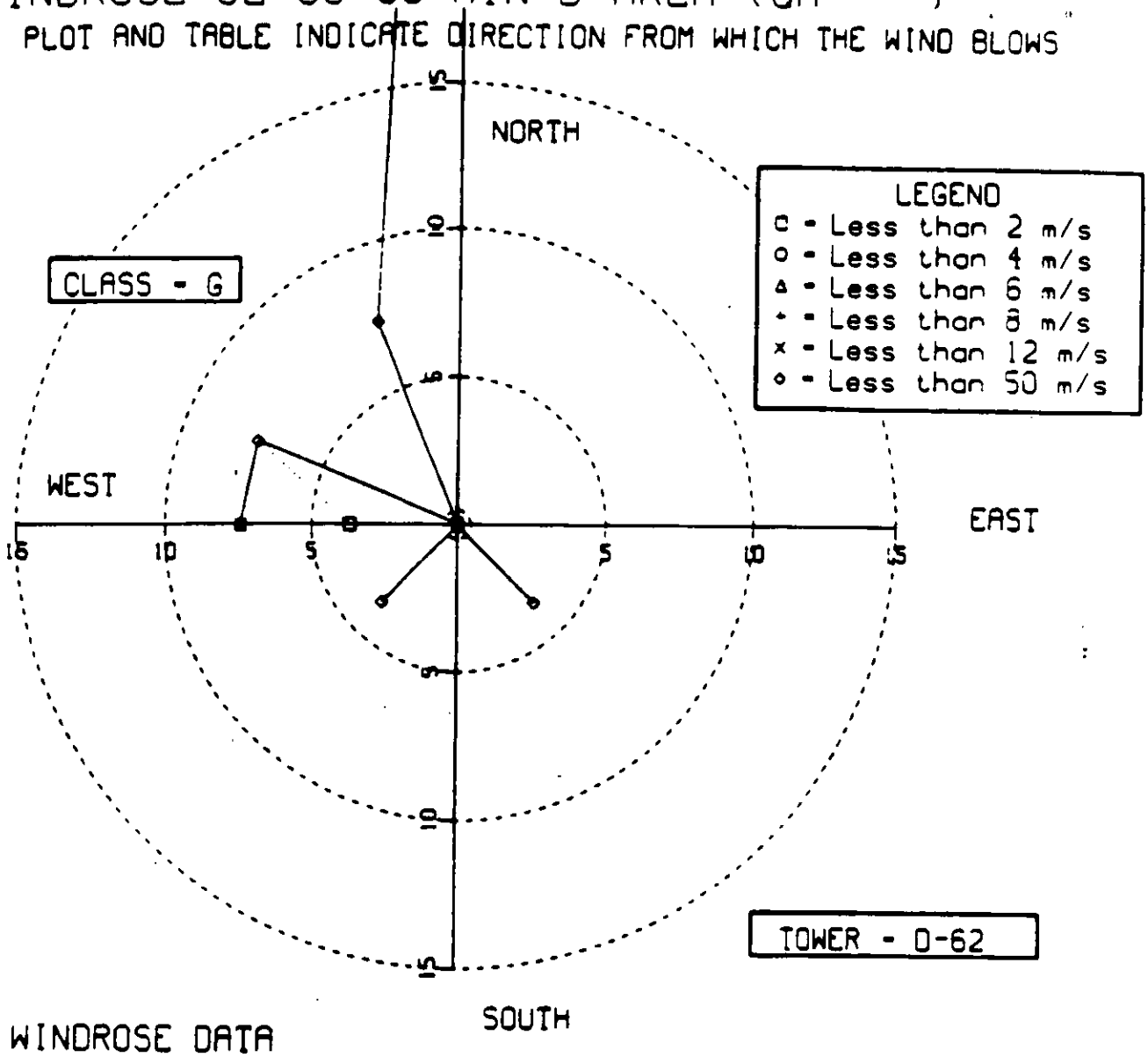
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 732

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	22	92	8	0	0	0	1.74	122
NNE	7	14	24	0	0	0	1.93	45
NE	0	40	40	1	0	0	3.90	81
ENE	8	11	44	1	0	0	2.34	64
E	5	16	28	0	0	0	3.14	49
ESE	1	13	7	0	0	0	3.14	21
SE	3	31	12	0	0	0	3.07	46
SSE	2	12	8	0	0	0	2.85	22
S	1	2	0	0	0	0	2.00	3
SSW	1	5	6	0	0	0	3.70	12
SW	0	9	13	0	0	0	1.56	28
WSW	3	13	14	0	0	0	2.47	30
W	3	17	14	0	0	0	2.25	34
WNW	4	27	17	0	0	0	3.28	48
NW	1	35	35	0	0	0	3.84	71
NNW	2	15	14	1	0	0	3.57	36
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.84	3.20	4.82	6.20	0.00	0.00	2.56	
TOT ENTRY	89	351	308	3	0	0		732

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	3.01	12.57	1.09	0.00	0.00	0.00	16.67
NNE	0.96	1.91	3.28	0.00	0.00	0.00	6.15
NE	0.00	5.46	5.46	0.14	0.00	0.00	11.07
ENE	1.09	1.50	6.01	0.14	0.00	0.00	8.74
E	0.68	2.19	3.83	0.00	0.00	0.00	6.69
ESE	0.14	1.78	0.96	0.00	0.00	0.00	2.87
SE	0.41	4.23	1.64	0.00	0.00	0.00	6.28
SSE	0.27	1.64	1.09	0.00	0.00	0.00	3.01
S	0.14	0.27	0.00	0.00	0.00	0.00	0.41
SSW	0.14	0.68	0.82	0.00	0.00	0.00	1.64
SW	0.82	1.23	1.78	0.00	0.00	0.00	3.83
WSW	0.41	1.78	1.91	0.00	0.00	0.00	4.10
W	0.41	2.32	1.91	0.00	0.00	0.00	4.64
WNW	0.55	3.69	5.06	0.00	0.00	0.00	9.28
NW	0.14	4.10	5.46	0.00	0.00	0.00	9.70
NNW	0.27	2.60	1.91	0.14	0.00	0.00	4.92
	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN D-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35548

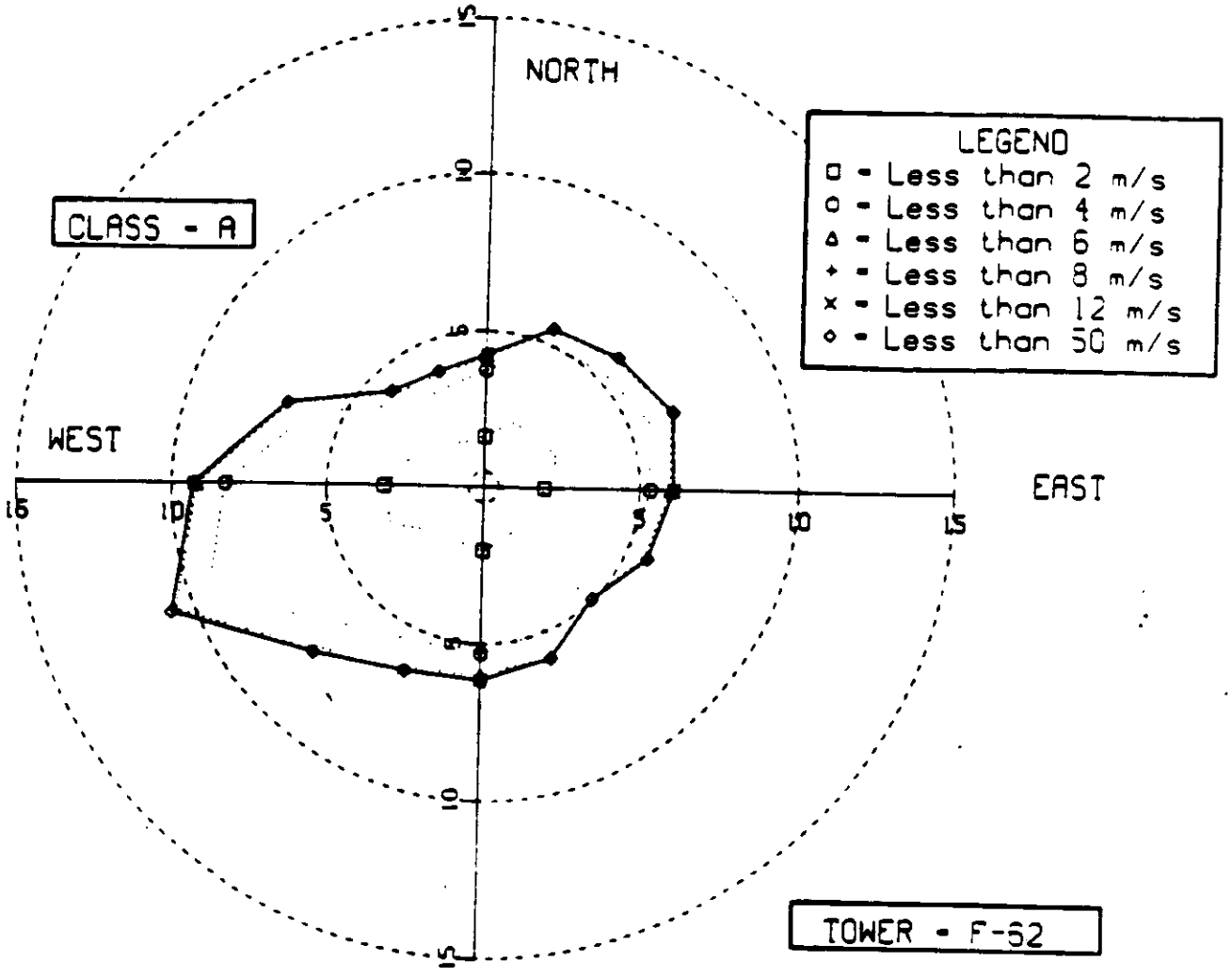
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 27

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	0	19	0	0	0	0	3.04	19
NNE	0	0	0	0	0	0	0.00	0
ENE	0	0	0	0	0	0	0.00	0
E	0	0	0	0	0	0	0.00	0
ESE	0	0	0	0	0	0	0.00	0
SE	0	0	1	0	0	0	4.07	1
SSE	0	0	0	0	0	0	0.00	0
S	0	0	0	0	0	0	0.00	0
SSW	0	0	0	0	0	0	0.00	0
SW	0	0	1	0	0	0	4.07	1
WSW	0	0	0	0	0	0	0.00	0
W	1	0	1	0	0	0	1.84	2
WNW	0	2	0	0	0	0	3.37	2
NW	0	0	0	0	0	0	0.00	0
NNW	0	0	2	0	0	0	4.94	2
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.58	3.07	4.55	0.00	0.00	0.00	2.80	
TOT ENTRY	1	21	5	0	0	0		27

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.00	70.37	0.00	0.00	0.00	0.00	70.37
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	3.70	0.00	0.00	0.00	3.70
SSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW	0.00	0.00	3.70	0.00	0.00	0.00	3.70
WSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	3.70	0.00	3.70	0.00	0.00	0.00	7.41
WNW	0.00	7.41	0.00	0.00	0.00	0.00	7.41
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	7.41	0.00	0.00	0.00	7.41
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN F-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

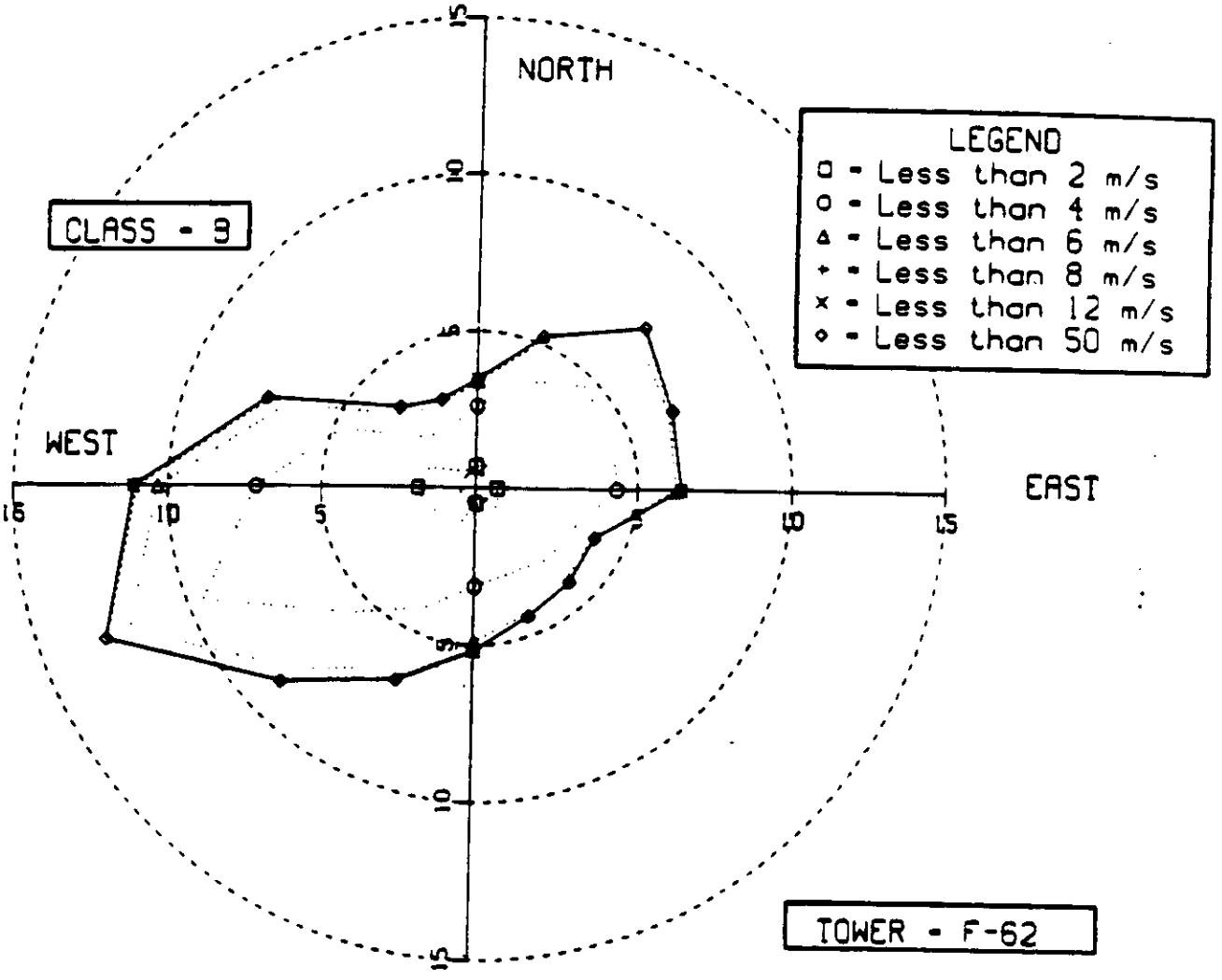
DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	96	127	29	3	0	0	1.98	255
NNE	133	161	30	3	0	0	1.91	327
NE	142	171	38	3	0	0	1.93	354
ENE	148	188	45	2	1	0	1.97	384
E	114	202	32	6	0	0	1.94	354
ESE	115	185	32	6	1	0	1.98	339
SE	100	160	32	1	0	0	2.08	293
SSE	108	190	46	4	0	0	1.93	348
S	120	194	43	5	3	0	1.90	365
SSW	113	203	54	7	0	0	2.00	377
SW	120	250	65	9	3	0	2.12	447
WSW	188	372	83	7	1	2	2.00	653
W	188	382	58	5	2	0	1.94	635
WNW	149	288	65	5	1	0	1.95	509
NW	108	185	38	8	0	0	1.82	339
NNW	92	168	28	7	0	0	1.91	295
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.18	2.73	4.61	6.88	9.04	20.16	1.98	
TOT ENTRY	2031	3127	671	79	12	2		5922

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5922

PERCENT TIME WIND & SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
1.60	2.14	0.46	0.05	0.00	0.00	4.26
2.45	2.72	0.51	0.05	0.00	0.00	5.52
2.45	2.88	0.61	0.05	0.00	0.00	5.94
2.58	3.17	0.76	0.03	0.02	0.00	6.46
1.93	3.41	0.62	0.10	0.00	0.00	6.06
1.94	3.12	0.54	0.10	0.02	0.00	5.72
1.68	2.70	0.54	0.02	0.00	0.00	4.95
1.78	3.21	0.78	0.07	0.00	0.00	5.84
2.03	3.28	0.73	0.08	0.05	0.00	6.16
1.91	3.43	0.91	0.12	0.00	0.00	6.37
2.03	4.22	1.10	0.15	0.05	0.00	7.55
3.19	6.28	1.10	0.12	0.03	0.03	10.74
3.17	5.10	0.86	0.08	0.03	0.00	9.34
2.48	3.51	0.76	0.05	0.03	0.00	8.82
1.84	1.77	0.51	0.14	0.00	0.00	4.28
1.55	1.84	0.47	0.12	0.00	0.00	3.98
0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN F-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

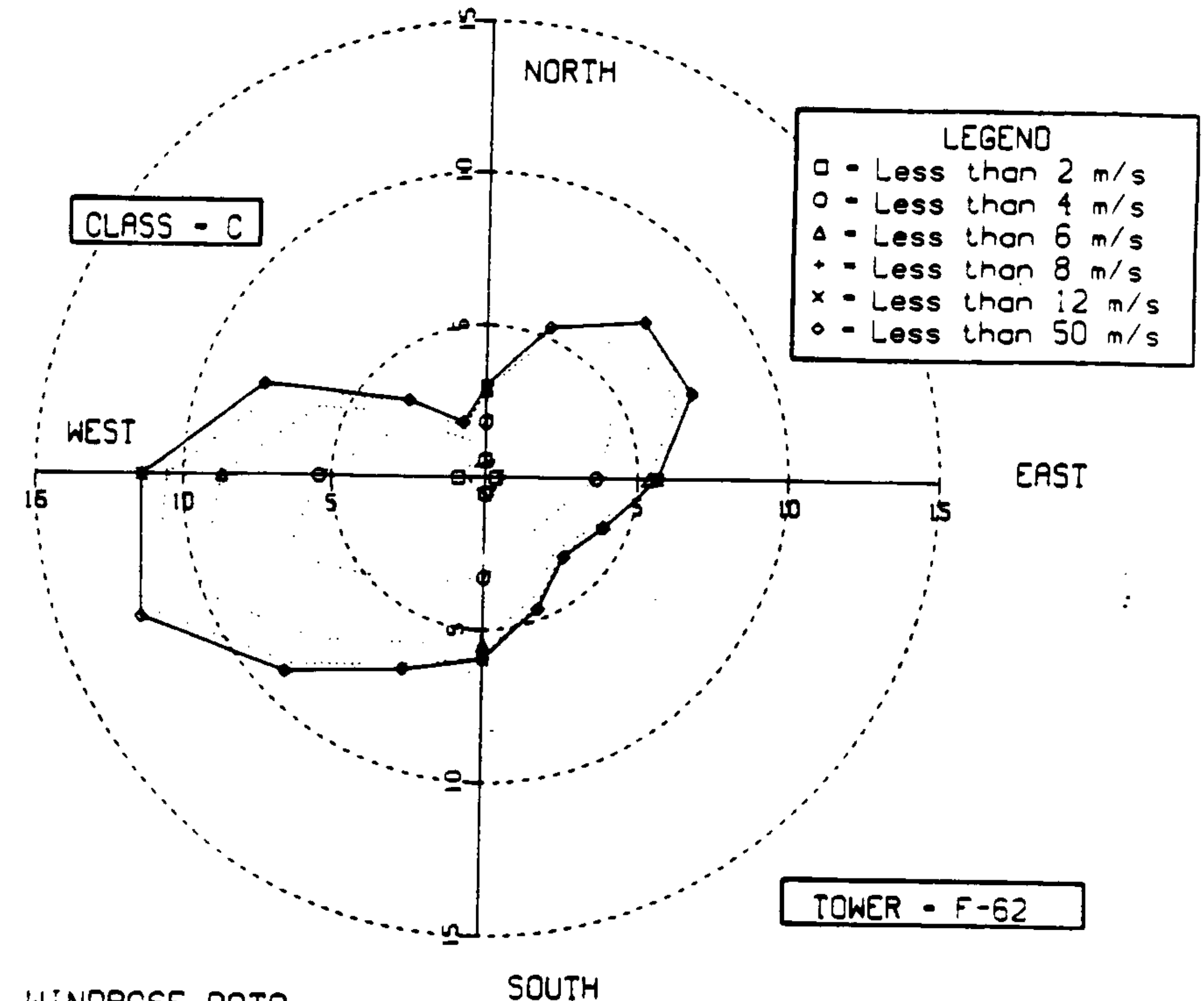
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 3119

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	22	58	25	2	0	0	2.58	108
NNE	24	91	43	5	1	0	2.88	164
NE	38	115	71	11	0	0	2.97	227
ENE	28	114	58	3	1	0	2.80	204
E	21	115	50	5	0	0	2.92	191
ESE	24	78	22	1	0	0	2.36	125
SE	27	72	26	5	0	0	2.41	130
SSE	28	65	43	3	0	0	2.57	139
S	15	83	55	8	1	0	3.00	162
SSW	36	93	86	9	3	0	2.85	227
SW	35	142	79	17	1	0	2.90	274
WSW	35	241	79	25	1	0	2.52	381
W	60	162	108	21	3	0	2.91	348
WNW	51	97	61	17	3	0	2.84	229
NW	24	45	32	10	1	0	2.95	112
NNW	19	47	24	4	0	0	2.72	94
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.18	2.87	4.73	6.72	9.11	0.00	2.83	
TOT ENTRY	497	1619	842	146	15	0		3119

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.71	1.89	0.80	0.08	0.00	0.00	3.46
NNE	0.77	2.92	1.38	0.16	0.03	0.00	5.26
NE	0.98	3.69	2.28	0.35	0.00	0.00	7.28
ENE	0.90	3.66	1.86	0.10	0.03	0.00	6.54
E	0.67	3.68	1.60	0.16	0.00	0.00	6.36
ESE	0.77	2.50	0.71	0.03	0.00	0.00	4.01
SE	0.87	2.31	0.83	0.16	0.00	0.00	4.17
SSE	0.83	2.08	1.38	0.10	0.00	0.00	4.39
S	0.46	2.66	1.76	0.26	0.03	0.00	5.19
SSW	1.15	2.98	2.72	0.29	0.10	0.00	6.64
SW	1.12	4.55	2.53	0.55	0.03	0.00	8.78
WSW	1.76	7.73	2.53	0.80	0.03	0.00	12.85
W	1.92	5.18	3.21	0.67	0.10	0.00	11.08
WNW	1.64	3.11	1.88	0.55	0.10	0.00	7.34
NW	0.77	1.44	1.03	0.32	0.03	0.00	3.58
NNW	0.61	1.51	0.77	0.13	0.00	0.00	3.01
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN F-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

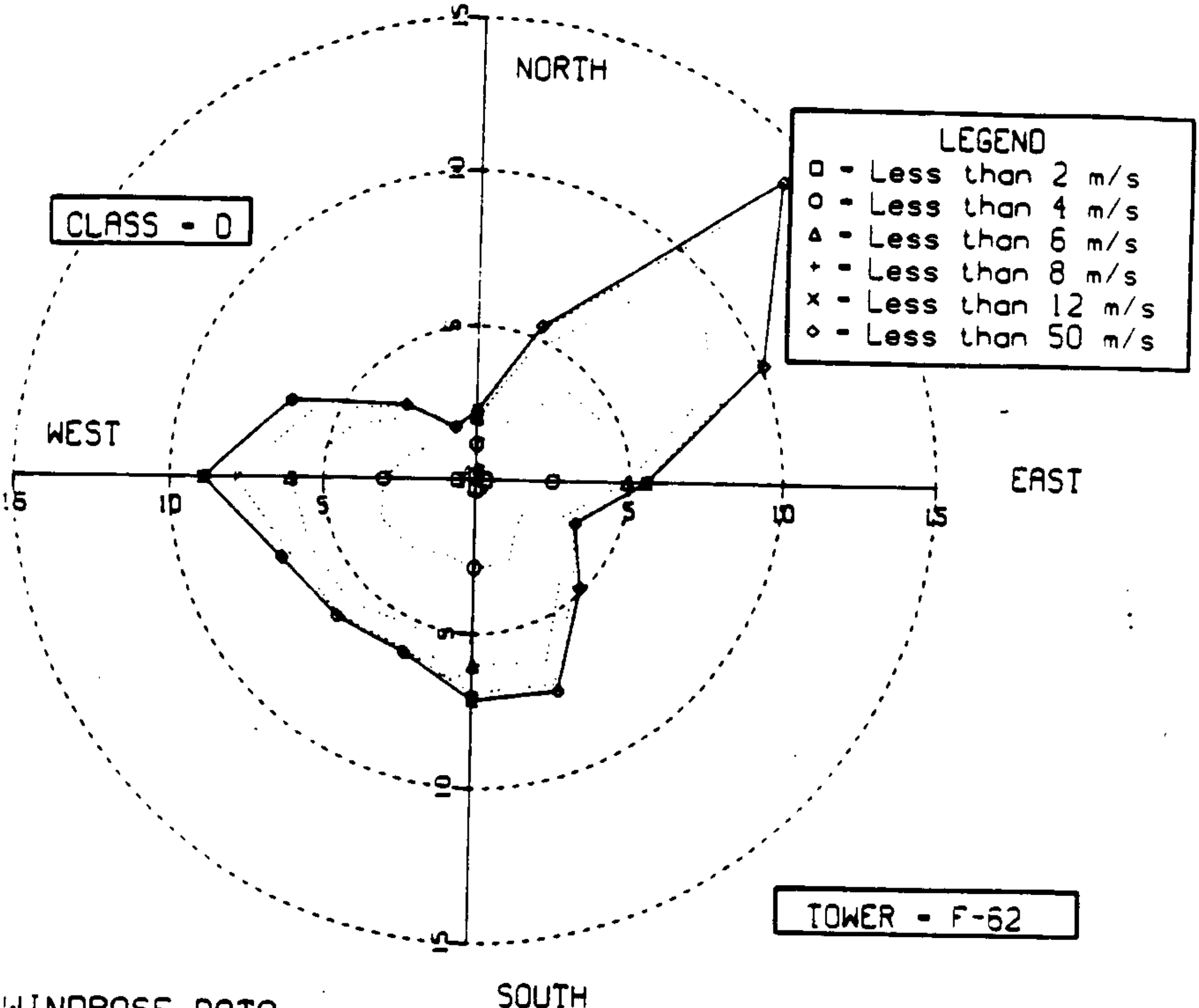
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5191

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
	===== SPEED IN METERS/SEC ====							
N	28	65	55	7	1	0	2.82	157
NNE	31	137	85	28	0	0	3.03	279
NE	36	155	138	48	1	0	3.24	378
ENE	34	198	122	24	2	0	3.08	380
E	19	168	93	14	1	0	3.23	295
ESE	25	111	70	11	0	0	2.85	217
SE	23	99	50	14	3	0	2.64	189
SSE	35	102	84	15	5	0	2.94	241
S	28	143	114	21	3	0	2.93	309
SSW	37	155	113	40	9	0	3.03	354
SW	48	195	152	58	17	0	2.91	471
WSW	62	300	163	87	24	0	3.17	636
W	46	238	168	98	44	0	3.40	592
WNW	38	145	124	71	31	0	3.50	407
NW	32	80	42	29	2	0	2.74	185
NNW	21	46	26	7	1	0	2.55	101
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.17	2.92	4.81	6.77	8.74	0.00	3.08	
TOT ENTRY	542	2335	1589	571	144	0		5191

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
	===== PERCENT TIME WIND @ SPEED =====						
N	0.56	1.25	1.06	0.13	0.02	0.00	3.02
NNE	0.60	2.64	1.64	0.50	0.00	0.00	5.37
NE	0.69	2.98	2.66	0.92	0.02	0.00	7.28
ENE	0.65	3.81	2.35	0.46	0.04	0.00	7.32
E	0.37	3.24	1.79	0.27	0.02	0.00	5.68
ESE	0.48	2.14	1.35	0.21	0.00	0.00	4.18
SE	0.44	1.91	0.96	0.27	0.06	0.00	3.64
SSE	0.67	1.96	1.62	0.29	0.10	0.00	4.64
S	0.54	2.75	2.20	0.40	0.06	0.00	5.95
SSW	0.71	2.98	2.18	0.77	0.17	0.00	6.82
SW	0.92	3.76	2.93	1.14	0.33	0.00	9.07
WSW	1.19	5.78	3.14	1.68	0.46	0.00	12.25
W	0.88	4.58	3.24	1.88	0.85	0.00	11.40
WNW	0.68	2.78	2.38	1.37	0.60	0.00	7.84
NW	0.62	1.54	0.81	0.56	0.04	0.00	3.56
NNW	0.40	0.88	0.50	0.13	0.02	0.00	1.95
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN F-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

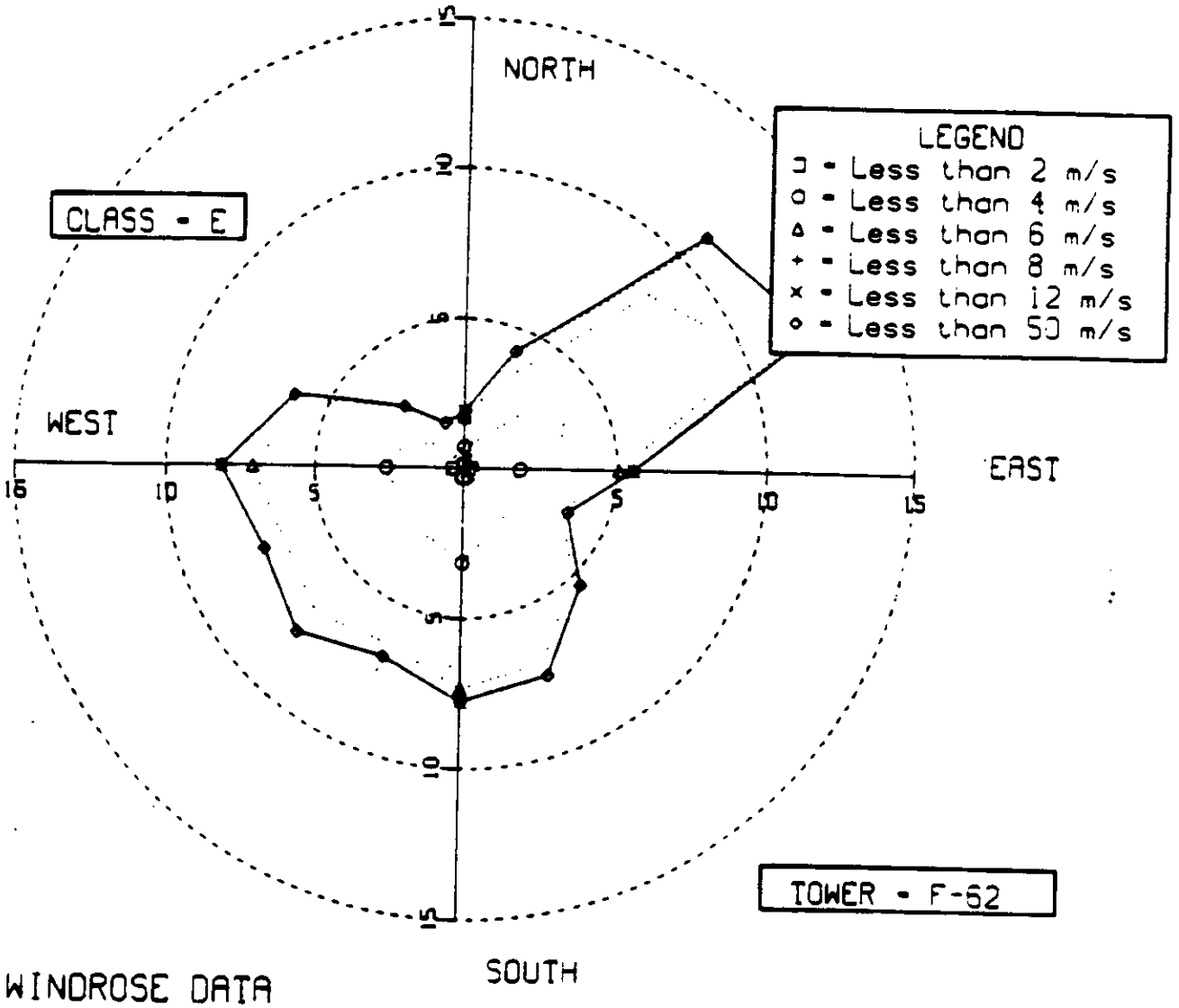
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 9246

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
	===== SPEED IN METERS/SEC =====								===== PERCENT TIME WIND @ SPEED =====						
N	12	95	81	16	6	0	3.20	210	0.13	1.03	0.88	0.17	0.06	0.00	2.27
NNE	18	157	245	75	8	1	3.87	504	0.19	1.70	2.65	0.81	0.09	0.01	5.45
NE	47	336	542	263	90	4	4.17	1282	0.51	3.63	5.86	2.84	0.97	0.04	13.87
ENE	39	394	331	135	33	0	3.71	932	0.42	4.26	3.58	1.46	0.36	0.00	10.08
E	29	203	223	54	4	0	3.53	513	0.31	2.20	2.41	0.58	0.04	0.00	5.55
ESE	20	156	106	41	4	0	3.47	327	0.22	1.69	1.15	0.44	0.04	0.00	3.54
SE	25	159	189	53	26	0	3.80	452	0.27	1.72	2.04	0.57	0.28	0.00	4.89
SSE	44	226	314	72	22	0	3.44	678	0.48	2.44	3.40	0.78	0.24	0.00	7.33
S	29	235	293	82	21	0	3.78	660	0.31	2.54	3.17	0.89	0.23	0.00	7.14
SSW	47	196	238	74	9	0	3.44	564	0.51	2.12	2.57	0.80	0.10	0.00	6.10
SW	43	245	240	50	8	0	3.38	586	0.47	2.65	2.60	0.54	0.09	0.00	6.34
WSW	43	268	226	62	28	0	3.40	627	0.47	2.90	2.44	0.67	0.30	0.00	6.78
W	56	228	275	165	98	0	3.63	821	0.61	2.47	2.97	1.78	1.07	0.00	8.88
WNW	44	170	196	128	70	0	3.61	608	0.48	1.84	2.12	1.38	0.76	0.00	6.58
NW	28	123	116	40	6	0	3.28	314	0.31	1.33	1.25	0.43	0.06	0.00	3.40
NNW	23	82	56	8	1	0	2.71	170	0.25	0.89	0.61	0.09	0.01	0.00	1.84
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.14	3.02	4.83	6.72	8.97	12.82	3.80								
TOT ENTRY	540	3273	3871	1314	435	5		9246							

WINDROSE 82-86 60-MIN F-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

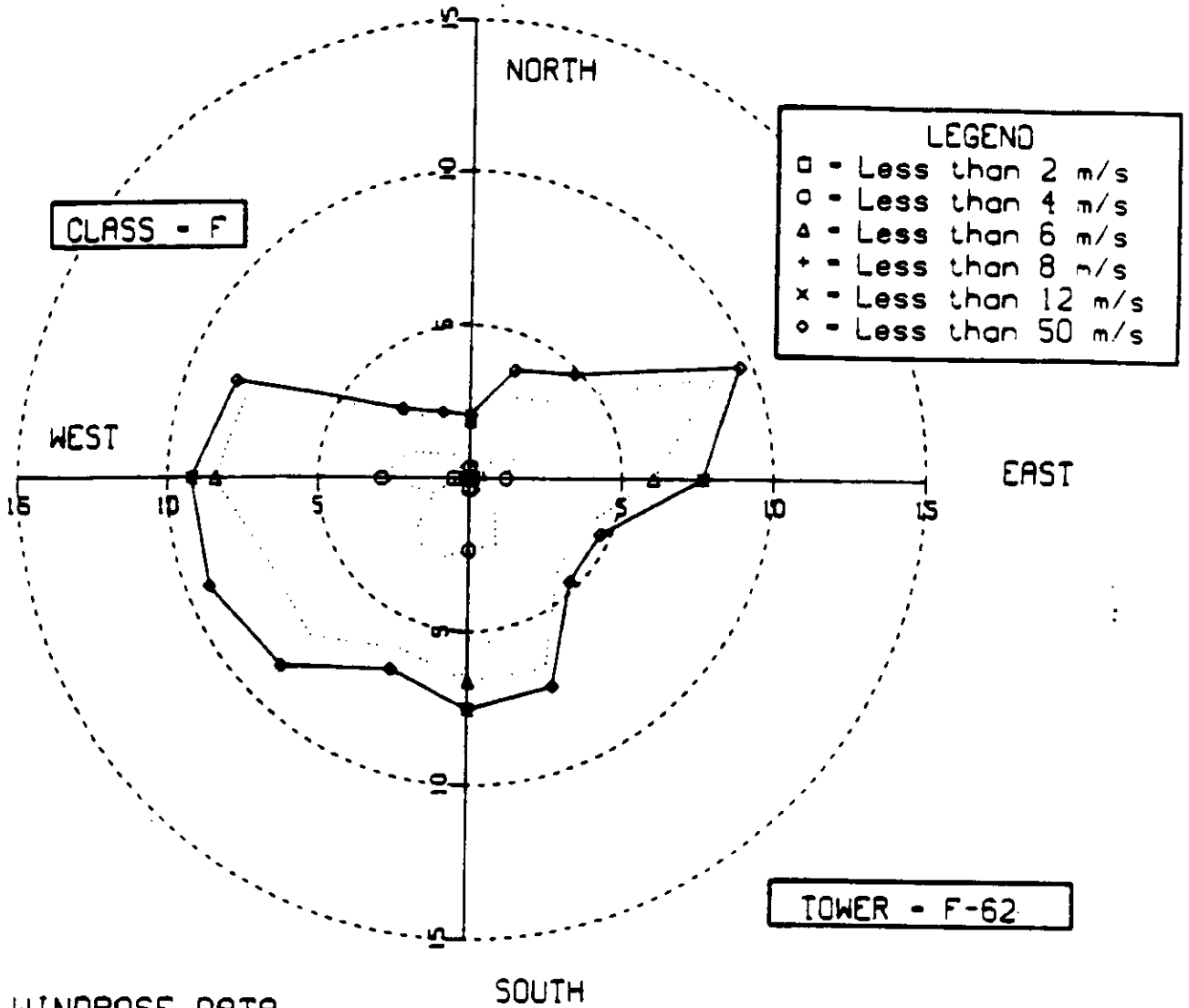
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 7973

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	10	47	82	12	0	0	2.84	151
NNE	10	68	178	82	3	0	4.04	338
NE	17	187	461	193	24	1	4.30	883
ENE	15	285	530	132	30	0	4.19	992
E	14	134	254	38	1	0	4.04	441
ESE	9	116	151	16	0	0	3.73	292
SE	13	153	238	27	0	0	3.90	431
SSE	21	184	370	34	0	0	3.93	588
S	24	227	333	34	0	0	3.80	618
SSW	24	181	301	37	0	0	3.80	543
SW	38	188	322	71	0	0	3.88	621
WSW	24	184	328	56	0	0	3.98	592
W	28	178	358	82	0	0	3.84	647
WNW	32	140	288	34	0	0	3.57	494
NW	15	74	138	3	0	0	3.48	230
NNW	4	43	83	0	0	0	3.85	130
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.14	3.08	4.07	6.54	8.97	12.96	3.85	
TOT ENTRY	300	2350	4413	851	58	1		7973

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.13	0.58	1.03	0.15	0.00	0.00	1.89
NNE	0.13	0.85	2.21	1.03	0.04	0.00	4.23
NE	0.21	2.35	5.78	2.42	0.30	0.01	11.07
ENE	0.19	3.57	6.65	1.66	0.38	0.00	12.44
E	0.18	1.68	3.19	0.48	0.01	0.00	5.53
ESE	0.11	1.45	1.89	0.20	0.00	0.00	3.66
SE	0.16	1.92	2.98	0.34	0.00	0.00	5.41
SSE	0.26	2.08	4.64	0.43	0.00	0.00	7.39
S	0.30	2.85	4.18	0.43	0.00	0.00	7.75
SSW	0.30	2.27	3.78	0.46	0.00	0.00	6.81
SW	0.48	2.37	4.04	0.88	0.00	0.00	7.79
WSW	0.30	2.08	4.11	0.70	0.00	0.00	7.17
W	0.36	2.23	4.49	1.03	0.00	0.00	8.11
WNW	0.40	1.76	3.61	0.43	0.00	0.00	6.20
NW	0.19	0.93	1.73	0.04	0.00	0.00	2.88
NNW	0.08	0.54	1.04	0.00	0.00	0.00	1.63
	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN F-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

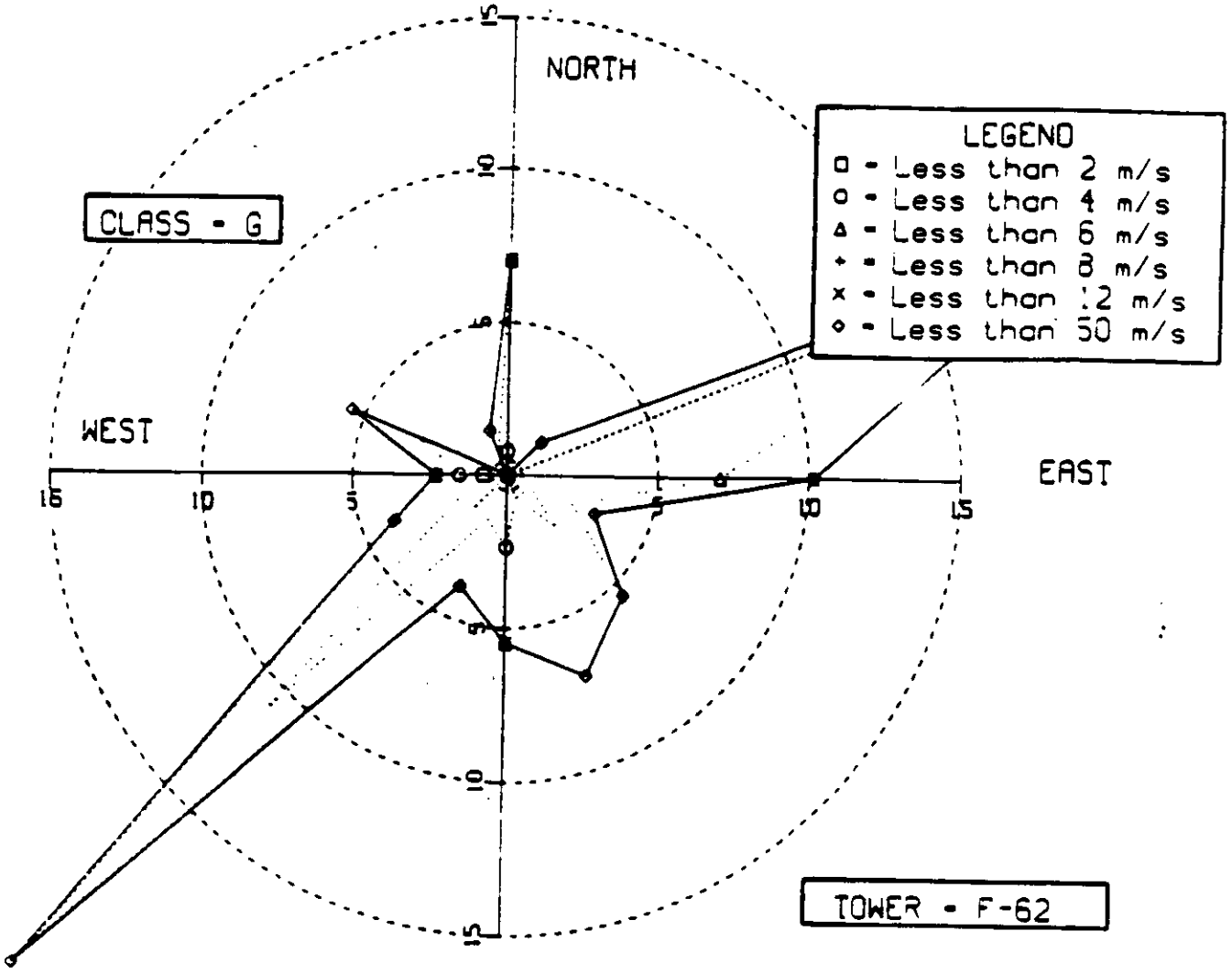
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 1752

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0	6	27	3	0	0	4.70	36	0.00	0.34	1.54	0.17	0.00	0.00	2.05
NNE	0	10	41	16	0	0	4.84	67	0.00	0.57	2.34	0.91	0.00	0.00	3.82
NE	1	11	51	21	1	0	4.91	85	0.06	0.63	2.91	1.20	0.06	0.00	4.85
ENE	1	28	124	14	1	0	4.53	168	0.06	1.60	7.08	0.80	0.06	0.00	9.59
E	2	19	85	29	0	0	4.88	135	0.11	1.08	4.85	1.66	0.00	0.00	7.71
ESE	2	17	52	11	0	0	4.28	82	0.11	0.97	2.97	0.63	0.00	0.00	4.68
SE	0	21	53	10	0	0	4.36	83	0.00	1.20	2.97	0.57	0.00	0.00	4.74
SSE	6	35	76	11	0	0	3.82	128	0.34	2.00	4.34	0.63	0.00	0.00	7.31
S	6	35	75	16	0	0	4.08	132	0.34	2.00	4.28	0.91	0.00	0.00	7.53
SSW	5	45	55	13	0	0	3.79	118	0.28	2.57	3.14	0.74	0.00	0.00	6.74
SW	6	40	82	24	0	0	4.00	152	0.34	2.28	4.68	1.37	0.00	0.00	8.68
WSW	4	18	103	37	0	0	4.75	162	0.23	1.03	5.88	2.11	0.00	0.00	9.25
W	9	42	88	14	0	0	3.83	161	0.51	2.40	5.48	0.80	0.00	0.00	9.19
WNW	4	35	88	8	0	0	4.23	148	0.23	2.00	5.05	0.46	0.00	0.00	8.33
NW	5	24	32	5	0	0	3.80	58	0.28	0.80	1.83	0.28	0.00	0.00	3.20
NNW	3	11	24	3	0	0	3.78	41	0.17	0.63	1.37	0.17	0.00	0.00	2.34
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.65	3.13	4.38	6.37	8.50	0.00	4.22								
TOT ENTRY	54	387	1074	235	2	0		1752							

WINDROSE 82-86 60-MIN F-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

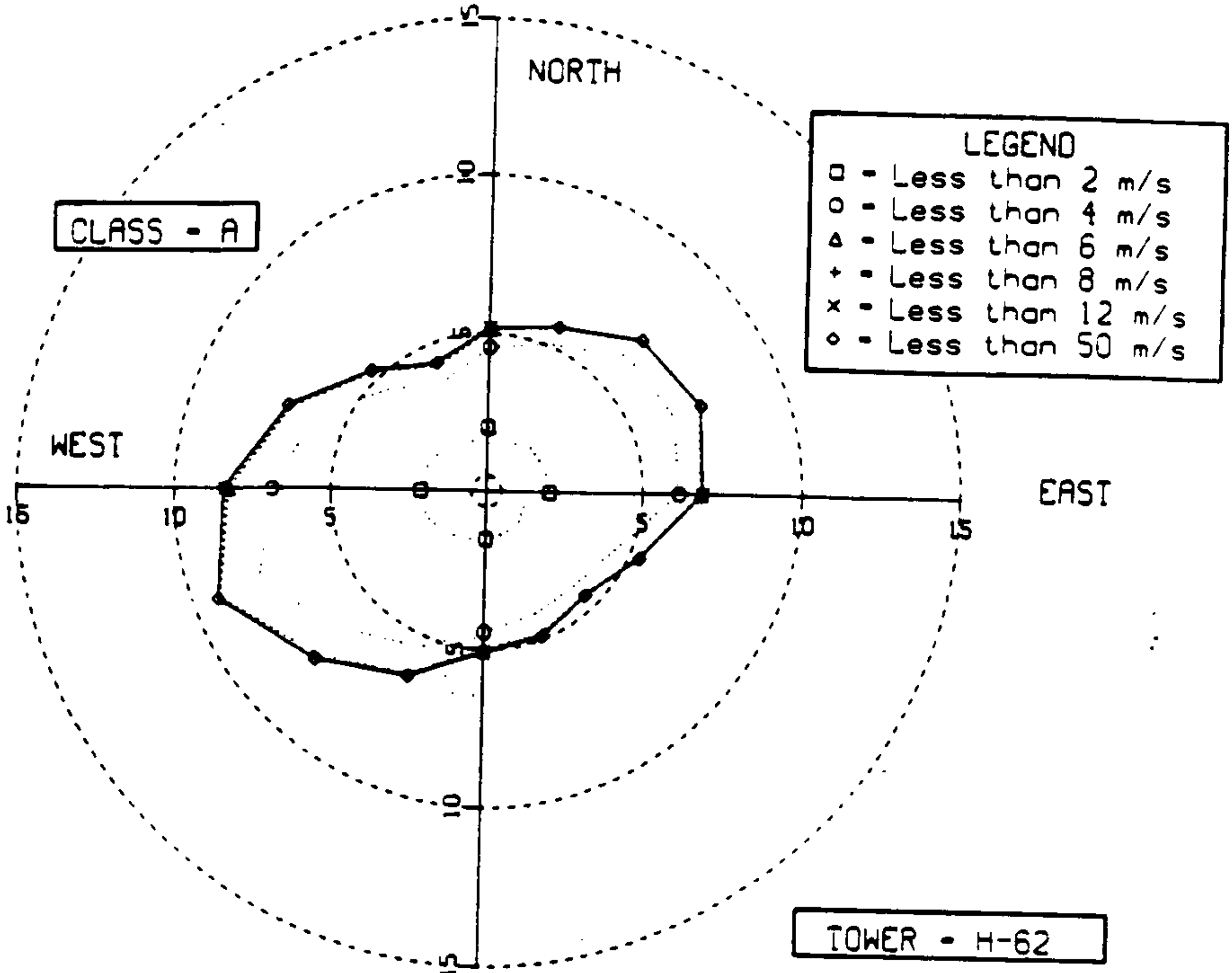
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 33331

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 120

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0	1	8	0	0	0	4.50	9	0.00	0.78	6.25	0.00	0.00	0.00	7.03
NNE	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0	0	2	0	0	0	5.20	2	0.00	0.00	1.56	0.00	0.00	0.00	1.56
ENE	16	3	7	0	0	0	0.00	26	12.50	2.34	5.47	0.00	0.00	0.00	20.31
E	0	0	9	4	0	0	5.72	13	0.00	0.00	7.03	3.13	0.00	0.00	10.16
ESE	0	1	2	1	0	0	5.15	4	0.00	0.78	1.56	0.78	0.00	0.00	3.13
SE	1	2	4	0	0	0	1.83	7	0.78	1.56	3.13	0.00	0.00	0.00	5.47
SSE	1	0	8	0	0	0	3.88	9	0.78	0.00	6.25	0.00	0.00	0.00	7.03
S	0	3	4	0	0	0	3.75	7	0.00	2.34	3.13	0.00	0.00	0.00	5.47
SSW	0	2	3	0	0	0	3.52	5	0.00	1.56	2.34	0.00	0.00	0.00	3.91
SW	2	12	14	1	0	0	2.98	29	1.56	9.38	10.94	0.78	0.00	0.00	22.66
WSW	0	2	3	0	0	0	3.98	5	0.00	1.56	2.34	0.00	0.00	0.00	3.91
W	1	1	1	0	0	0	2.80	3	0.78	0.78	0.78	0.00	0.00	0.00	2.34
WNW	1	3	3	0	0	0	3.10	7	0.78	2.34	2.34	0.00	0.00	0.00	5.47
NW	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0	0	1	1	0	0	5.50	2	0.00	0.00	0.78	0.78	0.00	0.00	1.56
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	0.90	3.13	4.94	6.31	0.00	0.00	1.00								
TOT ENTRY	22	30	68	7	0	0		120							

WINDROSE 82-86 60-MIN H-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

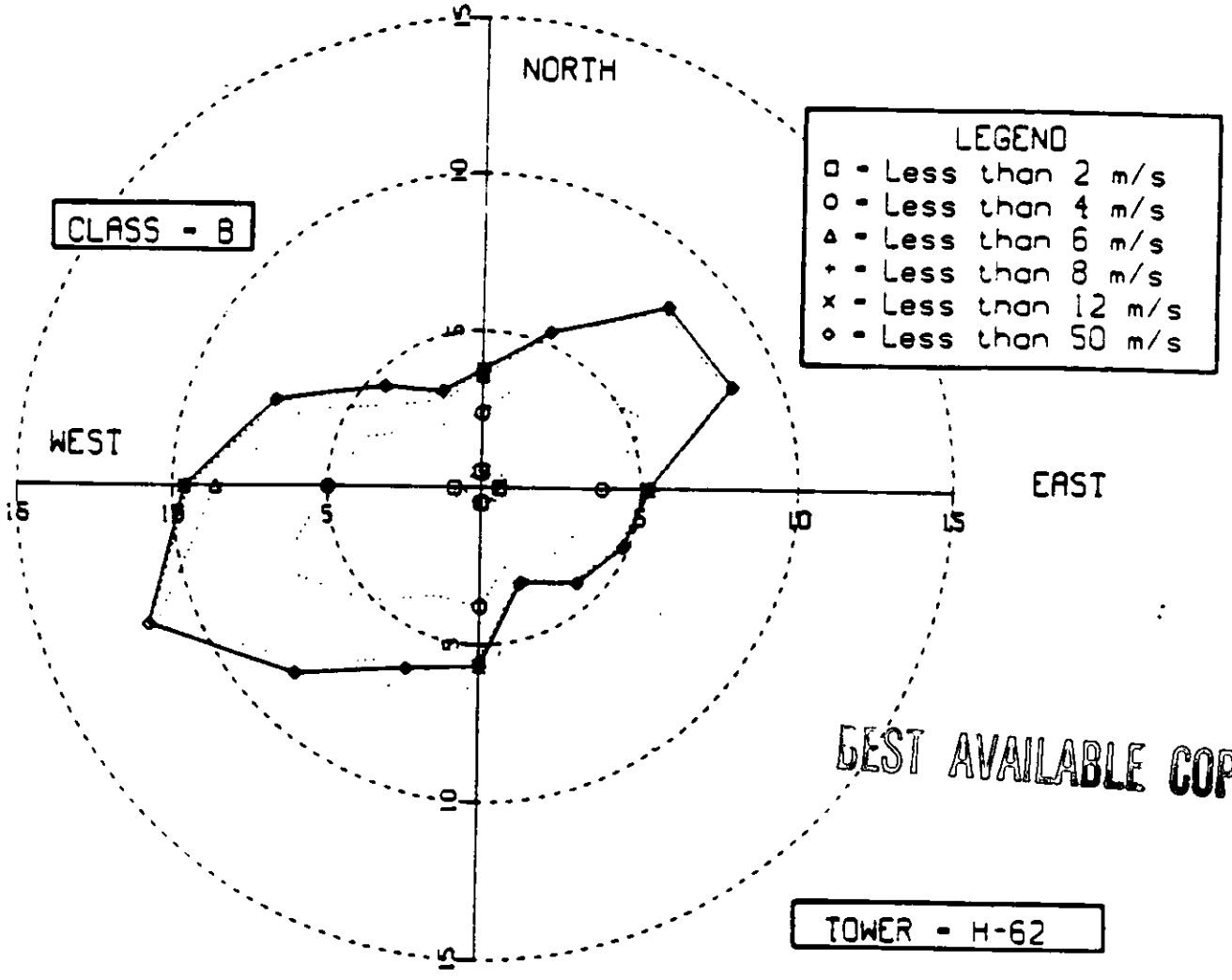
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6392

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
	===== SPEED IN METERS/SEC =====							
N	128	163	37	2	0	0	2.02	331
NNE	110	215	35	3	0	0	2.15	363
NE	126	270	43	1	0	0	2.15	440
ENE	127	284	56	3	0	0	2.22	470
E	128	265	45	3	0	0	2.24	441
ESE	82	207	50	1	0	0	2.28	340
SE	94	167	27	3	0	0	2.14	291
SSE	93	175	38	5	2	0	2.12	313
S	97	188	35	5	1	0	2.11	326
SSW	105	239	56	3	4	0	2.22	407
SW	120	280	76	9	1	0	2.30	486
WSW	134	384	85	3	0	1	2.33	587
W	136	302	87	9	2	1	2.28	537
WNW	132	240	53	5	2	1	2.18	441
NW	120	180	40	4	0	0	2.10	340
NNW	100	138	34	6	1	0	2.10	279
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.30	2.79	4.58	6.86	8.98	16.54	2.20	
TOT ENTRY	1633	3673	805	65	13	3		6392

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
	===== PERCENT TIME WIND @ SPEED =====						
N	2.02	2.55	0.58	0.03	0.00	0.00	5.18
NNE	1.72	3.36	0.55	0.05	0.00	0.00	5.68
NE	1.97	4.22	0.67	0.02	0.00	0.00	6.88
ENE	1.98	4.44	0.88	0.05	0.00	0.00	7.35
E	2.00	4.15	0.70	0.05	0.00	0.00	6.90
ESE	1.28	3.24	0.78	0.02	0.00	0.00	5.32
SE	1.47	2.61	0.42	0.05	0.00	0.00	4.55
SSE	1.45	2.74	0.58	0.08	0.03	0.00	4.90
S	1.52	2.94	0.55	0.08	0.02	0.00	5.10
SSW	1.64	3.74	0.88	0.05	0.06	0.00	6.37
SW	1.88	4.38	1.19	0.14	0.02	0.00	7.60
WSW	2.10	5.88	1.33	0.05	0.00	0.02	9.18
W	2.13	4.72	1.36	0.14	0.03	0.02	8.40
WNW	2.07	3.88	0.83	0.08	0.03	0.02	6.90
NW	1.88	2.63	0.75	0.08	0.00	0.00	5.32
NNW	1.58	2.16	0.53	0.08	0.02	0.00	4.36
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN H-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

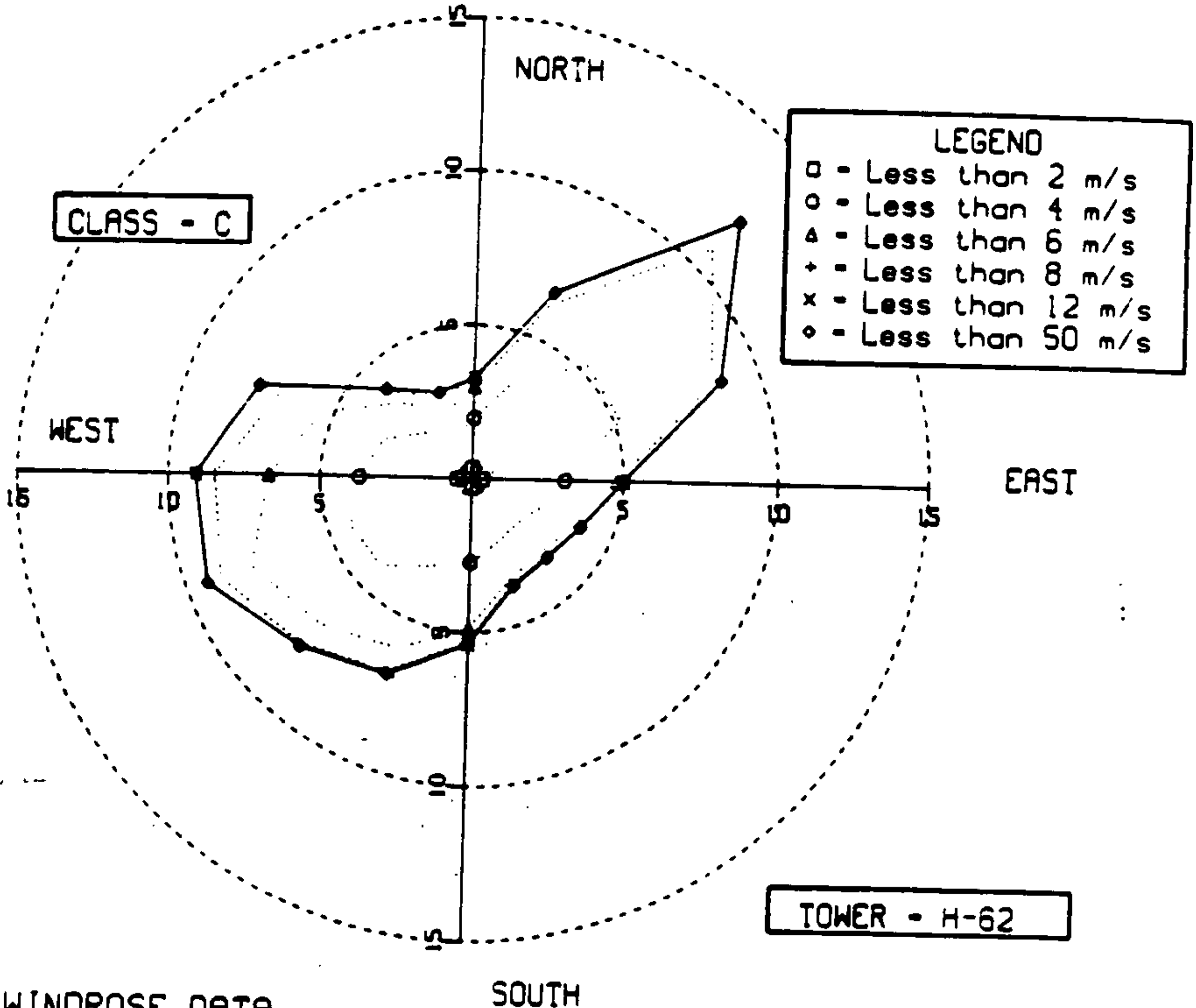
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 3535

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	18	66	42	6	1	0	3.02	133
NNE	28	108	56	0	0	0	2.88	191
NE	24	139	120	7	0	0	3.20	280
ENE	30	168	98	4	0	0	3.10	301
E	20	113	52	1	0	0	2.83	186
ESE	20	98	48	4	0	0	2.87	170
SE	22	87	37	4	0	0	2.77	150
SSE	15	71	28	3	0	0	2.85	115
S	17	117	60	7	0	0	3.19	201
SSW	34	98	77	9	3	0	2.79	221
SW	27	155	98	16	0	0	3.16	297
WSW	28	218	149	11	1	0	3.25	408
W	30	147	127	31	5	0	3.01	340
WNW	27	118	77	28	5	0	2.97	255
NW	28	83	58	28	3	0	2.88	180
NNW	25	54	28	8	4	0	2.72	117
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.34	2.97	4.70	6.88	8.71	0.00	3.01	
TOT ENTRY	383	1821	1138	183	22	0		3535

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.51	1.87	1.19	0.17	0.03	0.00	3.76
NNE	0.79	3.06	1.58	0.00	0.00	0.00	5.40
NE	0.68	3.93	3.39	0.20	0.00	0.00	8.20
ENE	0.85	4.75	2.80	0.11	0.00	0.00	8.51
E	0.57	3.20	1.47	0.03	0.00	0.00	5.26
ESE	0.57	2.77	1.38	0.11	0.00	0.00	4.81
SE	0.62	2.48	1.05	0.11	0.00	0.00	4.24
SSE	0.42	2.01	0.79	0.08	0.00	0.00	3.25
S	0.48	3.31	1.70	0.20	0.00	0.00	5.69
SSW	0.96	2.77	2.18	0.25	0.00	0.00	6.25
SW	0.76	4.38	2.80	0.45	0.00	0.00	8.40
WSW	0.82	6.17	4.21	0.31	0.03	0.00	11.54
W	0.85	4.16	3.59	0.88	0.14	0.00	9.62
WNW	0.76	3.34	2.18	0.79	0.14	0.00	7.21
NW	0.80	1.70	1.10	0.79	0.00	0.00	4.53
NNW	0.71	1.53	0.79	0.17	0.11	0.00	3.31
	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN H-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

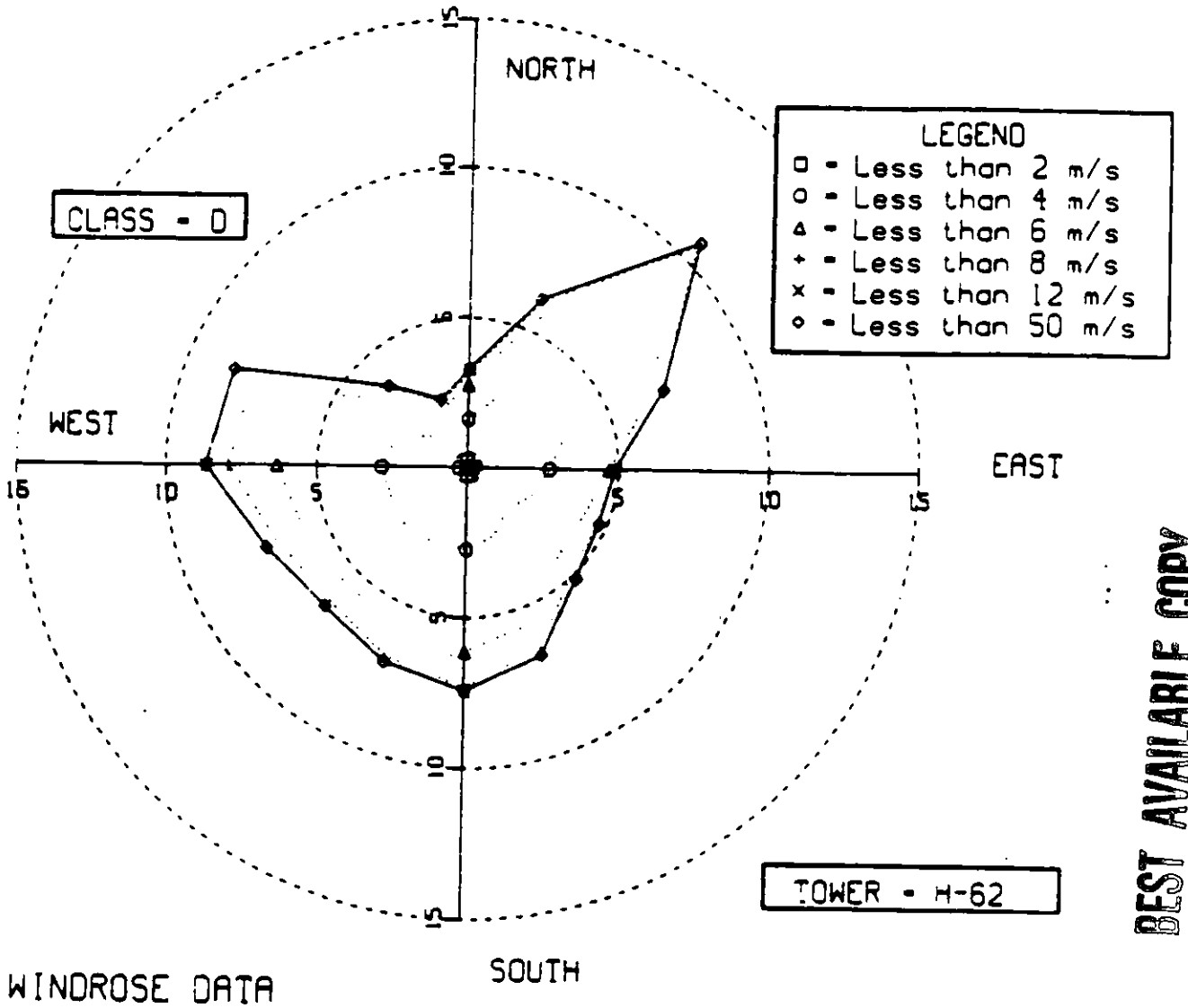
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6298

DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
	===== SPEED IN METERS/SEC =====							
N	23	101	65	19	0	0	3.18	208
NNE	24	200	162	28	1	0	3.48	415
NE	31	301	348	78	2	0	3.58	760
ENE	48	280	200	20	1	0	3.08	549
E	22	169	109	14	0	0	3.08	314
ESE	16	134	85	11	0	0	3.24	246
SE	14	115	77	14	3	0	3.14	223
SSE	18	122	78	12	4	0	3.15	235
S	18	153	136	25	6	0	3.44	338
SSW	32	162	184	51	6	0	3.52	435
SW	42	215	174	58	5	0	3.35	494
WSW	32	232	224	65	30	1	3.87	584
W	31	200	190	110	41	0	3.72	572
WNW	40	159	141	95	45	0	3.86	480
NW	22	108	84	31	9	0	3.35	254
NNW	21	72	54	34	8	0	3.35	189
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.28	2.98	4.81	6.73	[illegible]	12.20	3.41	
TOT ENTRY	434	2723	2312	665	161	1.		6298

	===== PERCENT TIME WIND @ SPEED =====						
DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.37	1.60	1.03	0.30	0.00	0.00	3.30
NNE	0.38	3.18	2.57	0.44	0.02	0.00	6.59
NE	0.49	4.78	5.53	1.24	0.03	0.00	12.07
ENE	0.76	4.45	3.18	0.32	0.02	0.00	8.72
E	0.35	2.68	1.73	0.22	0.00	0.00	4.99
ESE	0.25	2.13	1.35	0.17	0.00	0.00	3.91
SE	0.22	1.83	1.22	0.22	0.05	0.00	3.54
SSE	0.29	1.94	1.25	0.19	0.06	0.00	3.73
S	0.29	2.43	2.16	0.40	0.10	0.00	5.37
SSW	0.51	2.57	2.92	0.81	0.10	0.00	6.91
SW	0.67	3.41	2.76	0.92	0.08	0.00	7.85
WSW	0.51	3.68	3.56	1.03	0.48	0.02	9.28
W	0.49	3.18	3.02	1.75	0.65	0.00	9.08
WNW	0.64	2.53	2.24	1.51	0.71	0.00	7.62
NW	0.35	1.72	1.33	0.49	0.14	0.00	4.03
NNW	0.33	1.14	0.86	0.54	0.13	0.00	3.00
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN H-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

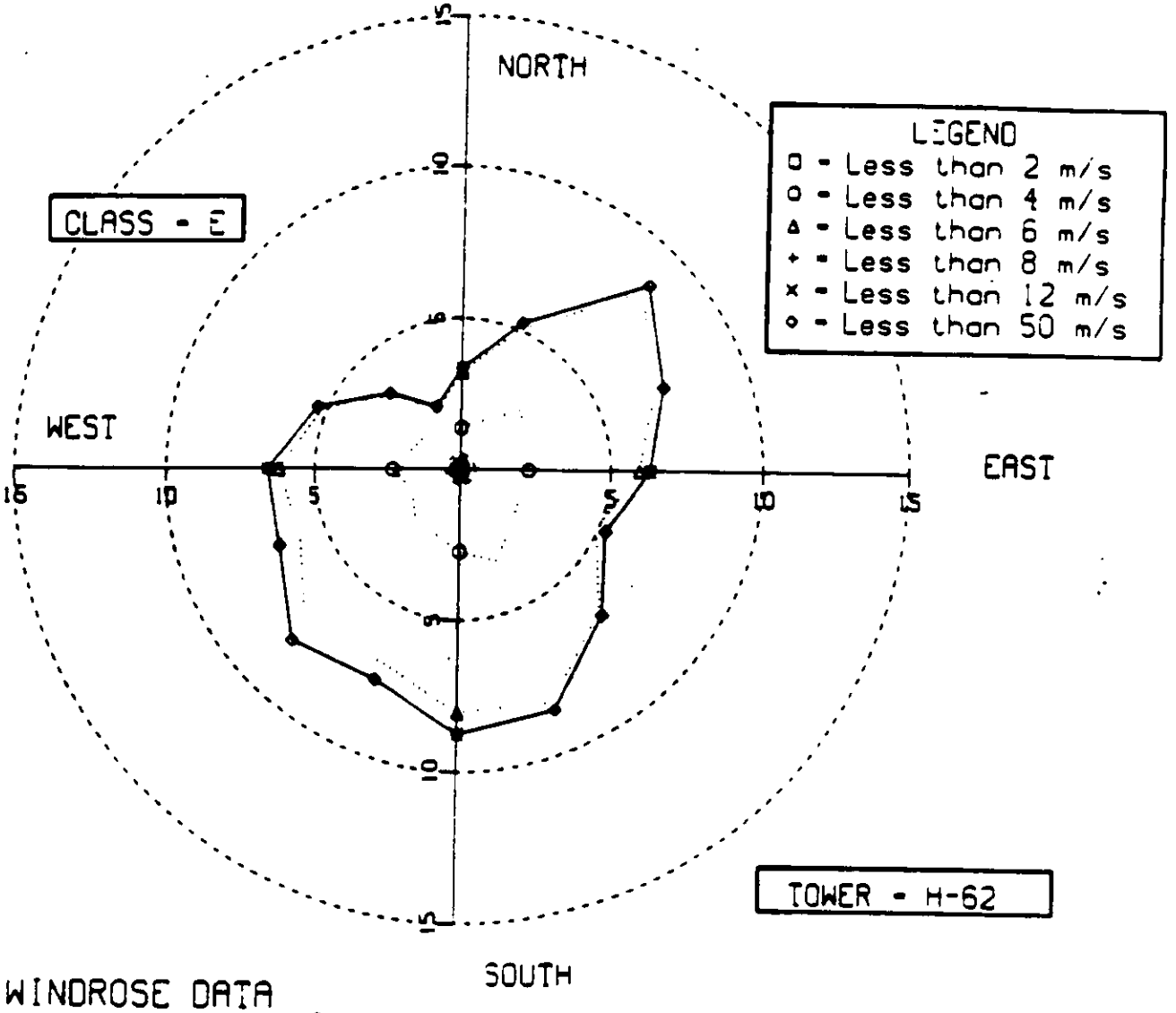
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 9908

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	24	135	113	41	12	0	3.58	325	0.24	1.36	1.14	0.41	0.12	0.00	3.28
NNE	23	231	274	67	12	0	3.82	607	0.23	2.33	2.77	0.68	0.12	0.00	6.13
NE	31	418	494	108	16	0	3.79	1065	0.31	4.22	4.99	1.09	0.16	0.00	10.75
ENE	15	343	285	46	0	0	3.56	689	0.15	3.46	2.88	0.46	0.00	0.00	6.96
E	15	255	194	18	2	0	3.50	484	0.15	2.57	1.96	0.18	0.02	0.00	4.88
ESE	12	218	184	52	5	0	3.76	469	0.12	2.18	1.86	0.52	0.05	0.00	4.73
SE	11	179	230	68	22	0	4.00	511	0.11	1.81	2.32	0.70	0.22	0.00	5.16
SSE	16	228	312	88	19	0	4.02	662	0.16	2.28	3.15	0.90	0.19	0.00	6.68
S	24	247	338	117	11	0	3.98	735	0.24	2.48	3.39	1.18	0.11	0.00	7.42
SSW	27	243	303	101	19	1	3.78	694	0.27	2.45	3.06	1.02	0.19	0.01	7.01
SW	25	256	270	78	25	0	3.68	652	0.25	2.58	2.73	0.77	0.25	0.00	6.58
WSW	27	241	305	91	10	0	3.65	707	0.27	2.43	3.08	0.95	0.10	0.00	7.14
W	25	258	342	150	78	1	4.11	854	0.25	2.60	3.45	1.58	0.77	0.01	8.68
WNW	28	227	305	132	61	1	4.13	755	0.28	2.29	3.08	1.33	0.62	0.01	8.60
NW	14	132	158	57	12	0	3.78	374	0.14	1.33	1.61	0.58	0.12	0.00	3.78
NNW	17	115	81	23	4	0	3.28	240	0.17	1.16	0.82	0.23	0.04	0.00	2.42
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.16	3.12	4.02	6.70	9.08	12.55	3.83								
TOT ENTRY	332	3722	4287	1246	338	3		9908							

WINDROSE 82-86 60-MIN H-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

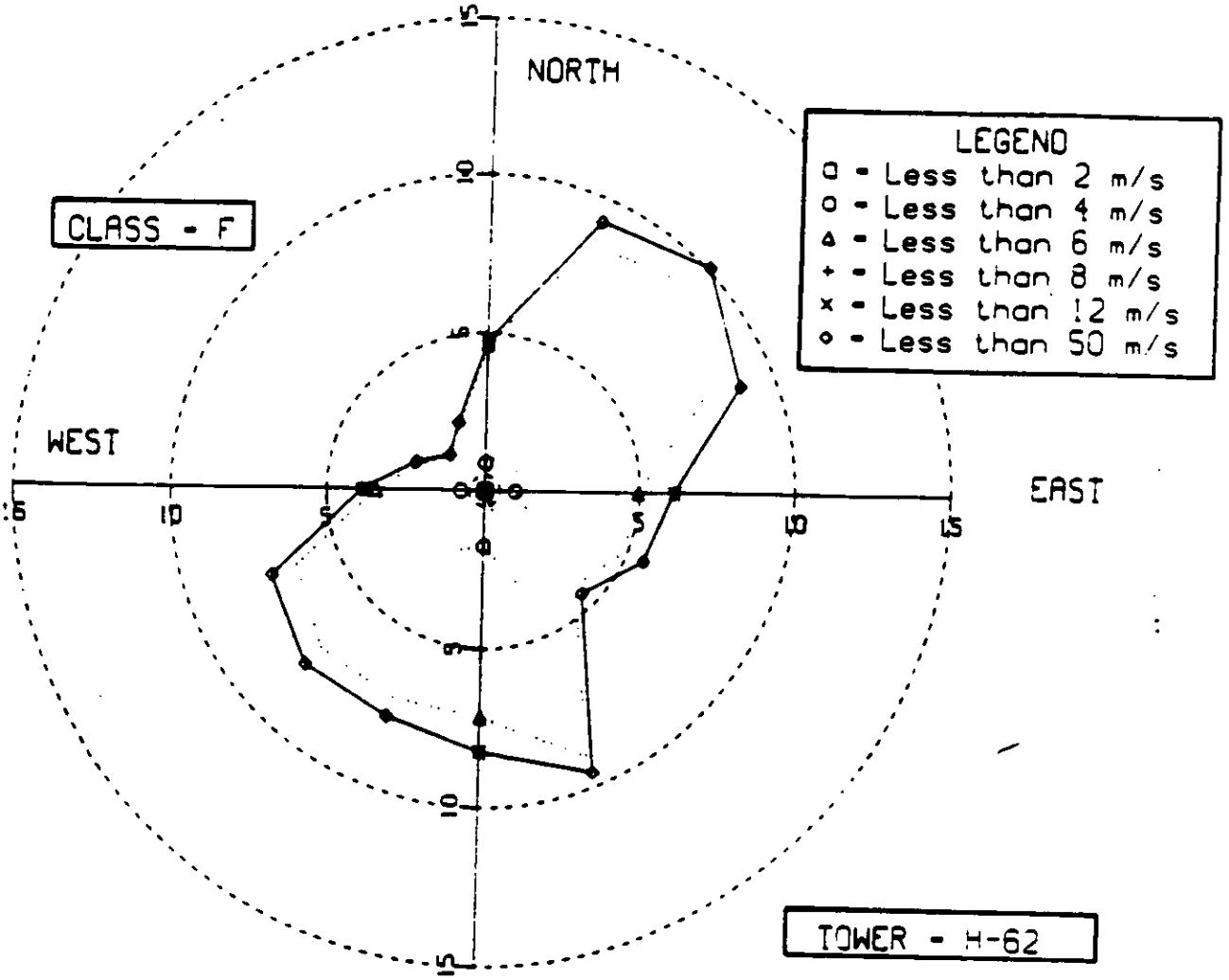
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 7231

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	9	90	134	10	0	0	3.88	243
NNE	8	120	230	18	0	0	4.08	382
NE	16	185	406	21	0	0	3.98	628
ENE	9	172	318	23	0	0	4.08	550
E	5	180	262	26	0	0	4.08	453
ESE	8	148	200	20	2	0	3.94	378
SE	11	170	287	10	0	0	3.88	488
SSE	15	221	363	20	0	0	3.74	619
S	13	185	384	52	0	0	4.05	634
SSW	13	152	335	43	1	0	3.78	544
SW	12	146	378	46	0	0	4.08	581
WSW	8	124	287	54	0	0	4.26	481
W	11	101	277	28	0	0	3.83	575
WNW	15	114	244	14	0	0	3.58	387
NW	12	107	138	7	0	0	3.33	268
NNW	11	88	77	5	0	0	3.18	181
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.00	3.23	4.01	6.38	8.25	0.00	3.88	
TOT ENTRY	172	2323	4338	385	3	0		7231

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.12	1.24	1.85	0.14	0.00	0.00	3.36
NNE	0.08	1.66	3.18	0.25	0.00	0.00	5.28
NE	0.22	2.58	5.61	0.29	0.00	0.00	8.68
ENE	0.12	2.38	4.37	0.32	0.00	0.00	7.19
E	0.07	2.21	3.62	0.36	0.00	0.00	6.26
ESE	0.11	2.08	2.77	0.28	0.03	0.00	5.24
SE	0.15	2.35	4.11	0.14	0.00	0.00	6.75
SSE	0.21	3.08	5.02	0.28	0.00	0.00	8.56
S	0.18	2.58	5.31	0.72	0.00	0.00	8.77
SSW	0.18	2.10	4.63	0.58	0.01	0.00	7.52
SW	0.17	2.01	5.23	0.64	0.00	0.00	8.03
WSW	0.08	1.71	4.11	0.75	0.00	0.00	6.65
W	0.15	2.23	3.83	0.36	0.00	0.00	6.57
WNW	0.21	1.58	3.37	0.19	0.00	0.00	5.35
NW	0.17	1.48	1.88	0.10	0.00	0.00	3.54
NNW	0.15	0.96	1.06	0.07	0.00	0.00	2.23
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN H-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

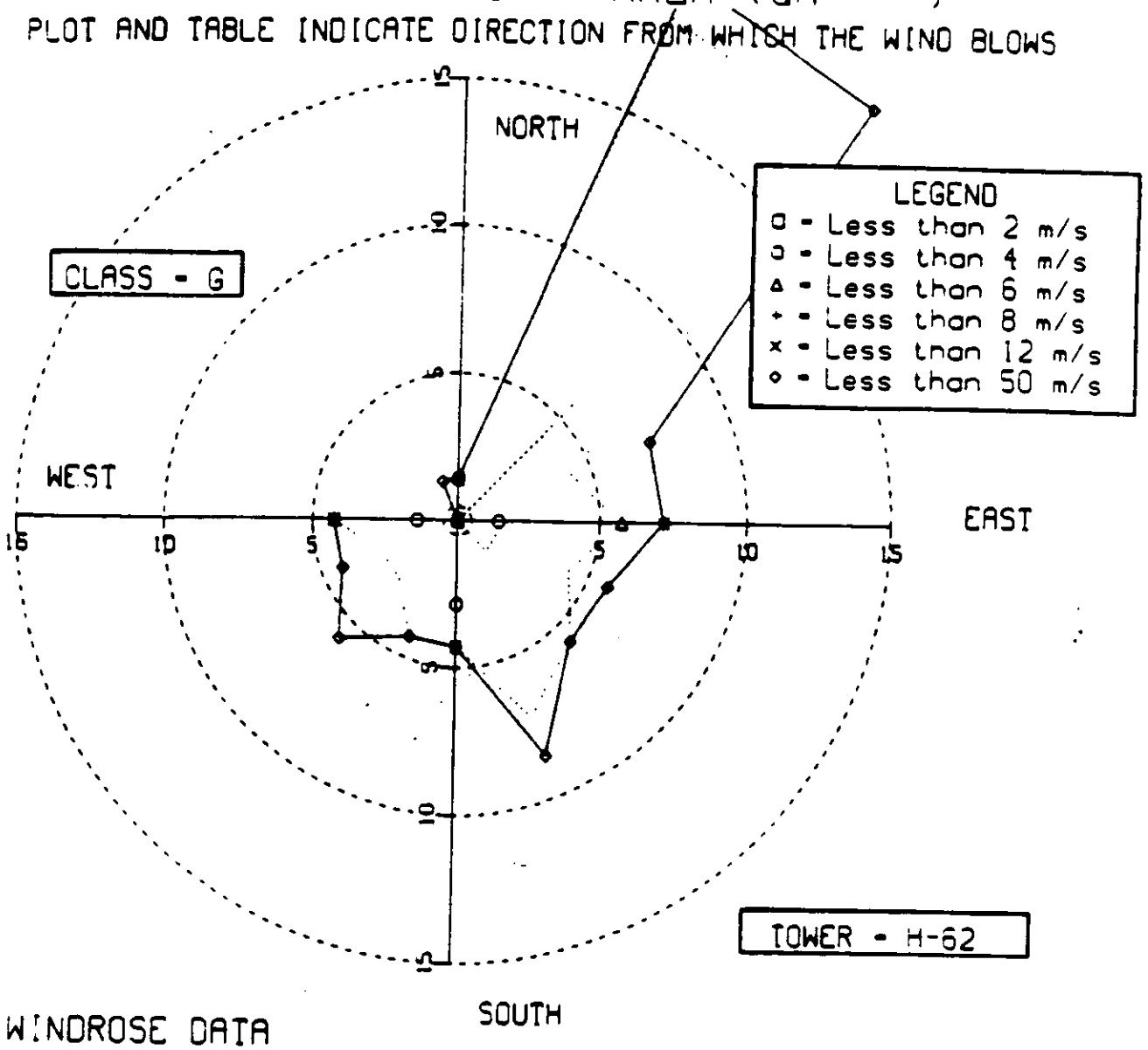
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 1822

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	1	15	68	2	0	0	4.32	87
NNE	1	21	133	14	0	0	4.75	169
NE	3	22	138	15	0	0	4.68	184
ENE	0	19	119	24	0	0	4.81	162
E	1	17	72	22	0	0	4.77	112
ESE	0	27	82	13	0	0	4.58	122
SE	1	24	51	6	0	0	4.37	82
SSE	14	46	104	10	0	0	2.98	174
S	1	31	98	20	0	0	4.58	150
SSW	3	34	93	11	0	0	3.74	141
SW	0	24	108	13	0	0	4.70	145
WSW	0	18	98	15	0	0	4.77	131
W	1	13	49	8	0	0	4.25	71
WNW	1	17	22	3	0	0	3.83	43
NW	0	6	23	0	0	0	4.41	29
NNW	1	15	25	1	0	0	3.94	42
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.55	3.38	4.91	6.38	0.00	0.00	4.14	
TOT ENTRY	30	354	1283	177	0	0		1822

DIRECTION	PERCENT TIME WIND & SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.05	0.82	3.79	0.11	0.00	0.00	4.77
NNE	0.05	1.15	7.30	0.77	0.00	0.00	9.26
NE	0.16	1.48	7.63	0.82	0.00	0.00	10.10
ENE	0.00	1.04	6.53	1.32	0.00	0.00	8.89
E	0.05	0.93	3.95	1.21	0.00	0.00	6.15
ESE	0.00	1.48	3.40	0.71	0.00	0.00	5.60
SE	0.05	1.32	2.80	0.33	0.00	0.00	4.50
SSE	0.77	2.52	5.71	0.55	0.00	0.00	9.55
S	0.05	1.70	5.38	1.10	0.00	0.00	8.23
SSW	0.16	1.87	5.10	0.60	0.00	0.00	7.74
SW	0.00	1.32	5.60	0.71	0.00	0.00	7.85
WSW	0.00	0.98	5.38	0.82	0.00	0.00	7.19
W	0.00	0.71	2.80	0.44	0.00	0.00	3.90
WNW	0.00	0.93	1.21	0.16	0.00	0.00	2.38
NW	0.00	0.33	1.26	0.00	0.00	0.00	1.59
NNW	0.05	0.82	1.37	0.05	0.00	0.00	2.31
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN H-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35252

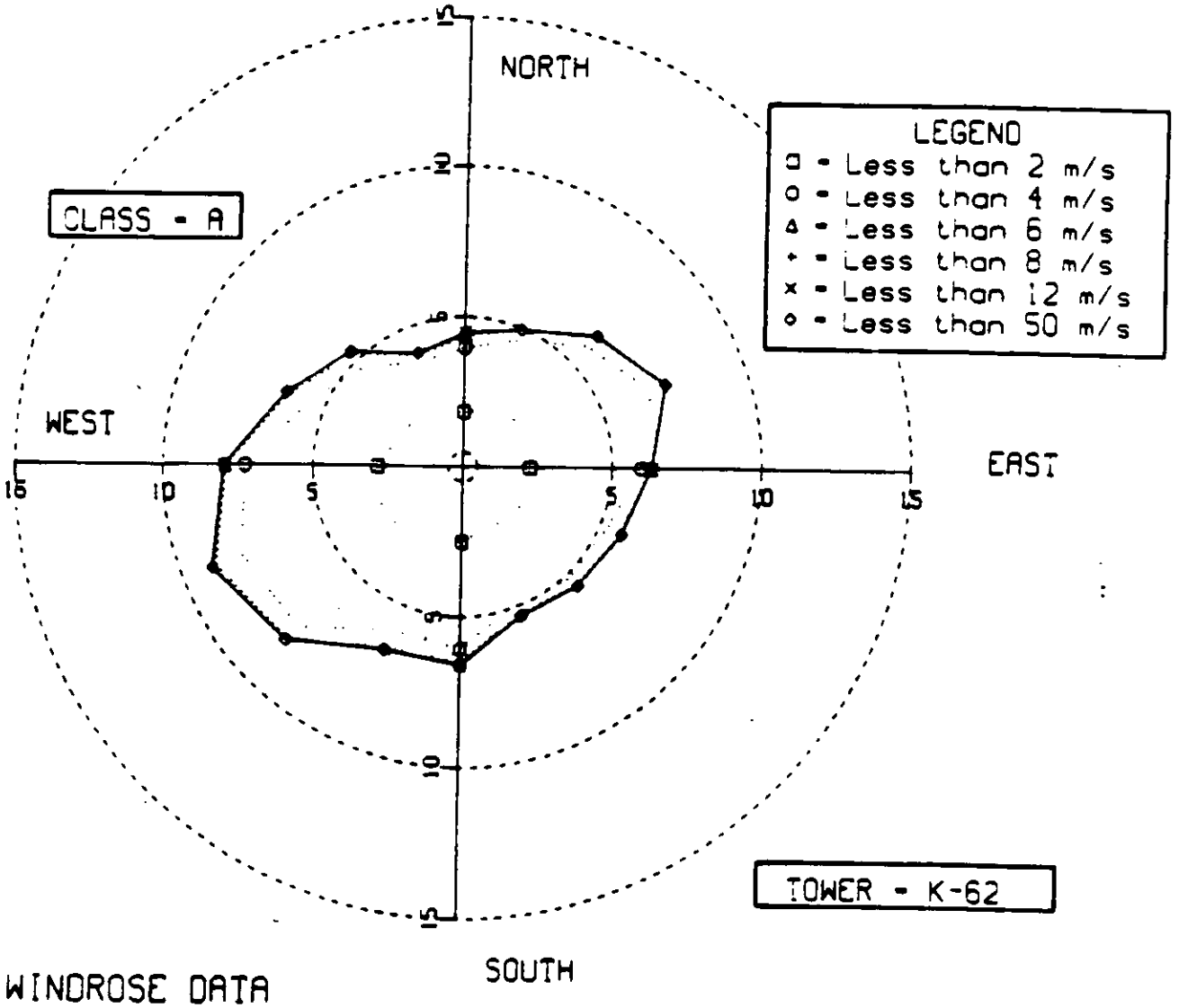
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 70

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	0	1	0	0	0	0	4.00	1
NNE	0	0	13	1	0	0	5.23	14
NE	3	1	9	1	0	0	1.57	14
ENE	0	0	3	2	0	0	5.85	5
E	0	1	3	1	0	0	4.91	5
ESE	0	1	2	1	0	0	4.38	4
SE	0	1	3	0	0	0	4.22	4
SSE	0	0	5	1	0	0	5.52	6
S	0	0	2	1	0	0	3.98	3
SSW	0	0	3	0	0	0	5.19	3
SW	0	0	2	2	0	0	5.83	4
WSW	0	0	2	1	0	0	5.55	3
W	0	0	2	0	0	0	4.64	3
WNW	0	0	0	0	0	0	0.00	0
NW	0	0	0	0	0	0	0.00	0
NNW	0	1	0	0	0	0	3.47	1
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.45	3.40	5.13	6.53	0.00	0.00	3.46	
TOT ENTRY	3	9	48	10	0	0		70

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.00	1.43	0.00	0.00	0.00	0.00	1.43
NNE	0.00	0.00	18.57	1.43	0.00	0.00	20.00
NE	4.29	1.43	12.86	1.43	0.00	0.00	20.00
ENE	0.00	0.00	4.29	2.86	0.00	0.00	7.14
E	0.00	1.43	4.29	1.43	0.00	0.00	7.14
ESE	0.00	1.43	2.86	1.43	0.00	0.00	5.71
SE	0.00	1.43	4.29	0.00	0.00	0.00	5.71
SSE	0.00	0.00	7.14	1.43	0.00	0.00	8.57
S	0.00	2.86	1.43	0.00	0.00	0.00	4.29
SSW	0.00	0.00	4.29	0.00	0.00	0.00	4.29
SW	0.00	0.00	2.86	2.86	0.00	0.00	5.71
WSW	0.00	0.00	2.86	1.43	0.00	0.00	4.29
W	0.00	1.43	2.86	0.00	0.00	0.00	4.29
WNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	1.43	0.00	0.00	0.00	0.00	1.43
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN K-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

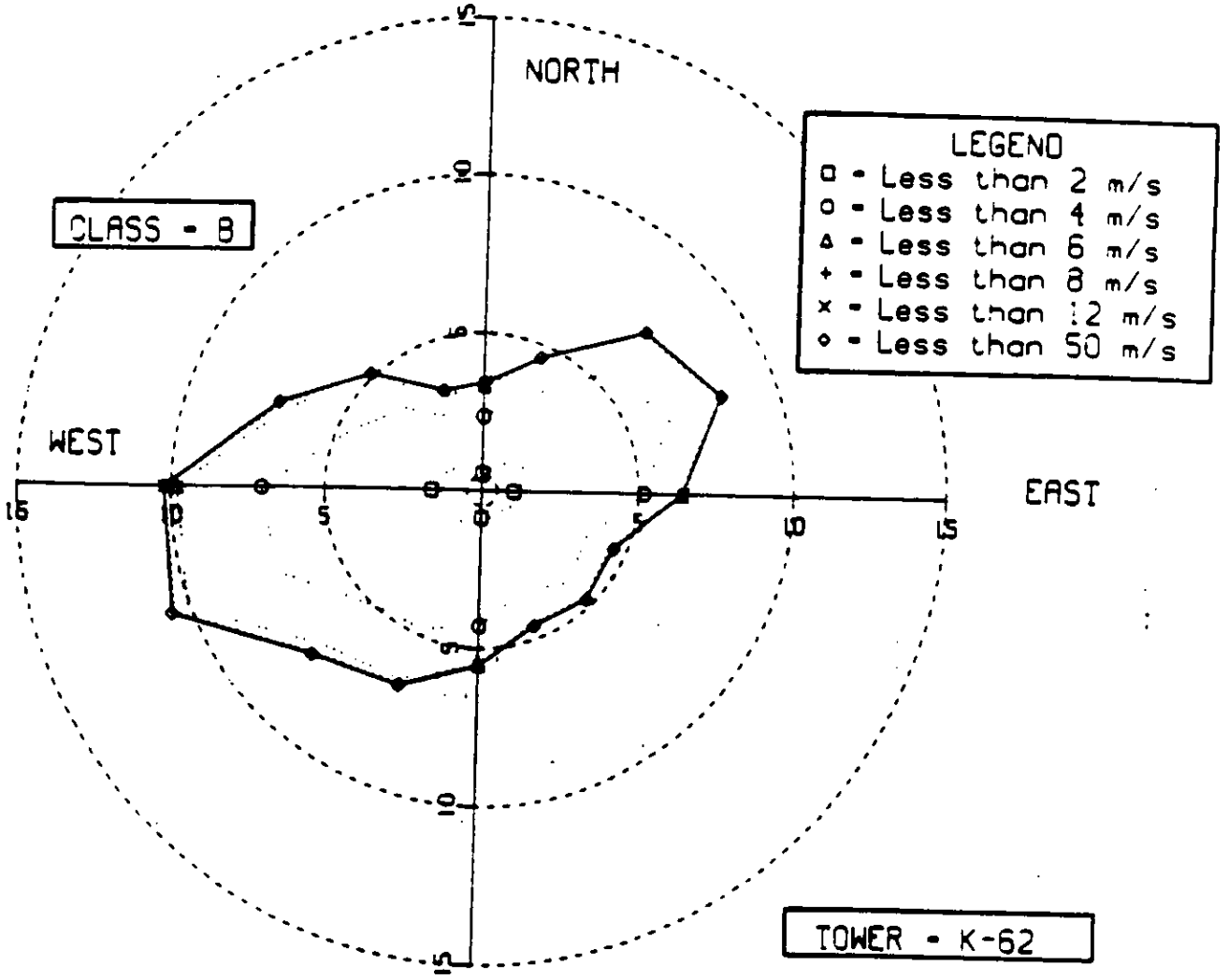
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35841

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6207

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND & SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	113	134	25	3	3	0	1.85	278	1.82	2.16	0.40	0.05	0.05	0.00	4.48
NNE	128	156	22	2	0	0	1.74	308	2.06	2.51	0.35	0.03	0.00	0.00	4.96
NE	145	212	28	4	0	0	1.98	387	2.34	3.42	0.42	0.06	0.00	0.00	6.23
ENE	158	281	31	2	0	0	1.88	453	2.56	4.20	0.50	0.03	0.00	0.00	7.30
E	140	230	28	2	0	0	1.91	382	2.26	3.71	0.32	0.03	0.00	0.00	6.32
ESE	143	183	30	3	0	0	1.84	359	2.30	2.95	0.48	0.05	0.00	0.00	5.78
SE	152	168	20	3	0	0	1.81	343	2.45	2.71	0.32	0.05	0.00	0.00	5.53
SSE	134	168	22	6	0	0	1.74	331	2.16	2.72	0.35	0.10	0.00	0.00	5.33
S	158	220	27	4	3	0	1.87	410	2.51	3.54	0.43	0.06	0.05	0.00	6.61
SSW	155	212	35	6	1	0	1.86	408	2.50	3.42	0.56	0.10	0.02	0.00	6.59
SW	181	281	33	4	0	1	1.85	500	2.92	4.53	0.53	0.06	0.00	0.02	8.06
WSW	188	301	39	8	2	1	1.97	539	3.03	4.85	0.82	0.13	0.03	0.02	8.69
W	178	273	40	2	0	1	1.87	492	2.84	4.40	0.64	0.03	0.00	0.00	7.93
WNW	148	188	44	6	1	0	2.01	388	2.38	3.16	0.71	0.10	0.00	0.00	6.35
NW	138	150	36	7	0	0	1.82	332	2.24	2.42	0.58	0.11	0.00	0.00	5.35
NNW	119	115	13	6	1	0	1.76	254	1.92	1.85	0.21	0.10	0.00	0.00	4.09
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.19	2.72	4.58	6.88	8.98	14.55	1.87								
TOT ENTRY	2374	3371	480	88	11	3		6207							

WINDROSE 82-86 60-MIN K-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35841

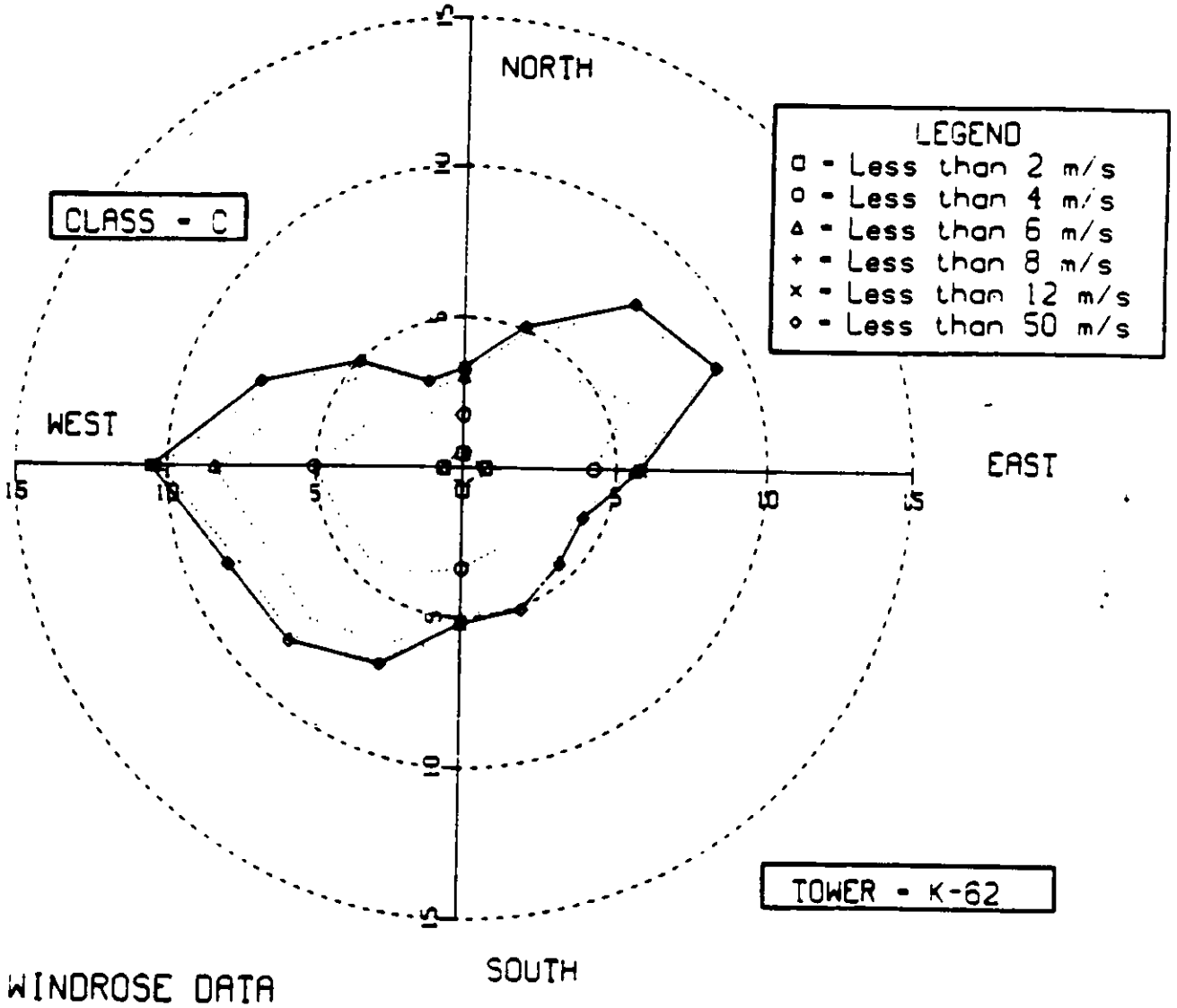
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 3355

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N						0	2.40	115
NNE						0	2.71	155
NE						0	2.54	243
ENE						0	2.52	375
E						0	2.53	215
ESE						0	2.34	153
SE						0	2.57	180
SSE						0	2.42	154
S						0	2.83	188
SSW						0	2.43	225
SW						0	2.70	261
WSW						1	2.73	388
W						0	2.73	343
WNW						0	2.78	238
NW						0	2.38	172
NNW						0	2.21	114
NO DIRECT						0	0.00	0
AVG SPEED	1.26	2.88	4.62	6.53	8.58	10.51	2.57	
TOT ENTRY	588	1837	822	88	9	1		3355

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.54	1.82	0.98	0.08	0.00	0.00	3.43
NNE	0.72	2.53	1.37	0.08	0.00	0.00	4.82
NE	1.40	3.82	1.82	0.08	0.00	0.00	7.24
ENE	1.52	4.85	1.67	0.08	0.00	0.00	8.20
E	1.01	4.17	1.16	0.08	0.00	0.00	6.41
ESE	1.10	2.50	0.86	0.08	0.00	0.00	4.56
SE	0.88	3.10	0.72	0.08	0.00	0.00	4.77
SSE	0.88	2.58	1.04	0.08	0.00	0.00	4.59
S	0.88	3.43	1.22	0.03	0.00	0.00	5.54
SSW	1.22	3.55	1.73	0.15	0.00	0.00	6.71
SW	1.16	3.88	1.81	0.38	0.00	0.00	7.48
WSW	1.55	5.65	3.10	0.48	0.00	0.00	10.87
W	1.61	5.38	2.80	0.42	0.00	0.00	10.22
WNW	1.31	3.31	2.03	0.30	0.00	0.00	7.03
NW	1.05	2.98	1.34	0.18	0.00	0.00	5.13
NNW	0.88	1.98	0.75	0.18	0.00	0.00	3.48
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN K-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

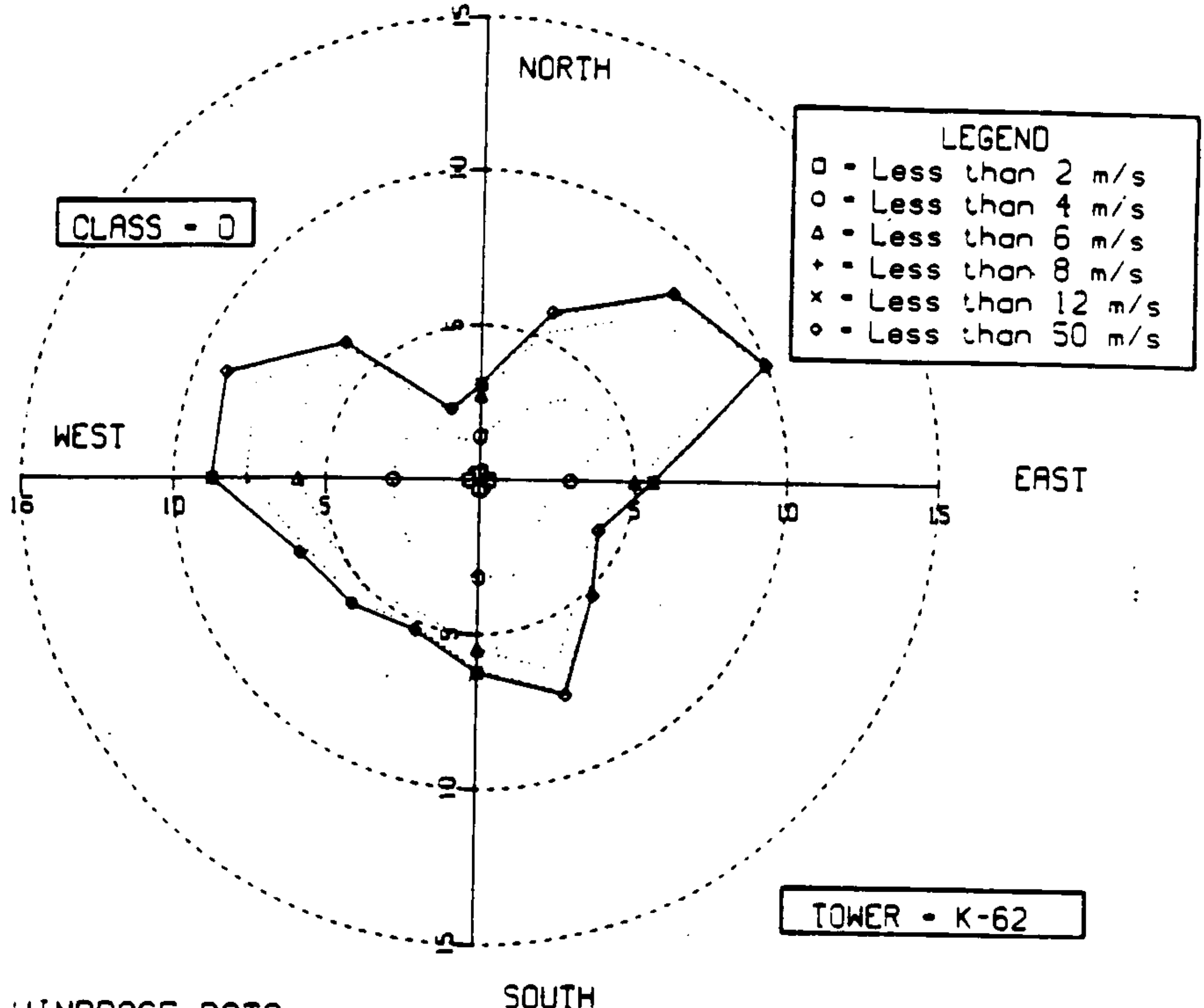
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35841

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5710

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	73	73	15	0	0	0	3.08	190	0.47	1.28	1.31	0.26	0.00	0.00	3.33
NNE	144	98	16	0	0	0	2.91	282	0.80	2.52	1.72	0.28	0.00	0.00	5.11
NE	216	167	22	0	0	0	3.05	447	0.74	3.78	2.92	0.39	0.00	0.00	7.83
ENE	273	188	11	1	0	0	2.85	510	1.03	4.78	2.91	0.19	0.02	0.00	8.93
E	200	78	11	0	0	0	2.75	331	0.77	3.50	1.33	0.19	0.00	0.00	5.80
ESE	128	87	9	0	0	0	2.56	242	0.70	2.21	1.17	0.16	0.00	0.00	4.24
SE	125	85	8	1	0	0	2.64	256	0.65	2.19	1.49	0.14	0.02	0.00	4.48
SSE	132	101	19	2	0	0	2.80	281	0.85	2.31	1.77	0.33	0.04	0.00	5.10
S	149	98	8	0	0	0	2.56	287	0.77	2.81	1.68	0.14	0.00	0.00	5.20
SSW	178	145	38	4	0	0	2.98	408	0.72	3.12	2.54	0.67	0.07	0.00	7.11
SW	216	183	48	12	0	0	3.18	470	0.58	3.78	2.85	0.81	0.21	0.00	8.23
WSW	195	158	80	21	0	0	2.98	480	1.02	3.42	2.73	1.05	0.37	0.00	8.58
W	283	182	104	17	0	0	3.05	602	0.83	4.95	3.36	1.02	0.30	0.00	10.54
WNW	183	138	58	25	0	0	3.38	428	0.72	2.85	2.42	1.02	0.44	0.00	7.44
NW	136	85	29	7	0	0	3.15	264	0.47	2.42	1.49	0.47	0.12	0.00	4.97
NNW	74	51	17	3	0	0	2.70	177	0.58	1.30	0.88	0.30	0.05	0.00	3.10
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.16	2.52	4.79	6.71	8.83	0.00	2.98								
TOT ENTRY	632	2855	1061	488	93	0		5710							

WINDROSE 82-86 60-MIN K-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35841

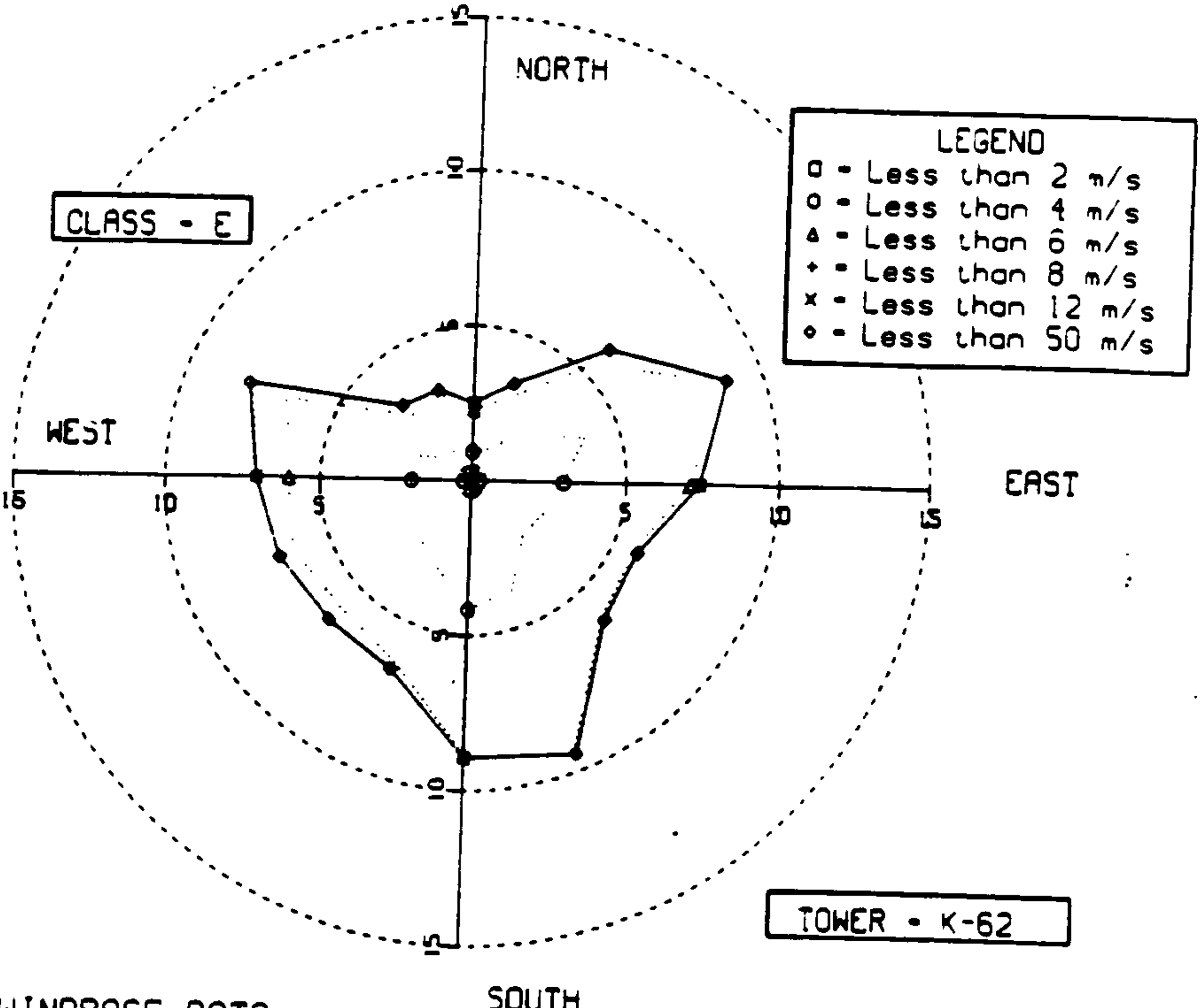
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 10250

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	20	123	137	34	4	0	3.27	318
NNE	28	203	298	66	10	1	3.67	605
NE	45	337	406	87	11	0	3.46	886
ENE	35	461	421	98	8	0	3.70	1023
E	33	286	211	58	3	0	3.34	572
ESE	38	194	163	28	3	0	3.00	426
SE	38	214	231	50	2	0	3.38	535
SSE	43	286	340	78	10	0	3.56	767
S	33	292	237	70	7	0	3.37	639
SSW	52	257	171	49	12	0	3.02	541
SW	52	264	205	48	18	0	3.07	587
WSW	41	254	240	81	27	0	3.53	643
W	38	249	318	172	118	1	3.84	896
WNW	45	245	343	186	100	3	4.04	922
NW	40	223	247	89	37	1	3.70	637
NNW	23	118	98	12	2	0	3.10	253
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.08	3.08	4.82	6.71	9.10	12.23	3.49	
TOT ENTRY	805	3896	4064	1207	372	6		10250

PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
0.20	1.20	1.34	0.33	0.04	0.00	3.10
0.28	1.98	2.89	0.64	0.10	0.01	5.90
0.44	3.29	3.96	0.85	0.11	0.00	8.64
0.34	4.50	4.11	0.96	0.08	0.00	9.98
0.32	2.80	2.06	0.58	0.03	0.00	5.58
0.37	1.89	1.59	0.27	0.03	0.00	4.16
0.37	2.09	2.25	0.49	0.02	0.00	5.22
0.42	2.80	3.32	0.76	0.10	0.00	7.48
0.32	2.85	2.31	0.68	0.07	0.00	6.23
0.51	2.51	1.67	0.48	0.12	0.00	5.28
0.51	2.58	2.00	0.47	0.18	0.00	5.73
0.40	2.48	2.34	0.79	0.26	0.00	6.27
0.37	2.43	3.10	1.68	1.15	0.01	8.74
0.44	2.39	3.35	1.81	0.98	0.03	9.00
0.38	2.18	2.41	0.87	0.36	0.01	6.21
0.22	1.15	0.96	0.12	0.02	0.00	2.47
0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN K-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35041

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 8225

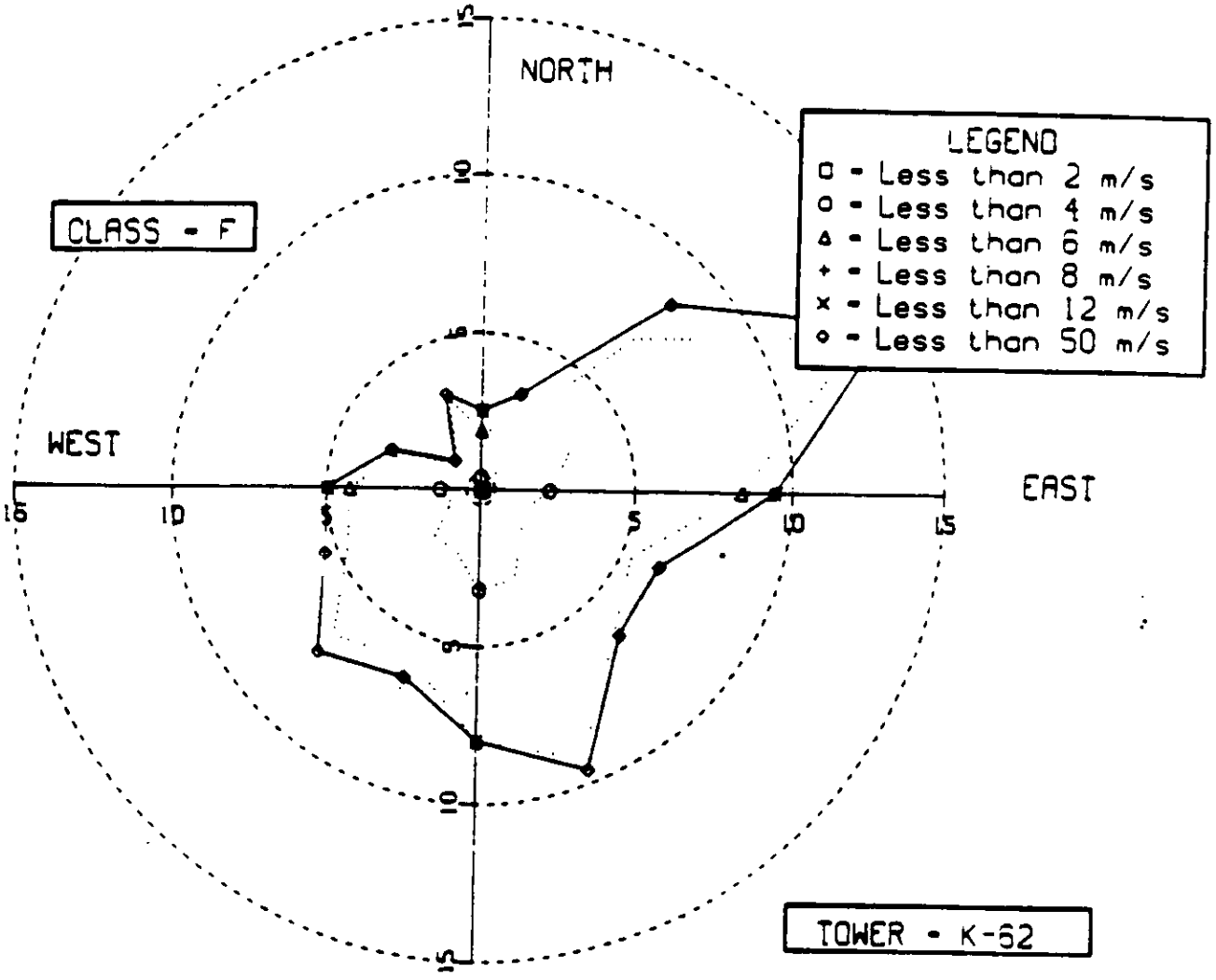
DIRECTION	0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	19	58	111	18	0	0	3.15	206
NNE	6	81	151	43	0	0	4.22	281
NE	13	154	282	51	1	0	3.85	501
ENE	24	297	384	20	0	0	3.80	725
E	19	224	337	26	0	0	3.58	606
ESE	29	182	259	11	0	0	3.28	481
SE	18	182	301	11	0	0	3.76	512
SSE	23	289	453	13	0	0	3.72	778
S	24	319	384	9	0	0	3.44	736
SSW	26	218	275	24	0	0	3.52	543
SW	16	188	280	47	0	0	3.88	531
WSW	12	156	348	38	0	0	3.88	554
W	19	147	329	87	1	0	3.88	582
WNW	18	147	383	103	4	0	4.15	655
NW	7	77	158	35	1	0	4.23	278
NNW	13	93	138	14	0	0	3.54	258
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.03	3.11	4.81	6.42	8.44	0.00	3.71	
TOT ENTRY	286	2812	4571	548	7	0		8225

PERCENT TIME WIND @ SPEED

0-2	2-4	4-6	6-8	8-12	>12	TOTAL
0.23	0.71	1.35	0.22	0.00	0.00	2.50
0.07	0.98	1.84	0.52	0.00	0.00	3.42
0.16	1.87	3.43	0.62	0.01	0.00	6.09
0.29	3.61	4.67	0.24	0.00	0.00	8.81
0.23	2.72	4.10	0.32	0.00	0.00	7.37
0.35	2.21	3.15	0.13	0.00	0.00	5.85
0.22	2.21	3.66	0.13	0.00	0.00	6.22
0.28	3.51	5.51	0.16	0.00	0.00	9.46
0.29	3.88	4.67	0.11	0.00	0.00	8.95
0.32	2.65	3.34	0.29	0.00	0.00	6.60
0.19	2.29	3.40	0.57	0.00	0.00	6.46
0.15	1.90	4.23	0.46	0.00	0.00	6.74
0.23	1.79	4.00	1.06	0.01	0.00	7.08
0.22	1.79	4.66	1.25	0.05	0.00	7.96
0.08	0.94	1.90	0.43	0.01	0.00	3.38
0.16	1.13	1.68	0.17	0.00	0.00	3.14
0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN K-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

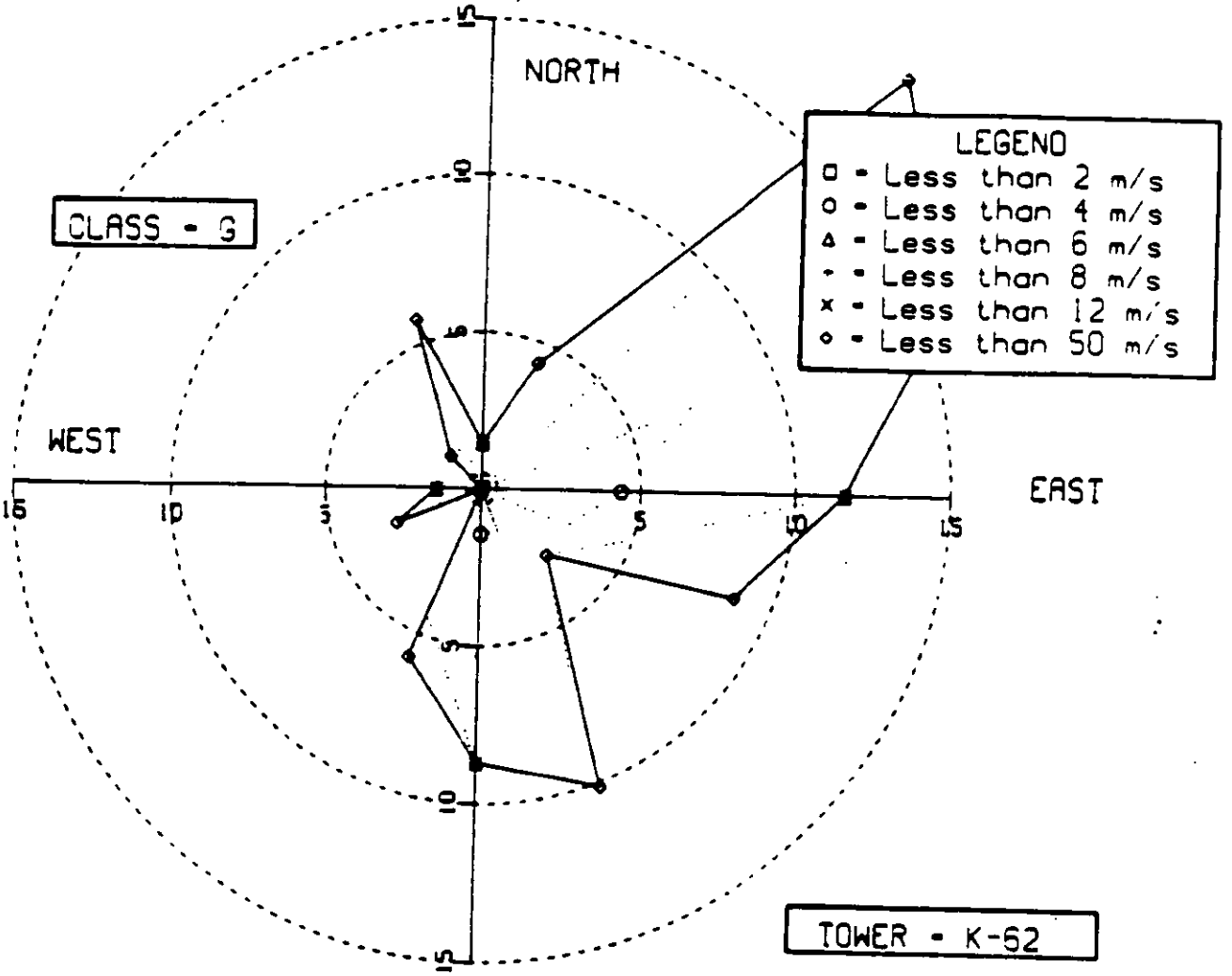
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35041

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 2025

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0	8	30	13	0	0	4.77	51	0.00	0.40	1.48	0.64	0.00	0.00	2.52
NNE	0	4	38	25	0	0	5.45	67	0.00	0.20	1.88	1.23	0.00	0.00	3.31
NE	2	24	113	32	0	0	4.38	171	0.10	1.19	5.58	1.58	0.00	0.00	8.44
ENE	1	62	201	20	0	0	4.34	284	0.05	3.06	9.93	0.98	0.00	0.00	14.02
E	2	44	123	22	0	0	4.14	191	0.10	2.17	6.07	1.08	0.00	0.00	9.43
ESE	1	31	78	18	0	0	4.45	128	0.05	1.53	3.75	0.89	0.00	0.00	6.22
SE	2	37	88	4	0	0	4.15	131	0.10	1.83	4.35	0.20	0.00	0.00	6.47
SSE	2	60	124	8	0	0	4.20	194	0.10	2.96	6.12	0.40	0.00	0.00	9.58
S	1	54	97	0	0	0	3.85	162	0.05	3.16	4.79	0.00	0.00	0.00	8.00
SSW	1	42	76	12	0	0	3.98	131	0.05	2.07	3.75	0.59	0.00	0.00	6.47
SW	3	41	90	15	0	0	4.18	149	0.15	2.02	4.44	0.74	0.00	0.00	7.36
WSW	0	22	71	17	0	0	4.67	110	0.00	1.08	3.51	0.84	0.00	0.00	5.43
W	0	20	58	15	0	0	4.48	101	0.00	1.38	2.86	0.74	0.00	0.00	4.98
WNW	0	14	45	6	0	0	4.44	65	0.00	0.69	2.22	0.30	0.00	0.00	3.21
NW	0	7	17	2	0	0	4.32	26	0.00	0.35	0.84	0.10	0.00	0.00	1.28
NNW	1	16	46	3	0	0	4.38	66	0.05	0.79	2.27	0.15	0.00	0.00	3.26
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	0.55	3.21	4.30	6.38	0.00	0.00	4.20								
TOT ENTRY	16	504	1283	212	0	0		2025							

WINDROSE 82-86 60-MIN K-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 35841

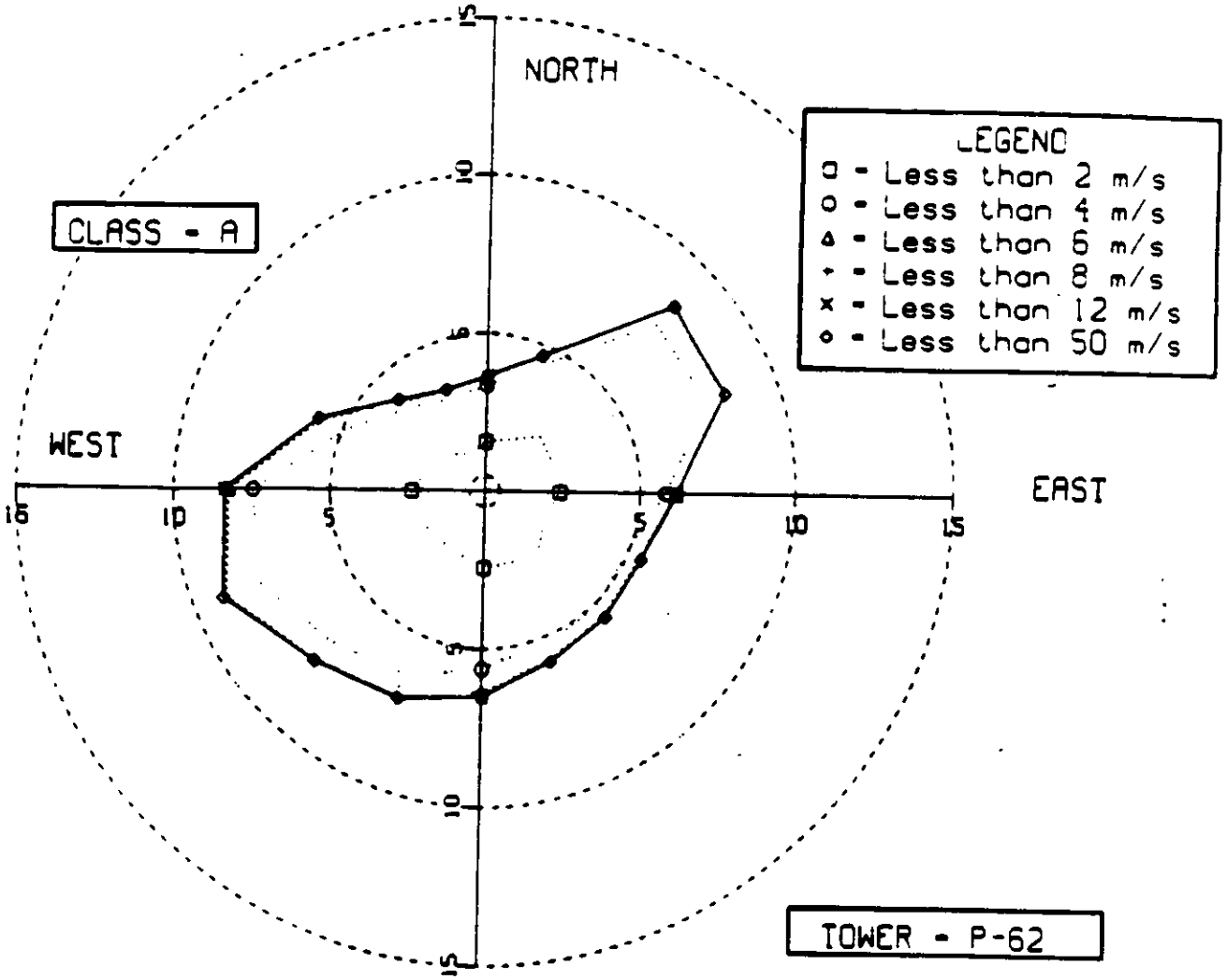
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 88

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	0	0	1	0	0	0	4.95	1
NNE	0	0	0	3	0	0	6.88	3
NE	0	0	10	3	0	0	5.14	13
ENE	0	5	6	0	0	0	3.71	11
E	0	3	5	0	0	0	4.46	8
ESE	0	2	1	3	0	0	6.44	6
SE	0	0	2	0	0	0	5.19	2
SSE	1	0	5	1	0	0	2.08	7
S	0	1	5	0	0	0	4.21	6
SSW	0	0	3	1	0	0	5.79	4
SW	0	0	0	0	0	0	0.00	0
WSW	0	0	1	1	0	0	5.88	2
W	0	0	1	0	0	0	5.17	1
WNW	0	0	0	0	0	0	0.00	0
NW	1	0	0	0	0	0	0.45	1
NNW	0	1	3	0	0	0	4.30	4
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.45	3.05	5.00	6.40	0.00	0.00	3.00	
TOT ENTRY	2	12	43	12	0	0		88

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.00	0.00	1.15	0.00	0.00	0.00	1.15
NNE	0.00	0.00	0.00	4.35	0.00	0.00	4.35
NE	0.00	0.00	14.49	4.35	0.00	0.00	18.84
ENE	0.00	7.25	8.70	0.00	0.00	0.00	15.94
E	0.00	4.35	7.25	0.00	0.00	0.00	11.59
ESE	0.00	2.90	1.45	4.35	0.00	0.00	8.70
SE	0.00	0.00	2.90	0.00	0.00	0.00	2.90
SSE	1.45	0.00	7.25	1.45	0.00	0.00	10.14
S	0.00	1.45	7.25	0.00	0.00	0.00	8.70
SSW	0.00	0.00	4.35	1.45	0.00	0.00	5.80
SW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WSW	0.00	0.00	1.45	1.45	0.00	0.00	2.90
W	0.00	0.00	1.45	0.00	0.00	0.00	1.45
WNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	1.45	0.00	0.00	0.00	0.00	0.00	1.45
NNW	0.00	1.45	4.35	0.00	0.00	0.00	5.80
	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN P-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31821

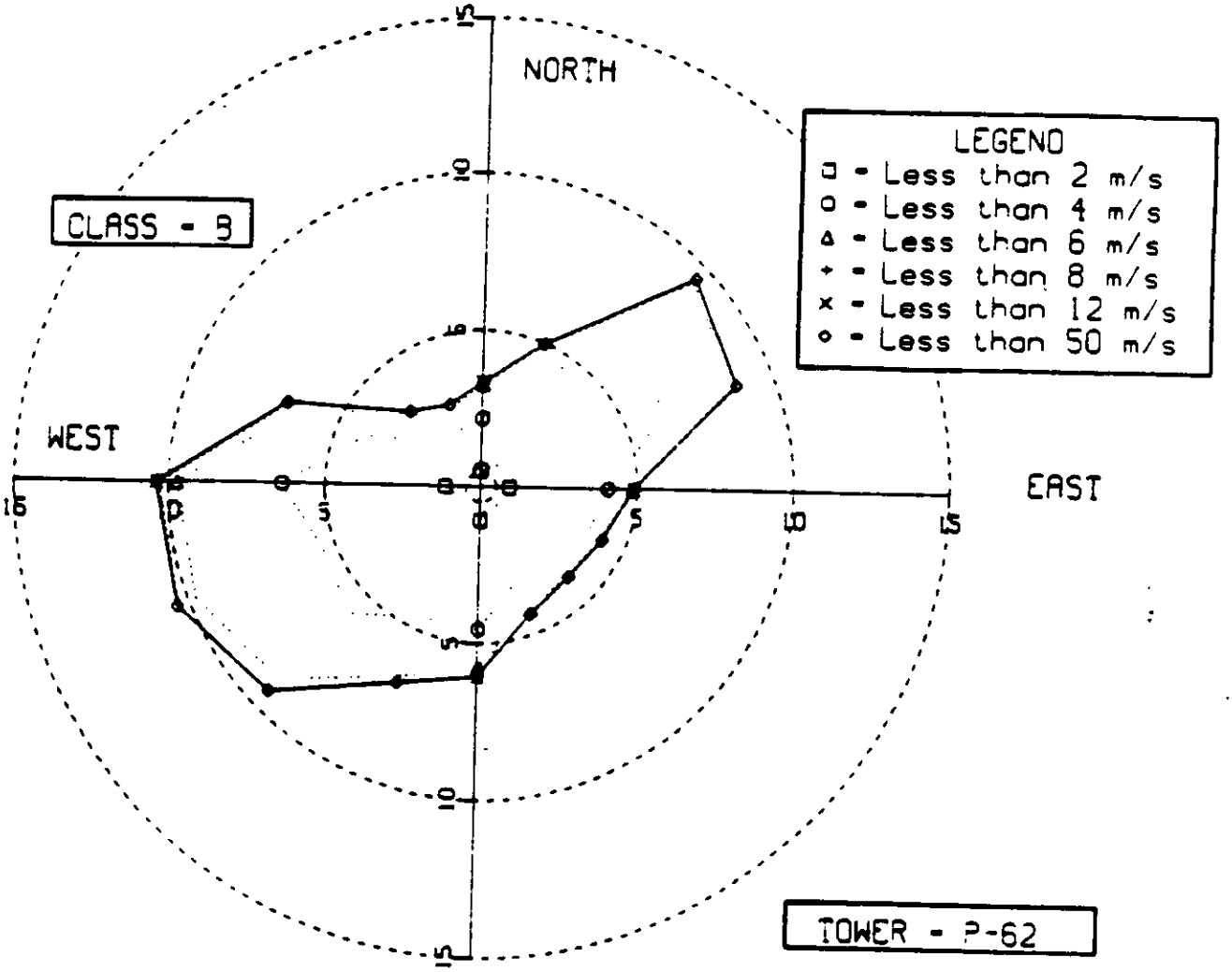
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5363

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	97	14	1	0	0	0	1.97	195
NNE	135	20	1	0	0	0	1.98	251
NE	274	32	1	0	0	0	2.16	450
ENE	284	32	1	1	0	0	2.17	444
E	181	18	1	0	0	0	1.87	330
ESE	151	25	4	0	0	0	2.03	283
SE	138	19	5	0	0	0	1.88	288
SSE	150	28	3	0	0	0	1.88	311
S	171	36	6	2	0	0	2.05	349
SSW	224	40	0	2	0	0	2.17	381
SW	252	42	2	0	0	0	2.15	411
WSW	294	41	4	2	0	0	2.31	484
W	272	41	5	3	1	0	2.15	450
WNW	198	45	6	0	0	0	2.10	314
NW	188	15	6	0	0	0	2.01	217
NNW	160	16	1	0	0	0	1.97	185
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.32	2.72	4.58	6.71	8.58	22.41	2.07	
TOT ENTRY	1819	2881	155	47	10	1		5363

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	1.55	1.81	0.26	0.02	0.00	0.00	3.64
NNE	1.77	2.52	0.37	0.02	0.00	0.00	4.68
NE	2.68	5.11	0.78	0.02	0.00	0.00	8.39
ENE	2.35	5.30	0.80	0.02	0.02	0.00	8.28
E	2.42	3.37	0.34	0.02	0.00	0.00	6.15
ESE	2.11	2.82	0.47	0.07	0.00	0.00	5.46
SE	2.54	2.58	0.34	0.08	0.00	0.00	5.56
SSE	2.42	2.80	0.52	0.08	0.00	0.00	5.80
S	2.44	3.19	0.73	0.11	0.04	0.00	6.51
SSW	2.14	4.18	0.75	0.00	0.04	0.00	7.10
SW	2.14	4.70	0.78	0.04	0.00	0.00	7.66
WSW	2.31	5.48	1.12	0.07	0.04	0.00	9.02
W	2.38	5.07	0.76	0.08	0.00	0.00	8.39
WNW	1.88	2.88	0.84	0.11	0.00	0.00	5.85
NW	1.82	2.83	0.28	0.11	0.00	0.00	4.05
NNW	1.27	1.88	0.30	0.02	0.00	0.00	3.45
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN P-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31621

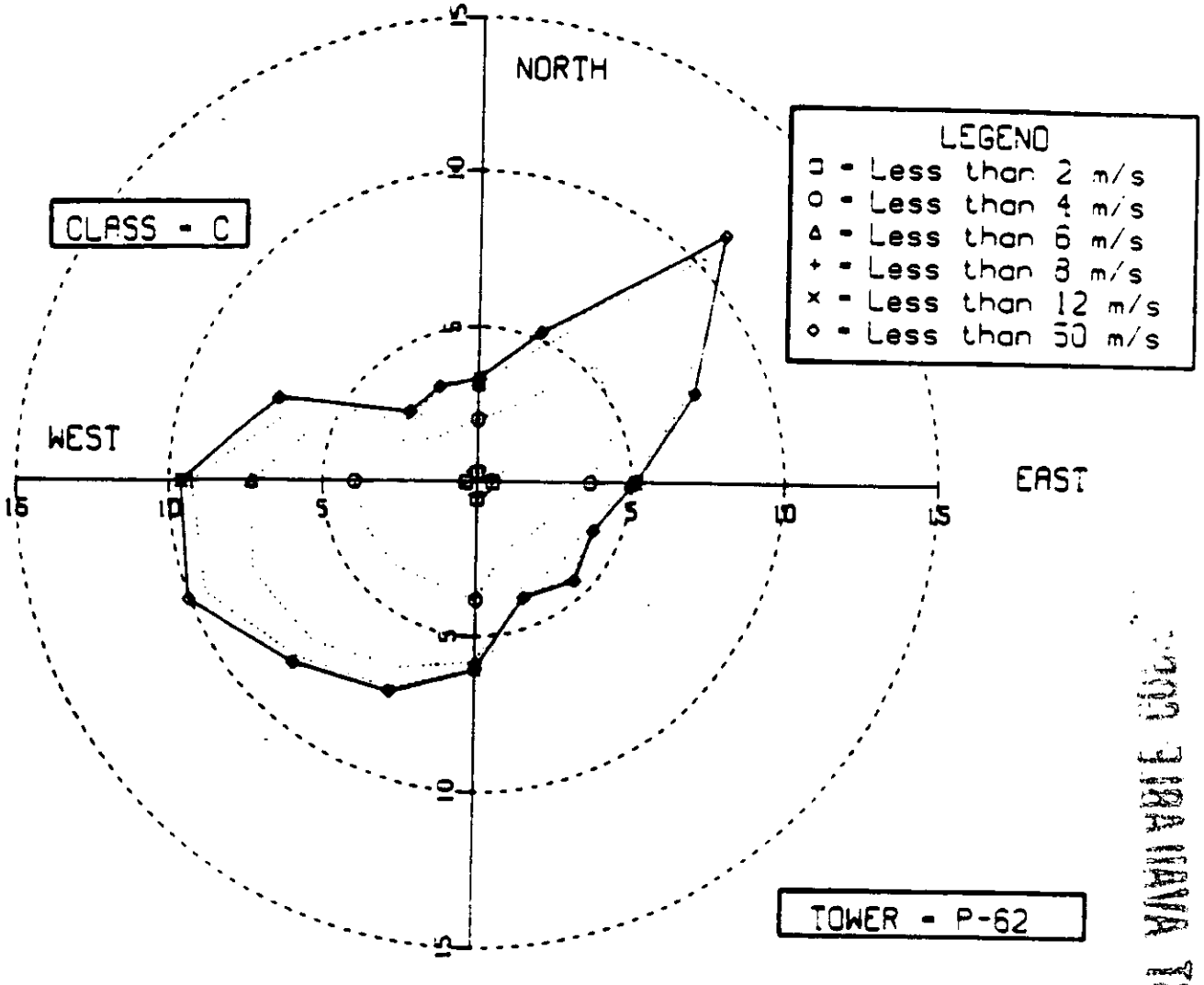
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 3073

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL
N	16	51	34	2	0	0	2.82	103
NNE	28	83	38	1	0	0	2.54	153
NE	42	175	74	4	0	0	2.85	295
ENE	28	150	74	3	1	0	2.83	258
E	28	87	34	6	1	0	2.96	156
ESE	28	87	16	1	0	0	2.46	130
SE	20	84	32	2	0	0	2.62	123
SSE	20	79	31	4	0	0	2.81	134
S	23	107	38	8	2	0	2.73	180
SSW	19	121	43	5	2	0	3.08	190
SW	25	154	53	16	0	0	3.08	248
WSW	24	143	133	19	1	0	3.37	320
W	28	158	104	18	2	1	3.16	311
WNW	28	104	88	14	2	0	3.12	236
NW	13	67	58	3	0	0	3.08	141
NNW	22	57	23	4	0	0	2.47	106
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.40	2.94	4.07	6.88	8.94	10.85	2.88	
TOT ENTRY	405	1668	888	104	9	1		3073

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.52	1.66	1.11	0.07	0.00	0.00	3.35
NNE	0.85	3.00	1.27	0.03	0.00	0.00	4.98
NE	1.17	5.00	2.54	0.13	0.00	0.00	9.63
ENE	1.37	4.00	2.41	0.10	0.00	0.00	8.79
E	0.91	3.16	0.78	0.00	0.00	0.00	4.88
ESE	0.85	2.83	0.52	0.03	0.00	0.00	4.23
SE	0.81	2.00	1.04	0.07	0.00	0.00	4.00
S	0.85	2.57	1.01	0.13	0.00	0.00	4.36
SSW	1.07	3.48	1.24	0.26	0.00	0.00	6.05
SW	0.82	3.94	2.02	0.16	0.07	0.00	6.80
WSW	0.81	5.01	3.03	0.52	0.00	0.00	9.37
W	0.78	4.85	4.33	0.62	0.00	0.00	10.41
WNW	1.17	5.17	3.38	0.58	0.07	0.00	10.41
NW	0.88	3.38	2.15	0.46	0.07	0.00	6.70
NNW	0.42	1.53	1.17	0.10	0.00	0.00	3.32
NO DIRECT	0.72	1.20	0.75	0.13	0.00	0.00	2.80
AVG SPEED	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN P-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31821

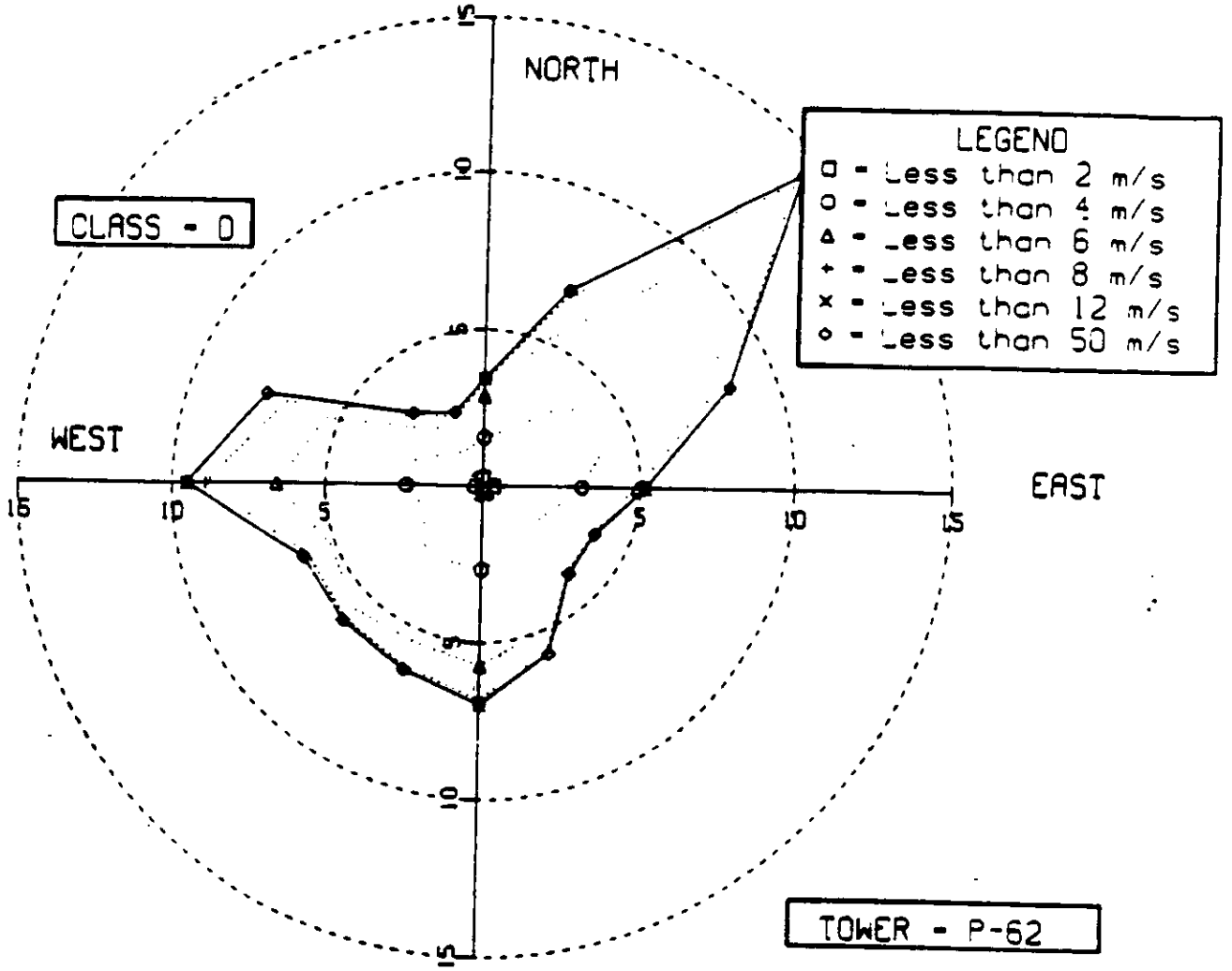
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 5177

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	15	88	60	8	1	0	3.15	173
NNE	14	118	105	32	2	0	3.57	271
NE	18	238	258	46	3	0	3.43	586
ENE	18	205	128	14	0	0	2.98	365
E	26	163	69	7	1	0	2.91	266
ESE	28	116	56	13	0	0	3.04	211
SE	27	98	72	30	5	0	3.33	232
SSE	22	101	70	13	3	0	2.97	209
S	29	169	103	12	1	0	3.03	314
SSW	24	180	152	37	7	0	3.38	380
SW	19	178	184	38	13	0	3.67	430
WSW	23	177	201	107	32	0	3.94	540
W	28	188	170	103	18	0	3.81	507
WNW	21	147	107	48	35	0	3.88	358
NW	21	80	46	9	9	0	3.08	165
NNW	25	71	63	13	1	0	3.08	173
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.35	2.57	4.00	6.78	8.76	0.00	3.36	
TOT ENTRY	388	2287	1842	508	132	0		5177

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.29	1.72	1.16	0.15	0.02	0.00	3.34
NNE	0.27	2.28	2.03	0.62	0.04	0.00	5.23
NE	0.73	4.62	5.00	0.88	0.08	0.00	11.30
ENE	0.93	3.96	2.43	0.27	0.00	0.00	7.59
E	0.50	3.15	1.31	0.14	0.02	0.00	5.12
ESE	0.50	2.24	1.08	0.25	0.00	0.00	4.08
SE	0.52	1.89	1.39	0.58	0.10	0.00	4.48
SSE	0.42	1.95	1.35	0.25	0.06	0.00	4.04
S	0.56	3.26	1.98	0.23	0.02	0.00	6.07
SSW	0.46	3.08	2.94	0.71	0.14	0.00	7.34
SW	0.37	3.44	3.55	0.70	0.25	0.00	8.31
WSW	0.44	3.42	3.88	1.88	0.62	0.00	10.04
W	0.38	3.58	3.28	1.98	0.35	0.00	9.80
WNW	0.41	2.84	2.07	0.83	0.70	0.00	6.83
NW	0.41	1.55	0.88	0.17	0.17	0.00	3.19
NNW	0.48	1.37	1.22	0.25	0.02	0.00	3.34
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN P-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31821

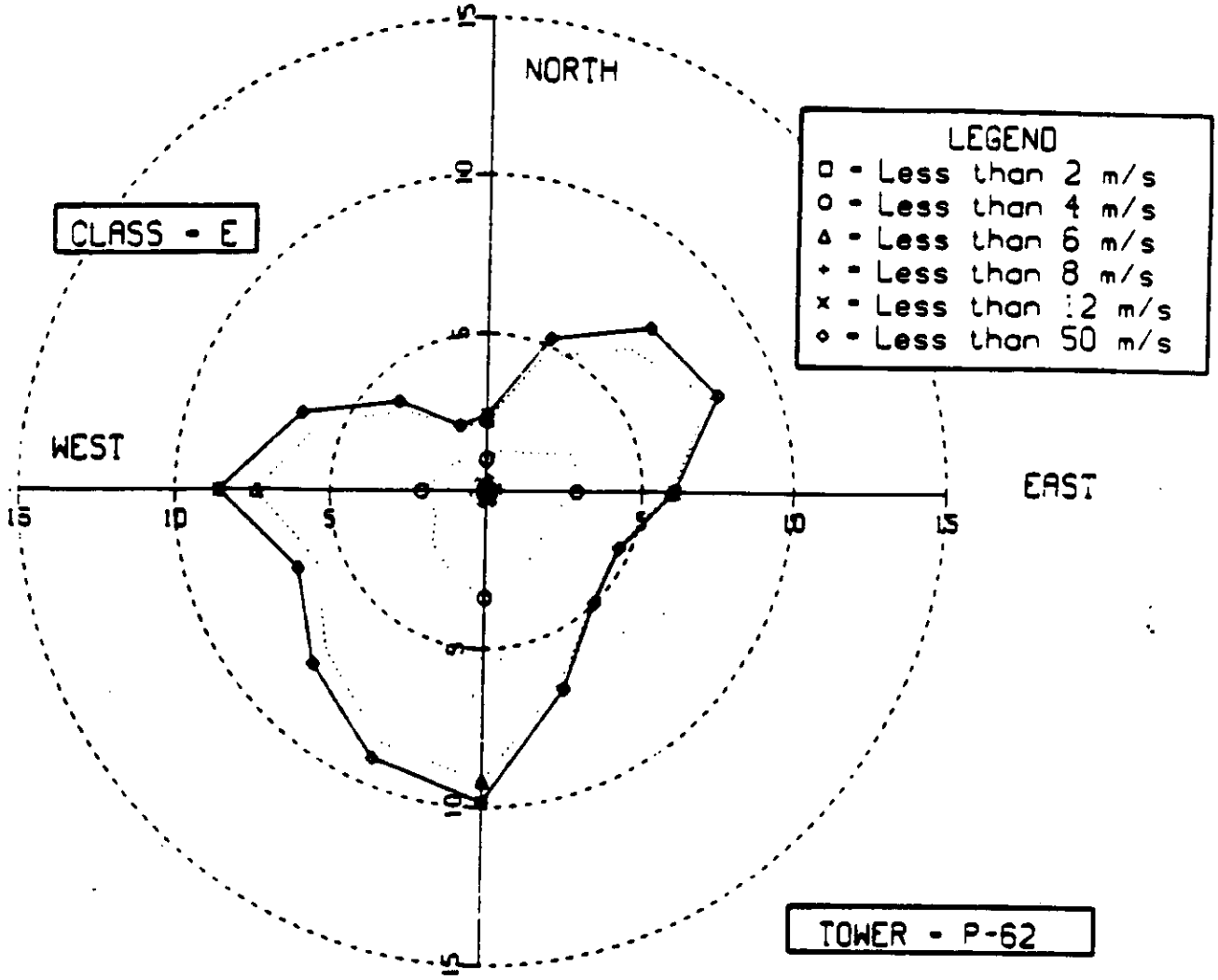
DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	26	117	122	45	7	1	3.58	317
NNE	13	167	287	138	28	0	4.26	634
NE	23	315	682	283	35	0	4.41	1338
ENE	38	381	328	56	0	0	3.53	779
E	33	253	163	26	0	0	3.32	475
ESE	19	188	120	21	6	0	3.42	354
SE	23	155	157	18	6	0	3.28	359
SSE	26	188	247	56	12	0	3.49	529
S	16	228	281	88	15	0	3.63	640
SSW	14	228	258	75	10	0	3.55	585
SW	12	233	271	49	8	0	3.47	584
WSW	14	171	287	72	17	0	4.11	561
W	22	204	375	218	58	0	4.53	875
WNW	13	208	287	122	63	0	4.13	688
NW	16	110	185	47	10	0	3.84	368
NNW	16	102	74	28	10	0	3.58	231
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	1.31	3.10	4.04	6.74	8.97	12.40	3.82	
TOT ENTRY	320	3217	4041	1304	288	1		9179

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 9179

PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
0.27	1.27	1.33	0.49	0.08	0.01	3.45
0.14	1.83	3.13	1.42	0.32	0.00	6.82
0.25	3.43	7.43	2.76	0.38	0.00	14.25
0.38	3.83	3.55	0.61	0.00	0.00	8.49
0.36	2.78	1.76	0.27	0.00	0.00	5.15
0.21	2.03	1.31	0.23	0.00	0.00	3.86
0.25	1.80	1.71	0.20	0.07	0.00	3.91
0.27	2.05	2.80	0.81	0.13	0.00	5.75
0.17	2.49	3.08	1.08	0.16	0.00	6.97
0.15	2.46	2.81	0.82	0.11	0.00	6.35
0.13	2.54	2.85	0.44	0.08	0.00	6.14
0.15	1.88	3.13	0.78	0.19	0.00	6.11
0.24	2.22	4.08	2.35	0.83	0.00	9.53
0.14	2.18	3.13	1.33	0.88	0.00	7.46
0.17	1.20	1.14	0.51	0.20	0.00	3.22
0.17	1.11	0.81	0.32	0.11	0.00	2.52
0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN P-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

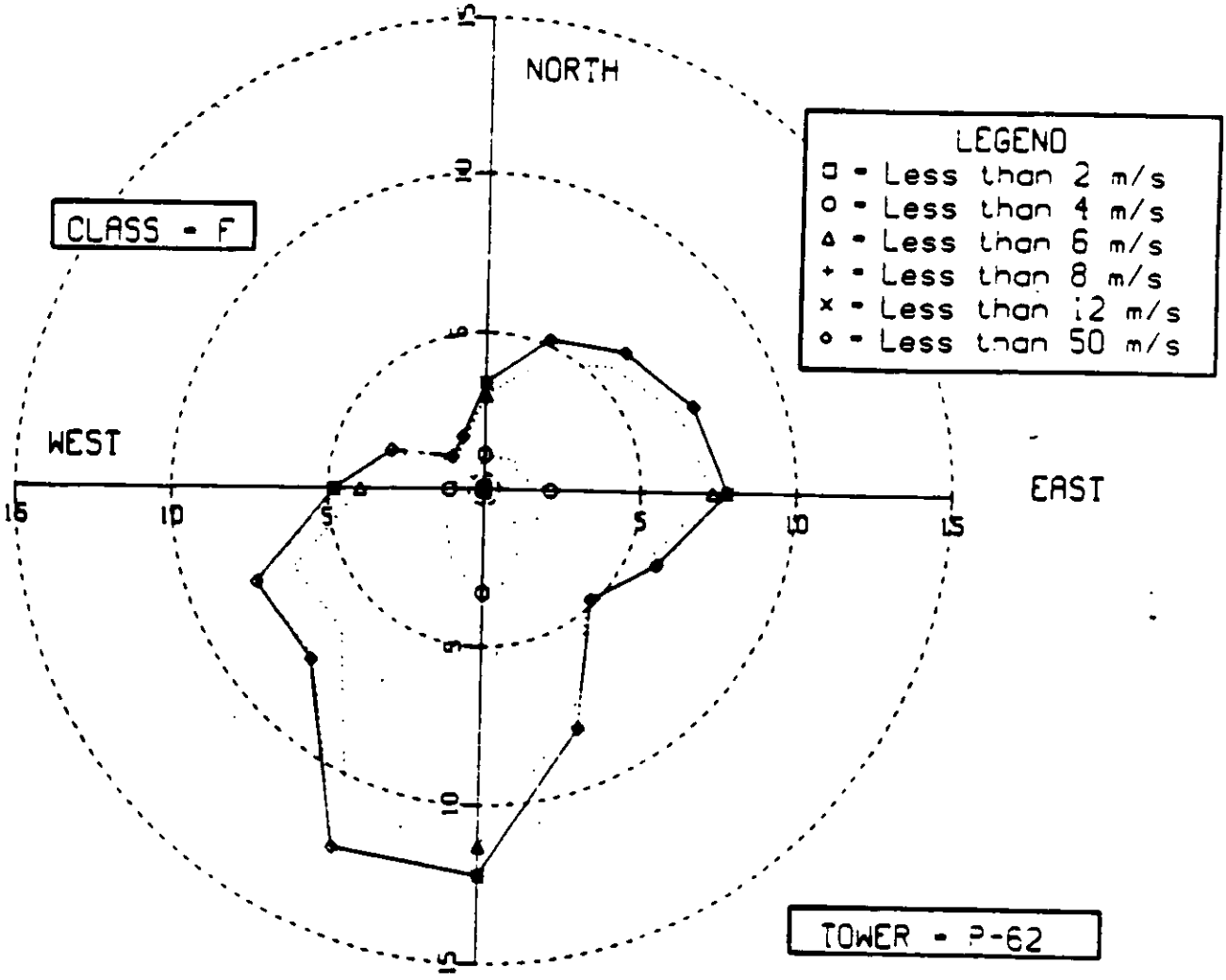
MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31621

MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 6999

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	9	61	88	11	0	0	3.38	169	0.13	0.87	1.26	0.16	0.00	0.00	2.41
NNE	8	94	221	43	1	0	4.05	367	0.08	1.34	3.20	0.61	0.01	0.00	5.26
NE	7	113	330	65	1	0	4.41	515	0.10	1.61	4.71	0.93	0.00	0.00	7.36
ENE	6	208	330	17	0	0	3.97	562	0.08	2.98	4.71	0.24	0.00	0.00	8.03
E	9	194	213	8	0	0	3.78	424	0.13	2.77	3.04	0.11	0.00	0.00	6.06
ESE	8	145	171	3	0	0	3.80	325	0.08	2.07	2.44	0.04	0.00	0.00	4.64
SE	8	183	177	2	0	0	3.68	348	0.11	2.31	2.53	0.03	0.00	0.00	4.99
SSE	9	194	253	17	0	0	3.82	473	0.13	2.77	3.61	0.24	0.00	0.00	6.76
S	11	228	408	46	1	0	4.08	880	0.16	3.23	5.80	0.66	0.01	0.00	9.86
SSW	5	191	405	40	0	0	4.16	641	0.07	2.73	5.79	0.57	0.00	0.00	9.16
SW	4	161	335	43	0	0	4.24	543	0.06	2.30	4.79	0.61	0.00	0.00	7.76
WSW	8	111	280	45	0	0	4.28	454	0.11	1.58	4.14	0.64	0.00	0.00	6.49
W	5	140	372	60	0	0	4.50	601	0.07	2.00	5.32	1.20	0.00	0.00	8.59
WNW	6	88	288	48	0	0	4.38	430	0.08	1.37	4.27	0.78	0.00	0.00	6.43
NW	13	80	155	30	1	0	3.88	279	0.19	1.14	2.21	0.43	0.01	0.00	3.98
NNW	6	56	88	6	0	0	3.60	156	0.08	0.80	1.26	0.08	0.00	0.00	2.23
NO DIRECT	0	0	0	0	0	0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG SPEED	1.30	3.20	4.03	6.41	8.27	0.00	4.08								
TOT ENTRY	118	2233	4136	508	3	0		6999							

WINDROSE 82-86 60-MIN P-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE MMDDYY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31621

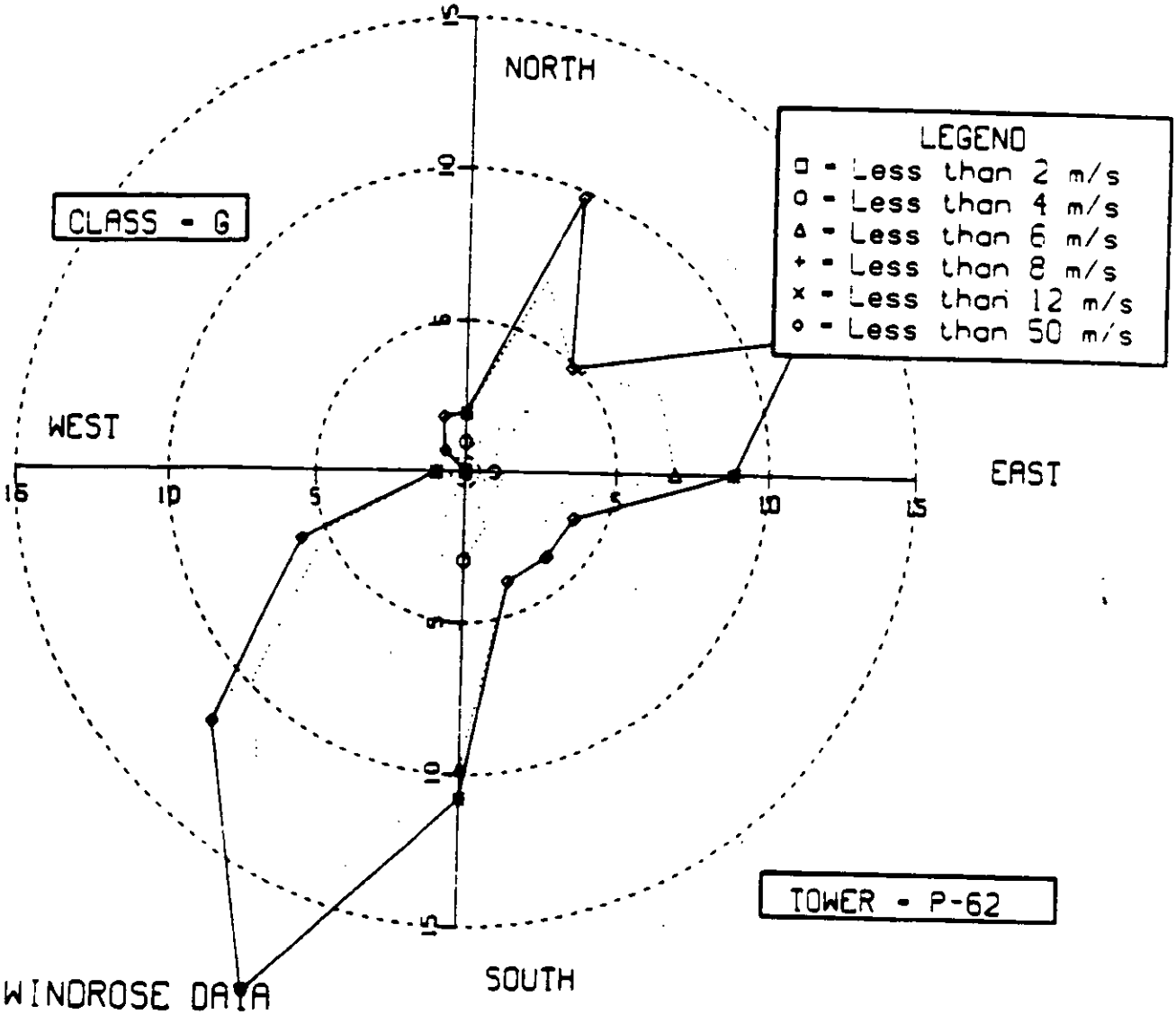
MAXIMUM DATE MMDDYY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 1728

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	1	18	33	7	0	0	4.01	59
NNE	3	16	56	15	0	0	3.88	90
NE	1	22	74	11	0	0	4.23	108
ENE	0	28	85	9	0	0	4.03	124
E	0	34	85	8	0	0	4.12	134
ESE	2	36	60	6	0	0	3.97	104
SE	2	22	58	2	0	0	4.13	84
SSE	2	48	83	6	0	0	4.08	140
S	1	56	138	16	0	0	4.35	211
SSW	1	43	148	20	0	0	4.51	212
SW	0	28	81	23	1	0	4.73	133
WSW	2	28	81	22	0	0	4.61	135
W	1	18	48	15	0	0	4.58	83
WNW	1	13	35	6	0	0	4.17	55
NW	1	9	12	3	0	0	3.38	25
NNW	2	9	18	2	0	0	3.78	31
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.82	3.28	4.55	6.41	8.13	0.00	4.28	
TOT ENTRY	28	415	1121	171	1	0		1728

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.06	1.04	1.91	0.41	0.00	0.00	3.41
NNE	0.17	0.93	3.24	0.87	0.00	0.00	5.21
NE	0.06	1.27	4.28	0.64	0.00	0.00	6.25
ENE	0.00	1.16	5.50	0.52	0.00	0.00	7.18
E	0.00	2.08	5.21	0.46	0.00	0.00	7.75
ESE	0.12	2.08	3.47	0.35	0.00	0.00	6.02
SE	0.12	1.27	3.36	0.12	0.00	0.00	4.86
SSE	0.12	2.84	4.80	0.35	0.00	0.00	8.10
S	0.06	3.24	7.98	0.93	0.00	0.00	12.21
SSW	0.06	2.48	8.56	1.16	0.00	0.00	12.27
SW	0.00	1.62	4.68	1.33	0.00	0.00	7.70
WSW	0.12	1.16	5.27	1.27	0.00	0.00	7.81
W	0.06	1.04	2.84	0.87	0.00	0.00	4.80
WNW	0.06	0.75	2.03	0.35	0.00	0.00	3.18
NW	0.06	0.52	0.98	0.17	0.00	0.00	1.45
NNW	0.12	0.52	1.04	0.12	0.00	0.00	1.79
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WINDROSE 82-86 60-MIN P-AREA (OA)

PLOT AND TABLE INDICATE DIRECTION FROM WHICH THE WIND BLOWS



WINDROSE DATA

MINIMUM DATE PPDDTY 10182
MINIMUM TIME ZULU 0000
ENTRIES ALL CLASSES 31621

DIRECTION	SPEED IN METERS/SEC 0-2	2-4	4-6	6-8	8-12	>12	AVERAGE SPEED	TOTAL TOT
N	0	1	1	0	0	0	4.35	2
NNE	0	1	8	3	0	0	5.21	10
NE	0	3	2	0	0	0	3.81	5
ENE	0	1	6	5	0	0	5.11	12
E	0	1	6	2	0	0	5.03	9
ESE	0	2	1	1	0	0	4.41	4
SE	0	0	4	0	0	0	5.48	4
SSE	0	2	2	0	0	0	4.12	4
S	0	3	7	1	0	0	4.54	11
SSW	0	3	14	2	0	0	4.82	19
SW	0	0	10	2	0	0	5.03	12
WSW	0	0	5	1	0	0	5.34	6
W	0	0	1	0	0	0	5.03	1
WNW	0	0	0	0	0	0	0.00	0
NW	0	0	1	0	0	0	4.98	1
NNW	0	0	2	0	0	0	5.32	2
NO DIRECT	0	0	0	0	0	0	0.00	0
AVG SPEED	0.00	3.52	5.08	6.41	0.00	0.00	4.84	
TOT ENTRY	0	17	80	17	0	0		102

MAXIMUM DATE PPDDTY 123186
MAXIMUM TIME ZULU 2400
ENTRIES THIS CLASS 102

DIRECTION	PERCENT TIME WIND @ SPEED 0-2	2-4	4-6	6-8	8-12	>12	TOTAL
N	0.00	0.98	0.98	0.00	0.00	0.00	1.96
NNE	0.00	0.98	5.88	2.94	0.00	0.00	9.80
NE	0.00	2.94	1.96	0.00	0.00	0.00	4.90
ENE	0.00	0.98	5.88	4.90	0.00	0.00	11.76
E	0.00	0.98	5.88	1.96	0.00	0.00	8.82
ESE	0.00	1.96	0.98	0.98	0.00	0.00	3.92
SE	0.00	0.00	3.92	0.00	0.00	0.00	3.92
SSE	0.00	1.96	1.96	0.00	0.00	0.00	3.92
S	0.00	2.94	6.86	0.98	0.00	0.00	10.78
SSW	0.00	2.94	13.73	1.96	0.00	0.00	18.63
SW	0.00	0.00	9.80	1.96	0.00	0.00	11.76
WSW	0.00	0.00	4.90	0.98	0.00	0.00	5.88
W	0.00	0.00	0.98	0.00	0.00	0.00	0.98
WNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	0.00	0.00	0.98	0.00	0.00	0.00	0.98
NNW	0.00	0.00	1.96	0.00	0.00	0.00	1.96
NO DIRECT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DISTRIBUTION

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12 J. D. Fast, 773-A
13-30 SRL Records, 773-A