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**AUSTRALIAN NUCLEAR SCIENCE  
AND TECHNOLOGY ORGANISATION**

**LUCAS HEIGHTS SCIENCE AND TECHNOLOGY  
CENTRE**

**AN UPDATED ANALYSIS OF THE LUCAS HEIGHTS  
CLIMATOLOGY - 1991 TO 2003.**

by

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**Prepared within ANSTO Environment**

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**ABSTRACT**

Meteorological data collected from 1991 to 2003 in the Lucas Heights region have been summarised to provide an update on the climatology. This report represents analysis of data collected at the Lucas Heights Science and Technology Centre since 1991 when an advanced digital recording system was installed. The small network of meteorological stations installed in the surrounding region since 1993 has allowed an investigation of the influence of complex terrain on wind flow and atmospheric dispersion patterns. For a period between 1999 and 2001 a Bureau of Meteorology disdrometer was installed at Lucas Heights to investigate raindrop size distributions. A large number of statistical summaries for all meteorological data are presented in this volume as a resource for reference purposes.

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## **1. INTRODUCTION**

This report is an update from that of Clark (1997) and represents a statistical summary of meteorological data analysed since 1991. Because of many regular requests for climatological data from other ANSTO personnel and the general public, it is time to present the 5 to 6 year update. This report is mainly a data volume. Analyses of the wind and temperature statistics will be discussed briefly in the context of the influences of the local complex terrain and in particular the Woronora Valley. There will also be a discussion of the climatology of more general meteorological measurements such as temperature, atmospheric pressure, relative humidity and rainfall together with a summary of atmospheric stability statistics which are related to atmospheric dispersion conditions.

## **2. METEOROLOGICAL INSTRUMENTATION AND CALIBRATION HISTORY**

### **2.1 Introduction**

In order to collect high quality of meteorological data suitable for environmental impact studies, it is important to establish methodologies which are consistent with International Best Practice (IBP) and Australian Standards [AS 2923 (1987)]. The ANSTO Environment Division has a Quality System certified to the ISO9001 standard. As part of that system the meteorological data are collected and analysed according to written Quality Procedures and Instructions (Clark 2003).

The digital data acquisition system (DAS), developed and installed at ANSTO in April 1991 has operated satisfactorily for collection of data from the Lucas Heights meteorological tower, within the Lucas Heights Science and Technology Centre (LHSTC). Except for the wind direction, the channel sampling frequency has been programmed to be 10 seconds with an averaging period of 15 minutes; both sampling and averaging periods are selectable from computer software. Because of the 0,360° cross-over, averaging of wind direction over longer time periods may cause calculations to be near 180° rather than near north when winds are from that sector. Therefore the wind direction is currently sampled every 1 second and checked to see if there has been any movement across north. Wind direction statistics will be presented comparing the old sampling regime of once per 10 seconds to once per second.

### **2.2 Lucas Heights Meteorological Tower**

In Table 1 there is a listing of the statistical calculations of the meteorological parameters recorded each averaging period (e.g. 15 minutes). The number of transducers connected to this system has expanded over the years and is reflected in the addition of relative humidity, atmospheric pressure and an extra rain gauge which have been added since the report of Clark (1997). Several new statistical analyses have also been added in response to outside requests. These include maximum wind speeds at 10m and 49m on the tower.



### **2.3 Lucas Heights Network of Meteorological Stations**

The network of additional meteorological sampling stations off-site to the LHSTC has been reduced by one due to vandalism which occurred to the tower at the Lucas Heights Community School; data collection finished there in September, 1998. Data are still being collected beyond the valley ridge line in Engadine at the Boys Town School and at Shackles Estate, 10m above the Woronora river level in a steep sided section of the valley. A full set of available statistics is shown in Table 2; not all are recorded at both stations. The data are recorded routinely on Palm top computers and every 15 minutes are telemetred via radio back to the meteorological laboratory (Building 44) at the LHSTC. By inter-comparing data in real-time across the region, any problems with meteorological sensors can be quickly identified and repaired. All data are input to the ANSTO emergency operations centre where atmospheric impact models are available for immediate assessment if there should ever be an accident (Clark et al 2000).

### **2.4 Data Quality Assurance and Instrument Calibration**

In order to collect high quality meteorological data which are essential for environmental impact assessments, it is necessary to establish a program of regular inspection of the data and calibration procedures. Transducer calibration methods were discussed in Clark (1997) and have been formalised in ANSTO Environment Quality Instruction (Clark 2003b).

#### **2.4.1 Data quality**

It is the aim of all meteorological data collection programs to collect the best quality data, 100% of the time. However, because the equipment used has electro-mechanical parts which are subject to wind, temperature and other environmental stresses, it is inevitable that these goals are not achieved. Good data quality is assured by a program of regular instrument calibration procedures and also regular inspection and cross-correlation of data between stations and temporal and spatial correlations at a particular station. These inter-comparisons are undertaken routinely each day using the real-time data and when data are periodically downloaded and analysed on the central ANSTO "Photon" computer. From the data plots and the other statistical comparisons, bad data can be identified and edited from the database files.

In Table 3 there is a summary of the "data quality" for all statistics recorded from the Lucas Heights meteorological tower. In general, "good" data has been collected better than 95% of the time. It should be noted that with the pressure transducers, because atmospheric pressure only varies slowly, missing data are virtually eliminated by linear interpolation with time between adjoining good data points. The "data quality" statistics from the network of off-site meteorological stations are also shown in Table 4. Similar performance statistics are recorded for these remote stations. This is possible due to redundancy in data recording through the real-time radio telemetry central data storage which is accessible even if there is a subsequent failure and loss of data in the remote station computer.

## 2.5 Instrument Calibration

There is inevitable drift in the performance of mechanical transducers such as wind speed sensors due to the continual environmental exposure to dust, wind and rain. Unless there is a catastrophic failure of the sensor, after the annual calibrations in October/November each year, bearings are replaced and the instrument re-calibrated. The effect of environmental exposure is mainly seen in the low wind speed response of the sensors (see Figure 1 for an example). The threshold for these systems is between 0.3 and 0.4 ms<sup>-1</sup>. This is where there is greatest variation between calibrations due to increased friction in wearing bearings. Above 3 ms<sup>-1</sup> the variation is less than ± 10%.

In terms of changes in the calibrations of temperature sensors, this is less systematic due to sensor degradation but most likely reflects the accuracy of the water bath calibration technique itself. In Figure 2 there is an example of drift in the calibrations of various sensors at the 2m level on the LHSTC meteorological tower. Between the annual calibrations this drift is generally less than ± 10% at low temperatures and less than ± 3% above 10°C. For the purposes of the climatological statistical analyses discussed below, data are corrected by linear interpolation techniques between calibrations.

## 3. WIND SPEED AND DIRECTION STATISTICS

### 3.1 Introduction

Given the large number of statistics available in Tables 3 and 4, it is not possible to summarise and present them all in tabular or graphical form in this report. Instead, there is a discussion of representative statistics in the following sections. These emphasize cross comparisons between the analogue and digital data and the influence of the complex terrain on both the vertical profiles of winds and the horizontal wind fields through the region surrounding the LHSTC. If any reader would like access to other statistics not reported and discussed here, then the author is happy to make these available in separate form.

### 3.2 Lucas Heights Wind Rose Analyses

The digital data acquisition system has now operated successfully at the LHSTC for the last 12.5 years. In 1998 it was realised that a small error could have been introduced into the calculation of the wind directions due to the sampling frequency being once per 10 seconds. This frequency was changed back to once per 1 second at all stations but comparative statistics were kept on the wind direction and standard deviation of wind direction ( $\sigma_{\theta}$ ) between the 1 and 10 second data only at the network stations. As explained in Section 2.2 above the 10 second data might show some bias away from north to other wind directions. At Boys Town (Table 5) where the wind directions are not strongly influenced by the local terrain, there is a decrease of less than 2% in the frequency of winds in each of the sectors from NW to NE. This difference was uniformly shared over all other wind directions with no bias towards the south sectors. By contrast there was a slightly more noticeable influence at the Shackles Estate site (Table 6) where winds are strongly influenced by the valley orientation. Here it is most evident in winds from the easterly sector where there is a

6.3% decrease in the occurrence of ENE winds from the 10 second data to the “correct”, one second data. The effect is to shift the distribution back towards the north in the one second data.

With steadier winds at Boys Town the effect on  $\sigma_\theta$  data was more pronounced with fewer cases of large values ( $> 40^\circ$ ) recorded in the 1 second compared to the 10 second data (Table 5). There was not such a clear trend at Shackles Estate where the winds are highly fluctuating. The influence on atmospheric stability categories defined using the USNRC (1987)  $\sigma_\theta$  method is seen in Table 7. At Boys Town there is a shift from the more extreme unstable and stable categories (A and F) to the near neutral categories (C, D and E). It is more confused in the Woronora valley where there is a much higher occurrence of both stable and unstable categories.

To summarise, there was only a small effect on the distribution of wind directions at the site with steadier winds and therefore there is not expected to be any significant effect on the LHSTC wind distributions reported by Clark (1997). In terms of the effect on atmospheric stability categories used in atmospheric dispersion modelling, there is a small shift to more neutral categories which already account for more than 50% of all cases. Again little influence is expected on the atmospheric dispersion estimates. Quarterly statistics based on the one second data have been used in the dose code, PC-Cream, since 1998 (see Clark and Pascoe 2003).

The plots of seasonal and annual average data from the 10m level on the tower (Figures 3 to 7) are compared to those at 49m (Figures 8 to 12):

1. At night in summer there is a stronger presence of south winds at 10m (25%) than at 49m (15%) (Figures 3 and 8). During the late morning and afternoon under good atmospheric mixing conditions, sea breezes from the ENE predominate at both altitudes on the tower.
2. In autumn there is a more uniform distribution of winds through the S to WSW sector at 49m compared to 10m where the S again pre-dominates at 25% (Figures 4 and 9). There is still a sea breeze presence from the ENE in the daytime wind roses with in excess of 35% winds from the SE to S sector.
3. Winds from the S to W sectors dominate at night during winter (Figures 5 and 10). By day there is a swing more to the WSW to NW sectors. There is greater than a 15% presence from the S at 10m in the early evening.
4. The strong ENE sea breeze influence returns in afternoon wind roses during spring (Figures 6 and 11). At night at 49m there is a more uniform distribution of winds from the S though to NW sectors with south again predominating at 10m.
5. When all seasons are combined into an annual statistical analysis (Figures 7 and 12), plots of the night wind roses indicate a more uniform distribution in the 49m winds from the S to W sector compared to 10m where there is a maximum from the S. The ENE sea breeze dominates the day wind roses with a secondary maximum from SSE to S sectors.

Tabulated wind rose data are also shown in Appendix A as Tables A1 to A46.

### 3.3 Lucas Heights Meteorological Station Network - Results and Discussion

Statistics from 5 years of data collection at the Lucas Heights Community School [LHCS] (Barden Ridge) are presented for completeness and compared to longer

datasets from Boys Town (BT) across the valley in Engadine and Shackles Estate in the Woronora valley. Shackles Estate will be discussed separately due to its unique climatology within the Woronora Valley.

1. In summer the wind roses from 0000 to 0600 EST have a similar distribution at both the LHCS (Figure 13) and BT (Figure 17) with S and SSW winds predominant. While the ENE sea breeze wind direction is observed in the afternoon at the LHCS, BT and LHSTC (Figures 3 & 8), there is also a stronger E presence at the LHCS site. Generally winds from the ENE through to SSE prevail over the region during summer afternoons.
2. During autumn the nocturnal wind roses indicate the prevailing sector is from the S to SW (Figures 14 & 18) on the valley ridges whereas there is a stronger influence of S winds at the LHSTC (Figures 4 & 9). During the day there is a reasonably uniform distribution of winds from the NE to S sectors at both valley ridge stations.
3. Winds from the SSW to WSW are typical nocturnal winds during winter nights at the ridge stations (Figures 15 & 19). There is a swing to the W to NW sectors during the morning and WSW to NW sectors during the afternoon.
4. The spring wind roses indicate SSW to WSW winds at night (Figures 16 & 20), a more uniform distribution between SSW and NW between 0600 and 0900 EST and a transition to indications of an ENE sea breeze in the afternoon but with winds also observed in the E to S sectors.

At Shackles Estate winds are dominated by local terrain features and in particular the orientation of axis of the Woronora valley. Winds are much lighter than on the plateau above. The following are features of the seasonal variations:

1. In summer (Figure 21), autumn (Figure 22) and spring (Figure 24) the nocturnal winds are due to drainage of cold air into the valley from the SW to W directions. In winter (Figure 23) the night winds turn more to the WSW to S sectors and are very light; near calm conditions are often observed.
2. There is more of a seasonal influence during the day at this site. Summer, autumn and spring wind roses indicate a strong ENE to NE sea breeze influence. At the same time there is still a SSW to SW presence which is more predominant in autumn (Figure 22).
3. The winter daytime wind roses indicate little sea breeze influence with S to SW winds accounting for 50-60% of observations.

#### **4. ANALYSIS OF TEMPERATURES**

Temperatures are measured on the LHSTC tower at five levels; 2m, 10m, 18m, 30m and 49m. At the network stations the temperatures are measured at different levels above the ground even though they are on top of a 10m mast (see Table 4). This will influence the extreme statistics discussed below as daytime maxima decrease with altitude and nighttime minima increase with altitude above the ground. Statistics are available for two time periods, the 15 minute averaging period and the high and low temperatures taken from the 10 second sampling data during each 15 minute sample.

These high and low values are virtually the instantaneous values and provide data for extreme statistical analyses. Tables of representative data are now discussed.

The 15 minute average temperature summaries from the LHSTC tower are shown for 2m (Table 8), 10m (Table 9) and 49m (Table 10). Based on the 10 second data, the extreme maximum temperature recorded at 2m is 44.7°C on January 30, 2003 during one of the hottest and driest summers on record. At the other extreme, the lowest minimum temperature recorded at 2m was 0.6°C. This temperature would most likely have been associated with a freezing, or sub-freezing, temperature at ground level. The coldest month is July and the warmest months are January and February.

Generally the summer maximum temperatures at the LHCS (Table 11) and BT (Table 12) are similar to those at the LHSTC, if it is noted that these temperatures are taken at 15.7 and 18.5m respectively. The extreme summer maxima are lower possibly due to the earlier arrival of the sea breeze at these stations which are closer to the coast than the LHSTC. This effect does not seem to have influenced the Shackles Estate valley station (Table 13) where the extreme values are similar to those at 2m on the LHSTC tower. By contrast the winter minimum temperatures in the valley are on average 3°C lower at night, but by day they are approximately 1.5°C higher. In mid- to late- afternoon this situation quickly reverses as the shadow of the valley terrain moves much earlier over the valley site in comparison with the sites on the ridges.

## 5. ATMOSPHERIC STABILITY CATEGORIES

### 5.1 Introduction

The USEPA (1987) scheme for determination of Pasquill atmospheric stability categories has been adopted at ANSTO. This uses information on  $\sigma_\theta$ , the prevailing wind speed and time of day to determine Pasquill categories from the least stable (A = most dispersive) to the most stable (F = least dispersive) atmospheric conditions. The standard height for application of this scheme is 10m and standard roughness length is 15 cm. Corrections in the ranges of  $\sigma_\theta$  values can be applied to account for surface roughness (at LHSTC taken as 1m) and any height above the ground different to 10m. In the following the USEPA (1987) method is compared to the Mitchell and Timbre (1979) [M&T]scheme previously applied at ANSTO.

In Table 14 the USEPA (1987) scheme is compared using data at both the 10m and 49m levels on the LHSTC tower. Nearer the ground there is a greater spread of stability categories from A through F with less of the neutral stability category D. Even though distributions of  $\sigma_\theta$  categories indicate smoother flow (smaller values) at 49m (Table 15) compared to near ground level, the higher wind speeds seem to compensate. The result is that there are 60% of neutral category D stabilities observed at this level. In Table 16, the M&T scheme applied to the 10m data indicates a shift in the distribution to more unstable categories (A – C). This trend is not so obvious in the 49m data (Table 17) where more M&T stabilities are observed in the near neutral categories C to E.

Summary statistics on the atmospheric stabilities, wind speeds and directions are presented for Lucas Heights as tables in Appendix B.

## 6. RAINFALL and EVAPORATION STATISTICS

Rain can cause a cleansing of pollutants from the atmosphere by a mechanism of wash-out or wet deposition. During the last reporting period, the Bureau of Meteorology (BoM) located an instrument (a disdrometer) for measuring the spectra of raindrop sizes at the LHSTC. This instrument was used by the BoM to calibrate rainfall radar in the Sydney region. Raindrop spectral data are also useful in terms of parametrisations of washout. Washout is also related to the rate of rainfall which determines the rate of wet deposition. Three rainfall rate tipping bucket rain gauges are recorded each 15 minutes on the ANSTO digital data acquisition system. In addition, for climatological purposes, the 24 hour integrated rainfall data are recorded at Lucas Heights. Rainfall recordings are taken at 0900 LST (Local Standard Time) each morning as part of the Bureau of Meteorology observation network. Also for the purposes of maintaining continuity in a climatological record, the 24 hour potential evaporation (i.e. evaporation from a free water surface) is recorded using a Class A evaporation pan. All these data will be discussed below.

### 6.1 24 hour Measurement Statistics

Measurements of 24 hour rainfall commenced in 1958 when the meteorology group contributed as a full observation station to the Bureau of Meteorology network. Table 18 is an update of Table 22 previously published in Clark (1997). In general, the potential evaporation exceeds rainfall by 300mm per year at the LHSTC. The annual average rainfall is 980mm.

### 6.2 Rainfall Rate Statistics

Each of the tipping bucket rain gauges has slightly different sensitivity to the amount of rain required to cause one tip of the bucket. Over the years sensitivities have varied between gauges from one tip per 0.2mm to one tip per 0.254mm. If data are recorded each 15 minutes then this means only minimum rain rates from 0.8 to 1 mm h<sup>-1</sup> can be recorded. Such sensitivity variations influence some of the frequency analyses which are to be discussed below.

There is a clear relationship between the occurrence of rain and wind direction (Figure 25); Rimco Short refers to the time period 040701 to 300603 when the Environdata gauge was operated. Comparison of the Climatronics and Rimco gauges indicates rain occurs predominantly with winds from the SSW to SE wind direction sectors. Although there are small differences it is mostly independent of whether the winds are measured at 10m or 49m on the LHSTC tower. Good mixing and uniform wind distribution in the lower atmosphere are usually observed under such rainy conditions. The small spread of curves for each altitude indicates good agreement between the different gauges. There is not such a clear trend in the average rates of rainfall versus wind direction (Figure 26). Slightly higher rainfall rates occur with SE winds (3 to 3.4 mm h<sup>-1</sup>) and there is another peak with WSW to W winds (2.5 to 3 mm h<sup>-1</sup>) but these winds have a much lower frequency of occurrence. Over the shorter period of time when the Environdata gauge was working (Figure 27), the rainfall rates also did not show a clear trend with wind direction. However, there was a peak (3.1 to 3.9 mm h<sup>-1</sup>) in the average rainfall rates from the ESE wind direction and again in the WSW-W sectors (3.1 to 3.5 mm h<sup>-1</sup>).

### 6.3 Raindrop size spectral analyses and pollution wash-out

One interest of the nuclear industry is wash-out of radionuclides and in particular tritiated water vapour (HTO) which is released from irradiation of coolant water and water vapour in reactor buildings. Chamberlain and Eggleton (1964) have shown that large drops pass through a cloud too rapidly to absorb too much HTO while small drops can desorb all the HTO between the cloud and ground. Therefore there they found a narrow drop size range where there is optimum retention of absorbed HTO in the raindrop and a maximum specific activity as a result i.e. diameters between approximately 3 and 10mm. Abrol (1990) and Hales (1972) have also investigated the theoretical relationships between raindrop size distributions and wash-out of HTO as a function of plume height and downwind distance from the stack.

The RD-69 disdrometer is similar to that described by Hoy (1972) and more recently by Maki et al (2001). In the RD-69, raindrop spectra have 20 size diameter interval ranges between 0.3 and 5mm. Maki et al (2001) discuss several research approaches to classification of raindrop spectra. The first is to relate them to rain rate (Suavageot and Lacaux 1995; Cerro et al 1997). Another approach attempted with less success is to classify spectra in terms of cloud types e.g. stratiform and convective (Yuter and Houze 1997).

In the current analyses, one minute drop size spectra have been integrated over 15 minutes. Spectra due to acoustic and other “noise” have been eliminated based on the criteria of there being less than 100 counts in a one minute spectrum and rain rate being less than  $0.5 \text{ mm h}^{-1}$ . Using the method of analysis described by Hoy (1972), the 15 minute raindrop size spectra are presented in several different ways. The first analysis is simply a plot of the number of drops as a function of size and rainfall rate category (Figure 28). This plot indicates the maximum number of drops in the peak occurs for rainfall rates  $> 20 \text{ mm h}^{-1}$ . All the disdrometer spectra show a secondary peak at drop diameter size equal to 0.65mm. The increase in the number of drops for diameters less than 0.55mm is thought to be due to noise in the instrument resulting from wind turbulence and splashing drops, etc (Hoy 1972). The second plot has the spectra normalised to same total number of drops in each rainfall rate category (Figure 29). This shows peaks at 0.65 and 0.9mm diameters in all spectra with several other peaks in the heavier rainfall spectra (i.e. rate  $> 10 \text{ mm h}^{-1}$ ). A common representation in many of the standard references on rain drop spectra is seen in the final plot of the spectra i.e. the number of drops per unit volume per unit size interval versus drop size and rainfall rate (Figure 30). This emphasizes the noise in the spectra below 0.6mm and also the increasing slope of the curves with lighter rainfall. Also plotted are two curves using the exponential relationships from Cerro et al (1997) with rainfall rates of 2 and  $10 \text{ mm h}^{-1}$ . There is very good agreement respectively between these curves and the Lucas Heights 2-4 and  $10\text{-}20 \text{ mm h}^{-1}$  observed data. The raindrop spectral data are available for use by other people interested in more general pollutant wash-out mechanisms.

As a final rainfall analysis, the disdrometer data indicate 68% of all cases occur with a rainfall rate in the range  $0\text{-}1 \text{ mm h}^{-1}$  (Figure 31). Integration of the disdrometer data over 24 hours and comparison with the BoM rain gauge close by shows very good agreement (Figures 32). Inter-comparison of the BoM rain gauge and the ANSTO Rimco and Climatronics gauges also shows good agreement (Figure 33-34).

## 7. RELATIVE HUMIDITY STATISTICS

A measure of atmospheric moisture is an indication of the potential for visible plume generation from cooling towers. Anecdotal evidence from Lucas Heights suggests that on cool nights and mornings the cooling towers associated with the HIFAR reactor can generate visible plumes especially when there are environmental conditions which lead to fog. Relative humidity is one measure of the atmospheric moisture content.

The diurnal variations of relative humidity are tabulated (Table 19) and plotted (Figure 35) as monthly statistics. The uncertainty or standard deviations on the plotted averages are shown for two of the curves (October and February). Nevertheless, there is a clear diurnal cycle for all months with maximum relative humidities observed between 0300 and 0600 EST and minima in mid-afternoon. September and October are months with the lowest daytime humidities while January through to April have the highest daytime values. Interruption in the smooth sinusoidal decline of humidities in the early afternoon curve for December could correspond to arrive of the moister sea breeze.

## 8. ATMOSPHERIC PRESSURE STATISTICS

In the context of nuclear reactor safety analyses, atmospheric pressure can be one important parameter for determination of the building venting rate in the case of an accident. At ANSTO there are two pressure transducers in operation. The older Climatronics transducer is temperature dependent but the new Setra device is more stable with temperature. A comparison of the in-situ calibration data shows a good linear relationship between both transducers (Figure 36).

The Climatronics (Figure 37, Table 20) and Setra (Figure 38, Table 21) diurnal pressure variations are plotted as a function of month of the year. Uncertainty bars are plotted on the Setra April and December average curves. The curves indicate overall the highest pressures are observed during April and May and the lowest pressures during October and December. On a diurnal cycle there are two maxima and minima observed. Maximum pressures are observed between 0600 and 0900 EST and 2100 and 2400 EST. There is a shallow minimum between 0300 and 0600 EST and a deeper minimum in the late afternoon between 1500 and 1800 EST. Diurnal variations of maximum and minimum pressures primarily follow the diurnal heating cycle, but there are other factors (such as a function of latitude, continental versus oceanic areas, etc) which cause different frequencies to appear in the diurnal pressure wave (Berry et al 1945, Brunt 1952).

## 9. NET ALL-WAVE SOLAR RADIATION STATISTICS

Solar radiation data have been used to define atmospheric dispersion categories in some schemes (Smith 1972, Clark 1997). In the current report the 15-minute net all-wave solar radiation data have been averaged over all years of observations and plotted in Figures 39 and 40. The uncertainties plotted with the January and July data are the standard deviations associated with the average data; occurrence of clouds would be the major influence on size of the standard deviation values.

Maximum values ( $\sim 400 \text{ Wm}^{-2}$ ) of net all-wave radiation occur between 1200 and 1215 EST during the summer months of December, January and February. There is a subtle shift in the position of this maximum to between 1100 and 1130 EST during the



months of May and June. At night, the maximum outgoing all-wave radiation increases from  $17 \text{ Wm}^{-2}$  in the summer months to  $36 \text{ Wm}^{-2}$  in August. These conditions would correspond to the highest atmospheric stabilities and worst case near ground level pollutant dispersion conditions.

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Since the network was installed in 1993, we are indebted to Mr Sid and Mrs Faye Kanard who have maintained surveillance of the Shackles Estate station and to the staff at Boys Town School, for allowing us access to, and looking after the meteorological station.

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Parameter Index	DAS Signal Identifier	Statistic type Identifier	Statistic	Height (m)
1	U1	M	Scalar average	2
2	U1	D	Scalar standard deviation	2
3	U2	M	Scalar average	10
4	U2	D	Scalar standard deviation	10
5	U3	M	Scalar average	18
6	U3	D	Scalar standard deviation	18
7	U4	M	Scalar average	30
8	U4	D	Scalar standard deviation	30
9	U5	M	Scalar average	49
10	U5	D	Scalar standard deviation	49
11	D1	M	Scalar average	2
12	D1	D	Scalar standard deviation	
13	U1	VM	Vector average	
14	D1	VM	Vector average	
15	U1	VD	Vector standard deviation	
16	D1	VD	Vector standard deviation	
17	D2	M	Scalar average	10
18	D2	D	Scalar standard deviation	
19	U2	VM	Vector average	
20	D2	VM	Vector average	
21	U2	VD	Vector standard deviation	
22	D2	VD	Vector standard deviation	
23	D3	M	Scalar average	18
24	D3	D	Scalar standard deviation	
25	U3	VM	Vector average	
26	D3	VM	Vector average	
27	U3	VD	Vector standard deviation	
28	D3	VD	Vector standard deviation	
29	D4	M	Scalar average	30
30	D4	D	Scalar standard deviation	
31	U4	VM	Vector average	
32	D4	VM	Vector average	
33	U4	VD	Vector standard deviation	
34	D4	VD	Vector standard deviation	
35	D5	M	Scalar average	49
36	D5	D	Scalar standard deviation	
37	U5	VM	Vector average	
38	D5	VM	Vector average	
39	U5	VD	Vector standard deviation	
40	D5	VD	Vector standard deviation	

U = Wind speed  
D = Wind direction  
T = Temperature

TABLE 1 - Lucas Heights Tower - Data Acquisition System Parameter Statistics

Parameter Index	DAS Signal Identifier	Statistic type Identifier	Statistic	Height (m)
41	T1	M	Average	2
42	T1	H	Maximum (High)	
43	T1	L	Minimum (Low)	
44	T2	M	Average	10
45	T2	H	Maximum (High)	
46	T2	L	Minimum (Low)	
47	T3	M	Average	18
48	T3	H	Maximum (High)	
49	T3	L	Minimum (Low)	
50	T4	M	Average	30
51	T4	H	Maximum (High)	
52	T4	L	Minimum (Low)	
53	T5	M	Average	49
54	T5	H	Maximum (High)	
55	T5	L	Minimum (Low)	
56	B1	A	Accumulation	2
57	B2	A	Accumulation	10
58	B3	A	Accumulation	18
59	B4	A	Accumulation	30
60	B5	A	Accumulation	49
61	G1	A	Accumulation	2
62	G2	A	Accumulation	10
63	G3	A	Accumulation	18
64	G4	A	Accumulation	30
65	G5	A	Accumulation	49
66	NR	A	Accumulation	
67	NR	M	Average	
68	NR	D	Standard Deviation	
69				
70				
71				
72				
73				
74				
75				
76				
77				
78				
79				
80				

T = Temperature  
B = Alpha/Beta Detector counts  
G = Gamma Detector counts  
NR = Net radiation

TABLE 1 contd. - Lucas Heights Tower - Data Acquisition System Parameter Statistics

Parameter Index	DAS Signal Identifier	Statistic type Identifier	Statistic	Height (m)
81	P1 <sup>#</sup>	M	Average	2
82	P1 <sup>#</sup>	D	Standard Deviation	2
83	U1*	H	Maximum (High)	2
84	U1*	L	Minimum (Low)	2
85	P2 <sup>^</sup>	M	Average	2
86	P2 <sup>^</sup>	D	Standard Deviation	2
87	U2*	H	Maximum (High)	10
88	U2*	L	Minimum (Low)	10
89	RH	A	Average	1.3
90	RH	D	Standard Deviation	1.3
91		H	Maximum (High)	
92		L	Minimum (Low)	
93				
94				
95		H	Maximum (High)	
96		L	Minimum (Low)	
97				
98				
99	U5*	H	Maximum (High)	49
100	U5*	L	Minimum (Low)	49
101	Ra	A	Accumulation	0
102	Ra	A	Accumulation	0
103	Ra	A	Accumulation	0
104	T1*	M	Average	2 (Lab)

RH = Relative Humidity  
 Ra = Rainfall  
 P = Atmospheric Pressure  
 U = wind speed  
 T = Temperature  
<sup>#</sup> = since July 23, 1998  
<sup>\*</sup> = since November 24, 1998  
<sup>^</sup> = since July 4, 2001

TABLE 1 contd. - Lucas Heights Tower - Data Acquisition System Parameter Statistics

Parameter Index	DAS Signal Identifier	Statistic type Identifier	Statistic
1	R	M	Average
2	R	D	Scalar Standard Deviation
3	V	M	Average
4	V	D	Scalar Standard Deviation
5	T1	M	Average
6	T1	H	Maximum (High)
7	T1	L	Minimum (Low)
8	U1	H	Maximum (High)
9			Spare
10			Spare
11	D1 #	VM	Vector average
12	D1 #	VD	Vector standard deviation
13	U1	M	Scalar Average
14	U1	D	Scalar standard deviation
15	D1	M	Scalar average
16	D1	D	Scalar standard deviation
17	U1	VM	Vector average
18	U1	VD	Vector standard deviation
19	D1 *	VM	Vector average
20	D1 *	VD	Vector standard deviation

T = Temperature  
 U = Wind Speed  
 D = Wind Direction  
 R = Reference Frequency  
 V = Battery Voltage  
 # = Using 10 Sec. Sample.  
 \* = Using 1 Sec. Sample and correction

**Table 2 :Lucas Heights Network - Data Acquisition System Parameter Statistics**

				Datum	Longitude (°)	Latitude (°)	UTM E (m)	UTM N (m)
Location:	Lucas Heights Meteorological Tower			AMG66	150.981350	-34.053471	313683	6230063
				WGS84	150.982531	-34.051893	313790	6230254
Meteorological	Height	Variable	Units	Start	End	No. of	Good	Bad
Statistic	(m)	Name		Date	Date	Observations	Data (%)	Data (%)
Scalar wind speed	10	scws10m	ms <sup>-1</sup>	050491	240803	434400	96.68	3.32
Scalar wind speed	49	scws49m	ms <sup>-1</sup>	050491	240803	434400	96.49	3.51
Vector wind direction	10	vmwd10m	°	050491	240803	434400	96.65	3.35
Vector wind direction	49	vmwd49m	°	050491	240803	434400	96.60	3.40
Std. devn. wind direction	10	wddv10m	°	050491	240803	434400	96.64	3.36
Std. devn. wind direction	49	wddv49m	°	050491	240803	434400	96.60	3.40
Extreme wind speed	10	wsmx10m	ms <sup>-1</sup>	251198	240803	167040	99.47	0.53
Extreme wind speed	49	wsmx49m	ms <sup>-1</sup>	050491	240803	434976	96.96	3.04
M&T horiz. diffusion cat.	10	sigy10m	Pasquill	050491	240803	434400	96.65	3.35
M&T horiz. diffusion cat.	49	sigy49m	Pasquill	050491	240803	434400	96.59	3.41
M&T vertical. diffusion cat.	10	sigz10m	Pasquill	050491	240803	434400	96.65	3.35
M&T vertical. diffusion cat.	49	sigz49m	Pasquill	050491	240803	434400	96.59	3.41
USEPA diffusion cat.	10	usep10m	Pasquill	050491	240803	434400	96.52	3.48
USEPA diffusion cat.	49	usep49m	Pasquill	050491	240803	434400	96.44	3.56
RIMCO rain rate	0	rainim	mm h <sup>-1</sup>	191092	240803	434400	95.29	4.71
Climatronics rain rate	0	raincli	mm h <sup>-1</sup>	201092	240803	434400	97.72	2.28
Enviromet rain rate	0	rainenv	mm h <sup>-1</sup>	040701	240803	75072	100.00	0.00
Average temperature	2	lhtm02m	°C	050491	240803	434976	96.35	3.65
Average temperature	10	lhtm10m	°C	050491	240803	434976	96.54	3.46
Average temperature	49	lhtm49m	°C	050491	240803	434976	96.26	3.74
Extreme min. temperature	2	lhtm2mn	°C	050491	240803	434976	95.46	4.54
Extreme max. temperature	2	lhtm2mx	°C	050491	240803	434976	96.24	3.76
Net all-wave radiation	0.5	netradn	W m <sup>-2</sup>	130592	240803	395616	96.71	3.29
Atmospheric pressure	2	presslh	hPa	080898	240803	177504	99.99	0.01
Atmospheric pressure	2	presset	hPa	040701	240803	75072	100.00	0.00
Relative humidity	1.5	lhreihu	%	040701	240803	75072	99.48	0.52

Meteorological Data Quality Statistics - Lucas Heights  
Table 3

Location:	Lucas Heights Community School			Datum	Longitude (°)	Latitude (°)	UTM E (m)	UTM N (m)
				AMG66	151.00400	-34.03788	315741	6231834
				WGS84	151.00518	-34.03630	315847	6232011
Scalar wind speed	15.7	scwscs	ms <sup>-1</sup>	310393	200998	193056	95.88	4.12
Vector wind direction	15.7	vmwdcs	°	310393	200998	193056	90.81	9.19
Std. devn. wind direction	15.7	wddvcs	°	310393	200998	193056	90.81	9.19
Average temperature	15.7	cstm10m	°C	310393	200998	192000	95.44	4.56
Extreme min. temperature	15.7	cstmn10	°C	310393	200998	192000	95.43	4.57
Extreme max. temperature	15.7	cstm10	°C	310393	200998	192000	95.32	4.68
Location:	Boys Town School			Datum	Longitude (°)	Latitude (°)	UTM E (m)	UTM N (m)
				AMG66	151.00439	-34.06698	315839	6228607
				WGS84	151.00557	-34.06540	315946	6228797
Scalar wind speed	18.5	scwsbt	ms <sup>-1</sup>	010493	130803	353376	98.22	1.78
Vector wind direction	18.5	vmwdbt	°	010493	130803	353376	94.80	5.20
Std. devn. wind direction	18.5	wddvbt	°	010493	130803	353376	94.80	5.20
Average temperature	18.5	bttm10m	°C	010493	130803	353376	98.19	1.81
Extreme min. temperature	18.5	bttmn10	°C	010493	130803	364896	98.25	1.75
Extreme max. temperature	18.5	bttmx10	°C	010493	130803	364896	98.16	1.84
Location:	Shackles Estate			Datum	Longitude (°)	Latitude (°)	UTM E (m)	UTM N (m)
				AMG66	151.01940	-34.02938	317144	6232804
				WGS84	151.02058	-34.02780	317250	6232995
Scalar wind speed	10	scwsse	ms <sup>-1</sup>	040693	130803	357408	96.95	3.05
Vector wind direction	10	vmwdse	°	040693	130803	357408	95.82	4.18
Std. devn. wind direction	10	wddvse	°	040693	130803	357408	95.81	4.19
Average temperature	10	setm10m	°C	040693	130803	357408	96.66	3.34
Extreme min. temperature	10	setmn10	°C	040693	130803	355776	97.07	2.93
Extreme max. temperature	10	setmx10	°C	040693	130803	355776	95.47	4.53

LH Network Meteorological Data Quality Statistics  
Table 4



Comparison and statistics on the new (1 second) vs. old (10 second) wind direction sampling

Station : Boys Town

Beginning date : 71198 End date : 20402

Wind direction comparison  
New (1 second)

Old (10s)	n	nne	ne	ene	e	ese	se	sse	s	ssw	sw	ws	w	wnw	nw	nnw	Total
n	0.87	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88
nne	0.43	2.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.08
ne	0.09	1.59	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.31
ene	0.04	0.23	0.17	6.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.59
e	0.02	0.14	0.01	0.05	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.35
ese	0.02	0.06	0.00	0.00	0.02	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64
se	0.02	0.04	0.00	0.00	0.00	0.01	5.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.23
sse	0.04	0.02	0.00	0.00	0.00	0.00	0.00	7.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.54
s	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.01	11.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.56
ssw	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.22	0.00	0.00	0.00	0.00	0.00	0.00	13.29
sw	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.83	0.01	0.00	0.00	0.00	0.00	7.89
ws	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.51	0.02	0.00	0.00	0.02	6.63
w	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.31	0.09	0.01	0.07	6.56
wnw	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.70	0.41	0.26	5.49
nw	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.12	1.98	6.39
nnw	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	2.57
TOTAL	2.93	4.76	6.82	6.19	4.16	3.54	5.16	7.48	11.49	13.22	7.83	6.52	6.33	4.79	4.53	4.26	117213.

Wind direction sigma comparison  
New (1 second)

Old (10s)	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	> 90	Total
0-10	28.59	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.61
10-20	0.84	47.44	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.51
20-30	0.09	1.64	7.53	0.10	0.00	0.00	0.00	0.00	0.00	0.00	9.36
30-40	0.02	0.78	0.81	1.77	0.05	0.00	0.00	0.00	0.00	0.00	3.43
40-50	0.01	0.40	0.77	0.41	0.73	0.03	0.00	0.00	0.00	0.00	2.35
50-60	0.00	0.25	0.76	0.39	0.22	0.40	0.02	0.00	0.00	0.00	2.04
60-70	0.00	0.14	0.71	0.60	0.17	0.11	0.25	0.03	0.00	0.00	2.01
70-80	0.00	0.08	0.55	0.59	0.16	0.07	0.06	0.17	0.02	0.00	1.70
80-90	0.00	0.07	0.39	0.51	0.16	0.04	0.02	0.04	0.10	0.01	1.33
>90	0.00	0.03	0.18	0.26	0.09	0.01	0.01	0.01	0.03	0.05	0.67
TOTAL	29.55	50.84	11.93	4.63	1.58	0.65	0.37	0.24	0.15	0.06	117247.

Table 5

Comparison and statistics on the new (1 second) vs. old (10 second) wind direction sampling

Station : Shackles Estate

Beginning date : 71198 End date : 20402

Wind direction comparison  
New (1 second)

Old (10s)	n	nne	ne	ene	e	ese	se	sse	s	ssw	sw	wsw	w	wnw	nw	nnw	Total
n	1.48	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
nne	0.50	2.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.61
ne	0.17	3.23	4.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.66
ene	0.05	1.66	5.43	2.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.81
e	0.02	0.17	0.46	0.70	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99
ese	0.01	0.04	0.05	0.10	0.27	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.04
se	0.02	0.03	0.02	0.02	0.04	0.17	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
sse	0.01	0.01	0.01	0.01	0.01	0.03	0.14	5.96	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
s	0.02	0.01	0.01	0.00	0.00	0.00	0.01	10.12	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	10.45
ssw	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	13.75	0.53	0.05	0.02	0.02	0.01	0.02	14.49
sw	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	14.38	0.61	0.07	0.04	0.02	0.02	15.18
wsw	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.40	0.41	0.08	0.05	0.02	10.98
w	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.13	0.37	0.09	0.04	7.64
wnw	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.32	0.09	2.66
nw	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.40	1.44
nnw	0.34	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
TOTAL	2.75	7.40	10.25	3.50	1.96	1.77	2.87	6.06	10.21	13.90	14.94	11.06	7.64	2.74	1.46	1.49	109410.

Wind direction sigma comparison  
New (1 second)

Old (10s)	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	> 90 Total
0-10	6.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.06
10-20	0.06	16.87	0.21	0.00	0.00	0.00	0.00	0.00	0.00	17.14
20-30	0.01	0.43	15.41	0.61	0.00	0.00	0.00	0.00	0.00	16.47
30-40	0.00	0.25	1.41	11.69	1.55	0.02	0.00	0.00	0.00	14.92
40-50	0.00	0.09	1.09	1.70	9.02	1.75	0.04	0.00	0.00	13.69
50-60	0.00	0.03	0.72	1.48	1.54	5.94	1.34	0.08	0.01	11.14
60-70	0.00	0.01	0.39	0.85	1.07	1.01	3.95	0.92	0.07	8.28
70-80	0.00	0.00	0.21	0.43	0.53	0.60	0.78	2.74	0.65	6.02
80-90	0.00	0.00	0.00	0.16	0.19	0.25	0.35	0.60	1.92	4.01
>90	0.00	0.00	0.02	0.04	0.03	0.06	0.13	0.24	0.49	2.28
TOTAL	6.12	17.70	19.53	16.95	13.92	9.64	6.60	4.58	3.13	1.83110349.

Table 6

## Pasquill stability category comparison

Boys Town  
New (1 second)

Old (10s)	A	B	C	D	E	F	Total
A	3.35	1.84	0.90	0.18	0.00	0.00	6.26
B	0.04	3.79	0.78	0.30	0.00	0.00	4.90
C	0.00	0.09	9.49	1.29	0.00	0.00	10.88
D	0.00	0.00	0.16	50.00	0.60	0.00	50.77
E	0.00	0.00	0.00	0.53	19.71	0.03	20.27
F	0.00	0.00	0.00	0.75	0.93	5.24	6.92
TOTAL	3.39	5.72	11.33	53.05	21.24	5.27	119328

## Pasquill stability category comparison

Shackles Estate  
New (1 second)

Old (10s)	A	B	C	D	E	F	Total
A	29.31	2.62	0.94	0.10	0.00	0.00	32.97
B	0.57	4.87	0.59	0.12	0.00	0.00	6.14
C	0.00	0.29	4.92	0.18	0.00	0.00	5.39
D	0.00	0.00	0.09	15.51	0.07	0.00	15.68
E	0.00	0.00	0.00	0.06	10.71	0.09	10.86
F	0.00	0.00	0.00	0.07	0.58	28.30	28.95
TOTAL	29.88	7.78	6.53	16.05	11.36	28.39	119328

Table 7

Lucas Heights - (15min Avge.) at 2m Dates :050491 to 300603

Dry Bulb Temperature (deg.c)

Time (EST.)

Month	Time (EST.)												Average		Extreme	
	0000-0300	0300-0600	0600-0900	0900-1200	1200-1500	1500-1800	1800-2100	2100-2400	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum		
January	18.7	18.1	20.7	23.8	24.8	23.2	20.8	19.6	17.2	26.2	10.0	43.2				
	2.3	2.4	2.7	4.0	4.6	4.0	2.9	2.4	standard deviations	number of observations						
February	4344.	4343.	4338.	4377.	4372.	4376.	4370.	4367.	17.5	25.0	10.3	39.9				
	18.9	18.4	20.3	23.6	24.8	23.4	21.0	19.8	standard deviations	number of observations						
March	2.3	2.4	2.7	3.6	4.2	3.6	2.6	2.3	15.8	24.2	7.6	37.7				
	4060.	4068.	4064.	4061.	4057.	4053.	4054.	4056.	standard deviations	number of observations						
April	17.5	16.8	18.4	21.9	23.1	21.8	19.5	18.3	13.0	22.0	6.3	32.6				
	2.3	2.4	2.6	2.8	3.5	3.2	2.3	2.3	number of observations	standard deviations						
May	4311.	4298.	4327.	4313.	4302.	4328.	4329.	4313.	10.7	19.1	0.6	27.9				
	14.6	14.0	15.4	19.4	21.0	19.4	16.9	15.5	number of observations	standard deviations						
June	2.4	2.4	2.6	2.5	3.1	3.0	2.3	2.3	7.0	16.0	1.5	21.8				
	4501.	4505.	4511.	4534.	4547.	4547.	4540.	4521.	number of observations	standard deviations						
July	12.4	11.9	12.7	16.6	18.2	16.6	14.3	13.1	8.1	16.7	2.2	23.6				
	2.6	2.6	2.7	2.5	2.6	2.7	2.4	2.5	number of observations	standard deviations						
August	4642.	4651.	4661.	4647.	4633.	4646.	4644.	4643.	2.4	2.2	1.6	29.1				
	10.1	9.5	10.0	13.9	15.9	14.4	11.9	10.7	number of observations	standard deviations						
September	2.5	2.6	2.6	2.3	2.3	2.4	2.2	2.4	7.3	17.6	1.6	29.1				
	4592.	4593.	4584.	4583.	4583.	4603.	4605.	4607.	number of observations	standard deviations						
October	9.0	8.5	8.9	13.1	15.2	13.8	11.1	9.7	10.5	17.6	1.6	29.1				
	2.3	2.3	2.4	2.1	2.0	2.2	1.9	2.2	number of observations	standard deviations						
November	4042.	4044.	4045.	4041.	4033.	4037.	4024.	4021.	7.3	17.6	1.6	29.1				
	9.4	8.6	9.7	14.5	16.6	15.2	12.2	10.5	number of observations	standard deviations						
December	2.7	2.7	2.9	2.8	3.1	3.3	2.7	2.7	9.3	20.1	2.8	33.8				
	4296.	4296.	4308.	4340.	4343.	4343.	4344.	4337.	number of observations	standard deviations						
December	11.5	10.7	12.7	17.1	18.9	17.3	14.3	12.7	11.5	22.1	4.6	35.0				
	3.0	3.0	3.2	3.2	3.9	3.9	3.1	3.1	number of observations	standard deviations						
December	4316.	4319.	4314.	4315.	4315.	4318.	4319.	4313.	13.1	23.1	6.3	40.2				
	13.6	12.7	15.7	19.5	20.9	19.1	16.3	14.7	number of observations	standard deviations						
December	3.0	3.0	3.1	3.9	4.6	4.4	3.4	2.9	15.8	25.0	8.9	42.8				
	4180.	4195.	4191.	4166.	4153.	4197.	4179.	4203.	number of observations	standard deviations						
December	15.0	14.4	17.5	20.7	21.6	19.9	17.4	16.1	13.1	23.1	6.3	40.2				
	3.1	3.0	3.2	4.4	4.9	4.4	3.5	3.1	number of observations	standard deviations						
December	4308.	4308.	4271.	4294.	4286.	4290.	4295.	4295.	15.8	25.0	8.9	42.8				
	17.3	16.7	19.7	22.8	23.7	22.2	19.7	18.4	number of observations	standard deviations						
December	2.7	2.7	3.1	4.2	4.6	4.3	3.3	2.7	4091.	number of observations						
	4092.	4092.	4071.	4044.	4059.	4074.	4079.	4091.	number of observations	standard deviations						

Table 8

Lucas Heights - (15min Avge.) at 10m Dates :050491 to 300603

## Dry Bulb Temperature (deg.c)

Time (EST.)

Month	0000-0300 0300-0600 0600-0900 0900-1200 1200-1500 1500-1800 1800-2100 2100-2400												Average		Extreme	
	0000-0300	0300-0600	0600-0900	0900-1200	1200-1500	1500-1800	1800-2100	2100-2400	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum		
January	18.7	18.1	20.4	23.3	24.2	22.7	20.6	19.5	17.3	25.5	9.9	42.4				
	2.3	2.3	2.7	3.9	4.5	4.0	2.9	2.4	standard deviations							
February	4314.	4319.	4331.	4354.	4357.	4364.	4358.	4343.	number of observations							
	19.0	18.4	20.1	23.1	24.2	22.9	20.8	19.7	17.5	25.4	10.5	40.8				
March	2.3	2.3	2.6	3.5	4.1	3.5	2.6	2.3	standard deviations							
	4051.	4056.	4052.	4060.	4061.	4066.	4065.	4059.	number of observations							
April	17.6	17.0	18.4	21.5	22.7	21.5	19.4	18.4	16.0	23.8	0.4	37.0				
	2.2	2.2	2.4	2.7	3.4	3.1	2.3	2.2	standard deviations							
May	4243.	4220.	4252.	4237.	4235.	4254.	4260.	4242.	number of observations							
	14.9	14.3	15.4	19.0	20.5	19.2	16.9	15.8	13.3	21.6	5.8	32.1				
June	2.3	2.3	2.5	2.5	3.1	2.9	2.3	2.3	standard deviations							
	4585.	4576.	4582.	4607.	4607.	4618.	4613.	4613.	number of observations							
July	12.8	12.2	12.8	16.2	17.8	16.5	14.5	13.4	11.0	18.6	0.9	27.4				
	2.4	2.4	2.5	2.5	2.6	2.7	2.3	2.3	standard deviations							
August	4656.	4655.	4660.	4650.	4639.	4639.	4639.	4643.	number of observations							
	10.4	9.8	10.1	13.5	15.5	14.3	12.2	11.1	8.5	16.3	2.4	23.4				
September	2.3	2.4	2.5	2.3	2.3	2.3	2.1	2.3	standard deviations							
	4594.	4596.	4593.	4596.	4584.	4603.	4605.	4608.	number of observations							
October	9.4	8.8	9.0	12.7	14.7	13.6	11.3	10.1	7.4	15.5	1.8	21.5				
	2.1	2.2	2.3	2.1	2.0	2.1	1.9	2.0	standard deviations							
November	4045.	4043.	4044.	4043.	4034.	4037.	4025.	4022.	number of observations							
	9.8	9.0	9.8	14.0	16.1	15.0	12.4	10.9	7.8	17.1	2.8	28.4				
December	2.6	2.5	2.7	2.8	3.1	3.2	2.7	2.7	standard deviations							
	4310.	4308.	4308.	4340.	4344.	4344.	4344.	4341.	number of observations							
January	11.9	11.1	12.6	16.6	18.4	17.0	14.3	12.9	9.8	19.5	3.2	33.3				
	2.9	2.9	3.0	3.2	3.9	3.8	3.1	3.0	standard deviations							
February	4320.	4320.	4319.	4315.	4316.	4317.	4319.	4320.	number of observations							
	13.8	13.0	15.4	19.0	20.4	18.8	16.3	14.9	11.9	21.6	5.1	34.1				
March	3.0	2.9	3.0	3.9	4.6	4.4	3.5	3.0	standard deviations							
	4182.	4195.	4189.	4167.	4154.	4198.	4178.	4205.	number of observations							
April	15.1	14.5	17.1	20.2	21.0	19.5	17.3	16.1	13.4	22.5	7.3	39.4				
	3.0	2.9	3.1	4.3	4.8	4.3	3.6	3.1	standard deviations							
May	4306.	4308.	4275.	4293.	4284.	4277.	4288.	4296.	number of observations							
	17.3	16.7	19.3	22.3	23.0	21.7	19.5	18.3	15.7	24.3	3.5	41.9				
June	2.7	2.6	3.0	4.1	4.5	4.2	3.3	2.7	standard deviations							
	4200.	4198.	4182.	4162.	4169.	4183.	4179.	4187.	number of observations							

Table 9

Lucas Heights - (15min Avge.) at 49m Dates :050491 to 300603

## Dry Bulb Temperature (deg.c)

Time (EST.)

Month	Time (EST.)												Average		Extreme	
	0000-0300	0300-0600	0600-0900	0900-1200	1200-1500	1500-1800	1800-2100	2100-2400	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum		
January	18.8	18.4	19.8	22.3	23.1	21.8	20.2	19.4	17.5	24.5	12.6	41.0	standard deviations number of observations	11.1	39.7	
	2.4	2.2	2.6	3.8	4.4	3.9	3.0	2.6	2.6	2.6	2.3	2.3				
February	4342.	4344.	4343.	4376.	4371.	4375.	4370.	4367.	4367.	4370.	4367.	4370.	standard deviations number of observations	11.1	39.7	
	19.2	18.8	19.6	22.2	23.2	22.1	20.5	19.8	17.8	24.5	11.1	39.7				
March	4065.	4068.	4064.	4061.	4062.	4066.	4063.	4069.	15.6	22.8	0.1	36.1	standard deviations number of observations	0.1	36.1	
	18.1	17.6	18.2	20.6	21.7	20.8	19.2	18.6	15.6	22.8	0.1	36.1				
April	4309.	4298.	4328.	4312.	4302.	4327.	4329.	4309.	14.3	20.7	6.9	31.2	standard deviations number of observations	6.9	31.2	
	15.9	15.3	15.6	18.1	19.6	18.6	17.1	16.5	14.3	20.7	6.9	31.2				
May	4571.	4563.	4568.	4589.	4595.	4605.	4601.	4601.	12.1	17.9	0.9	26.5	standard deviations number of observations	0.9	26.5	
	13.8	13.2	13.2	15.4	17.0	16.2	14.9	14.3	12.1	17.9	0.9	26.5				
June	4654.	4656.	4660.	4649.	4644.	4646.	4643.	4644.	9.5	15.7	0.8	40.4	standard deviations number of observations	0.8	40.4	
	11.3	10.8	10.7	12.8	14.8	14.1	12.8	11.9	9.5	15.7	0.8	40.4				
July	4587.	4577.	4578.	4571.	4577.	4591.	4595.	4600.	8.5	14.8	3.6	20.8	standard deviations number of observations	3.6	20.8	
	10.4	9.8	9.6	12.0	14.0	13.4	11.9	11.0	8.5	14.8	3.6	20.8				
August	4045.	4043.	4045.	4041.	4033.	4036.	4025.	4022.	8.9	16.3	3.2	27.4	standard deviations number of observations	3.2	27.4	
	10.8	10.1	10.2	13.2	15.3	14.6	12.8	11.8	8.9	16.3	3.2	27.4				
September	4310.	4306.	4305.	4340.	4343.	4343.	4344.	4341.	10.8	18.7	3.2	32.3	standard deviations number of observations	3.2	32.3	
	12.8	12.1	12.6	15.7	17.5	16.5	14.5	13.6	10.8	18.7	3.2	32.3				
October	4319.	4320.	4311.	4309.	4316.	4318.	4319.	4314.	12.7	20.7	5.0	33.2	standard deviations number of observations	5.0	33.2	
	14.6	13.9	15.0	18.1	19.4	18.1	16.3	15.4	12.7	20.7	5.0	33.2				
November	4181.	4195.	4187.	4162.	4153.	4197.	4178.	4205.	13.8	21.5	0.6	40.0	standard deviations number of observations	0.6	40.0	
	15.5	15.0	16.5	19.3	20.0	18.8	17.2	16.3	13.8	21.5	0.6	40.0				
December	4092.	4089.	4050.	4069.	4071.	4073.	4079.	4073.	16.1	23.4	9.2	40.9	standard deviations number of observations	9.2	40.9	
	17.5	17.0	18.7	21.3	21.9	20.9	19.2	18.3	16.1	23.4	9.2	40.9				
	4199.	4198.	4181.	4154.	4161.	4182.	4186.	4186.								

Table 10

LH Comm School (15min Ave.) at 15.65m Dates : 310393 to 200998

## Dry Bulb Temperature (deg.c)

Time (EST.)

Month	Time (EST.)												Average		Extreme	
	0000-0300	0300-0600	0600-0900	0900-1200	1200-1500	1500-1800	1800-2100	2100-2400	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum		
January	19.0	18.4	20.4	23.3	23.9	22.6	21.0	19.9	17.4	25.4	8.6	36.6				
	2.3	2.2	2.6	3.7	4.0	3.6	2.9	2.4	standard deviations							
February	1745.	1740.	1753.	1771.	1774.	1764.	1764.	1771.	1771.	number of observations						
	19.3	18.7	20.2	23.3	24.3	23.0	21.1	20.0	17.8	25.6	10.3	37.0				
March	2.4	2.4	2.7	3.7	4.0	3.4	2.8	2.4	standard deviations							
	1692.	1692.	1692.	1692.	1692.	1692.	1692.	1692.	number of observations							
April	17.7	17.0	18.2	21.5	22.6	21.4	19.5	18.5	16.0	23.8	9.1	36.9				
	2.4	2.3	2.6	3.0	3.7	3.3	2.6	2.6	standard deviations							
May	1842.	1839.	1812.	1841.	1838.	1850.	1850.	1836.	1836.	number of observations						
	15.3	14.5	15.1	19.0	20.9	19.5	17.4	16.3	13.3	21.9	5.3	31.9				
June	2.3	2.3	2.4	2.6	3.2	3.0	2.3	2.3	standard deviations							
	2064.	2072.	2076.	2066.	2049.	2064.	2064.	2055.	2055.	number of observations						
July	13.4	12.8	12.9	16.4	18.1	17.1	15.2	14.1	11.5	18.9	6.0	27.6				
	2.4	2.5	2.6	2.5	2.7	2.8	2.5	2.4	standard deviations							
August	1932.	1921.	1923.	1934.	1917.	1944.	1928.	1921.	1921.	number of observations						
	10.5	10.0	9.9	13.4	15.4	14.3	12.4	11.3	8.6	16.1	3.8	23.8				
September	2.1	2.1	2.3	2.2	2.3	2.3	2.1	2.1	standard deviations							
	2040.	2045.	2051.	2040.	2039.	2039.	2035.	2045.	2045.	number of observations						
October	9.6	9.0	8.9	12.6	14.6	13.7	11.5	10.3	7.5	15.4	1.6	21.0				
	2.1	2.1	2.3	2.2	1.9	2.1	1.9	2.0	standard deviations							
November	2148.	2148.	2148.	2151.	2158.	2160.	2160.	2149.	2149.	number of observations						
	10.5	9.7	10.0	14.3	16.5	15.5	13.1	11.7	8.3	17.5	2.1	28.2				
December	2.8	2.7	2.9	3.1	3.4	3.5	3.1	2.9	standard deviations							
	2232.	2231.	2224.	2232.	2232.	2232.	2232.	2232.	2232.	number of observations						
January	12.0	11.3	12.3	16.2	17.8	16.6	14.2	13.0	9.8	19.0	3.6	29.7				
	2.9	2.8	2.8	3.1	3.8	3.7	2.9	2.9	standard deviations							
February	2040.	2040.	2040.	2040.	2039.	2040.	2040.	2040.	2040.	number of observations						
	13.9	13.1	15.1	18.6	20.0	18.7	16.4	15.0	11.8	21.3	5.2	33.8				
March	2.8	2.7	2.9	3.9	4.6	4.4	3.5	3.0	standard deviations							
	1800.	1800.	1800.	1794.	1800.	1811.	1807.	1800.	1800.	number of observations						
April	15.8	15.2	17.4	20.7	21.5	20.2	18.1	16.8	13.9	23.3	7.1	35.6				
	3.2	3.2	3.3	4.4	5.0	4.7	3.9	3.3	standard deviations							
May	1800.	1800.	1795.	1783.	1796.	1800.	1800.	1798.	1798.	number of observations						
	17.7	17.0	19.5	22.5	23.2	22.0	19.9	18.8	16.3	24.8	9.9	41.9				
June	2.7	2.7	3.0	4.1	4.6	4.4	3.3	2.8	standard deviations							
	1525.	1515.	1564.	1572.	1577.	1586.	1567.	1548.	1548.	number of observations						

Table 11

Boys Town (15min Ave.) at 18.5m dates :010493 to 300603

Dry Bulb Temperature (deg.c)

Time (EST.)

Month	0000-0300 0300-0600 0600-0900 0900-1200 1200-1500 1500-1800 1800-2100 2100-2400												Average		Extreme	
	19.0	18.4	20.2	23.1	23.9	22.6	20.8	19.8	17.6	25.2	12.7	39.3	Minimum	Maximum	Minimum	Maximum
January	2.2	2.1	2.5	3.8	4.2	3.8	2.9	2.4	standard deviations	2.4	standard deviations	2.4	39.3			
February	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.	3348.
	19.1	18.6	19.9	22.8	23.8	22.6	20.8	19.8	17.7	24.9	11.5	37.2				
	2.1	2.1	2.4	3.4	3.8	3.1	2.5	2.2	standard deviations	2.2	standard deviations	2.2	37.2			
March	3036.	3036.	3038.	3036.	3035.	3036.	3036.	3036.	3036.	3036.	3036.	3036.	3036.	3036.	3036.	3036.
	17.8	17.2	18.2	21.1	22.1	21.2	19.3	18.4	16.2	23.3	8.6	36.0				
	2.3	2.3	2.4	2.8	3.4	3.1	2.4	2.3	standard deviations	2.3	standard deviations	2.3	36.0			
April	3312.	3312.	3314.	3323.	3309.	3324.	3314.	3312.	3312.	3314.	3312.	3312.	3312.	3312.	3312.	3312.
	15.2	14.7	15.3	18.5	20.0	18.8	17.0	16.0	13.8	21.0	6.8	30.9				
	2.5	2.4	2.5	2.9	3.3	3.1	2.6	2.6	standard deviations	2.6	standard deviations	2.6	30.9			
May	3564.	3564.	3563.	3564.	3563.	3571.	3576.	3576.	3576.	3576.	3576.	3576.	3576.	3576.	3576.	3576.
	13.1	12.6	12.8	15.9	17.4	16.4	14.7	13.7	11.5	18.2	4.7	26.7				
	2.4	2.4	2.5	2.4	2.6	2.7	2.4	2.4	standard deviations	2.4	standard deviations	2.4	26.7			
June	4014.	3989.	4006.	4000.	3996.	4006.	3998.	3998.	3998.	3998.	3998.	3998.	3998.	3998.	3998.	3998.
	10.7	10.0	10.1	13.2	15.1	14.2	12.4	11.3	9.0	15.8	4.3	22.9				
	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	standard deviations	2.2	standard deviations	2.2	22.9			
July	3717.	3718.	3720.	3739.	3756.	3761.	3741.	3736.	3736.	3741.	3736.	3736.	3736.	3736.	3736.	3736.
	9.7	9.2	9.1	12.4	14.4	13.5	11.5	10.4	7.9	15.1	3.0	20.8				
	2.0	2.1	2.2	2.0	1.8	2.0	1.9	2.0	standard deviations	2.0	standard deviations	2.0	20.8			
August	3720.	3719.	3719.	3718.	3720.	3720.	3720.	3720.	3720.	3720.	3720.	3720.	3720.	3720.	3720.	3720.
	10.4	9.6	9.9	13.8	15.9	15.0	12.8	11.5	8.4	16.8	3.2	27.7				
	2.6	2.5	2.6	2.6	3.1	3.2	2.8	2.7	standard deviations	2.7	standard deviations	2.7	27.7			
September	3876.	3870.	3864.	3867.	3874.	3881.	3875.	3875.	3875.	3875.	3875.	3875.	3875.	3875.	3875.	3875.
	12.6	11.8	12.7	16.3	18.1	16.9	14.7	13.5	10.6	19.1	3.2	32.6				
	3.0	2.9	2.9	3.3	4.0	3.8	3.2	3.2	standard deviations	3.2	standard deviations	3.2	32.6			
October	3498.	3485.	3472.	3476.	3506.	3516.	3511.	3503.	3503.	3511.	3503.	3503.	3503.	3503.	3503.	3503.
	14.1	13.3	15.0	18.5	19.8	18.5	16.3	15.0	12.1	21.1	6.2	33.8				
	2.9	2.8	3.0	3.8	4.5	4.2	3.5	3.0	standard deviations	3.0	standard deviations	3.0	33.8			
November	3540.	3538.	3528.	3522.	3537.	3545.	3540.	3540.	3540.	3540.	3540.	3540.	3540.	3540.	3540.	3540.
	15.4	14.9	16.9	19.8	20.5	19.3	17.4	16.4	13.8	22.0	7.5	38.5				
	3.1	2.9	3.1	4.2	4.6	4.3	3.7	3.2	standard deviations	3.2	standard deviations	3.2	38.5			
December	3588.	3588.	3586.	3590.	3587.	3588.	3588.	3587.	3587.	3588.	3587.	3587.	3587.	3587.	3587.	3587.
	17.6	17.0	19.1	22.0	22.7	21.6	19.6	18.5	16.0	24.0	7.2	41.2				
	2.7	2.7	3.0	4.1	4.4	4.1	3.3	2.8	standard deviations	2.8	standard deviations	2.8	41.2			
	3636.	3629.	3622.	3625.	3632.	3636.	3636.	3636.	3636.	3636.	3636.	3636.	3636.	3636.	3636.	3636.

Table 12



Shackles Estate (15min Avge.) at 10m dates :310393 to 306503

Dry Bulb Temperature (deg.c)

Time (EST.)

Month	0000-0300 0300-0600 0600-0900 0900-1200 1200-1500 1500-1800 1800-2100 2100-2400												Average		Extreme	
	18.9	18.0	21.5	25.0	25.8	24.4	22.1	20.1	17.2	26.9	Minimum	Maximum	Minimum	Maximum		
January	2.4	2.6	3.0	3.8	4.3	3.8	2.8	2.4	17.2	26.9	9.9	43.1				
	3692.	3686.	3698.	3704.	3697.	3705.	3705.	3703.	standard deviations	number of observations						
February	19.1	18.4	20.9	25.0	25.8	24.5	22.0	20.1	17.5	26.9	3.5	42.0				
	2.6	2.8	3.3	3.6	4.0	3.4	2.8	2.5	standard deviations	number of observations						
March	17.2	16.5	18.5	23.2	24.1	22.8	19.8	18.1	15.5	25.2	7.5	36.9				
	2.7	2.9	3.2	2.9	3.3	2.9	2.5	2.6	standard deviations	number of observations						
April	13.8	12.9	14.4	20.6	22.1	20.0	16.2	14.7	11.9	23.0	3.2	32.5				
	2.9	3.0	3.2	2.7	3.2	2.9	2.6	2.7	standard deviations	number of observations						
May	11.0	10.5	11.3	17.3	19.0	16.2	13.0	11.7	9.4	19.8	1.8	28.4				
	3.3	3.5	3.6	2.7	2.6	2.8	2.9	3.1	standard deviations	number of observations						
June	7.7	7.0	7.7	14.3	16.6	13.3	9.9	8.5	5.8	17.4	0.3	23.7				
	3.0	3.1	3.2	2.6	2.1	2.5	2.6	2.9	standard deviations	number of observations						
July	6.6	6.0	6.7	13.5	15.8	12.9	8.8	7.4	4.8	16.5	0.1	23.5				
	3.1	3.3	3.4	2.6	1.9	2.6	2.7	3.0	standard deviations	number of observations						
August	7.1	6.3	7.7	15.2	17.3	15.0	10.1	8.4	5.1	18.1	0.4	29.1				
	3.0	3.1	3.6	2.8	2.9	3.1	2.7	3.0	standard deviations	number of observations						
September	10.1	9.2	12.0	18.4	20.0	18.2	13.7	11.5	8.0	21.0	2.0	37.1				
	3.3	3.4	4.0	3.4	4.1	3.8	3.1	3.1	standard deviations	number of observations						
October	12.6	11.6	15.7	20.6	21.8	20.1	16.2	14.0	10.5	22.9	4.5	37.1				
	3.0	3.2	3.7	3.8	4.5	4.1	3.1	2.8	standard deviations	number of observations						
November	14.8	14.0	18.2	21.9	22.4	20.9	18.1	16.1	13.0	23.8	0.5	39.7				
	3.1	3.2	3.5	4.2	4.6	4.1	3.2	2.9	standard deviations	number of observations						
December	17.5	16.6	20.6	24.0	24.6	23.3	20.8	18.8	15.8	25.8	8.5	43.0				
	2.8	2.9	3.2	4.0	4.3	4.0	3.1	2.7	standard deviations	number of observations						

Table 13

## Frequencies (%) of Pasquill stability categories -

Comparison of different categorisation methods

dates : 50491 to 300603

Stability categorisation scheme : Using usepa 10m

	A	B	C	D	E	F	G	bad data	total
Frequency	6.48	4.33	9.68	48.30	23.15	8.07	0.00	15112	414008.

Stability categorisation scheme : Using usepa 49m

	A	B	C	D	E	F	G	bad data	total
Frequency	2.71	4.02	7.64	60.21	22.50	2.92	0.00	15404	413716.

usepa 10m vs. usepa 49m

usepa 49m	usepa 10m							Total
	A	B	C	D	E	F	G	
A	2.33	0.20	0.10	0.06	0.00	0.00	0.00	2.70
B	2.39	0.95	0.52	0.16	0.00	0.00	0.00	4.02
C	1.24	2.24	3.25	0.91	0.00	0.00	0.00	7.64
D	0.52	0.94	5.82	38.83	11.08	3.06	0.00	60.25
E	0.00	0.00	0.00	7.86	11.03	3.59	0.00	22.49
F	0.00	0.00	0.00	0.54	1.02	1.34	0.00	2.90
G	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
total	6.49	4.33	9.69	48.36	23.13	8.00	0.00	100.

412020.

no data observed on 17100 (15 minute) occasions

dates : 50491 to 300603

Table 14

## Frequencies (%) of Sigma-Theta categories

dates : 050491 to 300603

Sigma-Theta (deg) level: 10m data

	0-5	5-10	10-15	15-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	>100	bad data	total
Frequency	1.73	18.40	33.09	20.21	13.01	4.78	2.73	2.09	1.66	1.18	0.70	0.32	0.10	14577	414543.

Sigma-Theta (deg) level: 49m data

	0-5	5-10	10-15	15-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	>100	bad data	total
Frequency	23.50	38.07	18.99	6.39	5.15	2.64	1.63	1.29	1.04	0.69	0.36	0.15	0.11	14714	414406.

## 10m data vs. 49m data

10m data (deg)

49m data	0-5	5-10	10-15	15-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	>100	Total
0-5	1.06	11.47	6.84	1.84	1.10	0.48	0.30	0.18	0.11	0.07	0.04	0.02	0.01	23.52
5-10	0.33	5.77	21.38	7.15	2.08	0.61	0.31	0.20	0.12	0.07	0.04	0.02	0.01	38.09
10-15	0.10	0.49	3.97	9.33	4.03	0.53	0.23	0.13	0.07	0.05	0.02	0.01	0.01	18.97
15-20	0.04	0.17	0.35	1.22	3.39	0.71	0.22	0.13	0.07	0.04	0.02	0.01	0.00	6.38
20-30	0.05	0.19	0.24	0.38	1.68	1.43	0.59	0.28	0.15	0.08	0.04	0.02	0.01	5.14
30-40	0.03	0.10	0.12	0.14	0.41	0.62	0.49	0.35	0.19	0.11	0.06	0.02	0.01	2.64
40-50	0.03	0.07	0.08	0.06	0.15	0.20	0.27	0.30	0.24	0.15	0.07	0.02	0.00	1.63
50-60	0.02	0.04	0.05	0.04	0.07	0.09	0.15	0.24	0.26	0.18	0.09	0.04	0.00	1.29
60-70	0.01	0.03	0.03	0.03	0.04	0.05	0.08	0.16	0.24	0.20	0.12	0.04	0.00	1.04
70-80	0.01	0.02	0.02	0.02	0.02	0.02	0.05	0.08	0.14	0.15	0.11	0.05	0.00	0.69
80-90	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.07	0.07	0.04	0.00	0.36
90-100	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.02	0.00	0.15
>100	0.01	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.11
total	1.68	18.38	33.13	20.23	13.01	4.78	2.73	2.09	1.67	1.18	0.71	0.32	0.10	100.

413136.

no data observed on 15984 (15 minute) occasions

dates : 050491 to 300603

Table 15

## Frequencies (%) of Pasquill stability categories -

## Comparison of different categorisation methods

dates : 50491 to 300603

Stability categorisation scheme : Using usepa 10m

	A	B	C	D	E	F	G	bad data	total
Frequency	6.48	4.33	9.68	48.30	23.15	8.07	0.00	15112	414008.

Stability categorisation scheme : Using M&amp;T 10m

	A	B	C	D	E	F	G	bad data	total
Frequency	21.52	13.17	28.59	29.83	6.08	0.55	0.26	14564	414556.

usepa 10m vs. M&amp;T 10m

M&T 10m	usepa 10m							Total
	A	B	C	D	E	F	G	
A	6.48	4.33	3.03	0.28	1.51	5.88	0.00	21.51
B	0.00	0.00	6.65	3.57	2.96	0.00	0.00	13.18
C	0.00	0.00	0.00	28.61	0.00	0.00	0.00	28.61
D	0.00	0.00	0.00	15.31	14.54	0.00	0.00	29.85
E	0.00	0.00	0.00	0.47	4.13	1.48	0.00	6.08
F	0.00	0.00	0.00	0.03	0.00	0.52	0.00	0.55
G	0.00	0.00	0.00	0.02	0.00	0.19	0.00	0.21
total	6.48	4.33	9.68	48.30	23.15	8.07	0.00	100.

414008.

no data observed on 15112 (15 minute) occasions

dates : 50491 to 300603

Table 16

## Frequencies (%) of Pasquill stability categories -

## Comparison of different categorisation methods

dates : 50491 to 300603

Stability categorisation scheme : Using usepa 49m

	A	B	C	D	E	F	G	bad data	total
Frequency	2.71	4.02	7.64	60.21	22.50	2.92	0.00	15404	413716.

Stability categorisation scheme : Using M&amp;T 49m

	A	B	C	D	E	F	G	bad data	total
Frequency	11.24	4.29	10.77	31.02	27.98	11.18	3.52	14735	414385.

usepa 49m vs. M&amp;T 49m

M&T 49m	usepa 49m							Total
	A	B	C	D	E	F	G	
A	2.71	3.21	1.60	1.68	0.51	1.48	0.00	11.19
B	0.00	0.82	2.15	0.77	0.35	0.20	0.00	4.28
C	0.00	0.00	3.89	6.27	0.60	0.00	0.00	10.77
D	0.00	0.00	0.00	30.74	0.32	0.00	0.00	31.05
E	0.00	0.00	0.00	14.57	13.45	0.00	0.00	28.01
F	0.00	0.00	0.00	4.69	5.69	0.81	0.00	11.19
G	0.00	0.00	0.00	1.49	1.58	0.42	0.00	3.49
total	2.71	4.02	7.64	60.21	22.50	2.92	0.00	100. 413716.

no data observed on 15404 (15 minute) occasions

dates : 50491 to 300603

Table 17

		1997	1998	1999	2000	2001	2002	2003	Average (22 years)
Jan.	R Total	113.2	75.0	111.9	29.6	191.0	55.2	22.5	82.7
	R Days	11	11	14	12	9	10	6	
	E Total	151.8	163.9	165.4	138.0	151.3	176.6	173.2	163.3
	E Max	7.6	10.1	10.0	6.0	10.1	13.4	11.0	
Feb.	R Total	127.7	56.0	196.5	11.0	110.6	295.1	89.1	106.1
	R Days	10	8	14	9	11	18	12	
	E Total	118.5	154.7	113.1	149.6	108.4	103.4	118.2	133.0
	E Max	11.3	10.0	6.6	9.3	6.4	8.7	6.0	
Mar.	R Total	61.2	15.5	40.2	217.6	122.0	143.3	89.0	104.6
	R Days	10	8	10	14	20	15	8	
	E Total	124.0	127.8	84.3	84.6	110.1	90.2	118.1	122.1
	E Max	6.2	7.7	5.1	5.1	7.9	5.5	8.5	
April	R Total	0.5	161.3	84.3	31.9	70.2	15.4	147.2	106.9
	R Days	1	10	17	12	7	6	16	
	E Total	91.9	94.9	72.0	85.3	78.0	68.8	69.0	85.7
	E Max	7.0	8.1	4.0	4.0	5.0	3.5	4.9	
May	R Total	96.5	203.7	48.7	34.5	105.3	50.6	358.8	87.3
	R Days	16	13	10	9	10	11	17	
	E Total	84.7	61.8	44.7	54.9	58.1	61.6	71.7	61.2
	E Max	4.7	4.9	3.4	3.4	4.5	3.7	6.8	
June	R Total	51.0	80.2	66.6	34.2	-9.3	18.1	58.0	76.3
	R Days	10	11	14	9	6	5	7	
	E Total	54.7	45.5	45.9	45.7	44.4	49.1	49.3	52.1
	E Max	6.4	4.1	2.8	4.5	2.4	3.1	3.5	
July	R Total	48.2	86.8	163.3	31.4	109.2	26.4		64.5
	R Days	6	12	12	9	14	2		
	E Total	52.7	50.1	47.4	52.1	44.3	57.0		55.7
	E Max	2.6	3.8	4.1	3.8	2.3	3.3		
Aug.	R Total	18.7	316.3	31.2	19.2	49.4	14.3		82.0
	R Days	5	15	8	11	6	7		
	E Total	82.4	51.0	65.6	59.6	75.4	73.0		75.9
	E Max	6.9	3.3	3.2	4.3	5.5	5.9		
Sept.	R Total	105.6	37.7	20.7	37.2	18.2	7.0		56.1
	R Days	15	9	5	8	10	4		
	E Total	78.7	82.5	82.5	120.6	82.9	118.4		102.7
	E Max	6.0	5.5	4.4	7.5	5.0	6.5		
Oct.	R Total	60.2	26.7	211.0	55.1	39.8	1.4		66.5
	R Days	6	8	13	9	8	4		
	E Total	136.9	121.1	104.1	117.2	128.9	149.6		132.3
	E Max	7.8	6.8	6.3	6.8	7.6	8.5		
Nov.	R Total	21.7	110.3	32.7	150.3	57.1	14.5		91.1
	R Days	9	15	9	17	11	6		
	E Total	150.2	113.6	112.1	100.5	129.6	157.1		140.4
	E Max	7.5	7.2	5.4	6.0	9.4	10.3		
Dec.	R Total	27.3	37.8	112.8	46.4	15.9	59.8		77.4
	R Days	7	9	13	11	8	9		
	E Total	182.9	148.9	140.4	170.5	150.5	177.2		163.9
	E Max	11.2	9.6	6.8	10.1	10.8	12.7		
Annual	R Total	731.6	895.8	1129.9	686.4	886.0	701.1		960.3
	R Days	106	129	139	128	120	97		
	E Total	1269.4	1215.8	1087.5	1168.6	1161.9	1262.2		1263.6
R Total = Monthly total rainfall (mm)									
R Days = Number of raindays per month									
E Total = Total evaporation per month (mm)									
E Max = Maximum 24 hour evaporation (mm)									

Monthly and annual statistics on rainfall and evaporation at Lucas Heights - 1997 to 2003  
Table 18

Lucas Heights at 2m      dates : 40701 to 300603

## Relative Humidity (%)

Time (EST.)

Month	Time (EST.)												Average		Extreme	
	0000-0300	0300-0600	0600-0900	0900-1200	1200-1500	1500-1800	1800-2100	2100-2400	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum		
January	75.8	77.7	67.7	55.1	50.7	56.6	66.8	72.8	43.8	83.1	4.1	94.1				
	11.8	11.4	15.0	17.4	17.2	17.1	15.1	12.9	standard deviations							
	744.	744.	738.	739.	733.	738.	744.	744.	number of observations							
February	81.9	83.7	79.9	67.4	63.1	67.5	75.6	80.1	56.0	88.7	27.2	93.5				
	9.2	9.7	11.1	14.3	14.8	12.3	11.0	9.2	standard deviations							
	672.	672.	672.	672.	672.	672.	672.	672.	number of observations							
March	80.8	82.3	78.3	63.5	58.6	63.0	73.5	78.0	51.3	87.7	16.8	93.1				
	11.7	11.1	12.6	14.1	15.0	14.8	13.2	12.8	standard deviations							
	744.	733.	733.	724.	709.	730.	732.	732.	number of observations							
April	82.0	82.0	79.3	66.3	61.5	65.9	74.4	79.1	55.5	87.5	24.0	93.7				
	8.4	9.3	11.1	12.1	12.5	12.4	11.3	10.2	standard deviations							
	708.	708.	708.	708.	713.	720.	720.	720.	number of observations							
May	80.2	80.9	79.5	67.2	61.6	66.5	74.5	78.0	55.8	85.9	28.4	93.3				
	12.2	12.5	12.7	14.8	16.8	15.6	12.2	11.9	standard deviations							
	744.	744.	744.	744.	743.	744.	744.	744.	number of observations							
June	72.0	74.8	74.0	61.4	51.8	56.3	64.4	68.8	47.6	81.0	24.2	94.3				
	13.8	13.4	13.6	14.2	13.1	14.0	14.3	14.1	standard deviations							
	720.	720.	720.	720.	720.	720.	720.	720.	number of observations							
July	71.8	72.9	72.6	59.0	49.3	55.0	64.5	69.6	45.0	80.7	21.2	92.9				
	14.4	13.7	12.9	16.2	16.4	16.6	15.0	14.3	standard deviations							
	708.	708.	708.	708.	708.	708.	708.	708.	number of observations							
August	70.0	72.0	70.1	53.2	44.3	49.1	61.3	67.4	39.4	78.8	19.6	92.7				
	15.0	14.5	14.3	13.2	13.4	16.2	15.2	15.3	standard deviations							
	744.	744.	744.	744.	744.	744.	744.	744.	number of observations							
September	70.5	72.8	67.2	49.5	41.8	48.7	61.6	67.5	36.4	80.6	12.4	92.4				
	15.2	14.7	15.8	14.8	15.3	15.4	15.7	15.3	standard deviations							
	720.	720.	720.	717.	716.	720.	720.	720.	number of observations							
October	68.0	70.5	60.7	42.3	37.9	45.9	56.7	65.2	31.6	79.5	8.0	93.0				
	18.5	16.4	18.1	17.2	17.4	18.0	19.3	18.2	standard deviations							
	720.	720.	729.	720.	720.	720.	720.	720.	number of observations							
November	75.6	77.6	67.0	52.4	50.7	57.3	67.4	72.9	41.5	85.3	3.5	93.3				
	13.9	11.6	14.9	17.7	18.1	17.6	15.6	14.3	standard deviations							
	720.	720.	720.	720.	720.	720.	720.	720.	number of observations							
December	75.8	78.0	66.9	51.4	51.2	57.4	66.9	72.4	43.2	83.4	6.7	91.4				
	14.1	13.5	15.8	17.5	18.4	19.0	17.8	14.7	standard deviations							
	744.	744.	744.	744.	744.	744.	744.	744.	number of observations							

Table 19

Lucas Heights at 2m dates : 80898 to 300603

Climatronics Atmospheric Pressure (hPa)

Time (EST.)

Month	Time (EST.)												Average		Extreme	
	0000-0300	0300-0600	0600-0900	0900-1200	1200-1500	1500-1800	1800-2100	2100-2400	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum		
January	995.6	995.5	996.7	996.4	995.1	994.5	995.8	996.6	993.2	998.3	978.3	1007.8	standard deviations number of observations	1008.6		
	4.7	4.8	5.2	5.2	5.3	5.4	5.0	4.8	4.8	4.8	4.8	4.8				
February	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	standard deviations number of observations	1008.6		
	996.9	996.7	998.0	998.0	996.8	996.2	997.2	997.7	994.8	999.5	978.1	1008.6				
March	1692.	1692.	1692.	1692.	1692.	1692.	1692.	1692.	1692.	1692.	1692.	1692.	standard deviations number of observations	1008.9		
	997.6	997.2	998.5	998.8	997.4	997.0	998.1	998.6	995.6	1000.3	980.8	1008.9				
April	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	standard deviations number of observations	1013.9		
	1001.3	1001.0	1002.1	1002.4	1000.9	1000.6	1001.7	1002.0	999.3	1003.7	988.0	1013.9				
May	1872.	1872.	1872.	1872.	1872.	1872.	1872.	1872.	1872.	1872.	1872.	1872.	standard deviations number of observations	1016.6		
	1000.6	1000.3	1001.3	1001.6	1000.0	999.9	1000.9	1001.1	998.6	1003.1	981.4	1016.6				
June	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	standard deviations number of observations	1019.3		
	1001.6	1001.3	1002.3	1002.6	1000.8	1000.7	1001.7	1002.0	999.3	1004.3	981.5	1019.3				
July	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	standard deviations number of observations	1016.3		
	1000.9	1000.6	1001.7	1002.0	1000.2	1000.0	1001.1	1001.4	998.7	1003.5	985.3	1016.3				
August	1488.	1488.	1488.	1488.	1488.	1488.	1488.	1488.	1488.	1488.	1488.	1488.	standard deviations number of observations	1020.0		
	1001.4	1001.1	1002.2	1002.3	1000.5	1000.2	1001.5	1001.9	998.5	1004.4	976.1	1020.0				
September	1775.	1775.	1775.	1776.	1773.	1767.	1774.	1776.	1776.	1776.	1776.	1776.	standard deviations number of observations	1018.8		
	999.8	999.6	1001.0	1000.9	998.8	998.3	999.8	1000.4	996.7	1003.1	979.4	1018.8				
October	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	standard deviations number of observations	1016.9		
	996.5	996.3	997.7	997.2	995.4	995.0	996.6	997.1	993.4	999.8	973.0	1016.9				
November	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	standard deviations number of observations	1013.1		
	997.7	997.8	999.1	998.7	997.3	996.8	998.1	998.7	995.2	1000.9	977.9	1013.1				
December	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	1800.	standard deviations number of observations	1008.2		
	995.0	995.2	996.3	995.9	994.4	993.9	995.3	995.9	992.4	998.0	978.2	1008.2				
	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	1860.	standard deviations number of observations	1008.2		

Table 20



Lucas Heights at 2m dates : 40701 to 300603

## Sea Atmospheric Pressure (hPa)

Time (EST.)

Month	Time (EST.)												Average		Extreme	
	0000-0300	0300-0600	0600-0900	0900-1200	1200-1500	1500-1800	1800-2100	2100-2400	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum		
January	995.6 5.8 744.	995.8 5.9 744.	996.8 5.7 744.	996.3 5.9 744.	994.8 6.1 744.	994.2 6.2 744.	995.9 6.0 744.	996.8 5.8 744.	992.6 standard deviations number of observations	998.7 standard deviations number of observations	975.8	1006.5				
February	996.4 5.2 672.	996.2 5.5 672.	997.3 5.3 672.	997.0 5.5 672.	995.7 5.7 672.	995.1 5.7 672.	996.3 5.7 672.	996.9 5.6 672.	993.8 standard deviations number of observations	999.0 standard deviations number of observations	977.3	1008.3				
March	998.0 4.9 744.	997.7 4.7 744.	998.9 4.8 744.	998.9 4.8 744.	997.3 4.9 744.	996.9 4.8 744.	998.4 4.5 744.	999.1 4.4 744.	995.6 standard deviations number of observations	1000.9 standard deviations number of observations	979.4	1008.7				
April	1001.8 5.5 720.	1001.6 5.6 720.	1002.6 5.6 720.	1002.5 5.8 720.	1000.9 5.5 720.	1000.7 5.6 720.	1002.0 5.7 720.	1002.4 5.5 720.	999.5 standard deviations number of observations	1004.1 standard deviations number of observations	988.0	1013.6				
May	1001.4 7.5 744.	1001.2 7.5 744.	1002.1 7.8 744.	1002.0 8.0 744.	1000.4 7.7 744.	1000.5 7.5 744.	1001.7 7.3 744.	1001.9 7.3 744.	999.0 standard deviations number of observations	1003.7 standard deviations number of observations	980.5	1016.5				
June	999.6 7.4 720.	999.3 7.8 720.	1000.1 7.8 720.	999.9 8.0 720.	998.1 7.8 720.	998.1 7.7 720.	999.4 7.5 720.	999.4 7.5 720.	996.7 standard deviations number of observations	1002.1 standard deviations number of observations	980.8	1014.8				
July	1000.6 5.6 708.	1000.3 5.7 708.	1001.3 5.8 708.	1001.2 5.8 708.	999.4 5.8 708.	999.5 5.6 708.	1000.6 5.7 708.	1000.9 5.7 708.	997.8 standard deviations number of observations	1003.0 standard deviations number of observations	984.9	1014.2				
August	999.6 7.8 744.	999.2 7.8 744.	1000.2 8.2 744.	1000.0 8.2 744.	998.1 8.0 744.	998.1 7.8 744.	999.6 7.5 744.	999.9 7.5 744.	996.1 standard deviations number of observations	1002.5 standard deviations number of observations	974.7	1013.2				
September	998.7 6.7 720.	998.6 6.8 720.	999.7 7.1 720.	999.2 6.9 720.	997.2 6.9 720.	997.1 6.5 720.	998.9 6.5 720.	999.5 6.6 720.	995.3 standard deviations number of observations	1002.1 standard deviations number of observations	981.7	1012.4				
October	995.2 6.7 744.	995.1 6.5 744.	996.1 6.5 744.	995.2 6.6 744.	993.4 6.3 744.	993.1 6.2 744.	995.0 6.2 744.	995.7 6.3 744.	991.3 standard deviations number of observations	998.3 standard deviations number of observations	971.0	1011.1				
November	997.8 5.6 720.	997.8 5.3 720.	998.7 5.5 720.	998.1 5.7 720.	996.5 5.9 720.	996.2 5.8 720.	997.9 5.8 720.	998.6 5.7 720.	994.5 standard deviations number of observations	1001.0 standard deviations number of observations	977.6	1011.0				
December	994.2 5.6 744.	994.3 5.6 744.	995.1 6.0 744.	994.2 6.3 744.	992.7 6.3 744.	992.3 6.4 744.	994.0 6.1 744.	994.9 6.1 744.	990.8 standard deviations number of observations	996.9 standard deviations number of observations	977.6	1007.2				

Table 21



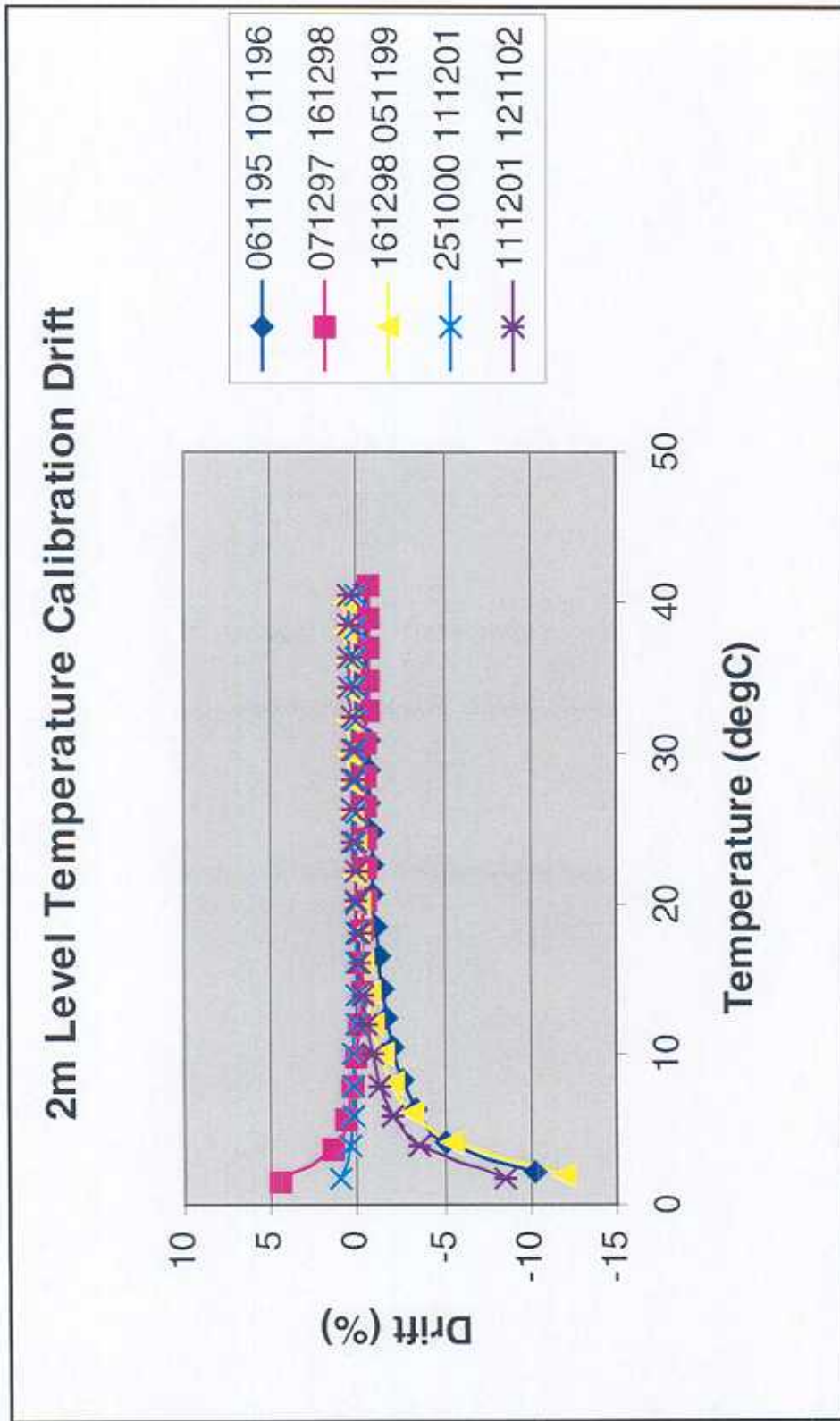


Figure 2 Annual Temperature Sensor Calibration Drift

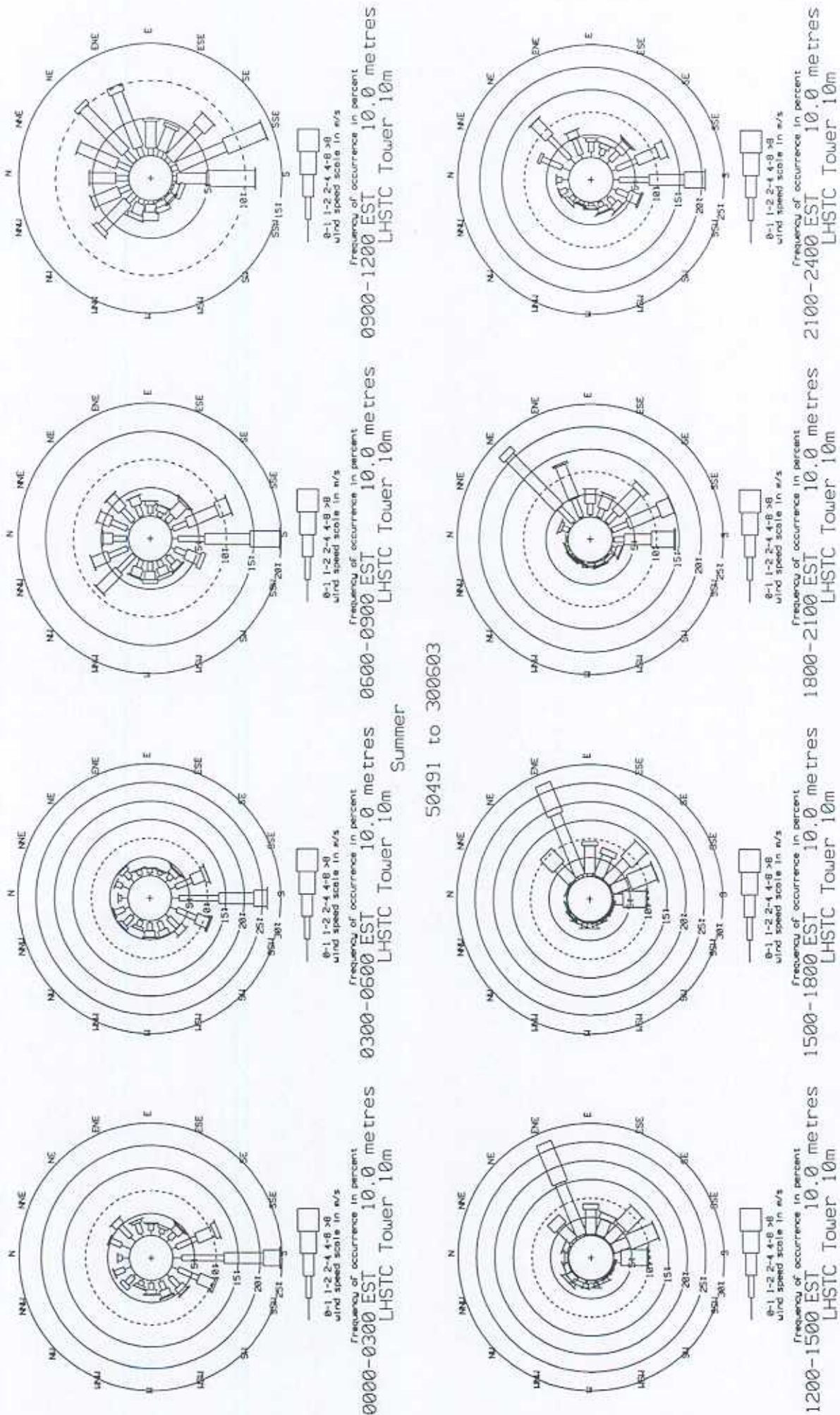


Figure 3

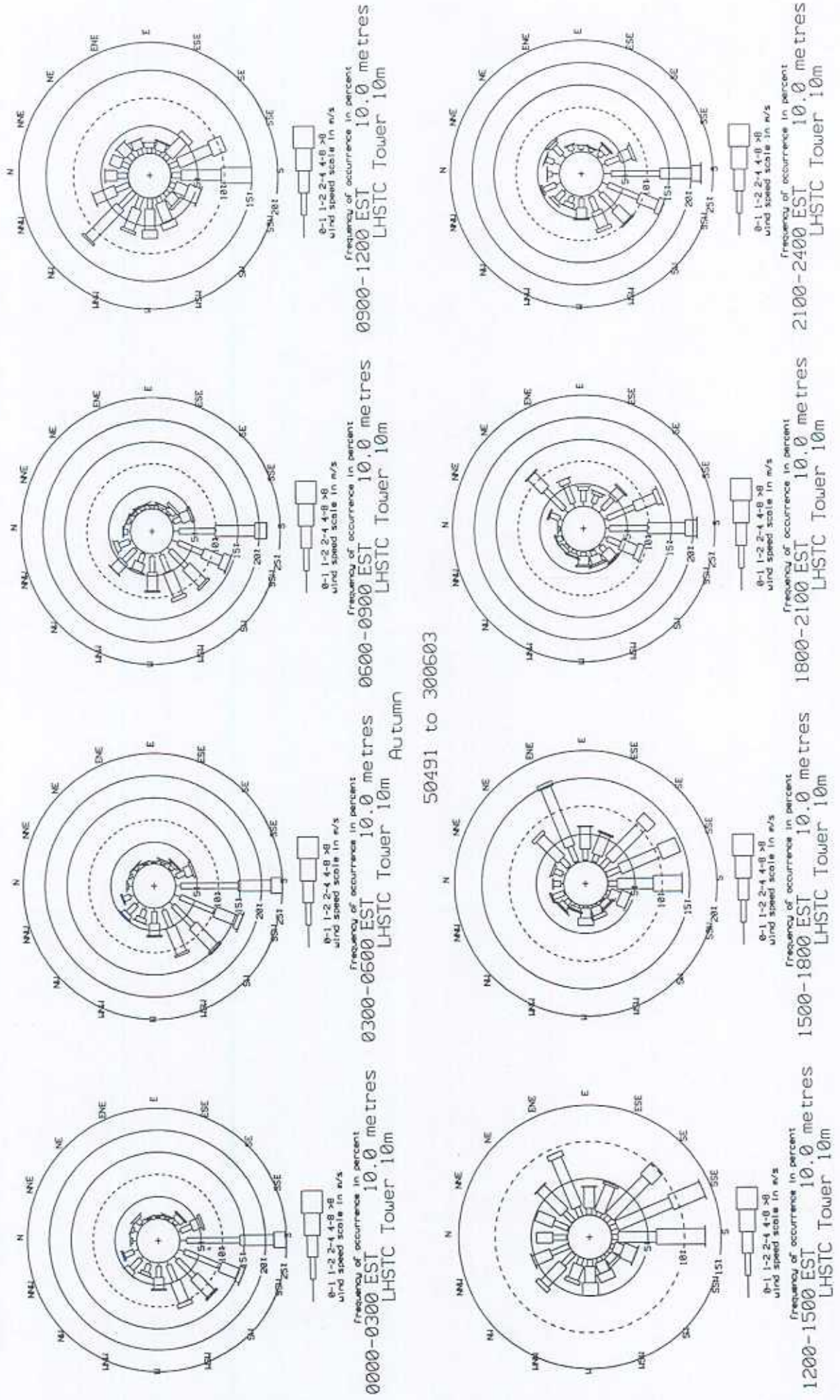


Figure 4

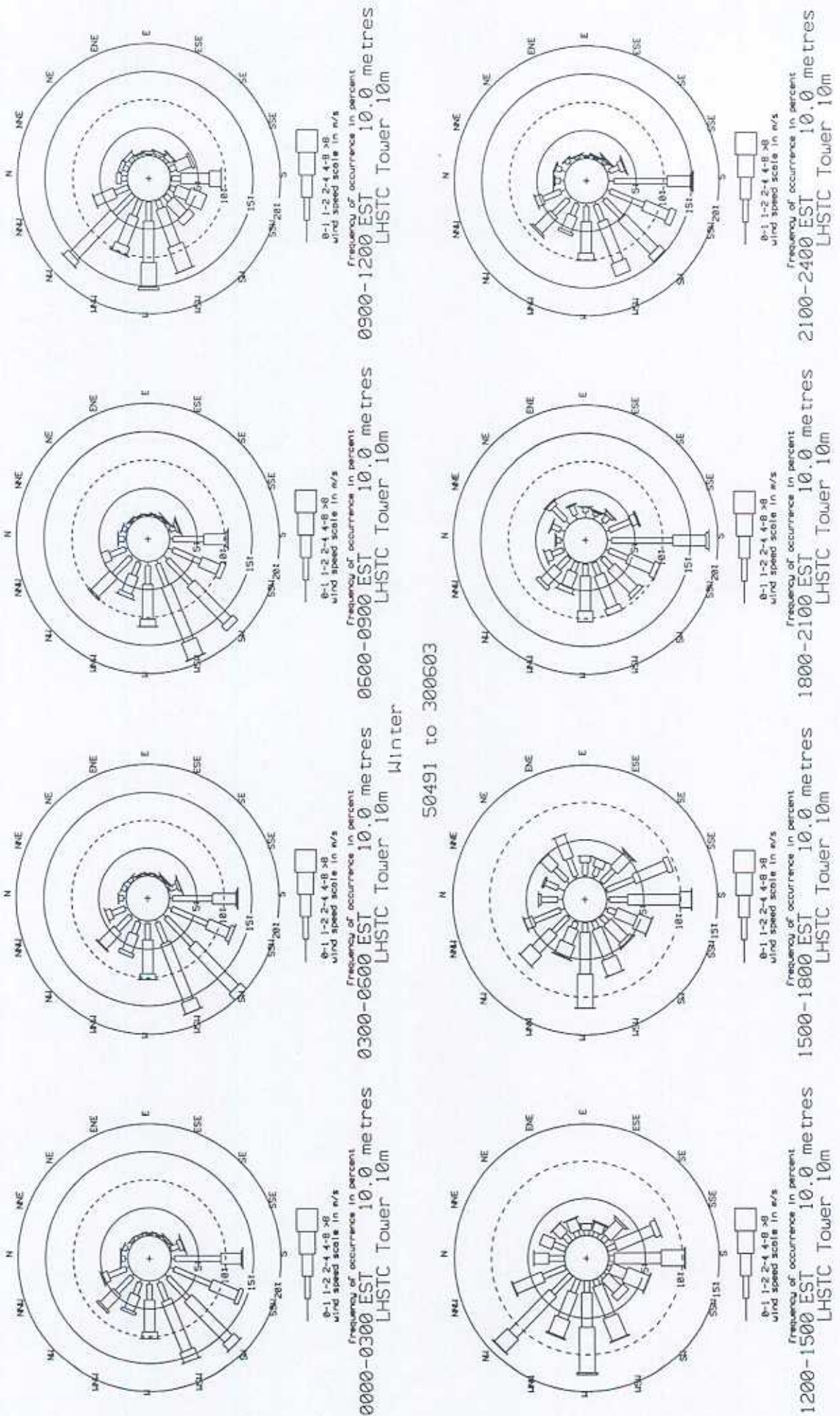


Figure 5

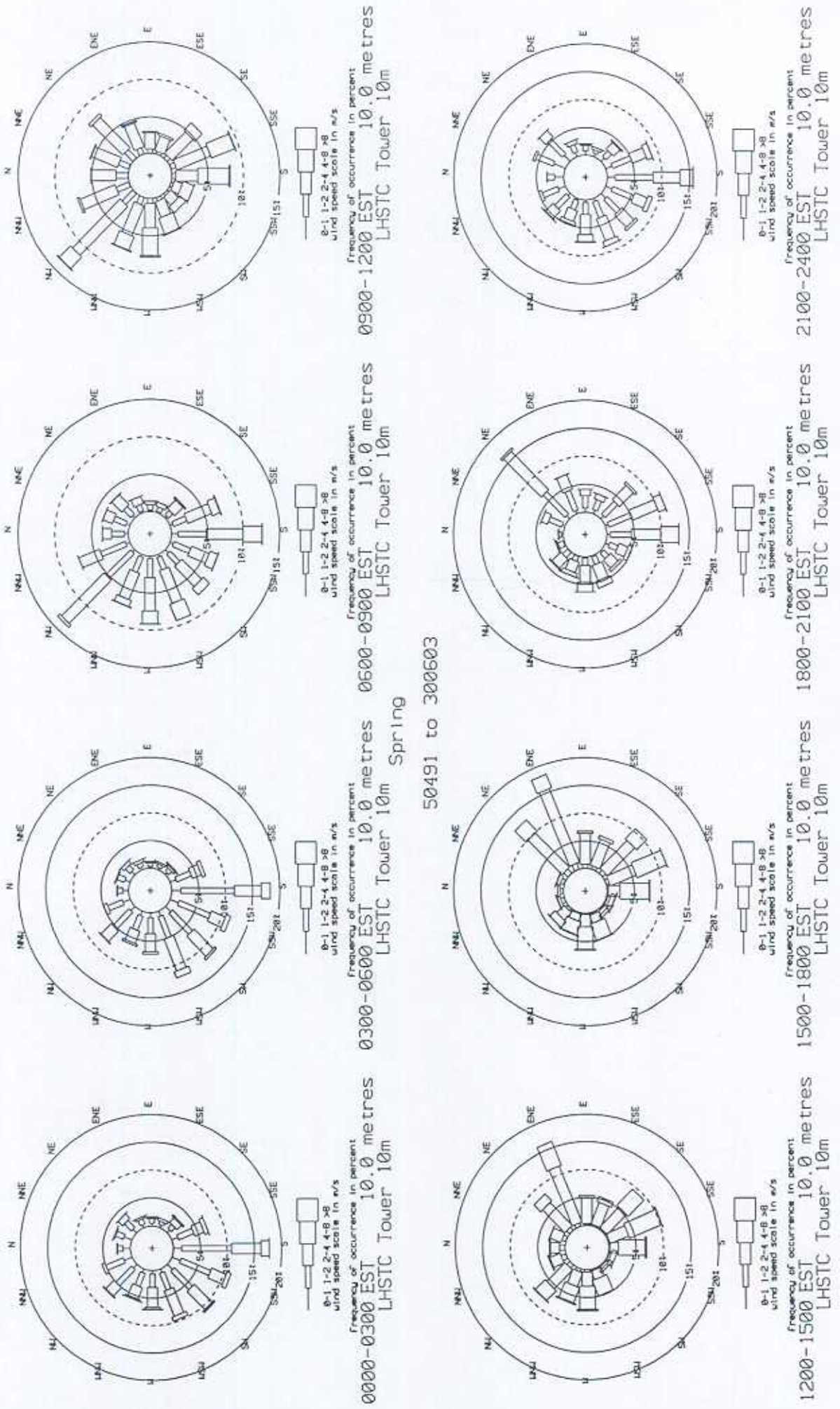


Figure 6

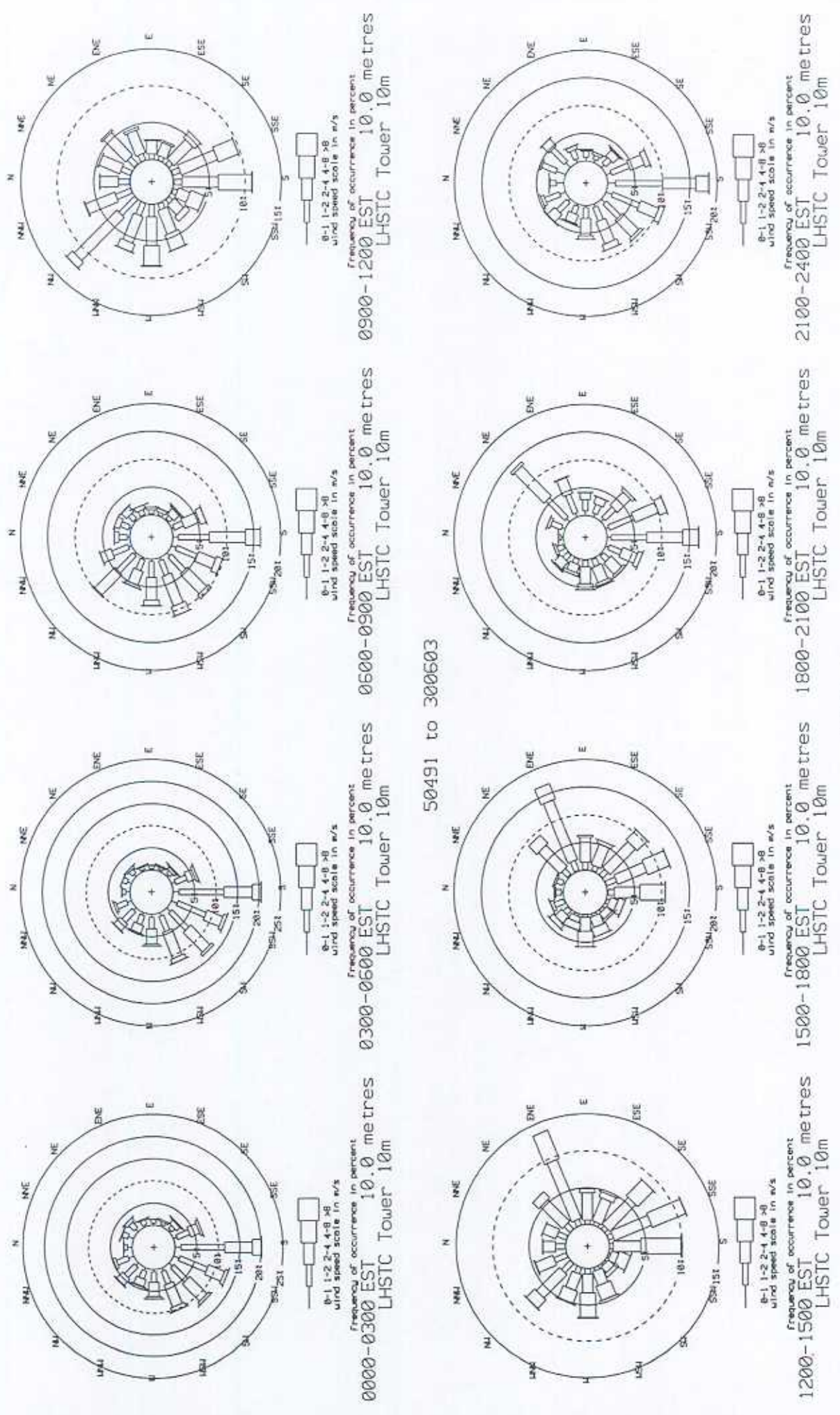


Figure 7



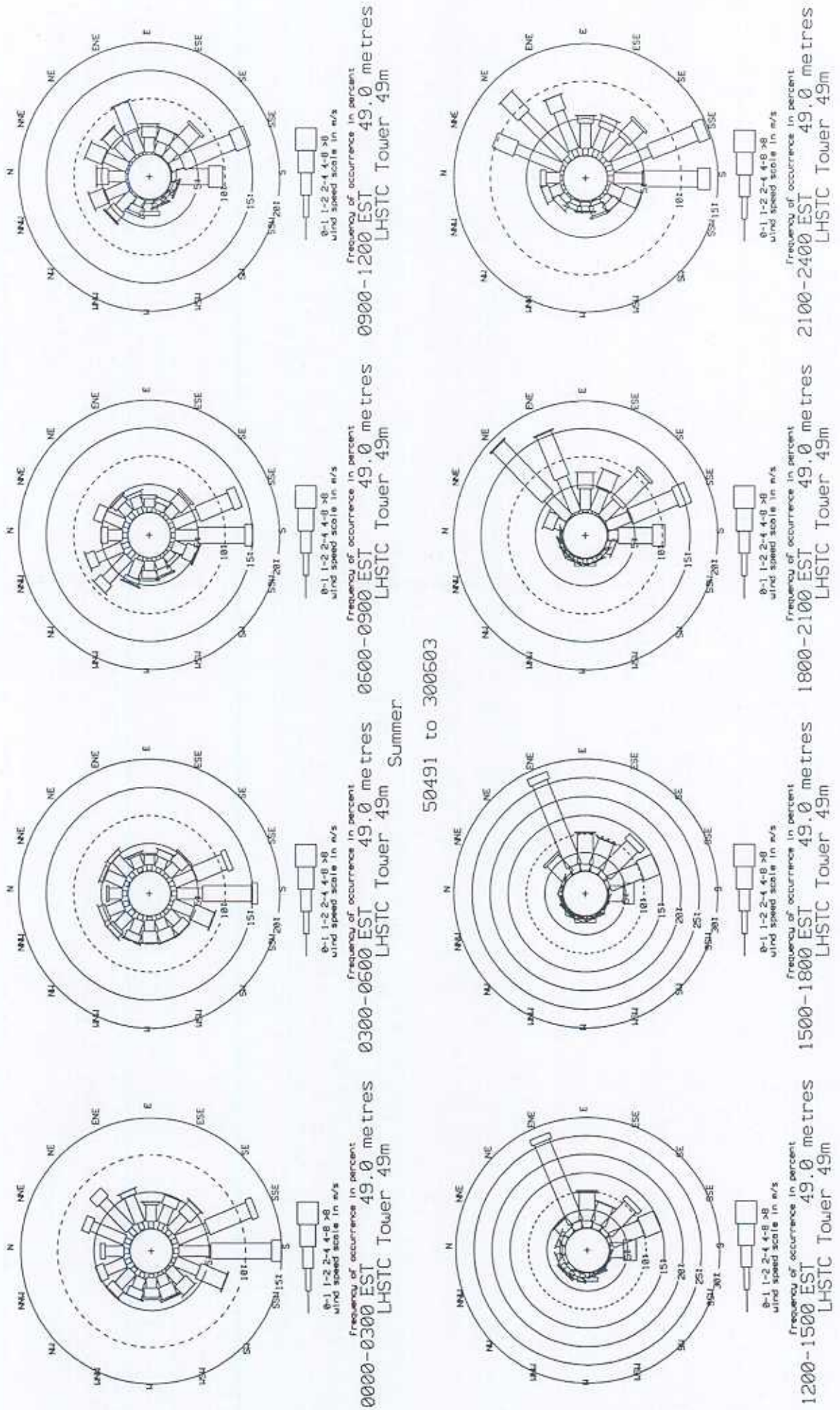


Figure 8

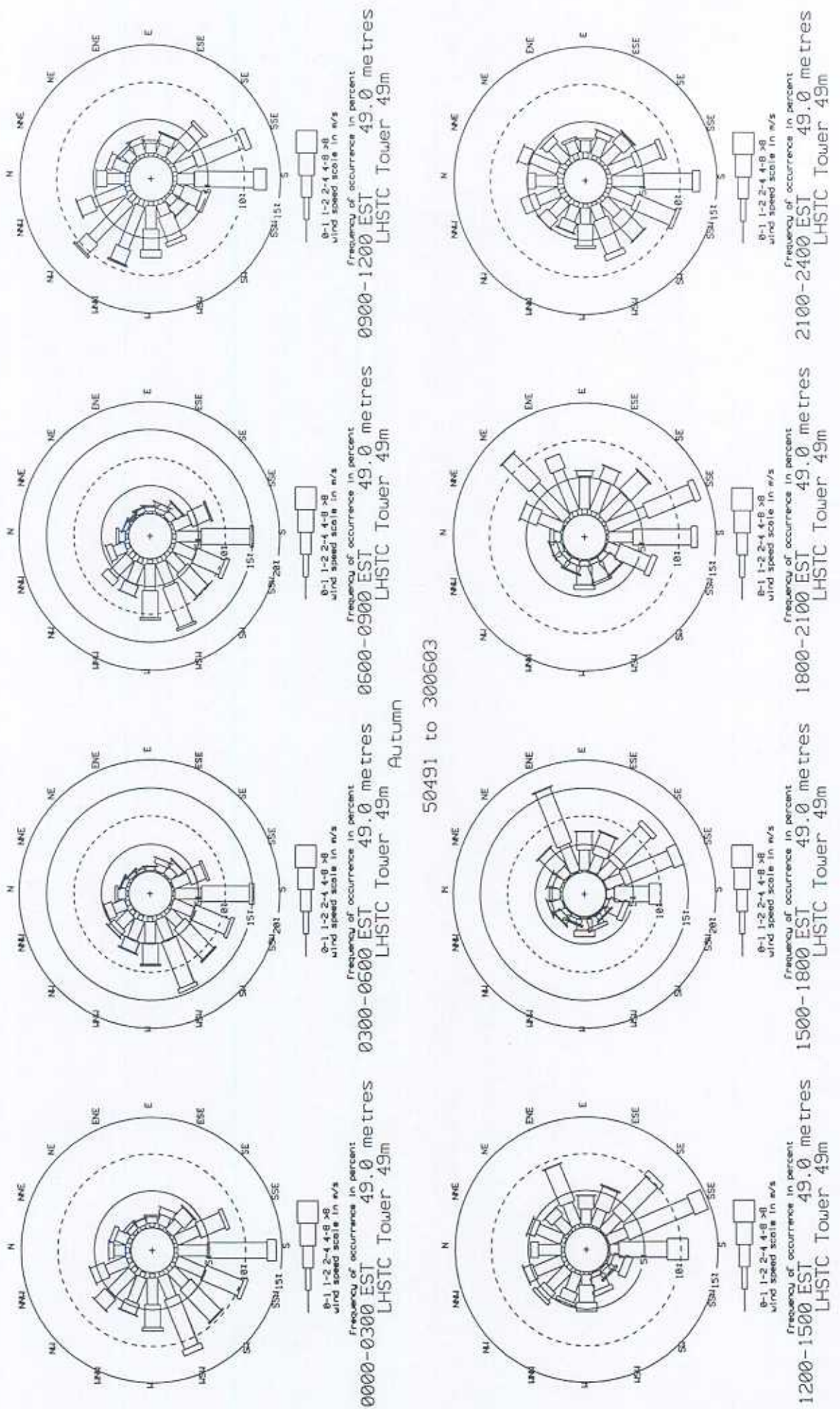


Figure 9

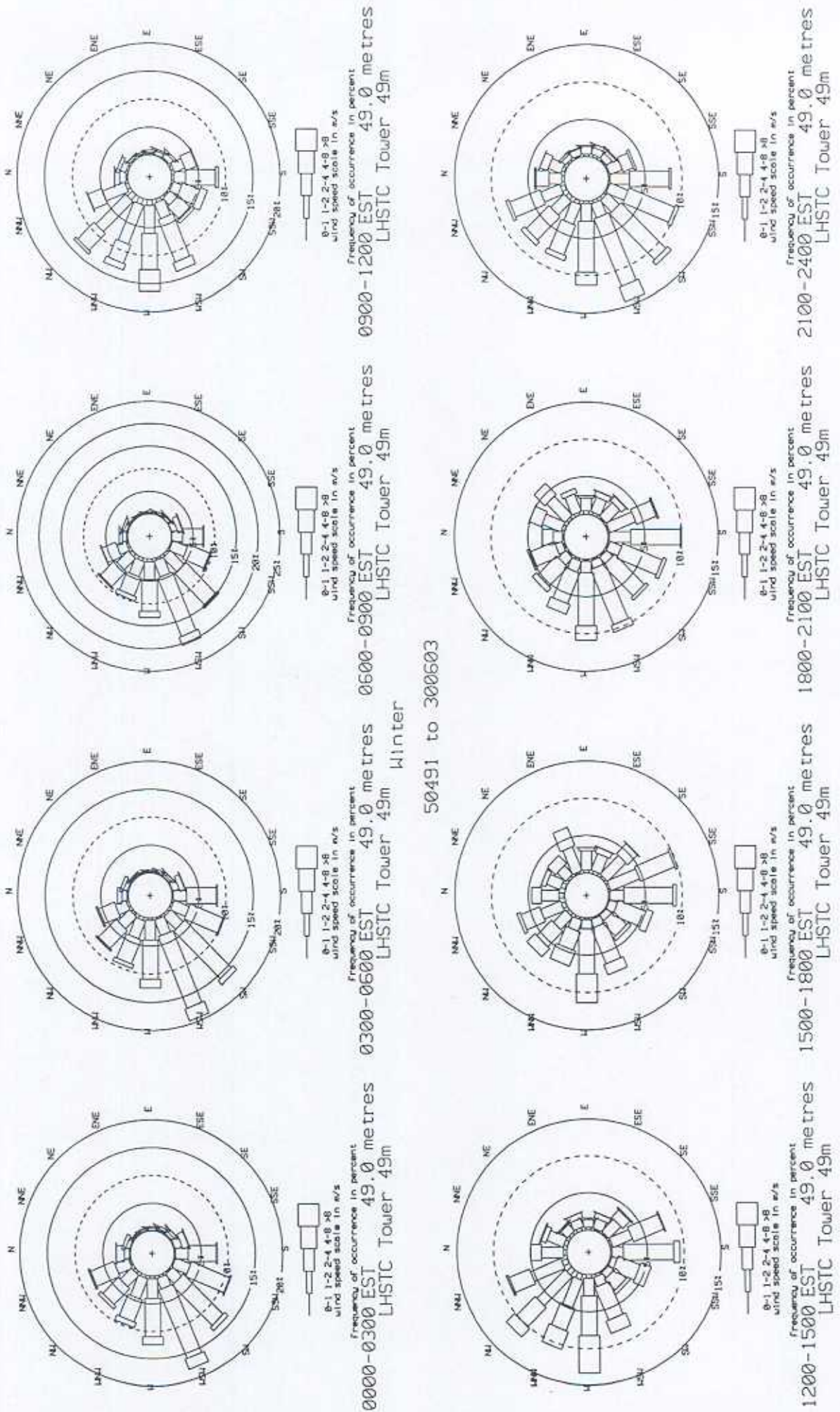


Figure 10

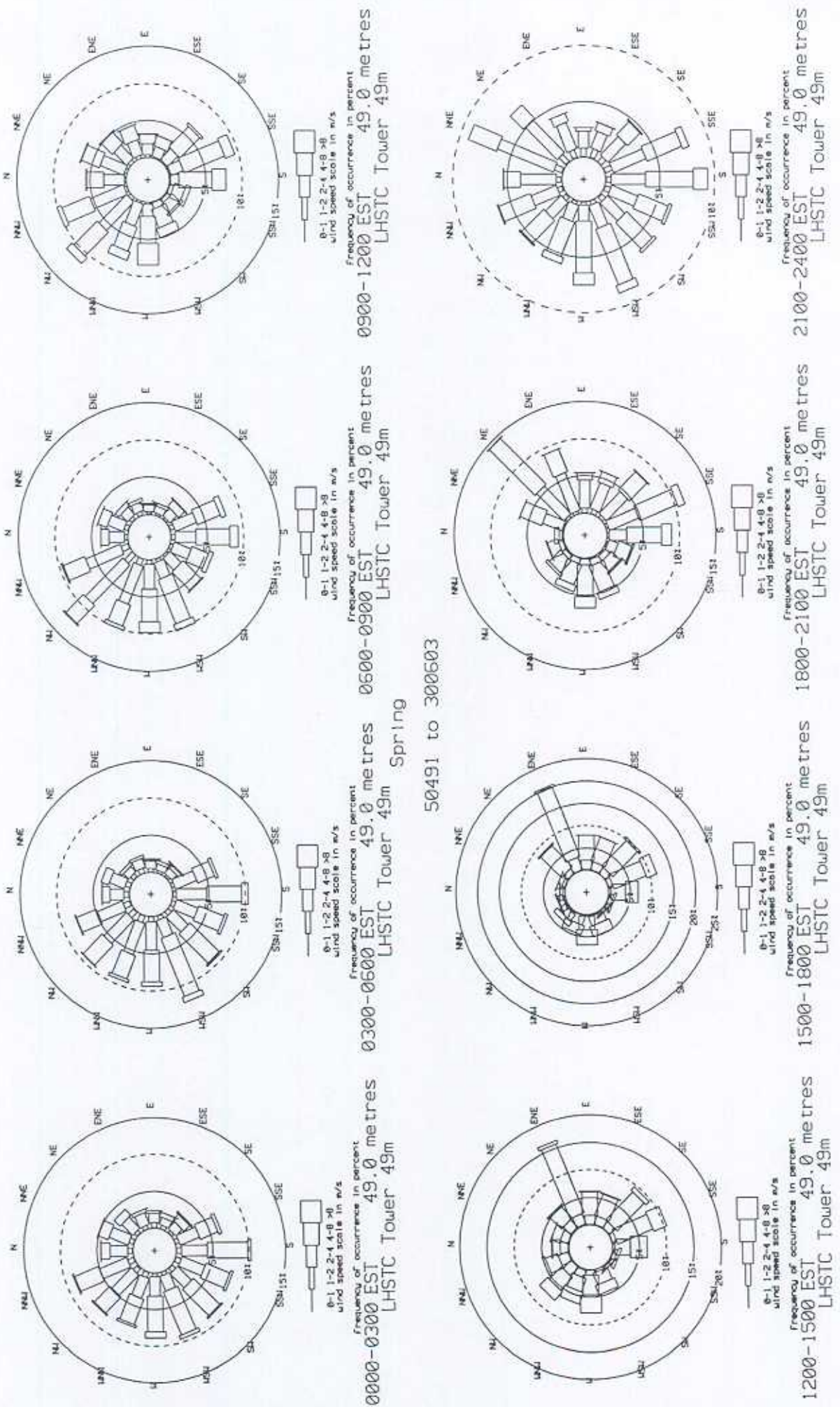


Figure 11

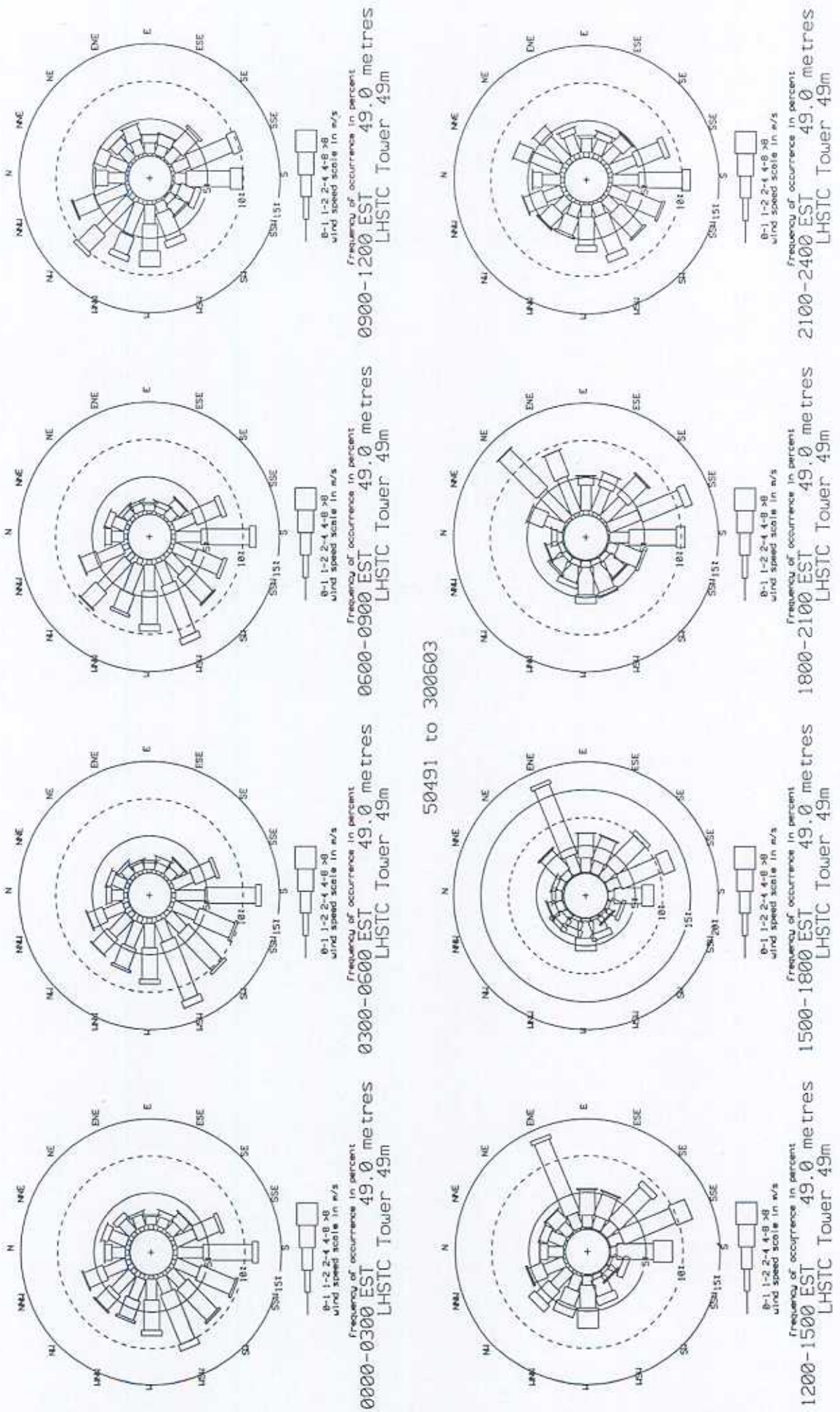


Figure 12

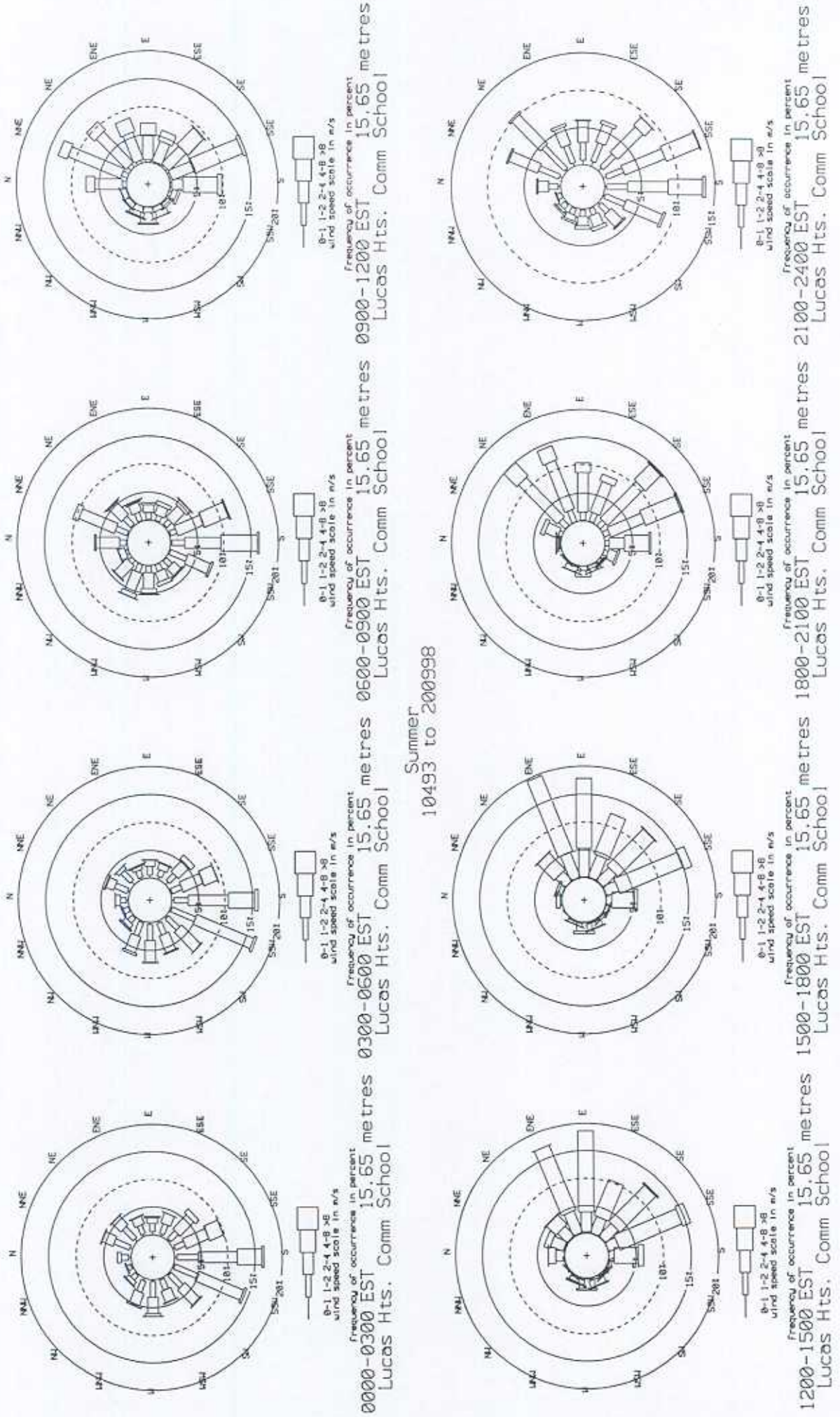
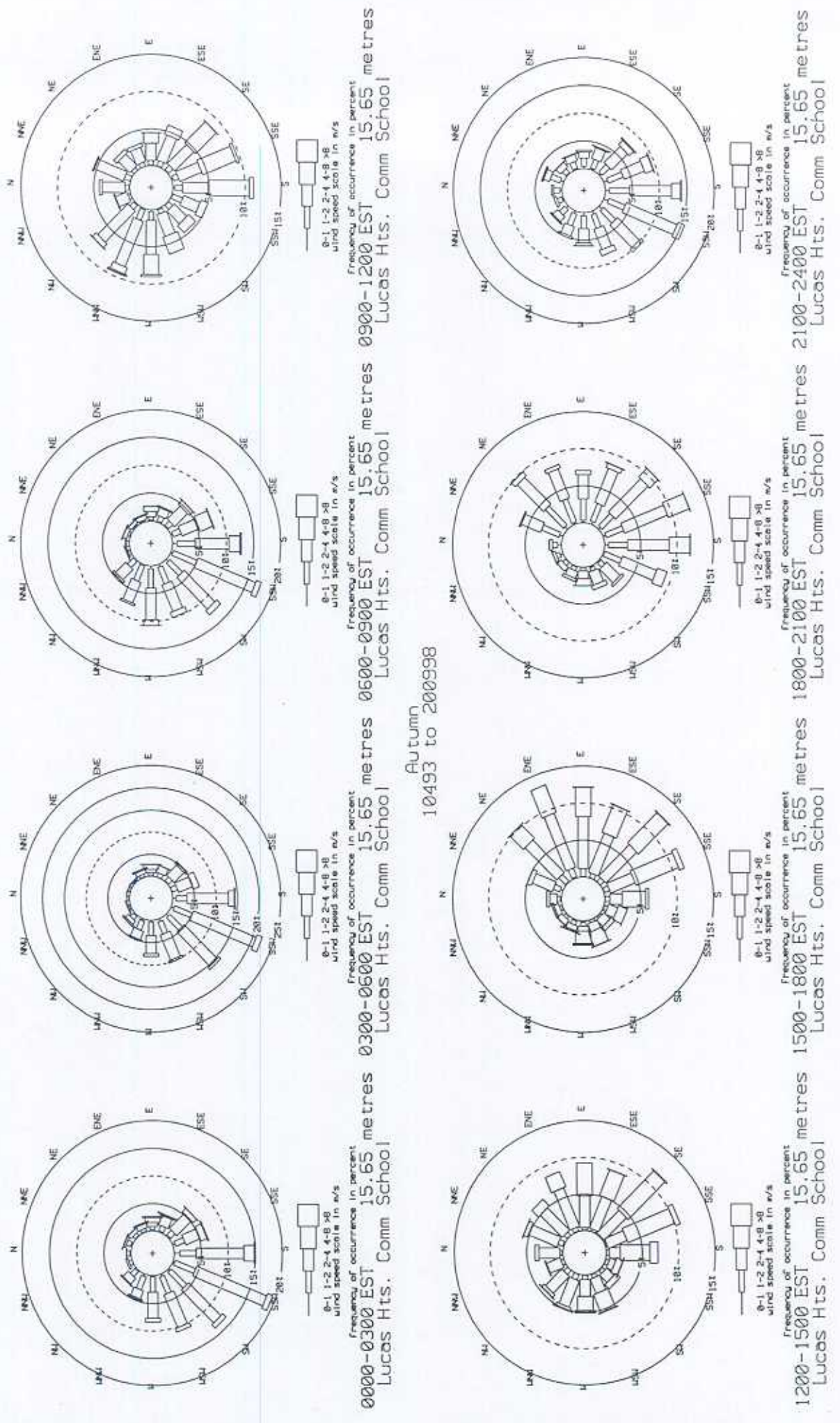


Figure 13



Autumn  
10493 to 20098

Figure 14

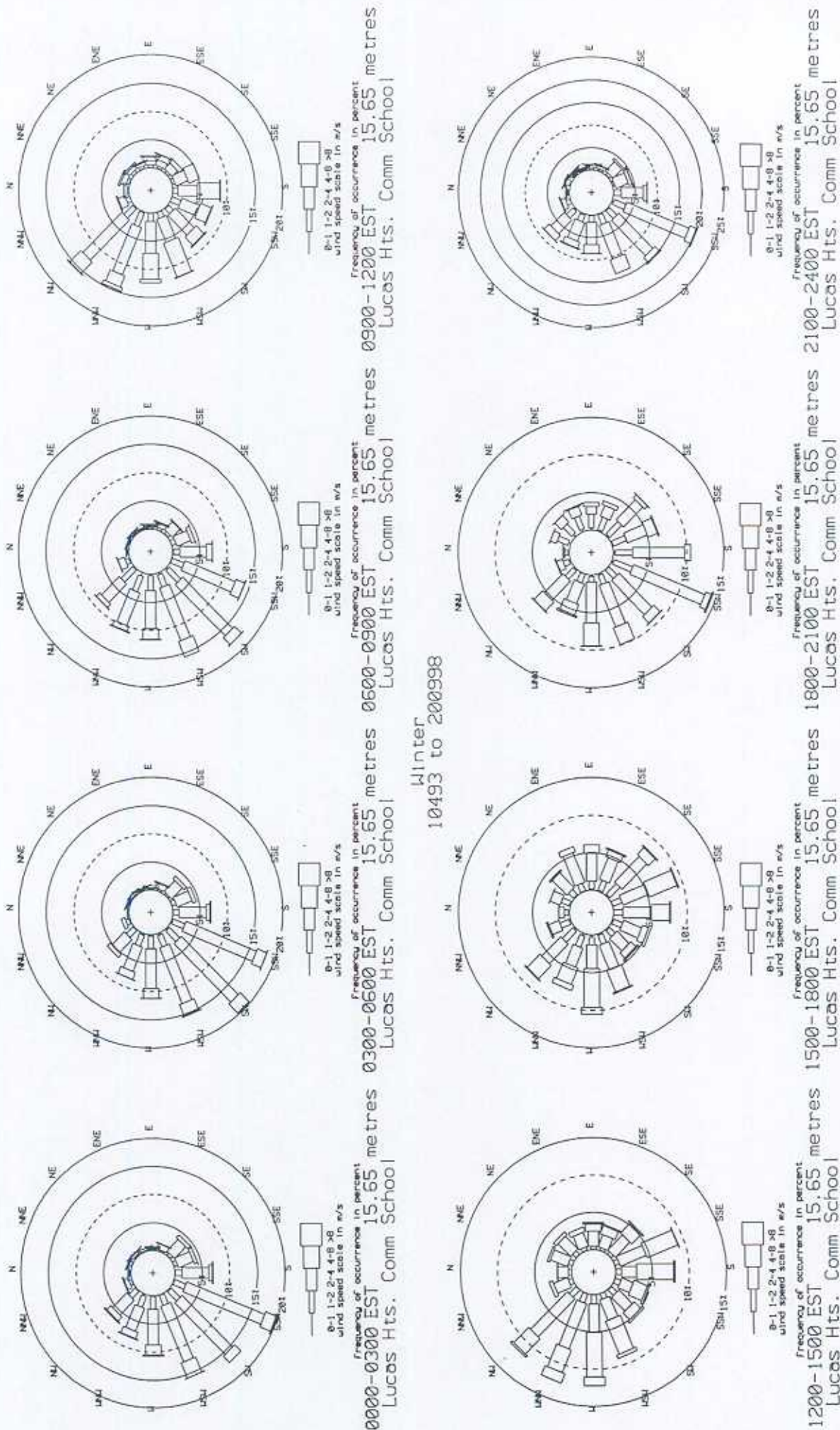


Figure 15



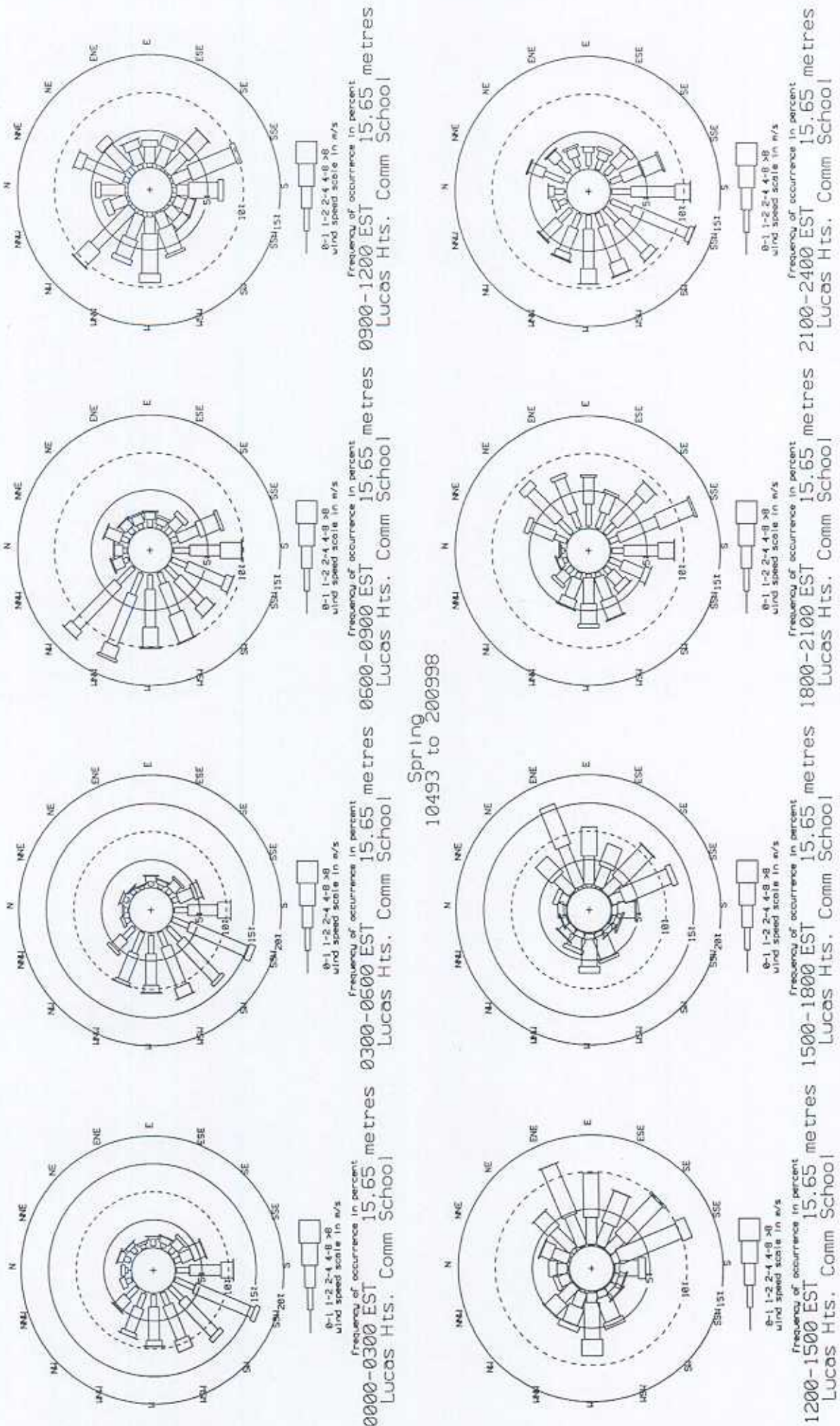


Figure 16

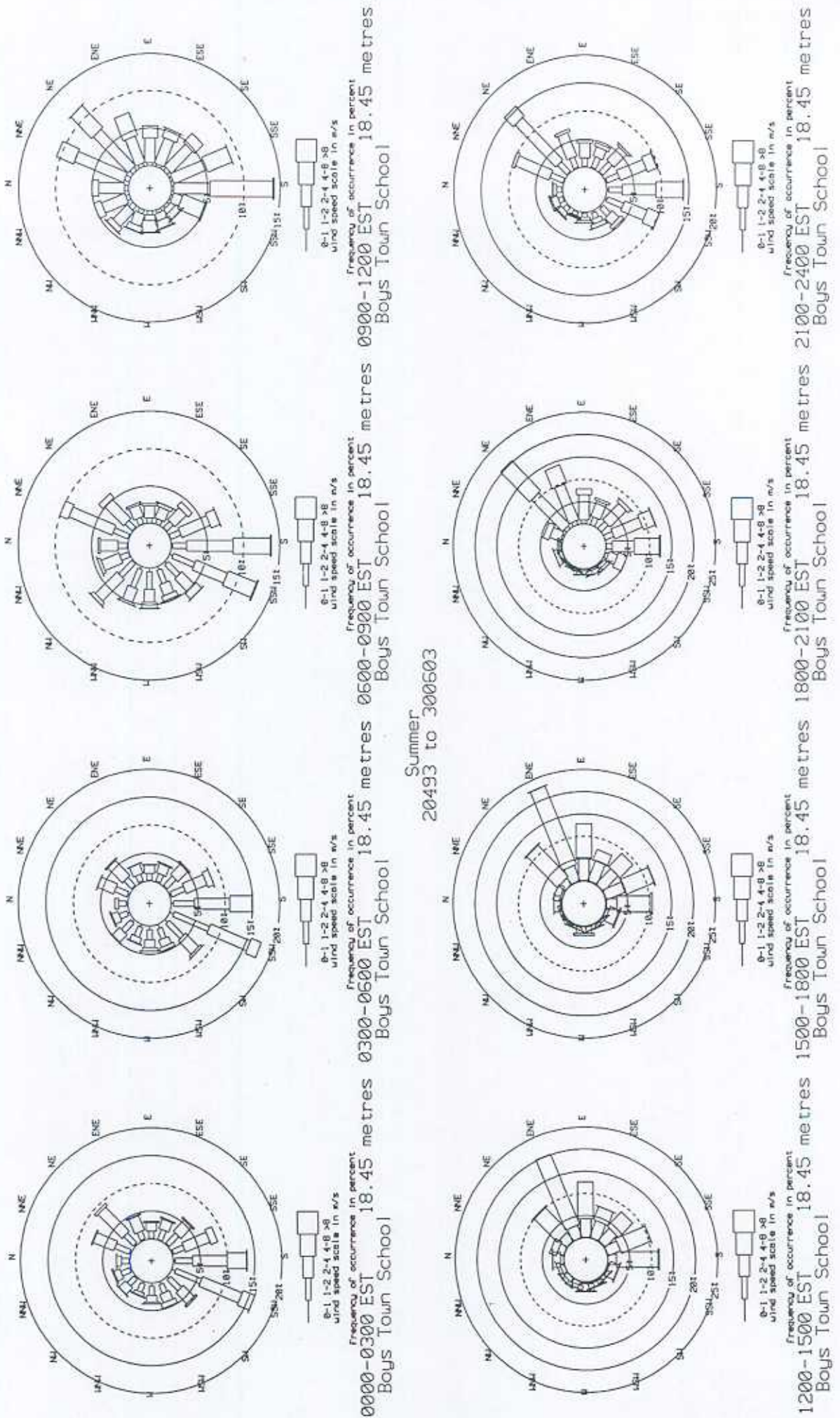


Figure 17

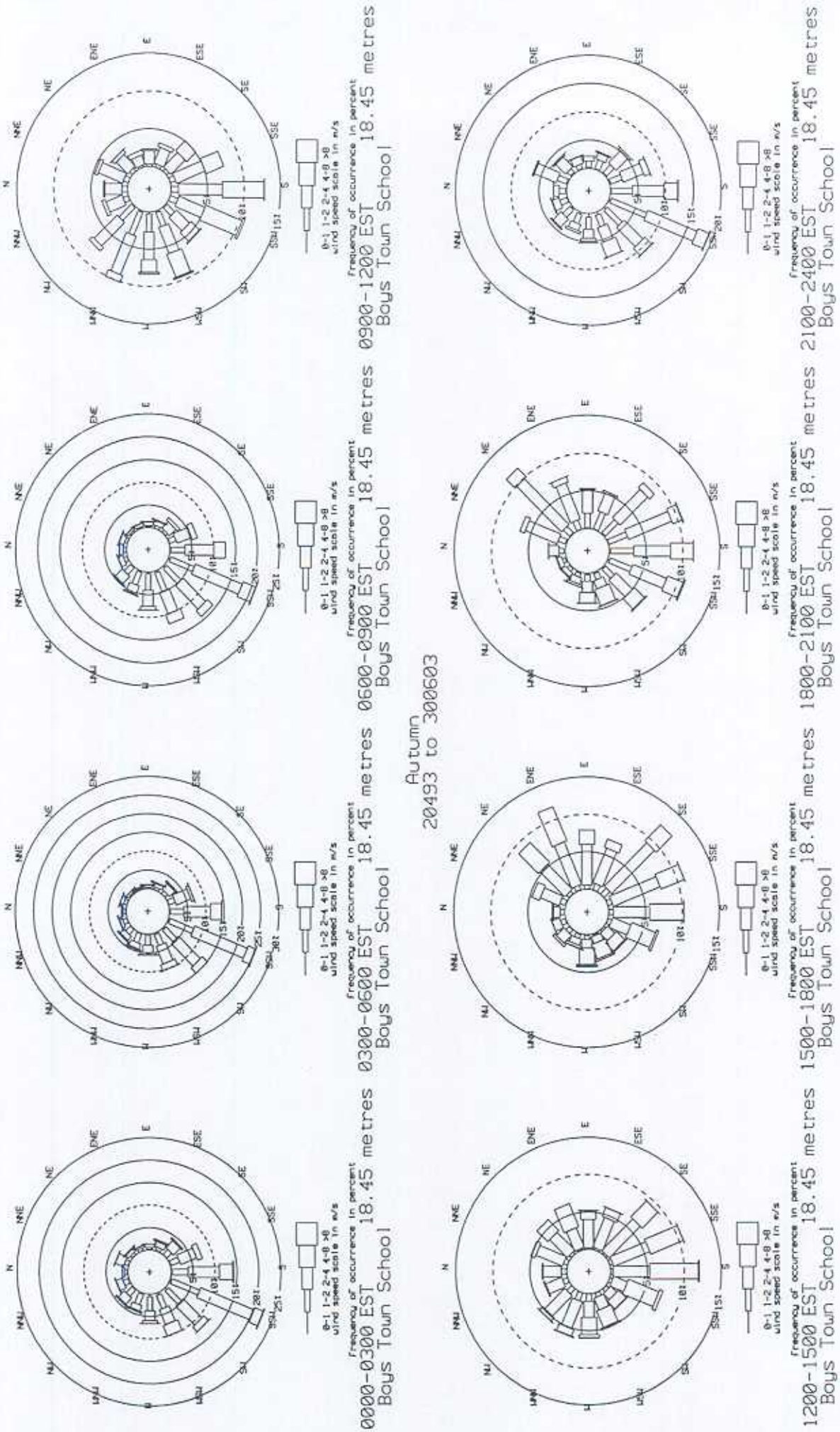


Figure 18

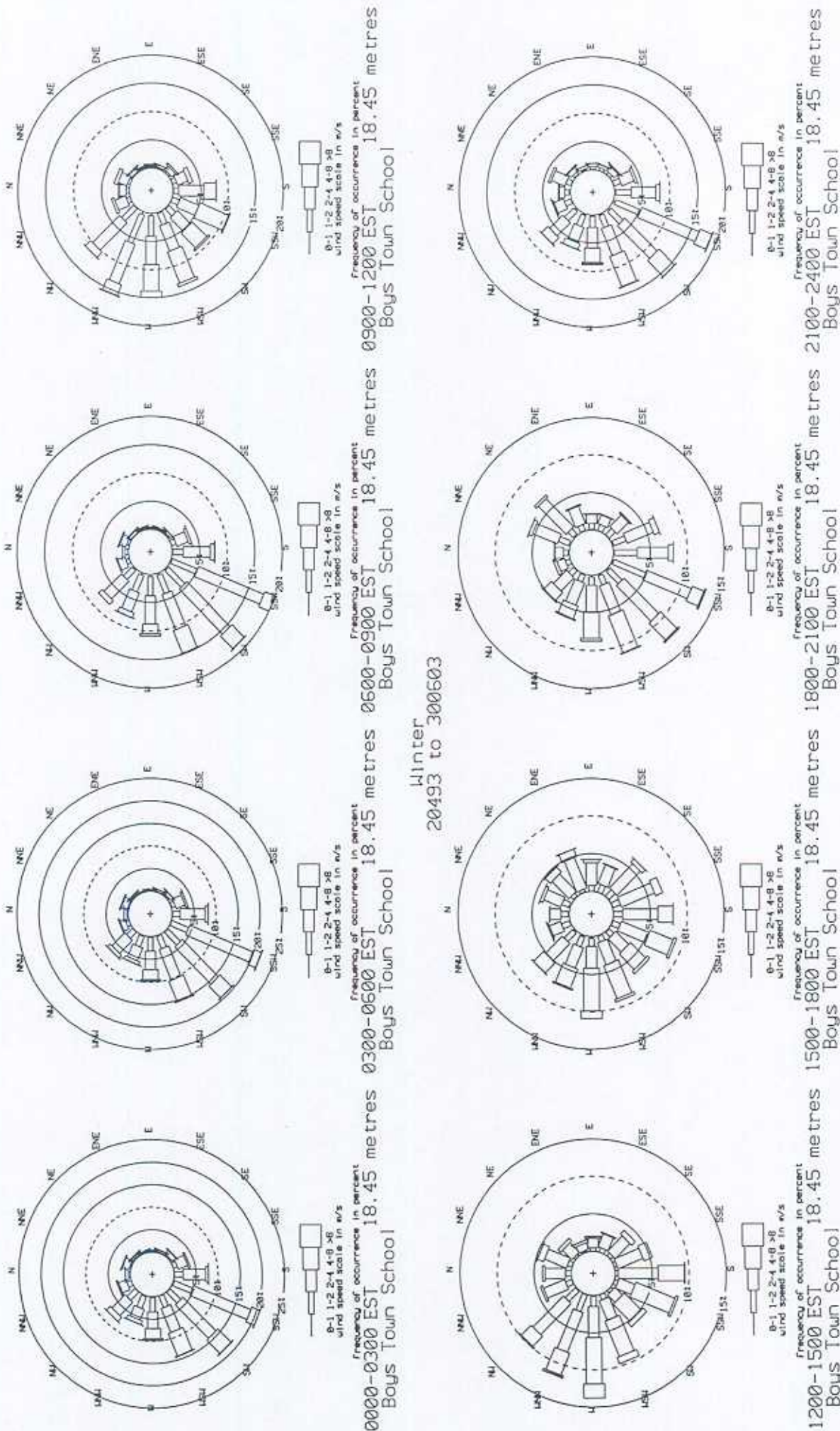


Figure 19

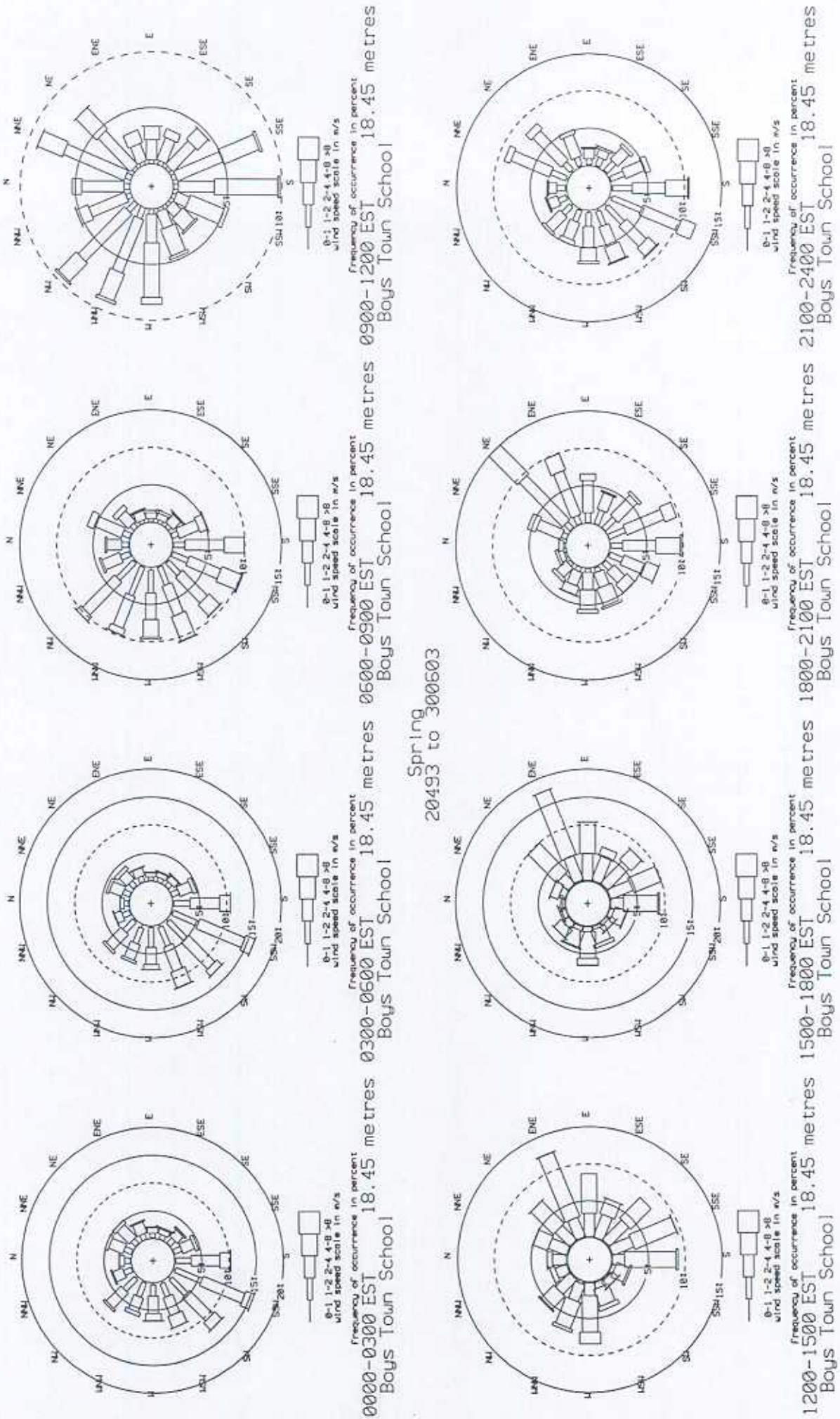


Figure 20

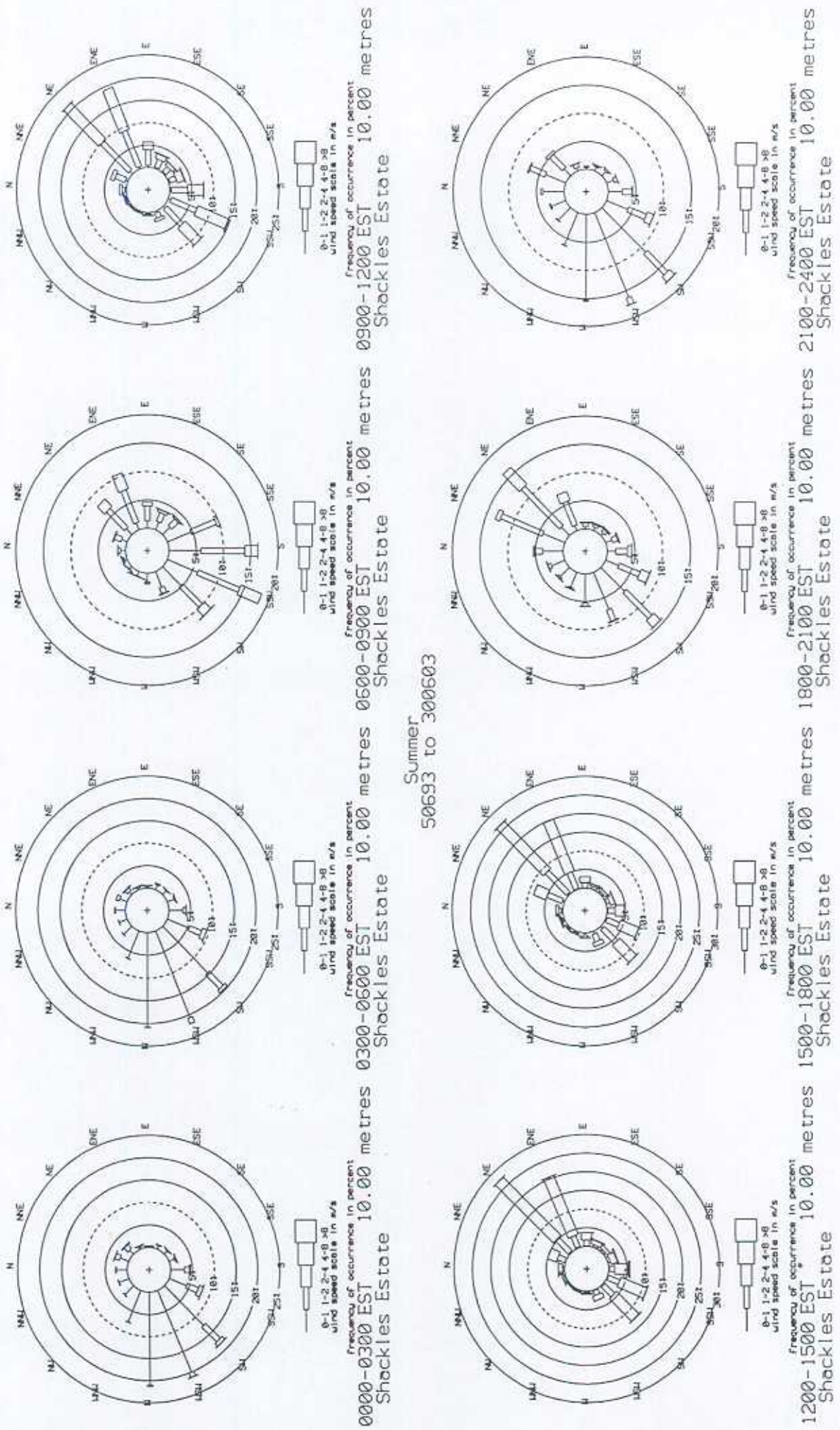


Figure 21

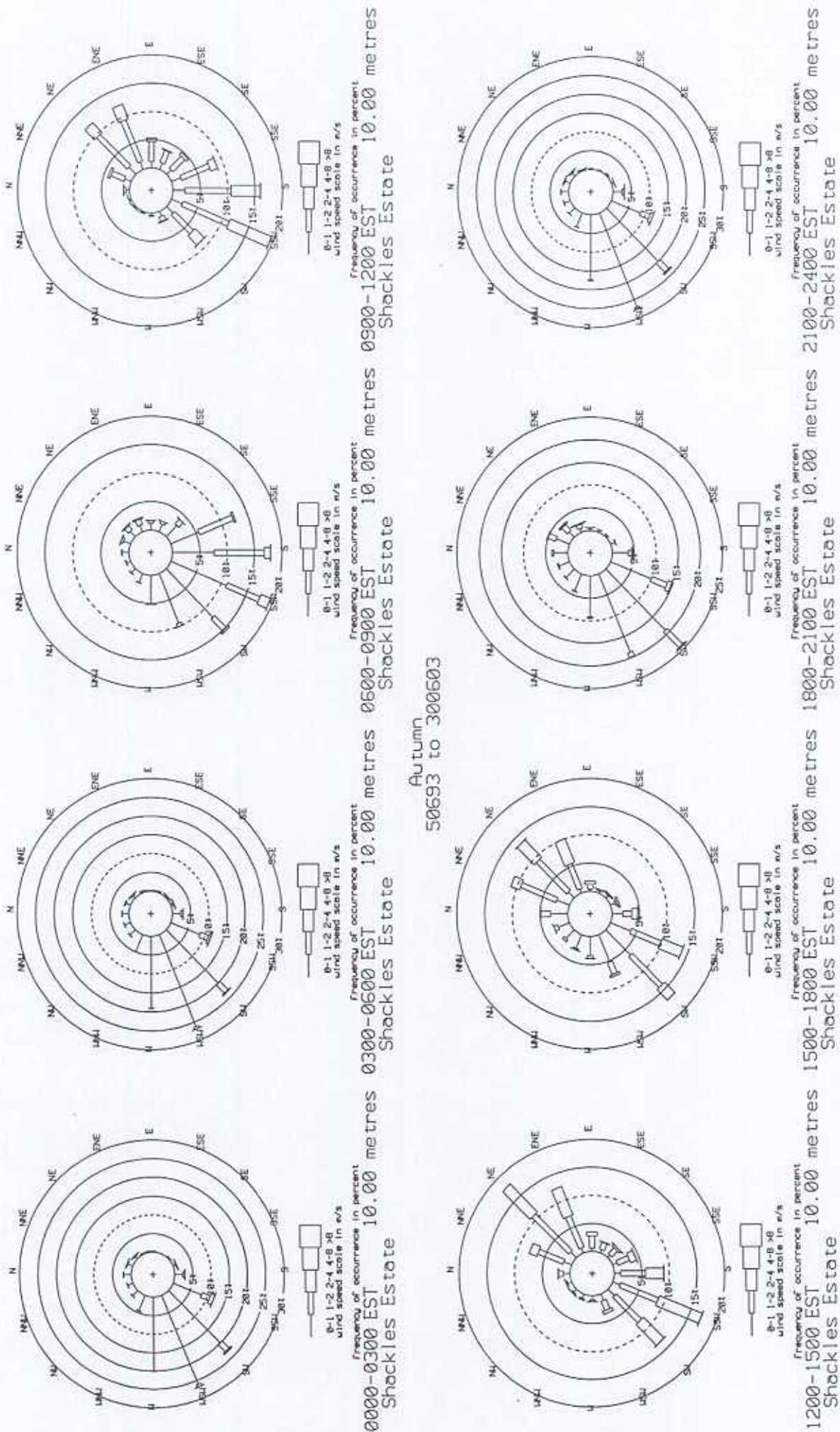


Figure 22

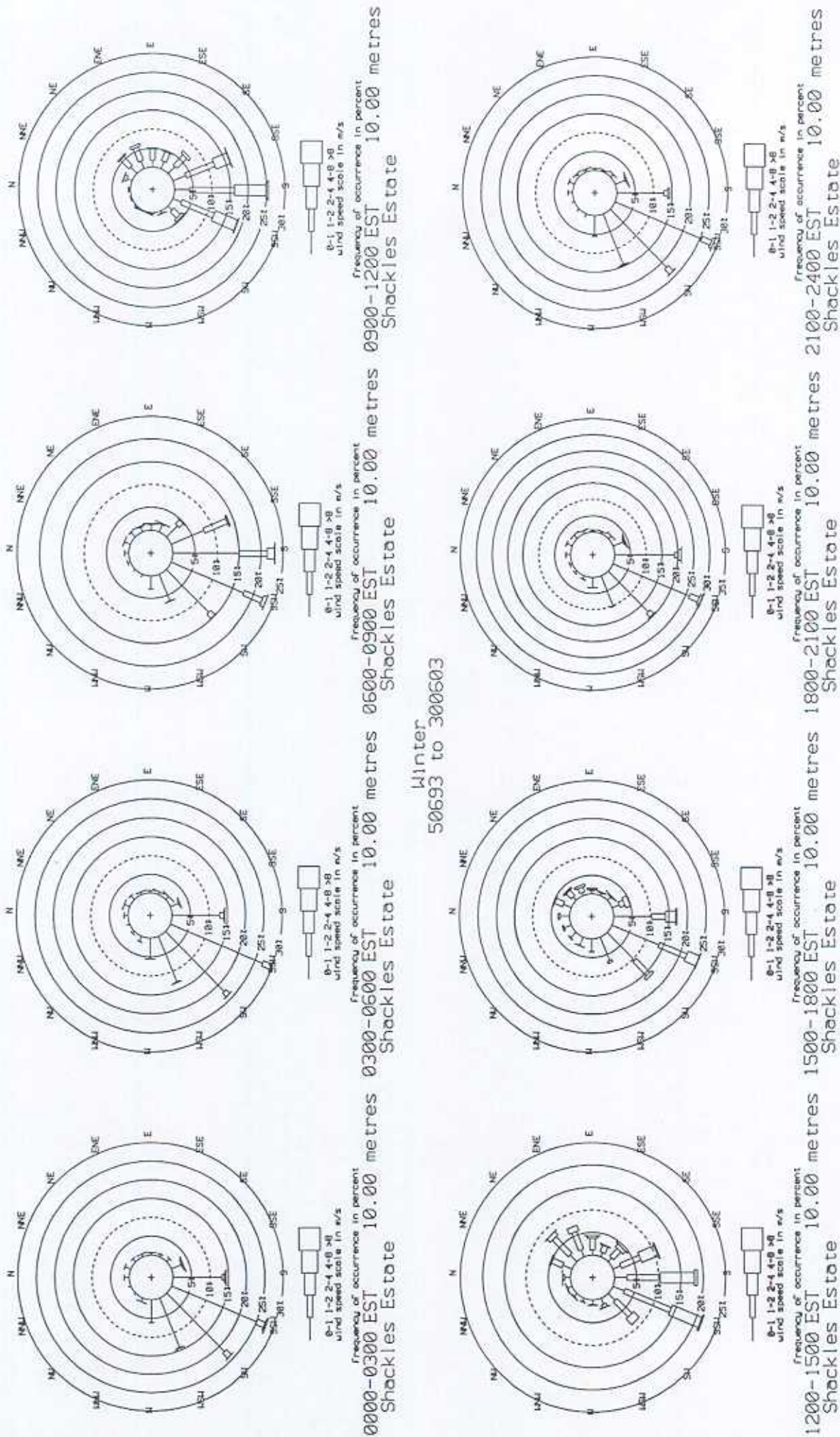
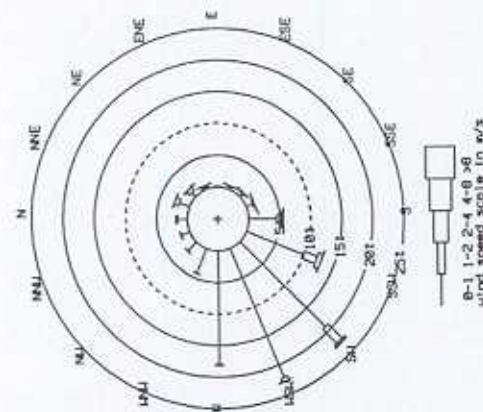
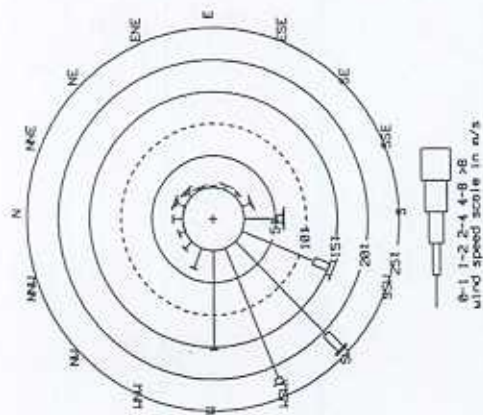


Figure 23

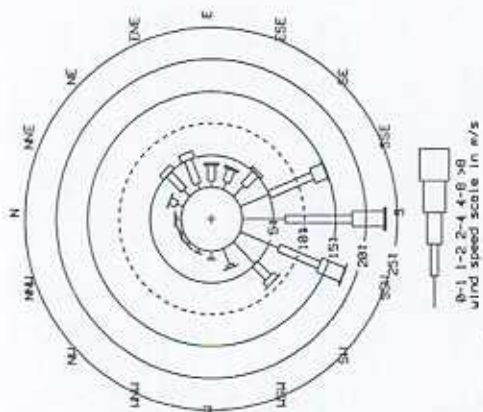




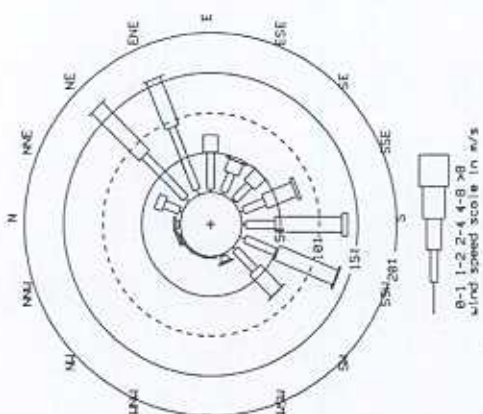
0000-0300 EST 10.00 metres  
Shackles Estate



0300-0600 EST 10.00 metres  
Shackles Estate

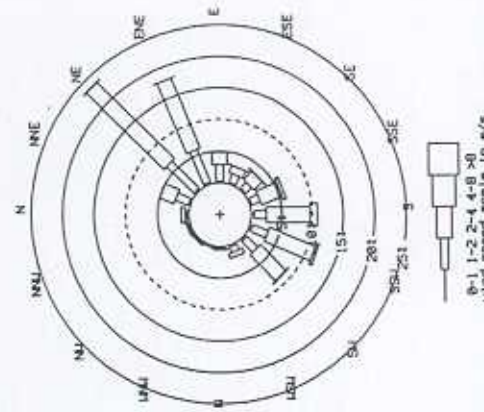


0600-0900 EST 10.00 metres  
Shackles Estate

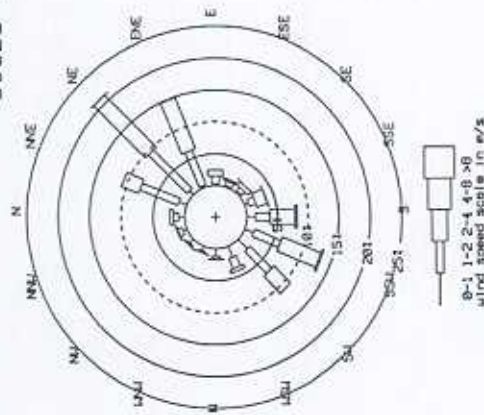


0900-1200 EST 10.00 metres  
Shackles Estate

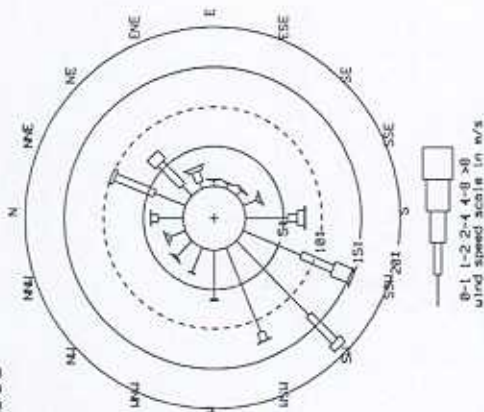
Spring  
50693 to 300503



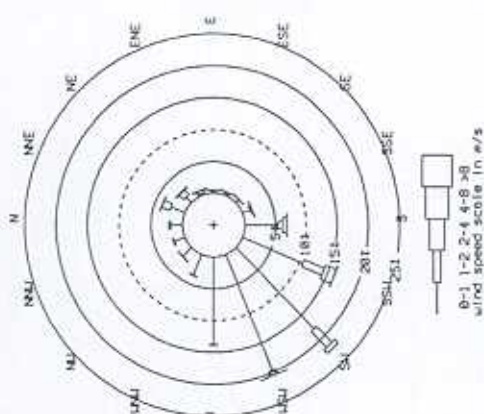
1200-1500 EST 10.00 metres  
Shackles Estate



1500-1800 EST 10.00 metres  
Shackles Estate



1800-2100 EST 10.00 metres  
Shackles Estate



2100-2400 EST 10.00 metres  
Shackles Estate

### Frequency of Rainfall observations vs Wind Direction 201092 to 300603

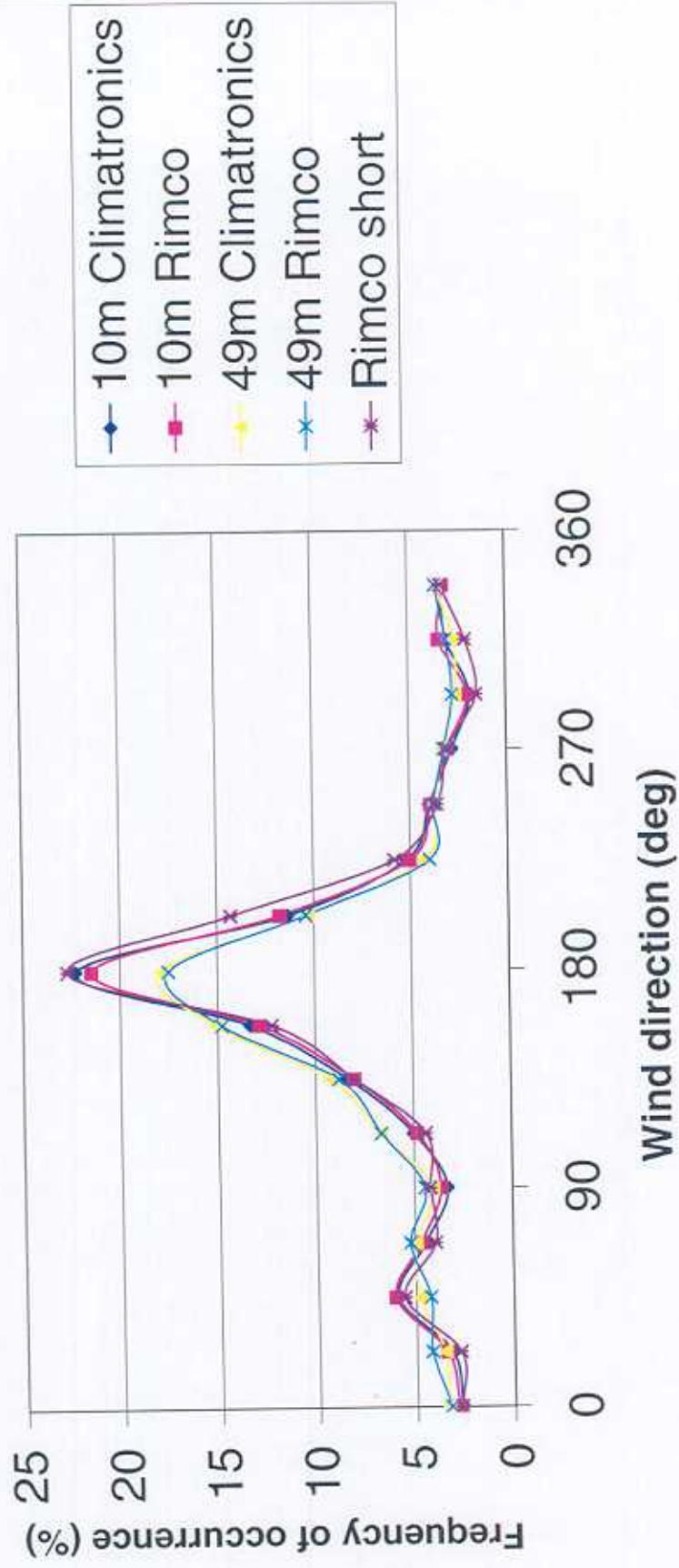


Figure 25

### Rainfall rates ( $\text{mm h}^{-1}$ ) vs Wind Direction 201092 to 300603



Figure 26

### Rainfall rates ( $\text{mm h}^{-1}$ ) vs Wind Direction 040701 to 300603

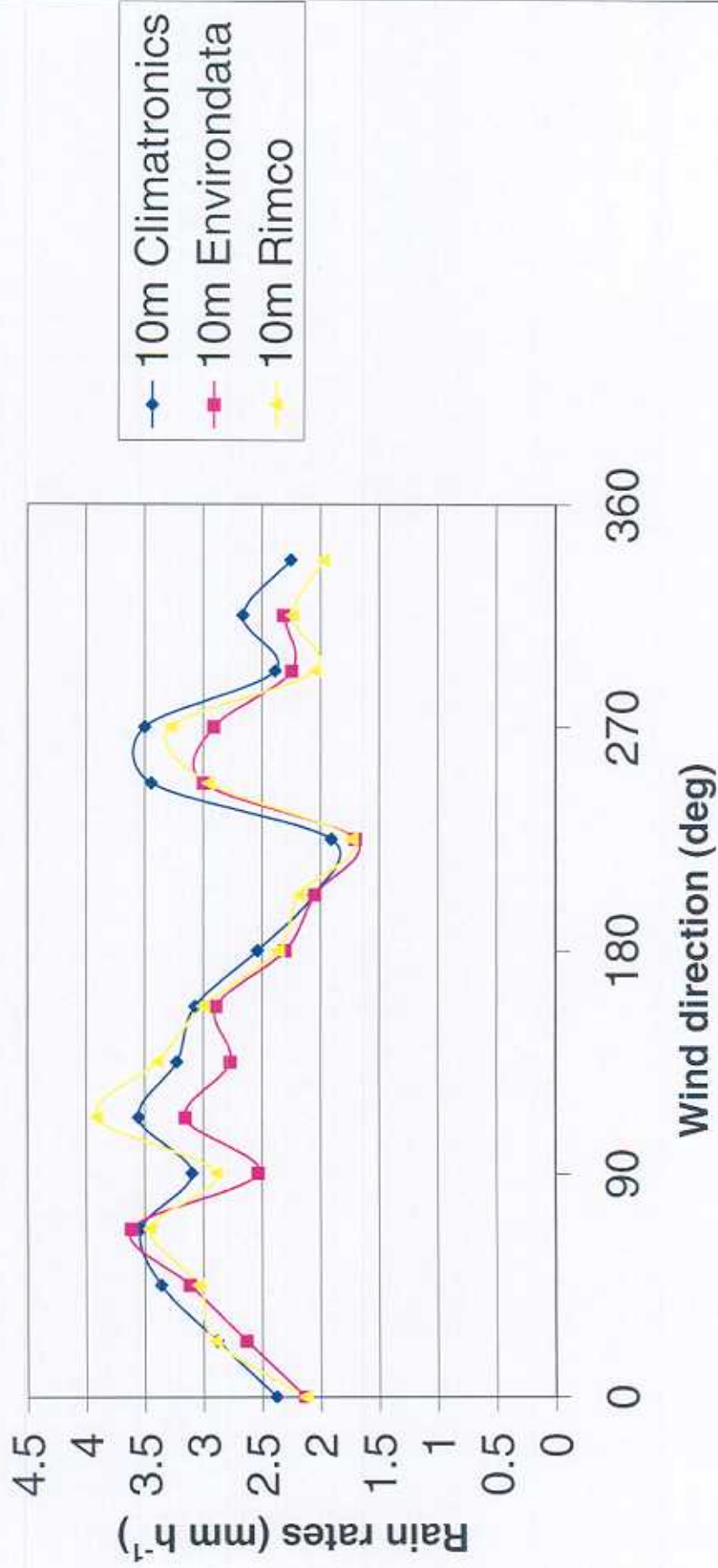


Figure 27

### Average raindrop spectra vs rain rate (mm/h) 050899 to 310101

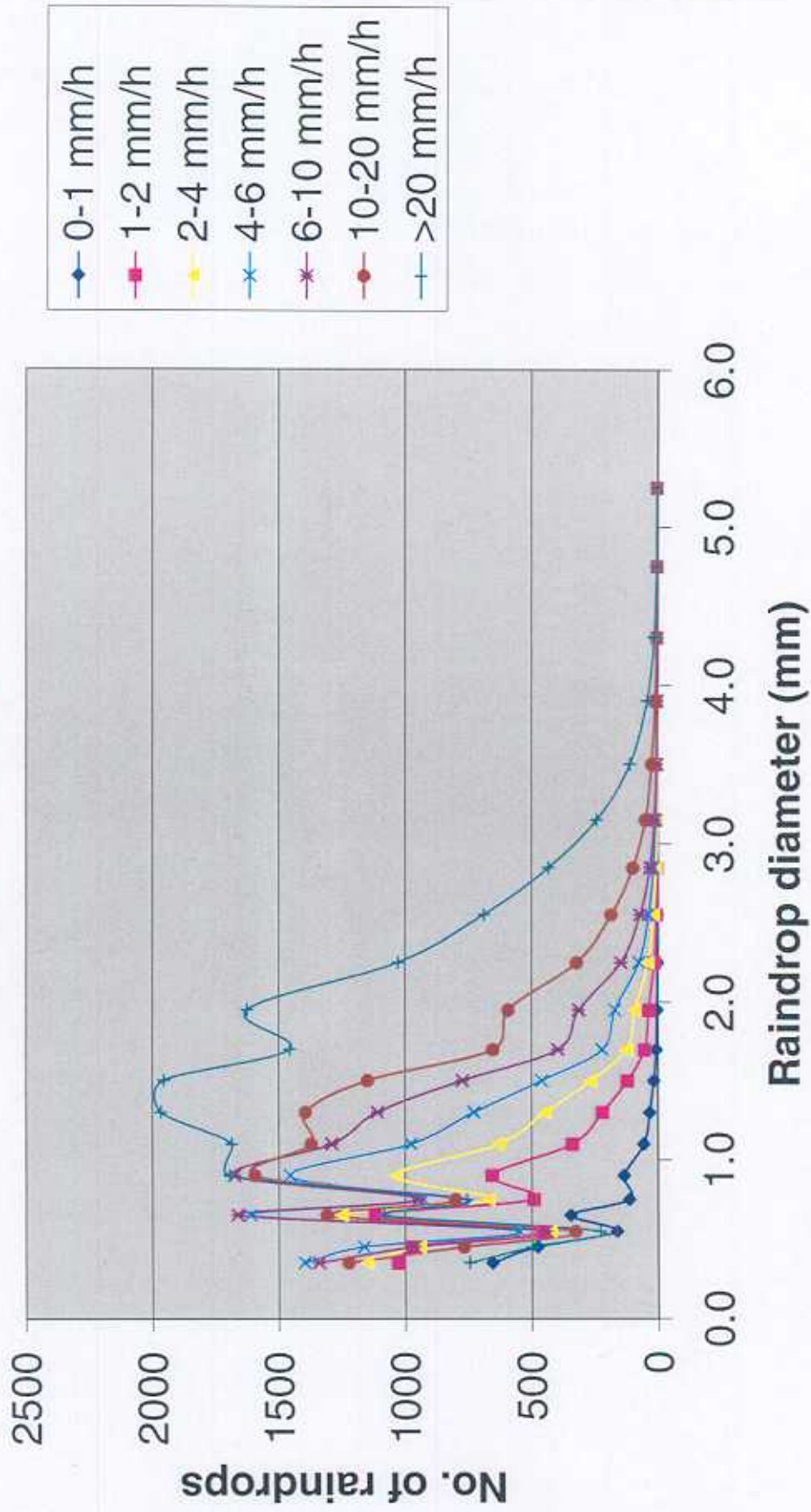


Figure 28

**Normalised average raindrop spectra vs rain rate (mm/h)**  
**050899 to 310101**

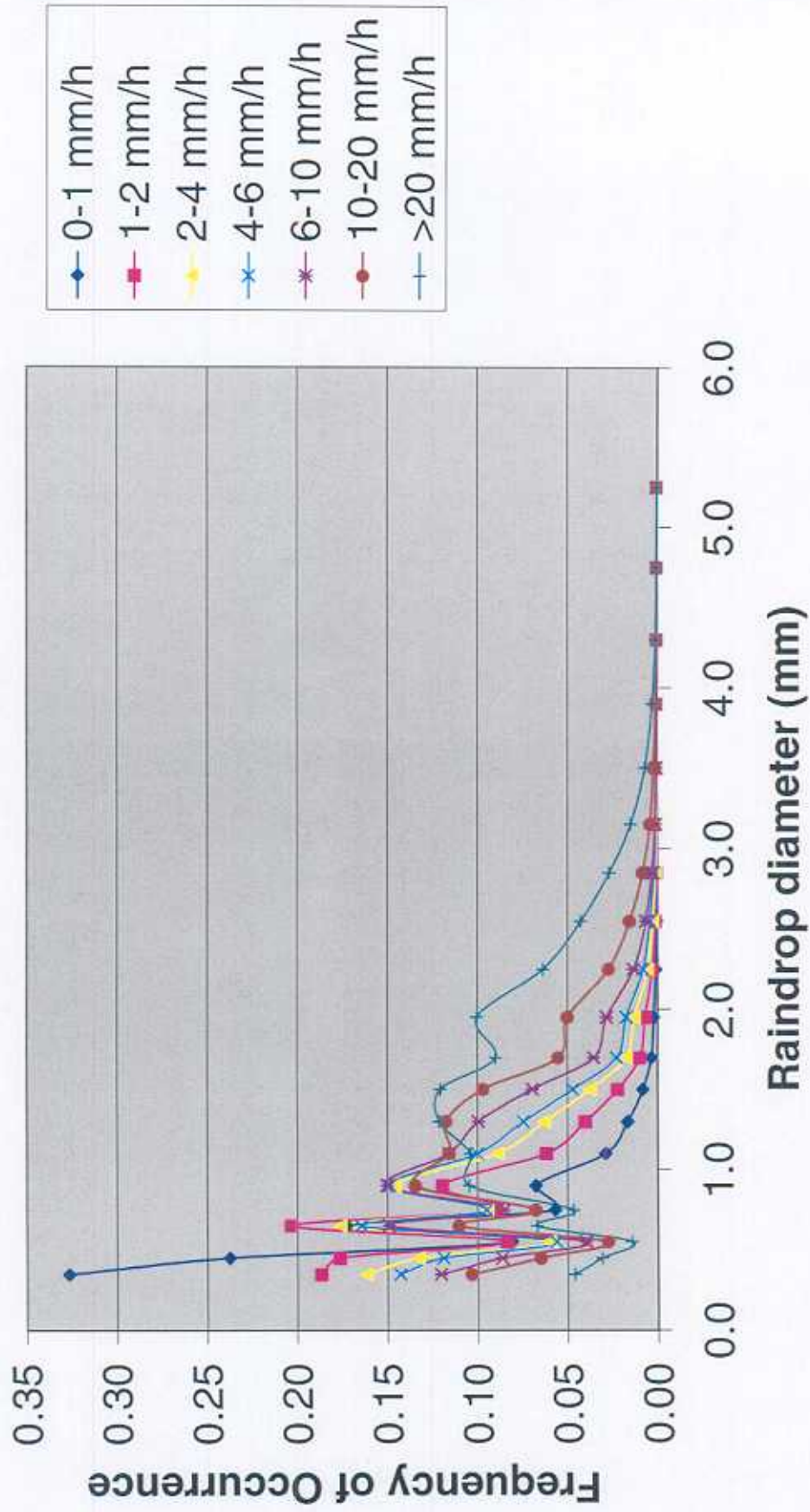


Figure 29

### Average raindrop spectra vs rain rate (mm/h) 050899 to 310101

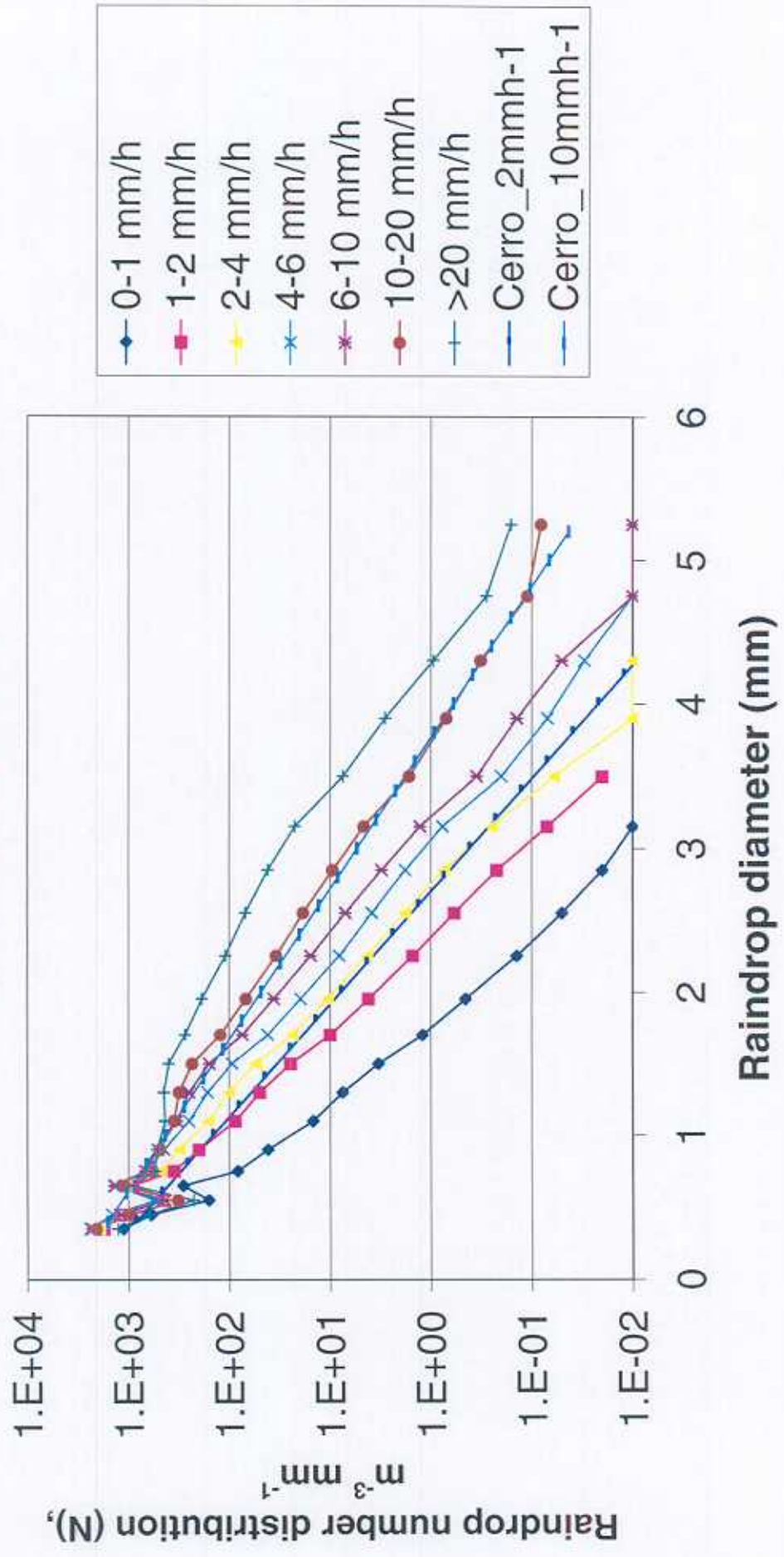


Figure 30

### Frequency of Occurrence of Rainfall Rates (mm/h) Disdrometer data: 050899 to 310101.

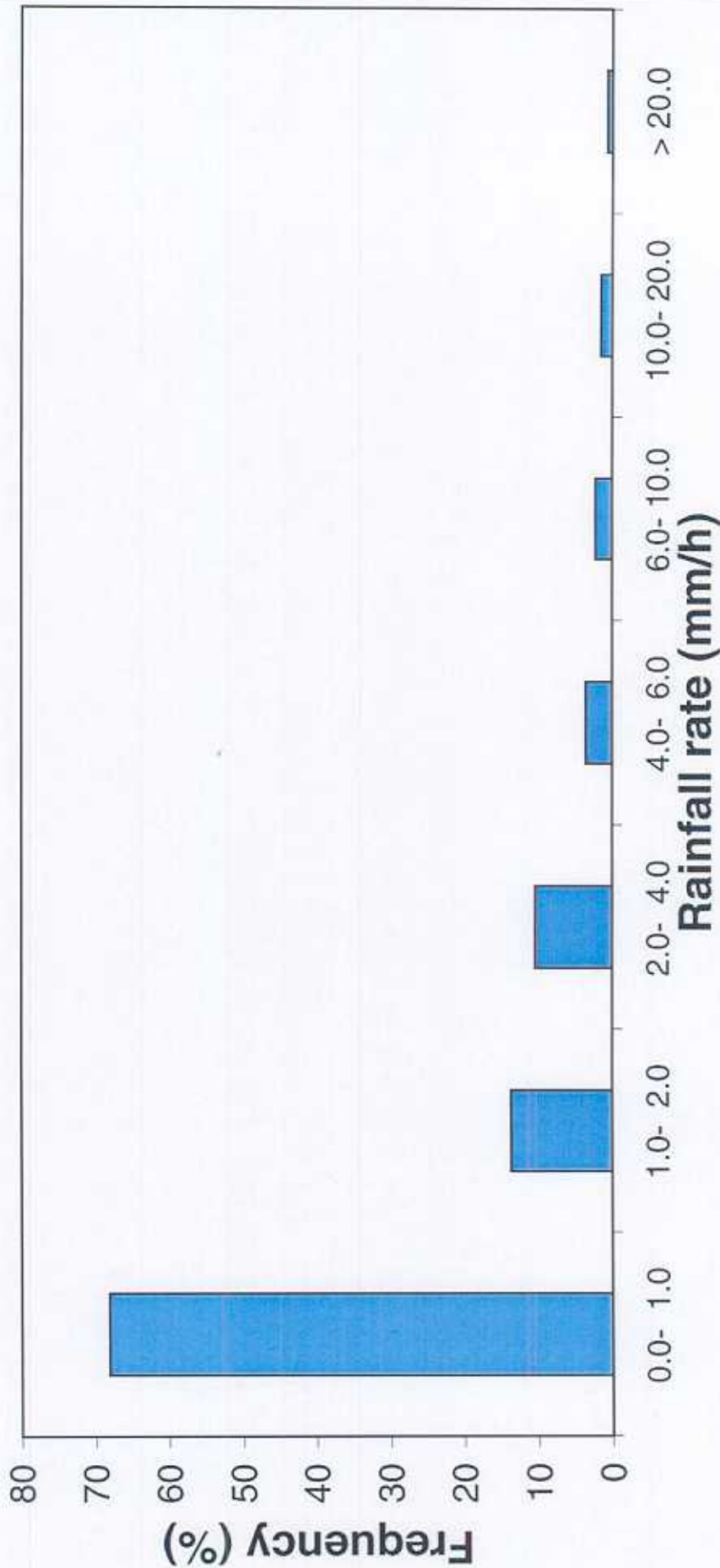


Figure 31





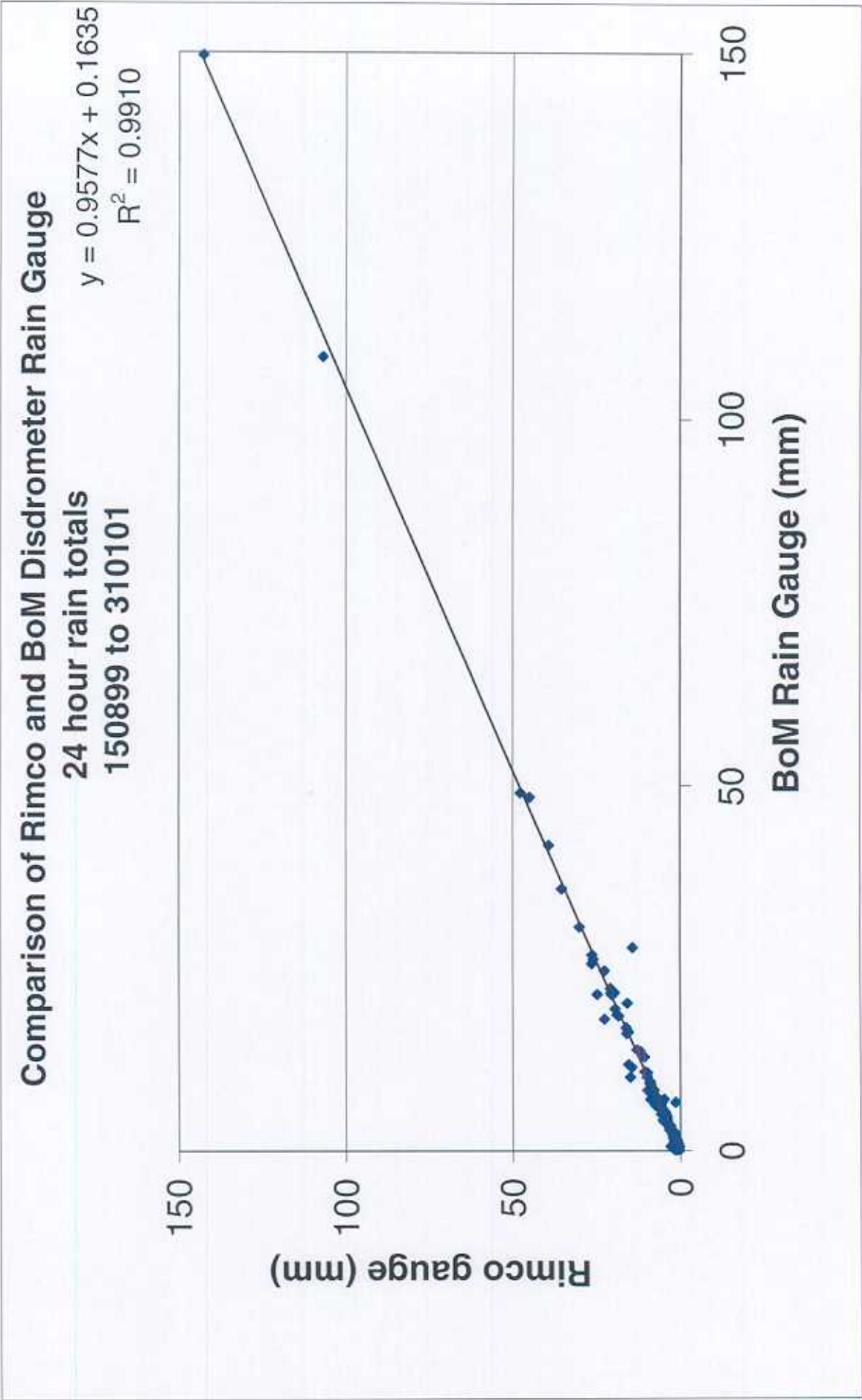


Figure 33

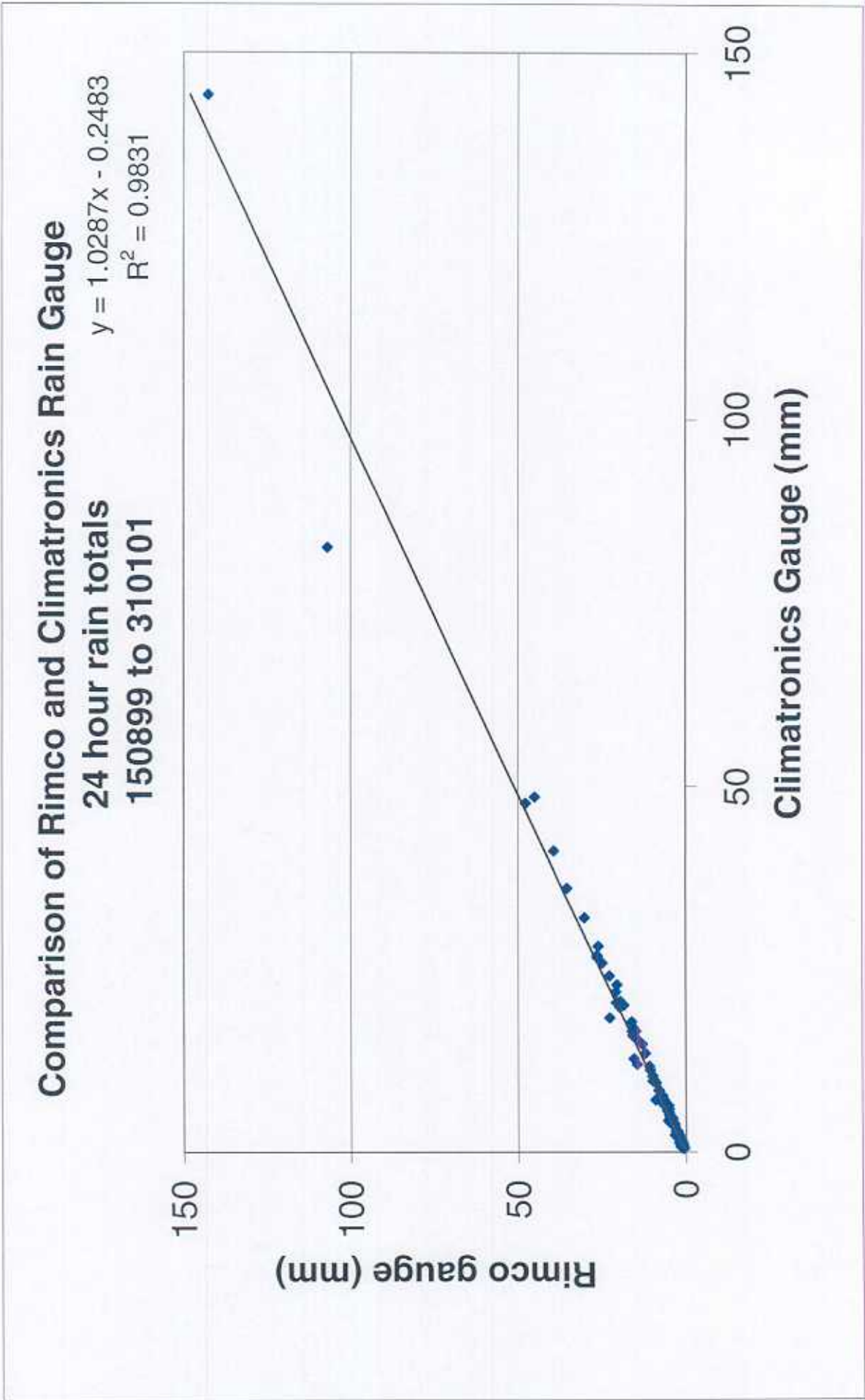


Figure 34

# Diurnal/Monthly Atmospheric Relative Humidity Variations 040701 to 300603

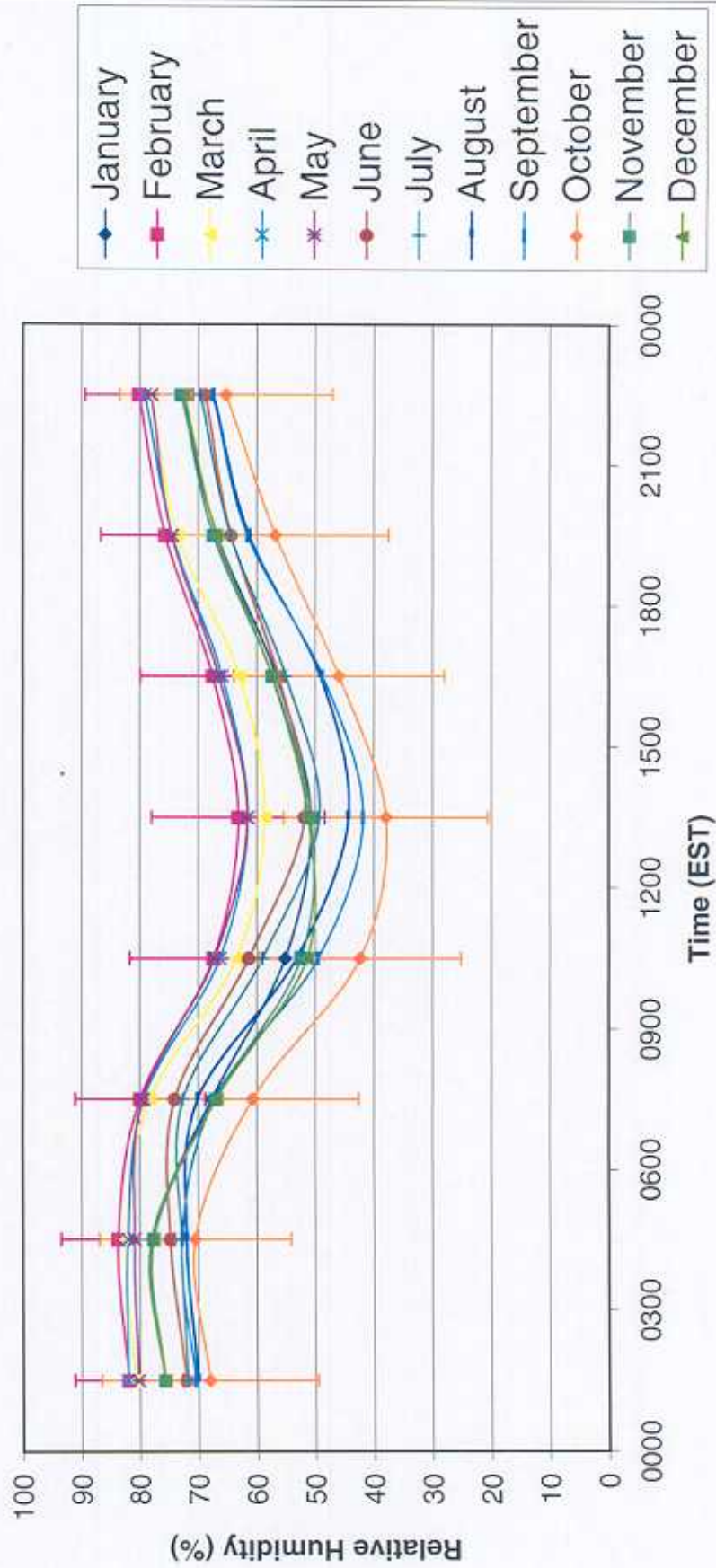


Figure 35

### Comparison of Setra and Climatronics Pressures

$$\text{Setra} = 1.03474 \times \text{Climatronics} - 34.69 \text{ (hPa)} \quad R = 0.9971$$

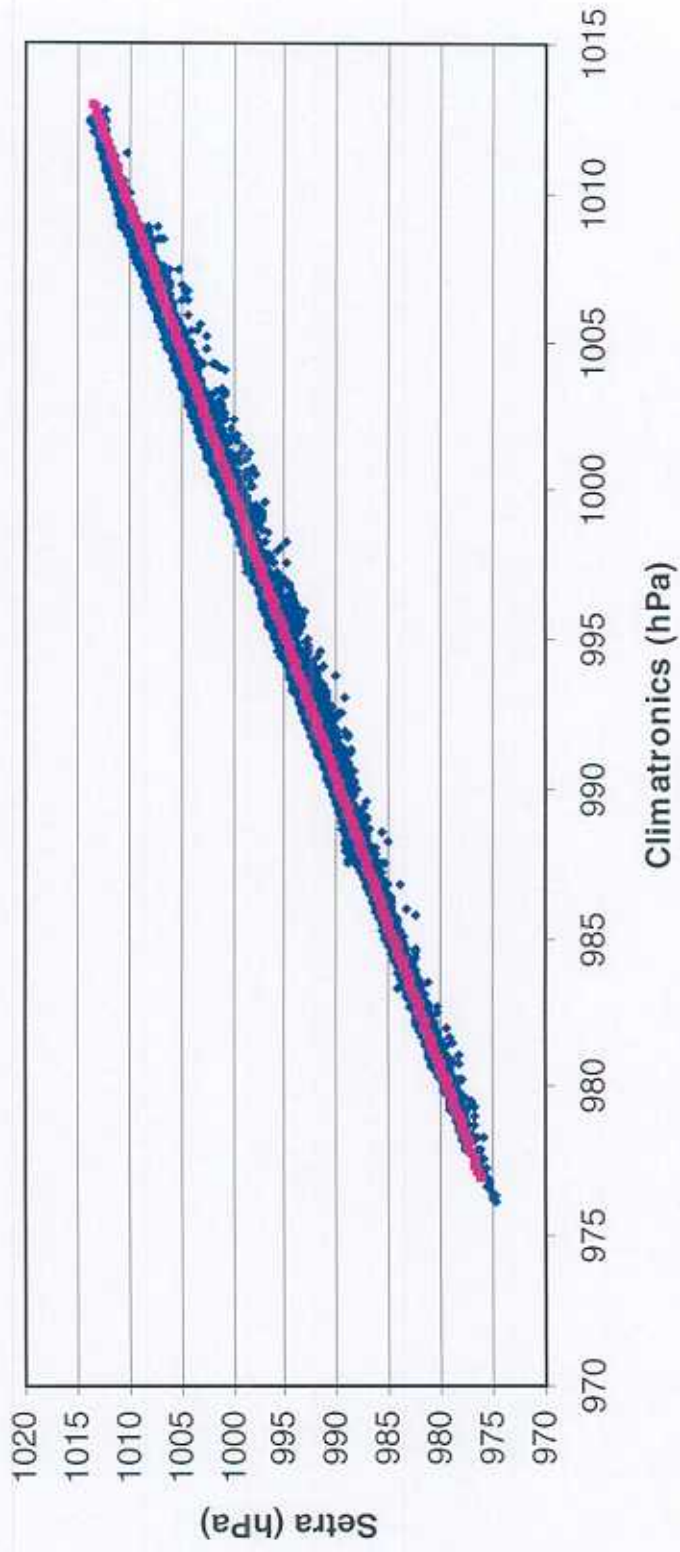


Figure 36

### Diurnal Atmospheric Pressure Variations Climatronics Transducer 080898 to 300603

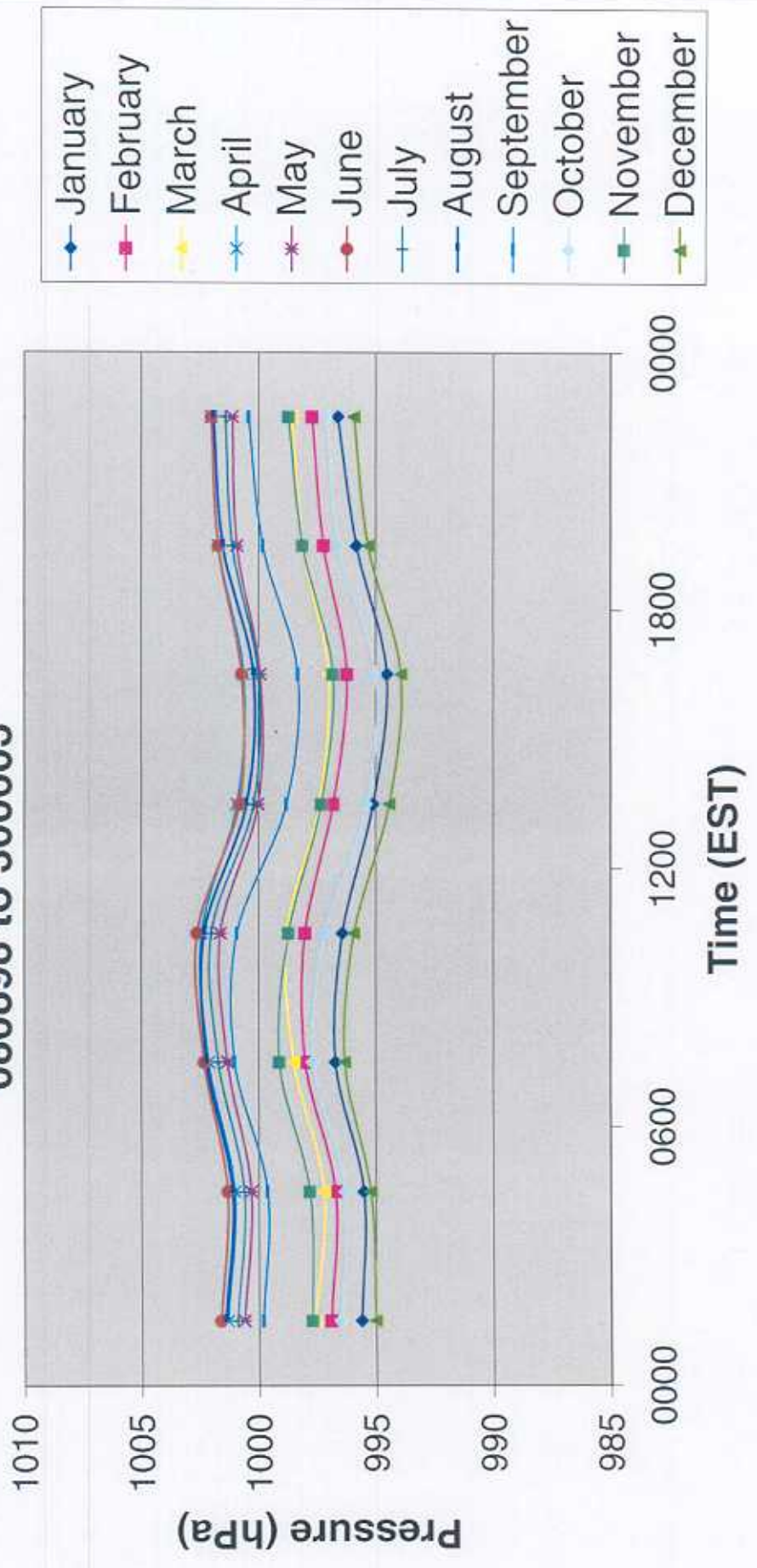


Figure 37

### Diurnal Atmospheric Pressure Variations Setra Transducer 040701 to 300603

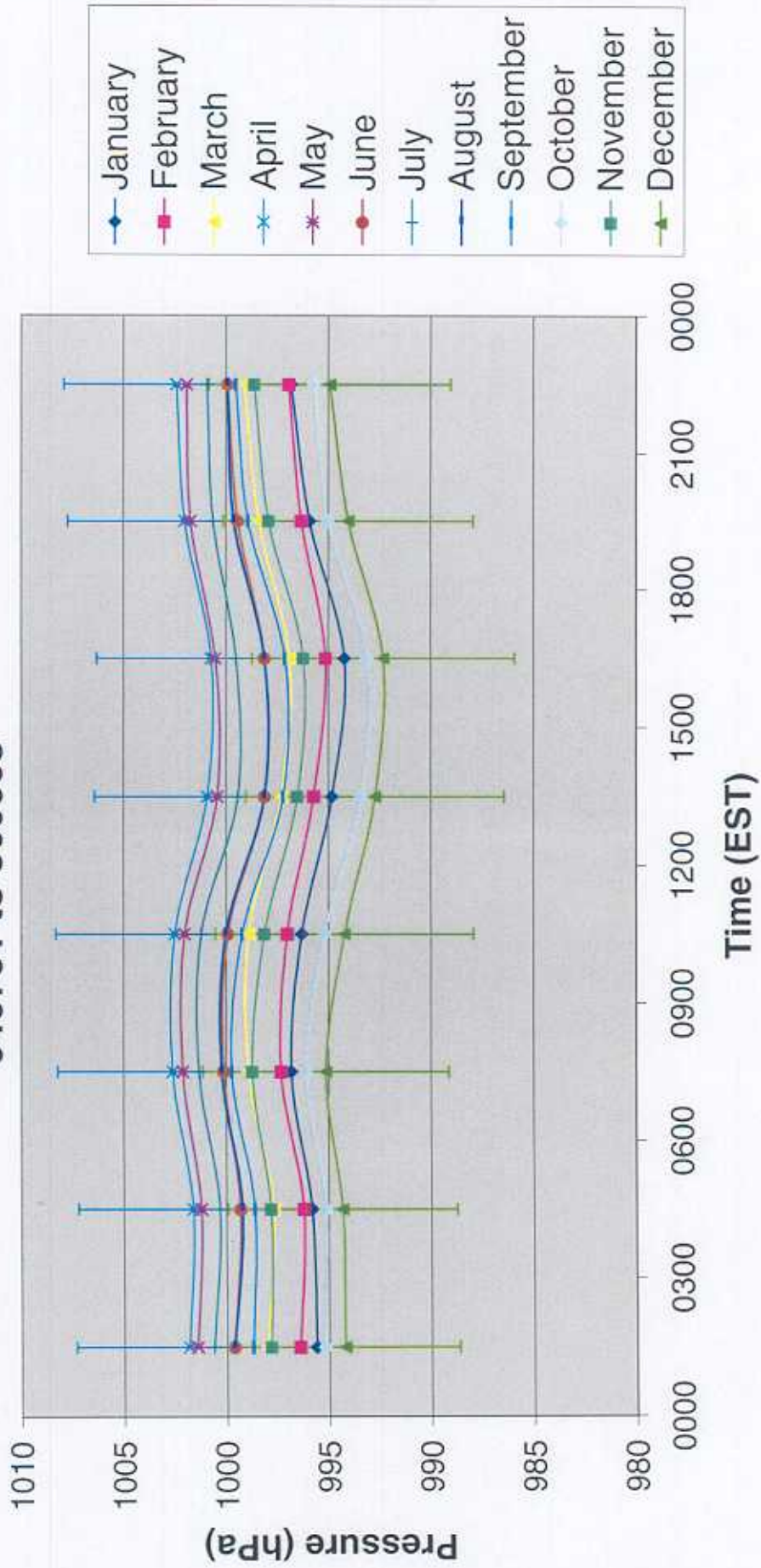
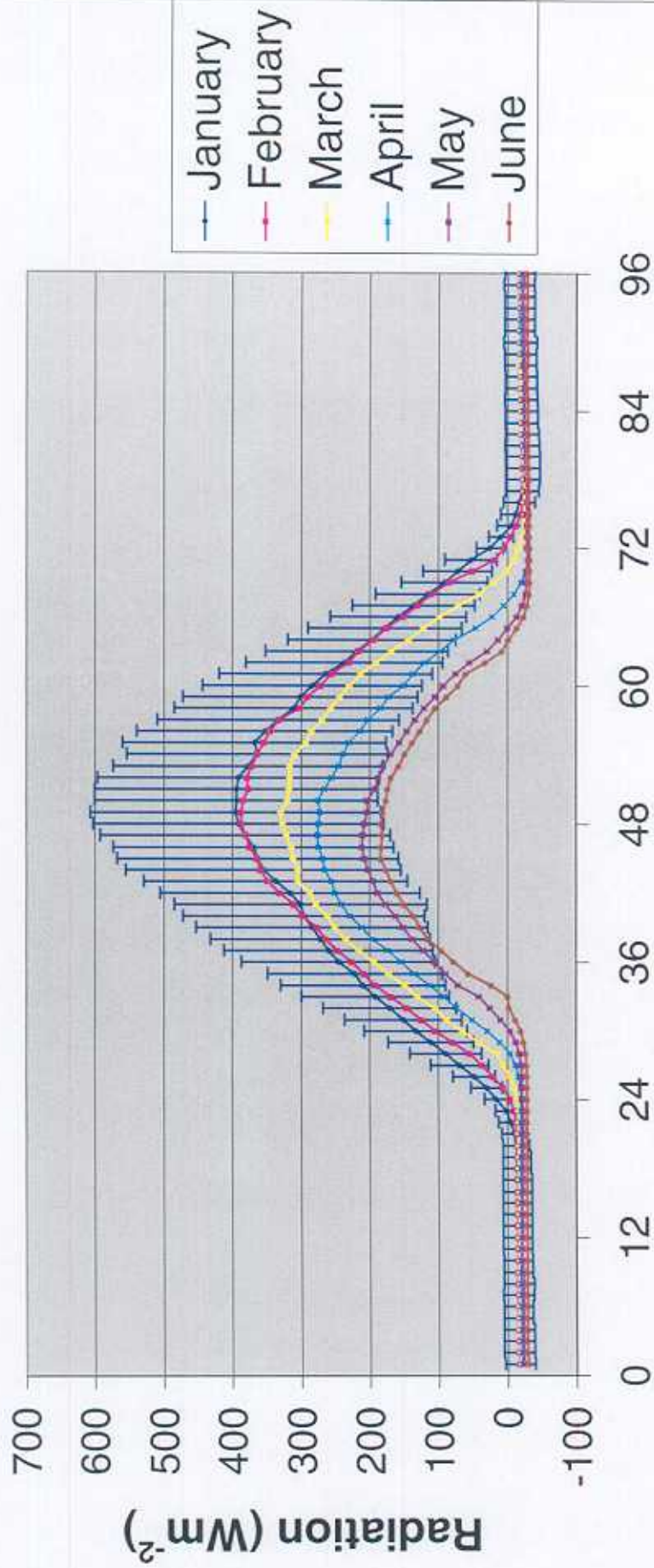


Figure 38

## Net All-wave Solar Radiation 130592 to 300603



**Time (15 minute periods)**

Figure 39



# Net All-wave Solar Radiation 130592 to 300603

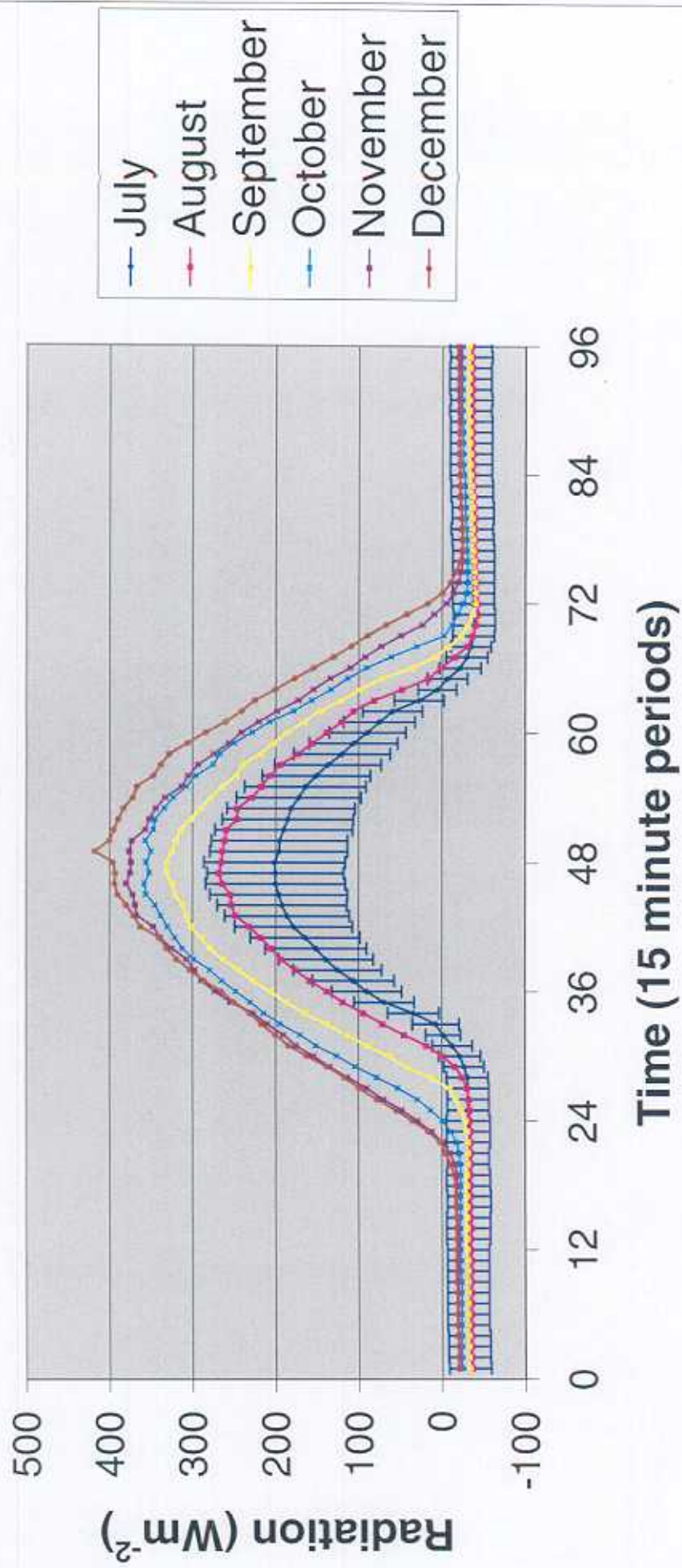


Figure 40

## APPENDIX A

The tables below provide the quantitative statistics behind the previously plotted data, as well as additional summary statistics. The tables are presented as follows:

1. Bailey-type wind roses, 10m, Lucas Heights meteorological tower, Climatronics WMIII, digital recording, 050491 to 300603. Pages A1 to A23.
2. Bailey-type wind roses, 49m, Lucas Heights meteorological tower, Climatronics WMIII, digital recording, 050491 to 300603. Pages A24 to A46.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.70	1.01	0.03	0.00	0.00	2.74
NNE	2.43	2.81	0.16	0.00	0.00	5.39
NE	1.57	3.53	1.48	0.08	0.00	6.65
ENE	0.96	2.40	0.59	0.09	0.00	4.05
E	1.11	1.44	0.25	0.08	0.00	2.88
ESE	0.95	1.04	0.66	0.02	0.00	2.66
SE	0.92	1.78	1.53	0.35	0.02	4.59
SSE	1.33	5.05	4.22	1.02	0.01	11.64
S	1.97	9.86	8.88	3.74	0.08	24.52
SSW	1.71	5.04	3.62	0.54	0.00	10.92
SW	1.07	2.79	1.74	0.18	0.00	5.78
WSW	0.69	1.95	1.48	0.29	0.00	4.41
W	0.56	1.49	1.08	0.21	0.00	3.34
WNW	0.59	0.95	0.67	0.06	0.00	2.27
NW	0.82	2.20	0.97	0.00	0.00	3.99
NNW	1.69	2.31	0.17	0.00	0.00	4.17
TOTAL	20.07	45.65	27.52	6.65	0.10	12608.

bad data observed for 388 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.73	0.98	0.03	0.00	0.00	2.74
NNE	2.22	1.85	0.05	0.00	0.00	4.12
NE	1.46	2.12	1.06	0.07	0.00	4.72
ENE	0.66	1.33	0.24	0.07	0.00	2.30
E	0.71	1.17	0.29	0.01	0.00	2.18
ESE	0.75	0.83	0.43	0.06	0.00	2.07
SE	1.03	1.53	1.38	0.42	0.02	4.38
SSE	1.72	4.87	3.38	1.04	0.09	11.09
S	2.05	11.07	9.52	3.60	0.11	26.35
SSW	2.05	5.84	3.48	0.52	0.00	11.88
SW	1.33	3.54	1.81	0.03	0.00	6.70
WSW	0.71	2.38	1.59	0.21	0.00	4.89
W	0.57	2.08	1.64	0.11	0.00	4.41
WNW	0.49	1.59	0.78	0.02	0.00	2.88
NW	0.79	3.00	0.84	0.01	0.00	4.65
NNW	1.55	2.80	0.30	0.00	0.00	4.66
TOTAL	19.84	46.96	26.83	6.16	0.21	12588.

bad data observed for 408 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.39	2.49	1.77	0.01	0.00	4.65
NNE	0.63	3.15	2.47	0.01	0.00	6.26
NE	0.43	2.80	3.12	0.10	0.00	6.45
ENE	0.32	2.01	1.55	0.06	0.00	3.93
E	0.44	1.40	0.86	0.06	0.00	2.74
ESE	0.22	0.80	1.04	0.14	0.00	2.20
SE	0.26	1.52	2.78	0.48	0.06	5.11
SSE	0.52	2.78	5.99	2.25	0.10	11.65
S	1.13	4.88	8.27	5.42	0.07	19.78
SSW	0.94	2.12	2.68	0.79	0.00	6.52
SW	0.51	1.55	1.11	0.24	0.00	3.41
WSW	0.20	1.21	1.47	0.63	0.00	3.52
W	0.15	1.65	1.52	0.59	0.00	3.92
WNW	0.16	1.40	1.65	0.21	0.00	3.42
NW	0.21	3.92	4.88	0.08	0.00	9.08
NNW	0.53	3.70	3.05	0.09	0.00	7.37
TOTAL	7.03	37.38	44.21	11.16	0.22	12611.

bad data observed for 385 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.09	1.69	3.62	0.05	0.00	5.45
NNE	0.03	1.94	5.72	0.02	0.00	7.72
NE	0.07	1.81	8.21	0.59	0.00	10.68
ENE	0.04	1.38	7.80	1.00	0.00	10.22
E	0.02	1.03	3.53	0.32	0.00	4.90
ESE	0.02	0.93	3.24	0.44	0.00	4.63
SE	0.06	0.61	5.73	1.84	0.01	8.24
SSE	0.09	0.88	7.13	5.68	0.05	13.83
S	0.06	0.56	4.04	6.66	0.11	11.43
SSW	0.02	0.31	0.72	0.70	0.00	1.75
SW	0.02	0.25	0.64	0.30	0.00	1.22
WSW	0.03	0.25	0.74	0.74	0.00	1.76
W	0.02	0.44	1.06	1.12	0.00	2.64
WNW	0.00	0.68	1.50	0.65	0.02	2.85
NW	0.01	1.47	4.90	0.66	0.01	7.04
NNW	0.05	1.61	3.92	0.07	0.00	5.65
TOTAL	0.64	15.83	62.51	20.82	0.19	12637.

bad data observed for 359 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.01	0.32	0.81	0.04	0.00	1.18
NNE	0.03	0.57	1.36	0.07	0.00	2.03
NE	0.02	0.69	4.93	2.79	0.00	8.42
ENE	0.02	0.61	15.06	11.44	0.00	27.13
E	0.01	0.35	6.69	1.53	0.00	8.57
ESE	0.02	0.38	4.37	1.73	0.02	6.52
SE	0.01	0.26	5.55	5.83	0.02	11.67
SSE	0.01	0.32	4.60	8.06	0.08	13.07
S	0.01	0.15	1.92	7.15	0.28	9.51
SSW	0.00	0.10	0.19	0.44	0.00	0.73
SW	0.02	0.09	0.32	0.22	0.00	0.66
WSW	0.01	0.08	0.54	0.83	0.01	1.47
W	0.02	0.09	0.71	1.28	0.01	2.11
WNW	0.00	0.15	0.83	1.13	0.01	2.12
NW	0.02	0.34	1.74	0.88	0.01	2.98
NNW	0.01	0.33	1.42	0.08	0.00	1.84
TOTAL	0.21	4.83	51.04	43.50	0.42	12666.

bad data observed for 330 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.03	0.18	0.09	0.01	0.00	0.31
NNE	0.01	0.32	0.28	0.02	0.00	0.62
NE	0.01	0.51	5.54	4.82	0.00	10.87
ENE	0.05	0.69	17.65	8.76	0.00	27.15
E	0.04	0.73	7.42	1.16	0.00	9.34
ESE	0.01	0.37	6.03	1.55	0.00	7.96
SE	0.06	0.28	7.64	5.76	0.05	13.79
SSE	0.02	0.43	5.16	7.35	0.17	13.13
S	0.02	0.42	2.61	6.23	0.28	9.56
SSW	0.02	0.12	0.39	0.24	0.00	0.77
SW	0.02	0.10	0.27	0.27	0.00	0.66
WSW	0.01	0.08	0.36	0.68	0.00	1.13
W	0.00	0.05	0.41	1.33	0.02	1.81
WNW	0.01	0.07	0.24	0.90	0.01	1.22
NW	0.02	0.12	0.51	0.33	0.00	0.98
NNW	0.05	0.28	0.31	0.06	0.00	0.69
TOTAL	0.36	4.76	54.90	39.46	0.52	12663.

bad data observed for 333 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.20	0.25	0.07	0.00	0.00	0.51
NNE	0.30	1.49	0.66	0.01	0.00	2.45
NE	0.43	4.37	15.97	1.55	0.00	22.32
ENE	0.42	4.26	7.99	0.44	0.00	13.11
E	0.48	2.47	3.19	0.04	0.00	6.19
ESE	0.29	2.04	3.30	0.08	0.00	5.71
SE	0.30	2.86	6.88	1.32	0.05	11.41
SSE	0.35	3.82	7.60	3.02	0.16	14.94
S	0.39	2.28	6.16	5.03	0.36	14.22
SSW	0.27	0.92	1.04	0.28	0.00	2.51
SW	0.13	0.36	0.63	0.14	0.00	1.26
WSW	0.06	0.25	0.71	0.36	0.00	1.37
W	0.03	0.27	0.52	0.49	0.00	1.31
WNW	0.02	0.20	0.32	0.32	0.00	0.85
NW	0.06	0.39	0.36	0.13	0.00	0.93
NNW	0.17	0.42	0.29	0.02	0.00	0.90
TOTAL	3.90	26.64	55.68	13.21	0.57	12650.

bad data observed for 346 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.53	1.20	0.05	0.00	0.00	2.78
NNE	2.10	4.89	0.65	0.00	0.00	7.64
NE	1.59	6.70	4.66	0.10	0.00	13.06
ENE	1.02	3.72	1.80	0.11	0.00	6.66
E	1.18	2.30	0.72	0.10	0.00	4.30
ESE	0.91	1.50	0.98	0.08	0.01	3.47
SE	1.05	2.63	2.52	0.43	0.08	6.70
SSE	1.22	4.89	5.10	1.82	0.02	13.04
S	1.35	6.77	7.87	4.73	0.06	20.78
SSW	1.27	2.74	2.61	0.44	0.00	7.06
SW	0.66	1.82	1.36	0.17	0.01	4.03
WSW	0.39	1.06	1.13	0.28	0.02	2.86
W	0.20	0.67	0.60	0.15	0.00	1.62
WNW	0.14	0.61	0.39	0.05	0.00	1.19
NW	0.29	1.02	0.72	0.04	0.00	2.08
NNW	0.83	1.73	0.17	0.00	0.00	2.73
TOTAL	15.74	44.24	31.34	8.49	0.19	12606.

bad data observed for 390 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.86	0.53	0.06	0.00	0.00	1.45
NNE	1.02	0.62	0.12	0.00	0.00	1.77
NE	0.53	1.13	0.62	0.01	0.00	2.29
ENE	0.28	0.33	0.14	0.00	0.00	0.75
E	0.31	0.36	0.11	0.00	0.00	0.78
ESE	0.28	0.42	0.35	0.01	0.00	1.06
SE	0.30	0.82	1.21	0.36	0.00	2.69
SSE	0.74	2.65	2.18	0.54	0.00	6.11
S	1.57	12.43	8.02	2.84	0.09	24.96
SSW	1.54	9.02	4.24	1.12	0.09	16.01
SW	1.08	5.46	5.54	0.45	0.00	12.53
WSW	0.96	4.04	5.12	0.91	0.00	11.04
W	0.82	2.54	2.56	0.31	0.00	6.23
WNW	0.79	1.79	0.76	0.06	0.00	3.39
NW	0.82	3.07	1.11	0.04	0.00	5.04
NNW	1.24	2.24	0.43	0.00	0.00	3.91
TOTAL	13.15	47.45	32.57	6.65	0.18	13476.

bad data observed for 456 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.88	0.46	0.08	0.00	0.00	1.43
NNE	0.60	0.51	0.06	0.01	0.00	1.19
NE	0.38	0.62	0.19	0.05	0.00	1.24
ENE	0.25	0.36	0.16	0.00	0.00	0.76
E	0.18	0.34	0.07	0.00	0.00	0.59
ESE	0.27	0.43	0.42	0.09	0.00	1.20
SE	0.36	0.78	0.59	0.29	0.00	2.02
SSE	0.65	2.07	1.63	0.56	0.01	4.92
S	1.19	13.35	7.78	2.61	0.05	24.97
SSW	1.58	8.79	5.16	1.03	0.07	16.64
SW	1.21	6.46	6.87	0.71	0.00	15.25
WSW	0.95	4.07	6.26	0.53	0.00	11.81
W	0.81	2.63	2.67	0.32	0.00	6.43
WNW	0.74	1.92	1.06	0.12	0.00	3.83
NW	0.87	2.74	1.00	0.14	0.00	4.76
NNW	1.02	1.60	0.34	0.00	0.00	2.96
TOTAL	11.93	47.13	34.33	6.47	0.13	13458.

bad data observed for 474 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.57	0.96	0.29	0.00	0.00	1.82
NNE	0.42	0.79	0.12	0.01	0.00	1.35
NE	0.25	0.53	0.30	0.04	0.00	1.12
ENE	0.21	0.62	0.40	0.00	0.01	1.23
E	0.21	0.47	0.26	0.03	0.00	0.96
ESE	0.22	0.48	0.50	0.17	0.00	1.37
SE	0.34	0.46	1.02	0.59	0.00	2.40
SSE	0.51	1.78	2.16	0.69	0.00	5.14
S	1.32	8.39	9.22	2.89	0.00	21.82
SSW	1.60	6.22	4.59	1.73	0.09	14.22
SW	1.02	5.22	5.35	0.60	0.00	12.19
WSW	0.73	4.01	6.02	0.83	0.00	11.59
W	0.62	3.60	4.12	0.37	0.00	8.71
WNW	0.42	2.06	1.94	0.08	0.00	4.50
NW	0.55	3.76	3.05	0.05	0.00	7.41
NNW	0.68	2.49	0.99	0.01	0.00	4.16
TOTAL	9.65	41.83	40.33	8.09	0.10	13477.

bad data observed for 455 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.14	1.87	2.26	0.01	0.00	4.28
NNE	0.10	1.50	2.10	0.00	0.00	3.69
NE	0.12	1.26	2.31	0.03	0.00	3.72
ENE	0.07	1.11	1.60	0.08	0.00	2.86
E	0.11	0.90	0.96	0.07	0.00	2.05
ESE	0.10	0.67	1.53	0.27	0.00	2.57
SE	0.12	0.99	3.82	1.12	0.00	6.05
SSE	0.10	1.71	6.60	2.51	0.00	10.92
S	0.16	1.77	7.48	5.59	0.01	15.01
SSW	0.15	1.00	2.33	2.40	0.07	5.96
SW	0.09	0.86	1.87	0.47	0.00	3.29
WSW	0.11	1.08	3.60	1.36	0.00	6.16
W	0.11	1.85	3.78	1.51	0.00	7.25
WNW	0.07	2.30	4.00	0.51	0.00	6.88
NW	0.13	3.68	8.05	0.39	0.00	12.25
NNW	0.19	2.64	4.16	0.05	0.00	7.05
TOTAL	1.88	25.18	56.46	16.40	0.08	13483.

bad data observed for 449 half hours



## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.15	1.89	2.24	0.00	0.00	4.27
NNE	0.16	2.13	2.49	0.00	0.00	4.78
NE	0.08	1.73	4.56	0.15	0.00	6.52
ENE	0.04	1.34	7.24	0.69	0.00	9.32
E	0.07	0.89	2.89	0.09	0.00	3.94
ESE	0.03	0.60	3.86	0.31	0.00	4.80
SE	0.06	0.85	7.16	2.16	0.00	10.24
SSE	0.04	1.00	8.07	4.66	0.03	13.80
S	0.07	0.82	5.26	6.66	0.05	12.86
SSW	0.09	0.45	1.22	1.88	0.07	3.71
SW	0.05	0.48	0.99	0.40	0.00	1.92
WSW	0.03	0.56	1.55	1.21	0.00	3.35
W	0.07	0.93	2.24	1.69	0.01	4.92
WNW	0.05	1.02	2.05	0.55	0.00	3.67
NW	0.13	2.12	3.65	0.61	0.00	6.51
NNW	0.10	2.64	2.61	0.04	0.00	5.39
TOTAL	1.20	19.45	58.07	21.10	0.16	13462.

bad data observed for 470 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.54	1.30	0.16	0.00	0.00	2.00
NNE	0.59	1.50	0.43	0.01	0.00	2.53
NE	0.31	1.90	5.51	0.64	0.00	8.36
ENE	0.33	2.95	11.45	0.82	0.00	15.55
E	0.29	1.98	4.05	0.11	0.00	6.42
ESE	0.25	1.32	3.99	0.31	0.00	5.88
SE	0.13	1.98	8.53	1.99	0.00	12.63
SSE	0.16	2.62	7.94	3.52	0.00	14.24
S	0.16	1.59	6.63	5.21	0.01	13.60
SSW	0.10	0.63	1.85	1.75	0.04	4.36
SW	0.11	0.33	0.99	0.35	0.01	1.79
WSW	0.08	0.41	1.53	0.70	0.00	2.72
W	0.07	0.38	1.77	1.37	0.00	3.59
WNW	0.05	0.47	0.51	0.32	0.00	1.36
NW	0.14	0.93	0.87	0.30	0.01	2.24
NNW	0.26	2.16	0.31	0.00	0.00	2.73
TOTAL	3.58	22.44	56.52	17.39	0.07	13497.

bad data observed for 435 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.41	0.46	0.04	0.01	0.00	0.91
NNE	0.89	2.24	0.36	0.00	0.00	3.49
NE	1.15	6.16	4.44	0.20	0.00	11.94
ENE	1.15	4.49	1.24	0.01	0.00	6.88
E	1.00	2.56	0.76	0.01	0.00	4.33
ESE	1.09	1.93	0.74	0.02	0.00	3.78
SE	1.14	3.19	2.59	0.44	0.00	7.37
SSE	0.86	6.73	5.12	1.13	0.01	13.85
S	0.86	8.73	8.58	2.67	0.08	20.92
SSW	0.82	3.27	3.82	1.41	0.01	9.34
SW	0.49	1.47	2.42	0.37	0.00	4.75
WSW	0.29	1.14	1.82	0.51	0.01	3.76
W	0.19	0.93	2.03	0.41	0.00	3.55
WNW	0.18	0.71	0.67	0.20	0.00	1.76
NW	0.13	0.67	0.76	0.02	0.00	1.58
NNW	0.33	1.16	0.30	0.00	0.00	1.78
TOTAL	10.97	45.83	35.67	7.42	0.11	13497.

bad data observed for 435 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.65	1.09	0.04	0.02	0.00	2.80
NNE	1.80	1.84	0.22	0.01	0.00	3.87
NE	1.19	2.49	0.66	0.08	0.00	4.42
ENE	0.68	1.17	0.19	0.00	0.00	2.04
E	0.51	0.92	0.13	0.01	0.00	1.57
ESE	0.49	0.61	0.29	0.01	0.00	1.40
SE	0.59	1.23	1.16	0.38	0.00	3.36
SSE	0.97	3.38	2.61	0.72	0.03	7.72
S	1.74	11.19	7.13	2.16	0.09	22.31
SSW	1.54	7.53	4.50	1.23	0.01	14.82
SW	1.20	4.69	3.85	0.39	0.00	10.12
WSW	0.65	3.33	3.95	0.78	0.00	8.71
W	0.50	2.11	2.56	0.19	0.00	5.35
WNW	0.53	1.39	1.02	0.10	0.00	3.04
NW	0.61	2.49	0.73	0.01	0.00	3.83
NNW	1.30	2.95	0.40	0.00	0.00	4.65
TOTAL	15.95	48.41	29.43	6.08	0.13	13472.

bad data observed for 460 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.46	0.72	0.15	0.01	0.01	1.36
NNE	0.46	0.71	0.07	0.00	0.00	1.23
NE	0.25	0.39	0.06	0.00	0.00	0.70
ENE	0.14	0.36	0.09	0.03	0.00	0.62
E	0.15	0.23	0.11	0.06	0.00	0.56
ESE	0.19	0.20	0.19	0.02	0.00	0.60
SE	0.13	0.22	0.37	0.13	0.00	0.85
SSE	0.32	1.46	0.73	0.16	0.04	2.71
S	0.62	8.51	3.59	0.29	0.05	13.07
SSW	0.86	7.33	5.09	0.75	0.00	14.02
SW	0.75	5.28	10.26	1.57	0.02	17.88
WSW	0.70	3.38	9.73	2.07	0.04	15.92
W	0.56	2.85	5.71	1.23	0.01	10.36
WNW	0.65	2.29	2.92	0.54	0.00	6.40
NW	0.59	3.86	3.48	0.45	0.00	8.38
NNW	0.66	3.43	1.23	0.02	0.00	5.34
TOTAL	7.50	41.23	43.77	7.34	0.16	12967.

bad data observed for 641 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.49	0.84	0.12	0.00	0.00	1.45
NNE	0.29	0.83	0.01	0.00	0.00	1.13
NE	0.21	0.60	0.06	0.02	0.00	0.89
ENE	0.13	0.25	0.12	0.03	0.00	0.52
E	0.08	0.31	0.12	0.02	0.00	0.52
ESE	0.07	0.28	0.12	0.02	0.00	0.49
SE	0.08	0.27	0.20	0.14	0.02	0.70
SSE	0.36	1.41	0.44	0.12	0.01	2.34
S	0.59	7.29	4.27	0.29	0.08	12.51
SSW	0.79	7.02	4.11	0.73	0.01	12.67
SW	0.76	6.83	10.89	1.47	0.00	19.95
WSW	0.62	3.86	10.98	2.11	0.05	17.62
W	0.52	2.83	5.89	1.10	0.01	10.35
WNW	0.52	2.25	3.36	0.67	0.00	6.80
NW	0.49	3.38	3.86	0.22	0.00	7.95
NNW	0.53	2.55	1.00	0.02	0.00	4.11
TOTAL	6.54	40.81	45.53	6.95	0.17	12958.

bad data observed for 650 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.35	1.09	0.09	0.01	0.00	1.54
NNE	0.29	0.77	0.09	0.00	0.00	1.16
NE	0.27	0.32	0.12	0.00	0.00	0.72
ENE	0.11	0.25	0.12	0.00	0.00	0.47
E	0.08	0.22	0.12	0.06	0.00	0.48
ESE	0.12	0.15	0.18	0.05	0.00	0.51
SE	0.19	0.25	0.25	0.05	0.01	0.76
SSE	0.39	1.00	0.42	0.27	0.02	2.10
S	0.60	5.64	4.03	0.42	0.02	10.71
SSW	0.94	5.46	3.56	0.94	0.00	10.90
SW	1.07	6.09	9.39	1.26	0.00	17.81
WSW	0.72	4.27	10.61	3.19	0.10	18.89
W	0.66	3.39	6.33	1.27	0.05	11.70
WNW	0.47	2.49	3.36	0.75	0.02	7.08
NW	0.58	4.32	4.86	0.42	0.00	10.18
NNW	0.54	2.99	1.47	0.02	0.00	5.01
TOTAL	7.38	38.71	44.99	8.72	0.21	12962.

bad data observed for 646 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.08	1.01	0.92	0.00	0.00	2.00
NNE	0.12	0.93	0.71	0.00	0.00	1.76
NE	0.13	0.78	0.78	0.01	0.00	1.70
ENE	0.06	0.45	0.27	0.02	0.00	0.81
E	0.10	0.29	0.44	0.05	0.00	0.87
ESE	0.11	0.40	0.41	0.10	0.00	1.02
SE	0.09	0.59	0.87	0.15	0.00	1.70
SSE	0.18	1.16	2.73	0.43	0.00	4.50
S	0.28	1.52	5.30	2.10	0.06	9.25
SSW	0.31	0.92	2.56	3.17	0.00	6.96
SW	0.24	1.26	3.43	1.46	0.00	6.38
WSW	0.22	1.53	7.03	4.66	0.08	13.52
W	0.22	3.33	7.37	4.36	0.47	15.74
WNW	0.15	3.04	5.50	1.54	0.09	10.32
NW	0.12	4.82	10.60	1.19	0.02	16.76
NNW	0.12	2.61	3.94	0.03	0.00	6.71
TOTAL	2.51	24.64	52.85	19.27	0.72	12979.

bad data observed for 629 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.08	2.08	2.04	0.01	0.00	4.20
NNE	0.13	1.75	1.79	0.00	0.00	3.67
NE	0.07	1.27	1.53	0.03	0.00	2.90
ENE	0.06	0.80	1.64	0.10	0.00	2.61
E	0.05	0.67	0.84	0.04	0.00	1.60
ESE	0.02	0.66	1.17	0.20	0.00	2.05
SE	0.08	0.89	2.45	0.32	0.02	3.76
SSE	0.08	1.23	5.45	0.76	0.01	7.54
S	0.08	0.73	6.33	3.15	0.12	10.39
SSW	0.07	0.48	2.14	3.11	0.11	5.91
SW	0.05	0.49	2.38	1.08	0.00	3.99
WSW	0.08	0.86	4.44	3.21	0.13	8.73
W	0.03	1.54	4.67	6.20	0.31	12.74
WNW	0.04	1.91	3.69	2.46	0.19	8.28
NW	0.09	3.44	7.78	2.48	0.11	13.91
NNW	0.17	3.25	4.17	0.12	0.00	7.71
TOTAL	1.20	22.03	52.52	23.28	0.98	12962.

bad data observed for 646 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.73	2.24	0.35	0.01	0.00	3.34
NNE	1.01	1.83	0.28	0.00	0.00	3.12
NE	0.53	2.29	2.03	0.01	0.00	4.86
ENE	0.35	2.58	3.24	0.02	0.00	6.19
E	0.28	1.65	0.92	0.03	0.00	2.88
ESE	0.39	1.22	1.06	0.05	0.01	2.71
SE	0.24	2.33	2.73	0.22	0.01	5.51
SSE	0.28	3.94	4.64	0.69	0.00	9.54
S	0.35	2.49	7.03	1.55	0.10	11.52
SSW	0.42	1.14	2.89	1.96	0.05	6.45
SW	0.18	1.14	3.20	0.63	0.04	5.18
WSW	0.13	1.08	4.25	2.17	0.02	7.65
W	0.13	1.25	5.51	4.56	0.05	11.50
WNW	0.26	0.89	2.14	1.95	0.05	5.28
NW	0.28	2.83	3.41	1.95	0.02	8.48
NNW	0.65	3.87	1.17	0.08	0.00	5.78
TOTAL	6.21	32.75	44.85	15.86	0.33	12983.

bad data observed for 625 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.49	0.75	0.23	0.01	0.00	1.48
NNE	0.91	1.62	0.14	0.01	0.00	2.67
NE	0.97	3.26	0.99	0.02	0.00	5.24
ENE	0.84	1.74	0.25	0.00	0.00	2.83
E	0.95	0.93	0.13	0.03	0.00	2.04
ESE	0.71	0.54	0.32	0.10	0.00	1.67
SE	0.66	1.29	0.49	0.13	0.00	2.57
SSE	0.77	4.02	1.16	0.32	0.00	6.28
S	0.78	11.08	5.93	0.55	0.03	18.37
SSW	0.62	3.70	4.76	1.04	0.02	10.14
SW	0.42	2.27	5.76	0.81	0.01	9.27
WSW	0.27	2.34	6.22	1.22	0.00	10.06
W	0.25	2.12	6.28	1.91	0.00	10.55
WNW	0.19	1.79	2.86	0.99	0.01	5.85
NW	0.25	2.77	3.50	0.71	0.00	7.23
NNW	0.43	2.13	1.14	0.05	0.00	3.74
TOTAL	9.51	42.36	40.17	7.90	0.07	12982.

bad data observed for 626 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.73	0.99	0.23	0.02	0.05	2.02
NNE	0.96	1.03	0.21	0.00	0.00	2.20
NE	0.48	0.72	0.15	0.00	0.00	1.35
ENE	0.25	0.43	0.13	0.02	0.00	0.83
E	0.23	0.26	0.05	0.03	0.00	0.58
ESE	0.22	0.24	0.27	0.08	0.00	0.80
SE	0.35	0.40	0.33	0.23	0.01	1.32
SSE	0.56	1.78	0.78	0.23	0.03	3.38
S	1.00	9.56	4.21	0.49	0.04	15.29
SSW	0.68	6.59	4.65	1.13	0.00	13.05
SW	0.66	4.54	8.25	1.27	0.00	14.72
WSW	0.56	3.07	7.76	2.36	0.00	13.76
W	0.52	2.63	5.66	1.27	0.01	10.10
WNW	0.44	2.20	2.95	0.52	0.00	6.10
NW	0.63	3.74	3.91	0.40	0.02	8.70
NNW	1.04	3.46	1.26	0.05	0.00	5.81
TOTAL	9.31	41.64	40.79	8.10	0.15	12982.

bad data observed for 626 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.35	0.96	0.13	0.00	0.00	2.43
NNE	1.53	1.50	0.20	0.02	0.00	3.25
NE	0.91	1.76	1.15	0.02	0.00	3.84
ENE	0.56	0.98	0.38	0.01	0.00	1.92
E	0.53	0.77	0.29	0.00	0.00	1.59
ESE	0.52	0.58	0.49	0.04	0.00	1.62
SE	0.68	0.98	1.16	0.25	0.00	3.06
SSE	1.24	2.99	1.84	0.76	0.01	6.83
S	1.56	9.22	5.44	1.53	0.01	17.76
SSW	1.72	5.81	2.96	0.80	0.00	11.29
SW	1.37	4.68	4.57	0.39	0.00	11.01
WSW	0.68	3.29	4.94	0.76	0.00	9.66
W	0.55	2.45	3.59	0.38	0.10	7.08
WNW	0.70	2.53	2.24	0.28	0.05	5.80
NW	0.95	4.04	2.10	0.19	0.00	7.27
NNW	1.56	3.45	0.55	0.00	0.00	5.56
TOTAL	16.39	45.99	32.03	5.43	0.17	12692.

bad data observed for 412 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.99	1.03	0.13	0.00	0.00	2.15
NNE	0.99	1.37	0.20	0.01	0.00	2.56
NE	0.81	1.09	0.70	0.01	0.00	2.61
ENE	0.47	0.72	0.52	0.01	0.00	1.72
E	0.34	0.61	0.19	0.06	0.00	1.19
ESE	0.40	0.50	0.36	0.02	0.00	1.29
SE	0.48	0.71	0.44	0.19	0.00	1.82
SSE	1.16	2.90	1.79	0.66	0.00	6.51
S	1.72	9.91	4.94	1.70	0.00	18.26
SSW	1.70	6.14	2.87	0.84	0.00	11.55
SW	1.39	5.12	5.00	0.43	0.00	11.93
WSW	0.95	4.00	6.07	1.17	0.00	12.19
W	0.85	2.78	3.22	0.39	0.00	7.25
WNW	0.84	2.61	2.33	0.38	0.00	6.15
NW	1.09	4.16	2.56	0.09	0.00	7.90
NNW	1.40	2.84	0.67	0.00	0.00	4.91
TOTAL	15.58	46.49	31.98	5.95	0.00	12679.

bad data observed for 425 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.52	1.75	1.23	0.02	0.00	3.52
NNE	0.51	1.81	1.37	0.02	0.00	3.71
NE	0.42	1.43	1.87	0.07	0.00	3.78
ENE	0.24	0.93	1.01	0.02	0.00	2.19
E	0.21	0.73	0.40	0.07	0.00	1.42
ESE	0.17	0.61	0.57	0.04	0.00	1.40
SE	0.28	0.84	1.62	0.24	0.00	2.98
SSE	0.46	1.96	3.55	1.17	0.07	7.21
S	0.94	3.88	5.14	2.59	0.09	12.64
SSW	0.53	2.45	2.62	1.25	0.01	6.86
SW	0.61	1.95	3.82	1.19	0.00	7.58
WSW	0.35	1.81	4.69	2.40	0.00	9.26
W	0.33	2.62	4.42	1.77	0.02	9.15
WNW	0.32	2.23	3.78	0.87	0.06	7.25
NW	0.42	4.81	8.15	0.39	0.00	13.77
NNW	0.57	3.63	3.07	0.02	0.00	7.29
TOTAL	6.88	33.44	47.31	12.12	0.24	12684.

bad data observed for 420 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	1.64	3.38	0.06	0.00	5.13
NNE	0.12	1.46	3.83	0.09	0.00	5.49
NE	0.06	1.56	5.79	0.45	0.00	7.86
ENE	0.06	0.90	3.48	0.26	0.00	4.70
E	0.05	0.60	2.16	0.21	0.00	3.01
ESE	0.03	0.38	2.13	0.31	0.00	2.85
SE	0.02	0.55	4.11	1.42	0.00	6.10
SSE	0.08	0.67	5.04	3.49	0.10	9.39
S	0.05	0.53	3.03	4.34	0.21	8.15
SSW	0.03	0.36	1.15	1.57	0.01	3.12
SW	0.02	0.35	1.43	1.08	0.00	2.88
WSW	0.03	0.47	2.22	2.37	0.01	5.10
W	0.02	0.67	3.28	3.67	0.20	7.84
WNW	0.02	1.03	4.32	1.94	0.11	7.42
NW	0.07	2.02	9.20	2.16	0.11	13.57
NNW	0.08	1.84	5.13	0.32	0.00	7.38
TOTAL	0.81	15.03	59.69	23.73	0.74	12648.

bad data observed for 456 half hours



## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.07	0.93	1.68	0.17	0.00	2.86
NNE	0.06	0.71	2.19	0.05	0.00	3.01
NE	0.06	0.71	5.70	1.74	0.00	8.20
ENE	0.03	0.60	10.82	4.60	0.00	16.05
E	0.04	0.37	4.41	0.54	0.00	5.36
ESE	0.02	0.24	4.07	1.01	0.00	5.34
SE	0.02	0.28	5.03	4.02	0.00	9.34
SSE	0.04	0.25	3.63	6.30	0.09	10.30
S	0.02	0.24	1.48	4.85	0.27	6.86
SSW	0.03	0.11	0.40	0.92	0.02	1.47
SW	0.02	0.14	0.47	0.50	0.00	1.14
WSW	0.02	0.23	1.61	2.96	0.02	4.85
W	0.01	0.40	2.57	4.16	0.30	7.43
WNW	0.01	0.55	2.67	3.00	0.20	6.43
NW	0.04	0.74	4.74	2.48	0.12	8.13
NNW	0.06	0.89	2.05	0.24	0.00	3.23
TOTAL	0.55	7.38	53.52	37.54	1.01	12652.

bad data observed for 452 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.09	0.42	0.49	0.04	0.00	1.04
NNE	0.13	0.62	0.64	0.09	0.00	1.48
NE	0.06	0.99	8.78	2.89	0.00	12.71
ENE	0.03	1.12	14.34	2.67	0.00	18.17
E	0.05	0.72	5.63	0.39	0.00	6.78
ESE	0.06	0.57	5.08	0.57	0.00	6.27
SE	0.06	0.75	7.07	2.58	0.00	10.46
SSE	0.09	0.53	5.07	5.81	0.01	11.51
S	0.06	0.22	2.12	5.30	0.17	7.86
SSW	0.03	0.18	0.48	0.79	0.11	1.59
SW	0.08	0.27	0.62	0.55	0.02	1.53
WSW	0.02	0.31	1.53	3.09	0.06	5.02
W	0.01	0.21	2.14	3.99	0.14	6.49
WNW	0.01	0.17	1.30	2.31	0.17	3.96
NW	0.05	0.50	1.89	1.34	0.04	3.81
NNW	0.06	0.64	0.53	0.09	0.00	1.32
TOTAL	0.86	8.23	57.71	32.49	0.71	12715.

bad data observed for 389 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.31	0.55	0.09	0.00	0.00	0.95
NNE	0.51	2.59	1.22	0.02	0.00	4.35
NE	0.78	5.66	9.61	0.41	0.00	16.46
ENE	0.65	3.78	2.86	0.05	0.00	7.33
E	0.73	2.24	1.14	0.02	0.00	4.13
ESE	0.70	1.87	1.02	0.06	0.00	3.65
SE	0.71	3.27	3.58	0.43	0.00	7.98
SSE	0.57	4.57	4.81	1.41	0.07	11.42
S	0.64	3.83	5.35	3.28	0.02	13.12
SSW	0.74	1.65	1.75	0.68	0.08	4.91
SW	0.40	1.28	1.94	0.55	0.00	4.18
WSW	0.18	1.54	2.91	1.25	0.00	5.88
W	0.22	1.40	3.05	1.65	0.02	6.33
WNW	0.14	0.93	2.06	0.68	0.06	3.87
NW	0.13	1.28	2.23	0.23	0.00	3.86
NNW	0.17	1.06	0.34	0.01	0.00	1.58
TOTAL	7.58	37.52	43.95	10.71	0.24	12701.

bad data observed for 403 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.67	1.37	0.08	0.00	0.00	3.11
NNE	2.26	3.41	0.43	0.00	0.00	6.09
NE	1.52	3.83	1.68	0.01	0.00	7.03
ENE	0.81	1.45	0.72	0.03	0.00	3.02
E	0.74	1.05	0.30	0.01	0.00	2.09
ESE	0.61	0.60	0.47	0.02	0.00	1.70
SE	0.87	1.45	1.68	0.26	0.00	4.26
SSE	1.27	3.73	2.67	1.02	0.04	8.73
S	1.45	6.91	4.84	2.35	0.06	15.61
SSW	1.28	4.15	2.43	0.82	0.00	8.68
SW	1.20	3.33	3.09	0.49	0.00	8.11
WSW	0.57	3.03	4.27	0.91	0.02	8.80
W	0.42	2.19	3.61	1.19	0.12	7.53
WNW	0.35	1.75	2.04	0.58	0.03	4.76
NW	0.56	2.93	1.93	0.11	0.01	5.54
NNW	1.35	3.03	0.56	0.00	0.00	4.94
TOTAL	16.93	44.19	30.81	7.80	0.27	12716.

bad data observed for 388 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.08	0.80	0.09	0.00	0.00	1.98
NNE	1.35	1.39	0.14	0.01	0.00	2.88
NE	0.80	1.69	0.82	0.03	0.00	3.34
ENE	0.48	1.00	0.30	0.03	0.00	1.81
E	0.52	0.69	0.19	0.03	0.00	1.43
ESE	0.48	0.55	0.42	0.02	0.00	1.47
SE	0.50	0.94	1.06	0.27	0.00	2.78
SSE	0.90	3.02	2.23	0.62	0.01	6.78
S	1.43	10.03	6.49	2.10	0.06	20.11
SSW	1.45	6.84	3.99	0.81	0.02	13.11
SW	1.07	4.57	5.56	0.65	0.00	11.85
WSW	0.76	3.18	5.35	1.01	0.01	10.31
W	0.62	2.34	3.24	0.54	0.03	6.77
WNW	0.68	1.89	1.64	0.23	0.01	4.46
NW	0.79	3.30	1.91	0.17	0.00	6.17
NNW	1.28	2.85	0.60	0.01	0.00	4.74
TOTAL	14.21	45.10	34.01	6.52	0.15	51743.

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.02	0.82	0.09	0.00	0.00	1.93
NNE	1.01	1.13	0.08	0.01	0.00	2.23
NE	0.71	1.10	0.50	0.04	0.00	2.34
ENE	0.37	0.65	0.26	0.03	0.00	1.31
E	0.32	0.60	0.16	0.02	0.00	1.11
ESE	0.37	0.51	0.33	0.05	0.00	1.26
SE	0.48	0.82	0.65	0.26	0.01	2.22
SSE	0.96	2.79	1.80	0.59	0.03	6.17
S	1.38	10.43	6.63	2.05	0.06	20.54
SSW	1.53	6.98	3.93	0.78	0.02	13.24
SW	1.17	5.51	6.19	0.67	0.00	13.53
WSW	0.81	3.59	6.26	1.00	0.01	11.67
W	0.69	2.58	3.36	0.48	0.00	7.12
WNW	0.65	2.09	1.88	0.30	0.00	4.91
NW	0.81	3.31	2.06	0.12	0.00	6.30
NNW	1.12	2.44	0.58	0.01	0.00	4.14
TOTAL	13.40	45.35	34.73	6.39	0.13	51683.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.46	1.56	0.83	0.01	0.00	2.86
NNE	0.46	1.61	0.99	0.01	0.00	3.08
NE	0.34	1.25	1.33	0.05	0.00	2.97
ENE	0.22	0.94	0.76	0.02	0.00	1.93
E	0.23	0.70	0.40	0.05	0.00	1.39
ESE	0.18	0.51	0.57	0.10	0.00	1.36
SE	0.27	0.76	1.41	0.34	0.02	2.79
SSE	0.47	1.87	3.00	1.08	0.04	6.47
S	1.00	5.74	6.69	2.81	0.04	16.29
SSW	1.01	4.11	3.38	1.18	0.03	9.71
SW	0.81	3.74	4.95	0.82	0.00	10.33
WSW	0.50	2.86	5.74	1.76	0.03	10.88
W	0.44	2.83	4.11	0.99	0.02	8.40
WNW	0.34	2.05	2.68	0.47	0.02	5.56
NW	0.44	4.20	5.20	0.23	0.00	10.07
NNW	0.58	3.19	2.12	0.03	0.00	5.92
TOTAL	7.76	37.91	44.15	9.98	0.19	51734.

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.09	1.56	2.53	0.03	0.00	4.20
NNE	0.09	1.46	3.06	0.03	0.00	4.63
NE	0.10	1.35	4.22	0.26	0.00	5.92
ENE	0.06	0.96	3.24	0.33	0.00	4.59
E	0.07	0.70	1.75	0.16	0.00	2.68
ESE	0.07	0.59	1.81	0.28	0.00	2.75
SE	0.07	0.69	3.62	1.13	0.00	5.51
SSE	0.11	1.12	5.38	3.01	0.04	9.65
S	0.14	1.11	5.01	4.67	0.09	11.02
SSW	0.13	0.66	1.71	1.97	0.02	4.49
SW	0.09	0.69	1.85	0.83	0.00	3.46
WSW	0.10	0.84	3.43	2.28	0.02	6.67
W	0.09	1.59	3.89	2.66	0.17	8.40
WNW	0.06	1.78	3.84	1.15	0.05	6.89
NW	0.08	3.02	8.20	1.09	0.03	12.43
NNW	0.11	2.19	4.28	0.12	0.00	6.70
TOTAL	1.47	20.28	57.82	19.99	0.43	51747.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.08	1.32	1.70	0.05	0.00	3.15
NNE	0.10	1.31	1.96	0.03	0.00	3.40
NE	0.06	1.11	4.17	1.15	0.00	6.49
ENE	0.04	0.85	8.63	4.13	0.00	13.64
E	0.04	0.58	3.68	0.54	0.00	4.84
ESE	0.03	0.47	3.36	0.80	0.00	4.67
SE	0.04	0.58	5.07	3.06	0.01	8.75
SSE	0.04	0.71	5.48	4.92	0.05	11.20
S	0.04	0.49	3.78	5.46	0.18	9.95
SSW	0.05	0.29	1.00	1.60	0.05	2.99
SW	0.04	0.30	1.05	0.55	0.00	1.94
WSW	0.03	0.43	2.04	2.05	0.04	4.60
W	0.03	0.75	2.55	3.32	0.15	6.81
WNW	0.03	0.91	2.31	1.77	0.10	5.12
NW	0.07	1.68	4.49	1.60	0.06	7.89
NNW	0.08	1.80	2.57	0.12	0.00	4.57
TOTAL	0.80	13.57	53.85	31.15	0.64	51742.

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.35	1.05	0.27	0.01	0.00	1.69
NNE	0.44	1.08	0.41	0.03	0.00	1.95
NE	0.23	1.43	5.45	2.05	0.00	9.16
ENE	0.19	1.86	11.62	3.01	0.00	16.68
E	0.17	1.28	4.47	0.41	0.00	6.34
ESE	0.18	0.88	4.02	0.61	0.00	5.69
SE	0.12	1.35	6.50	2.61	0.01	10.60
SSE	0.14	1.91	5.73	4.31	0.04	12.12
S	0.15	1.19	4.64	4.56	0.14	10.69
SSW	0.14	0.52	1.42	1.20	0.05	3.33
SW	0.10	0.46	1.28	0.45	0.02	2.30
WSW	0.06	0.47	1.93	1.65	0.02	4.13
W	0.05	0.47	2.47	2.80	0.05	5.85
WNW	0.08	0.40	1.05	1.36	0.06	2.95
NW	0.12	1.10	1.67	0.97	0.02	3.88
NNW	0.26	1.76	0.58	0.06	0.00	2.65
TOTAL	2.78	17.22	53.49	26.10	0.40	51858.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.36	0.50	0.11	0.00	0.00	0.97
NNE	0.66	1.99	0.59	0.01	0.00	3.24
NE	0.84	4.87	7.66	0.53	0.00	13.90
ENE	0.77	3.57	3.04	0.12	0.00	7.50
E	0.79	2.05	1.29	0.03	0.00	4.16
ESE	0.70	1.59	1.33	0.06	0.00	3.69
SE	0.71	2.65	3.35	0.57	0.01	7.30
SSE	0.64	4.81	4.66	1.46	0.06	11.62
S	0.67	6.55	6.53	2.86	0.12	16.74
SSW	0.62	2.41	2.87	0.86	0.03	6.79
SW	0.36	1.35	2.70	0.47	0.00	4.89
WSW	0.20	1.32	2.92	0.83	0.00	5.27
W	0.17	1.18	2.98	1.11	0.00	5.44
WNW	0.13	0.91	1.47	0.54	0.02	3.08
NW	0.14	1.28	1.71	0.27	0.00	3.39
NNW	0.28	1.20	0.52	0.02	0.00	2.01
TOTAL	8.05	38.24	43.71	9.76	0.25	51830.

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	1.39	1.16	0.10	0.01	0.01	2.67
NNE	1.78	2.76	0.37	0.00	0.00	4.92
NE	1.19	3.40	1.76	0.05	0.00	6.39
ENE	0.69	1.67	0.70	0.04	0.00	3.10
E	0.66	1.12	0.30	0.03	0.00	2.11
ESE	0.55	0.73	0.50	0.05	0.00	1.83
SE	0.71	1.42	1.41	0.32	0.02	3.88
SSE	1.00	3.43	2.77	0.94	0.03	8.18
S	1.39	8.65	6.01	2.41	0.06	18.53
SSW	1.20	5.30	3.57	0.91	0.00	10.98
SW	0.93	3.62	4.16	0.58	0.00	9.30
WSW	0.55	2.64	4.30	1.09	0.01	8.57
W	0.41	1.91	3.12	0.70	0.03	6.17
WNW	0.37	1.49	1.60	0.31	0.01	3.78
NW	0.53	2.55	1.82	0.14	0.01	5.04
NNW	1.13	2.80	0.60	0.01	0.00	4.54
TOTAL	14.48	44.66	33.08	7.60	0.18	51776.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer Only consider wind speeds &gt; 0.0 m/s

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.71	1.01	0.81	0.01	0.00	2.54
NNE	0.97	2.12	1.42	0.02	0.00	4.53
NE	0.70	2.81	5.63	1.26	0.00	10.40
ENE	0.44	2.05	6.60	2.75	0.00	11.84
E	0.50	1.36	2.87	0.41	0.00	5.14
ESE	0.40	0.98	2.51	0.51	0.00	4.41
SE	0.46	1.43	4.26	2.06	0.04	8.24
SSE	0.66	2.88	5.40	3.79	0.08	12.80
S	0.87	4.49	6.15	5.32	0.17	17.01
SSW	0.78	2.14	1.84	0.49	0.00	5.26
SW	0.47	1.31	0.98	0.19	0.00	2.96
WSW	0.26	0.90	1.00	0.50	0.00	2.67
W	0.19	0.84	0.94	0.66	0.00	2.64
WNW	0.18	0.71	0.80	0.42	0.00	2.10
NW	0.28	1.55	1.86	0.27	0.00	3.96
NNW	0.61	1.65	1.21	0.04	0.00	3.50
TOTAL	8.46	28.25	44.28	18.71	0.30	101029.

Season : Autumn

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.65	1.07	0.64	0.00	0.00	2.37
NNE	0.70	1.39	0.74	0.01	0.00	2.83
NE	0.50	1.98	2.33	0.15	0.00	4.95
ENE	0.38	1.55	2.80	0.20	0.00	4.93
E	0.33	1.05	1.15	0.04	0.00	2.58
ESE	0.34	0.81	1.46	0.15	0.00	2.76
SE	0.38	1.29	3.26	0.92	0.00	5.85
SSE	0.50	2.75	4.54	1.79	0.01	9.59
S	0.88	7.28	7.51	3.83	0.05	19.55
SSW	0.93	4.61	3.46	1.57	0.06	10.63
SW	0.66	3.12	3.48	0.47	0.00	7.73
WSW	0.48	2.33	3.73	0.85	0.00	7.39
W	0.40	1.87	2.71	0.77	0.00	5.75
WNW	0.35	1.46	1.50	0.24	0.00	3.55
NW	0.42	2.43	2.40	0.19	0.00	5.45
NNW	0.64	2.24	1.19	0.01	0.00	4.08
TOTAL	8.54	37.22	42.93	11.20	0.12	107822.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter Only consider wind speeds &gt; 0.0 m/s

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.43	1.21	0.52	0.01	0.01	2.17
NNE	0.52	1.19	0.41	0.00	0.00	2.12
NE	0.36	1.21	0.72	0.01	0.00	2.29
ENE	0.24	0.86	0.73	0.03	0.00	1.86
E	0.24	0.57	0.34	0.04	0.00	1.19
ESE	0.23	0.46	0.46	0.08	0.00	1.23
SE	0.23	0.78	0.96	0.17	0.01	2.15
SSE	0.37	2.00	2.04	0.37	0.01	4.80
S	0.54	5.85	5.09	1.10	0.06	12.64
SSW	0.59	4.08	3.72	1.60	0.02	10.01
SW	0.51	3.49	6.69	1.19	0.01	11.89
WSW	0.41	2.55	7.63	2.62	0.05	13.27
W	0.36	2.49	5.93	2.74	0.11	11.63
WNW	0.34	2.11	3.35	1.18	0.04	7.01
NW	0.38	3.65	5.17	0.98	0.02	10.20
NNW	0.52	3.04	1.92	0.05	0.00	5.53
TOTAL	6.27	35.52	45.68	12.18	0.35	103775.

Season : Spring

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.63	1.08	0.90	0.04	0.00	2.65
NNE	0.76	1.68	1.26	0.04	0.00	3.74
NE	0.58	2.13	4.41	0.70	0.00	7.81
ENE	0.36	1.31	4.27	0.95	0.00	6.89
E	0.34	0.89	1.82	0.16	0.00	3.20
ESE	0.31	0.67	1.77	0.26	0.00	3.01
SE	0.39	1.10	3.09	1.17	0.00	5.75
SSE	0.61	2.20	3.55	2.58	0.05	8.99
S	0.81	4.34	4.04	3.24	0.10	12.54
SSW	0.76	2.61	1.83	0.96	0.03	6.19
SW	0.64	2.14	2.62	0.65	0.00	6.05
WSW	0.35	1.84	3.53	1.86	0.01	7.59
W	0.30	1.59	3.23	2.15	0.11	7.39
WNW	0.30	1.47	2.59	1.25	0.08	5.70
NW	0.41	2.56	4.10	0.87	0.03	7.98
NNW	0.66	2.17	1.61	0.08	0.00	4.52
TOTAL	8.20	29.80	44.62	16.96	0.42	101487.



## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 10m AT 10.0 M.

BEGINNING DATE : 50491 END DATE : 300603

Annual, all times combined Only wind speeds &gt; 0. m/s

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.60	1.10	0.72	0.02	0.00	2.43
NNE	0.74	1.59	0.95	0.01	0.00	3.29
NE	0.53	2.03	3.24	0.52	0.00	6.32
ENE	0.35	1.44	3.57	0.96	0.00	6.32
E	0.35	0.97	1.53	0.16	0.00	3.01
ESE	0.32	0.73	1.54	0.25	0.00	2.84
SE	0.36	1.15	2.88	1.07	0.01	5.48
SSE	0.53	2.46	3.88	2.12	0.04	9.03
S	0.77	5.52	5.72	3.37	0.09	15.48
SSW	0.77	3.39	2.73	1.17	0.03	8.08
SW	0.57	2.53	3.47	0.63	0.00	7.20
WSW	0.38	1.92	3.99	1.46	0.02	7.76
W	0.32	1.71	3.21	1.57	0.06	6.87
WNW	0.29	1.44	2.06	0.77	0.03	4.59
NW	0.37	2.55	3.38	0.57	0.01	6.90
NNW	0.61	2.28	1.48	0.05	0.00	4.41
TOTAL	7.87	32.79	44.36	14.69	0.30	414113.

bad data observed for 15007 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.12	0.73	2.63	0.64	0.00	4.11
NNE	0.10	0.90	4.95	1.08	0.00	7.04
NE	0.15	1.09	5.29	1.52	0.00	8.05
ENE	0.18	1.00	3.88	0.70	0.02	5.77
E	0.12	0.93	2.21	0.35	0.08	3.69
ESE	0.12	0.99	2.42	1.27	0.08	4.87
SE	0.13	0.70	2.70	2.04	0.12	5.69
SSE	0.12	0.77	4.52	6.16	0.92	12.48
S	0.12	0.66	4.46	8.36	1.31	14.90
SSW	0.10	0.50	3.44	3.80	0.13	7.97
SW	0.05	0.33	2.27	1.71	0.03	4.40
WSW	0.08	0.41	1.48	1.67	0.25	3.88
W	0.09	0.45	1.43	1.27	0.28	3.52
WNW	0.14	0.68	1.61	1.21	0.06	3.71
NW	0.18	0.65	2.76	1.21	0.01	4.81
NNW	0.12	0.86	2.94	1.17	0.00	5.10
TOTAL	1.92	11.65	48.99	34.16	3.28	12541.

bad data observed for 455 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.21	0.85	2.50	0.43	0.00	3.98
NNE	0.22	0.81	3.72	0.79	0.01	5.53
NE	0.14	0.97	3.79	0.85	0.01	5.76
ENE	0.22	0.77	2.19	0.38	0.06	3.64
E	0.17	1.07	1.64	0.33	0.00	3.21
ESE	0.11	0.81	1.87	1.23	0.05	4.07
SE	0.05	0.70	2.29	1.91	0.38	5.33
SSE	0.06	0.93	4.15	5.83	0.94	11.92
S	0.15	0.95	4.73	8.95	1.17	15.95
SSW	0.09	0.63	3.87	3.81	0.17	8.56
SW	0.14	0.68	2.49	1.82	0.00	5.12
WSW	0.09	0.77	1.99	2.10	0.11	5.06
W	0.14	0.65	2.02	1.97	0.15	4.92
WNW	0.10	1.00	2.48	1.63	0.02	5.23
NW	0.22	1.16	3.02	1.48	0.04	5.92
NNW	0.25	1.08	3.14	1.28	0.04	5.80
TOTAL	2.34	13.83	45.87	34.80	3.15	12542.

bad data observed for 454 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.10	0.92	2.79	1.27	0.00	5.07
NNE	0.14	1.03	3.91	1.62	0.00	6.70
NE	0.17	1.17	2.08	1.08	0.07	4.56
ENE	0.10	1.11	2.07	0.63	0.06	3.96
E	0.13	0.78	1.59	0.59	0.00	3.09
ESE	0.11	0.53	1.25	0.93	0.02	2.85
SE	0.06	0.73	2.15	2.45	0.38	5.77
SSE	0.06	0.84	4.83	6.47	1.55	13.75
S	0.13	0.69	4.20	8.59	1.47	15.07
SSW	0.11	0.62	2.35	2.09	0.24	5.41
SW	0.10	0.50	1.27	0.65	0.09	2.62
WSW	0.09	0.61	1.63	1.20	0.37	3.90
W	0.10	0.51	1.78	1.31	0.47	4.17
WNW	0.09	0.72	3.41	1.10	0.16	5.48
NW	0.08	1.45	5.93	1.68	0.06	9.20
NNW	0.08	1.41	5.14	1.70	0.07	8.39
TOTAL	1.64	13.63	46.38	33.34	5.00	12556.

bad data observed for 440 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.02	0.43	3.30	2.10	0.06	5.91
NNE	0.00	0.43	4.80	3.17	0.02	8.41
NE	0.01	0.53	3.75	2.69	0.16	7.14
ENE	0.04	0.50	4.03	5.57	0.09	10.23
E	0.01	0.39	2.67	2.40	0.03	5.50
ESE	0.00	0.29	2.22	2.41	0.13	5.06
SE	0.01	0.19	2.36	5.30	0.49	8.35
SSE	0.02	0.30	2.32	10.01	2.76	15.41
S	0.03	0.15	0.83	5.93	2.57	9.52
SSW	0.03	0.13	0.43	0.69	0.29	1.56
SW	0.01	0.10	0.29	0.48	0.05	0.94
WSW	0.02	0.14	0.34	0.78	0.33	1.60
W	0.00	0.20	0.60	1.41	0.72	2.94
WNW	0.01	0.26	1.39	1.28	0.49	3.43
NW	0.02	0.46	3.59	1.97	0.29	6.34
NNW	0.02	0.38	4.28	2.92	0.06	7.66
TOTAL	0.24	4.89	37.20	49.14	8.53	12592.

bad data observed for 404 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.01	0.02	0.74	0.56	0.10	1.43
NNE	0.00	0.10	1.24	1.01	0.03	2.39
NE	0.00	0.12	1.40	2.93	0.23	4.67
ENE	0.01	0.16	2.11	23.46	1.66	27.39
E	0.02	0.10	1.94	7.61	0.52	10.20
ESE	0.01	0.08	1.56	5.66	0.22	7.53
SE	0.00	0.10	1.23	9.31	1.40	12.04
SSE	0.01	0.08	0.93	9.07	4.63	14.71
S	0.00	0.03	0.29	3.57	3.50	7.39
SSW	0.00	0.03	0.07	0.12	0.25	0.48
SW	0.00	0.02	0.13	0.20	0.06	0.40
WSW	0.00	0.02	0.15	0.55	0.48	1.21
W	0.01	0.04	0.21	1.09	1.05	2.39
WNW	0.00	0.07	0.48	1.15	0.81	2.51
NW	0.01	0.06	0.92	1.23	0.54	2.75
NNW	0.00	0.06	0.86	1.50	0.12	2.53
TOTAL	0.07	1.08	14.24	69.02	15.60	12613.

bad data observed for 383 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.00	0.04	0.18	0.16	0.00	0.38
NNE	0.00	0.05	0.28	0.62	0.02	0.96
NE	0.01	0.06	0.68	5.87	0.64	7.26
ENE	0.00	0.16	2.00	24.04	1.96	28.17
E	0.01	0.12	1.77	8.41	0.23	10.55
ESE	0.00	0.05	1.60	7.61	0.26	9.52
SE	0.02	0.05	1.45	10.66	1.75	13.92
SSE	0.01	0.02	0.96	9.23	4.57	14.79
S	0.00	0.04	0.41	3.91	2.88	7.24
SSW	0.00	0.03	0.20	0.34	0.05	0.62
SW	0.00	0.01	0.10	0.19	0.05	0.34
WSW	0.01	0.02	0.06	0.52	0.47	1.07
W	0.00	0.01	0.13	0.66	1.06	1.85
WNW	0.00	0.02	0.09	0.40	0.86	1.37
NW	0.00	0.07	0.17	0.40	0.39	1.02
NNW	0.02	0.01	0.37	0.44	0.11	0.94
TOTAL	0.06	0.74	10.44	73.46	15.29	12621.

bad data observed for 375 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.02	0.08	0.28	0.25	0.03	0.65
NNE	0.04	0.08	1.64	1.90	0.01	3.67
NE	0.02	0.23	5.38	12.78	0.23	18.64
ENE	0.04	0.39	6.71	8.47	0.17	15.78
E	0.08	0.52	3.69	2.92	0.01	7.21
ESE	0.03	0.43	4.21	3.48	0.04	8.18
SE	0.01	0.29	3.89	6.74	0.52	11.43
SSE	0.00	0.29	4.38	9.03	2.42	16.12
S	0.05	0.17	1.79	6.18	2.24	10.43
SSW	0.01	0.06	0.68	0.90	0.08	1.72
SW	0.01	0.02	0.23	0.51	0.09	0.86
WSW	0.02	0.02	0.13	0.76	0.10	1.02
W	0.01	0.01	0.13	0.85	0.46	1.45
WNW	0.01	0.02	0.17	0.59	0.37	1.16
NW	0.01	0.09	0.14	0.40	0.12	0.76
NNW	0.01	0.04	0.31	0.48	0.07	0.90
TOTAL	0.35	2.74	33.74	56.23	6.94	12604.

bad data observed for 392 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.08	0.32	1.96	0.75	0.00	3.11
NNE	0.08	0.49	6.66	3.11	0.00	10.33
NE	0.11	0.72	8.07	3.48	0.01	12.38
ENE	0.14	1.01	5.55	2.01	0.06	8.77
E	0.10	0.88	3.43	0.96	0.09	5.46
ESE	0.10	1.01	3.07	1.53	0.05	5.75
SE	0.06	0.71	3.58	2.72	0.34	7.41
SSE	0.07	0.93	5.45	6.72	1.51	14.69
S	0.05	0.78	3.91	7.52	1.72	13.97
SSW	0.06	0.39	2.01	2.36	0.08	4.90
SW	0.07	0.39	0.88	1.03	0.07	2.45
WSW	0.08	0.17	0.55	1.33	0.29	2.42
W	0.02	0.16	0.52	0.68	0.21	1.59
WNW	0.06	0.19	0.59	0.64	0.07	1.55
NW	0.08	0.28	0.85	0.90	0.02	2.13
NNW	0.06	0.41	1.59	1.00	0.03	3.09
TOTAL	1.21	8.82	48.67	36.74	4.56	12570.

bad data observed for 426 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.20	0.55	1.58	0.71	0.02	3.05
NNE	0.10	0.58	1.69	0.60	0.00	2.97
NE	0.08	0.43	0.76	0.45	0.00	1.71
ENE	0.11	0.41	0.81	0.17	0.00	1.50
E	0.14	0.56	0.80	0.26	0.00	1.76
ESE	0.14	0.42	1.39	0.91	0.01	2.87
SE	0.05	0.29	1.87	1.87	0.18	4.26
SSE	0.05	0.46	3.47	3.66	0.51	8.15
S	0.05	0.44	4.25	8.23	1.27	14.24
SSW	0.05	0.53	4.17	5.53	0.56	10.84
SW	0.05	0.62	2.79	5.99	0.17	9.61
WSW	0.08	0.57	3.20	7.21	0.82	11.88
W	0.12	0.56	3.65	3.07	0.51	7.91
WNW	0.17	0.69	3.59	1.53	0.08	6.05
NW	0.17	0.80	4.29	2.02	0.05	7.33
NNW	0.15	0.61	3.06	2.04	0.01	5.87
TOTAL	1.71	8.50	41.36	44.24	4.18	13295.

bad data observed for 637 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.44	1.50	0.44	0.00	2.43
NNE	0.05	0.52	0.81	0.32	0.00	1.70
NE	0.08	0.29	0.64	0.18	0.00	1.18
ENE	0.08	0.12	0.44	0.30	0.00	0.95
E	0.06	0.17	0.63	0.26	0.00	1.11
ESE	0.07	0.27	1.20	0.96	0.07	2.57
SE	0.08	0.35	1.53	1.18	0.18	3.32
SSE	0.07	0.35	3.25	3.08	0.45	7.20
S	0.06	0.46	5.07	8.83	0.86	15.29
SSW	0.05	0.40	4.10	6.99	0.60	12.15
SW	0.08	0.63	2.94	7.52	0.29	11.46
WSW	0.05	0.73	3.99	8.91	0.74	14.42
W	0.14	0.94	3.72	3.76	0.29	8.85
WNW	0.18	0.96	3.67	2.06	0.18	7.05
NW	0.22	0.87	2.99	1.49	0.06	5.63
NNW	0.14	0.73	2.35	1.44	0.04	4.70
TOTAL	1.45	8.22	38.84	47.72	3.77	13311.

bad data observed for 621 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.11	0.55	1.14	0.52	0.00	2.32
NNE	0.04	0.34	0.65	0.13	0.00	1.17
NE	0.09	0.27	0.31	0.20	0.00	0.87
ENE	0.05	0.28	0.77	0.25	0.00	1.35
E	0.07	0.31	0.77	0.37	0.01	1.52
ESE	0.04	0.33	0.72	0.87	0.12	2.09
SE	0.04	0.29	1.28	1.27	0.28	3.16
SSE	0.09	0.49	3.29	3.62	0.36	7.85
S	0.06	0.68	4.82	9.00	0.64	15.20
SSW	0.10	0.65	4.14	5.58	0.79	11.26
SW	0.07	0.72	3.51	5.42	0.13	9.87
WSW	0.14	0.86	4.46	7.74	0.41	13.62
W	0.16	0.80	4.77	4.92	0.40	11.05
WNW	0.19	0.96	3.98	1.99	0.04	7.16
NW	0.16	1.18	4.31	1.53	0.00	7.19
NNW	0.17	0.75	2.20	1.17	0.03	4.33
TOTAL	1.61	9.46	41.13	44.58	3.21	13380.

bad data observed for 552 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.56	2.49	1.45	0.01	4.55
NNE	0.04	0.43	2.06	0.74	0.01	3.28
NE	0.04	0.42	1.49	0.43	0.04	2.41
ENE	0.04	0.44	1.45	0.77	0.03	2.73
E	0.04	0.42	1.30	0.41	0.04	2.21
ESE	0.01	0.37	1.46	1.29	0.22	3.36
SE	0.02	0.48	2.77	3.01	0.49	6.77
SSE	0.03	0.67	2.96	6.94	1.00	11.59
S	0.05	0.56	2.41	8.30	1.77	13.09
SSW	0.06	0.39	1.14	2.67	1.02	5.27
SW	0.04	0.32	1.08	1.49	0.11	3.05
WSW	0.05	0.56	1.62	3.48	0.62	6.34
W	0.04	0.58	3.12	2.81	1.07	7.62
WNW	0.01	0.91	6.11	1.99	0.27	9.29
NW	0.07	1.20	7.22	1.93	0.30	10.72
NNW	0.02	0.78	4.72	2.11	0.09	7.72
TOTAL	0.62	9.08	43.41	39.83	7.06	13463.

bad data observed for 469 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.02	0.46	3.13	1.02	0.00	4.64
NNE	0.09	0.53	3.61	1.11	0.01	5.36
NE	0.02	0.36	2.25	1.32	0.04	3.99
ENE	0.01	0.53	3.19	5.37	0.10	9.20
E	0.02	0.36	2.04	1.84	0.04	4.30
ESE	0.01	0.29	2.40	3.09	0.18	5.97
SE	0.03	0.21	2.98	6.59	0.85	10.66
SSE	0.03	0.23	2.73	9.58	1.98	14.55
S	0.01	0.24	1.22	6.63	2.83	10.94
SSW	0.04	0.29	0.47	1.51	1.08	3.39
SW	0.01	0.23	0.39	0.77	0.26	1.66
WSW	0.01	0.24	0.58	1.79	0.68	3.29
W	0.04	0.34	1.34	2.37	1.22	5.31
WNW	0.05	0.44	2.46	1.35	0.40	4.70
NW	0.01	0.62	3.59	1.38	0.47	6.07
NNW	0.04	0.56	4.01	1.28	0.07	5.97
TOTAL	0.47	5.92	36.39	47.01	10.21	13480.

bad data observed for 452 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.04	0.45	1.49	0.49	0.00	2.47
NNE	0.03	0.44	1.49	0.91	0.01	2.88
NE	0.03	0.32	1.91	4.10	0.15	6.51
ENE	0.02	0.32	5.23	10.55	0.15	16.27
E	0.01	0.37	3.60	3.29	0.01	7.27
ESE	0.02	0.23	3.16	4.07	0.19	7.66
SE	0.01	0.16	3.56	8.17	0.87	12.78
SSE	0.03	0.20	3.36	9.47	1.88	14.94
S	0.00	0.12	1.43	6.36	2.15	10.06
SSW	0.04	0.06	0.61	2.51	1.00	4.22
SW	0.04	0.07	0.27	0.83	0.24	1.45
WSW	0.02	0.10	0.25	1.68	0.64	2.70
W	0.04	0.10	0.37	2.04	1.16	3.71
WNW	0.01	0.14	0.47	0.77	0.32	1.71
NW	0.07	0.19	0.84	1.16	0.23	2.49
NNW	0.04	0.29	1.87	0.63	0.06	2.89
TOTAL	0.45	3.56	29.90	57.03	9.06	13502.

bad data observed for 430 half hours



## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Autumn

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.07	0.17	0.95	0.59	0.00	1.78
NNE	0.09	0.23	3.39	2.40	0.04	6.15
NE	0.07	0.44	6.10	5.22	0.10	11.93
ENE	0.05	0.70	5.87	2.06	0.00	8.67
E	0.06	0.73	4.41	0.73	0.01	5.94
ESE	0.05	0.61	4.25	1.97	0.05	6.94
SE	0.04	0.46	4.32	3.59	0.19	8.59
SSE	0.07	0.36	5.67	6.75	0.86	13.72
S	0.03	0.28	3.36	7.97	0.84	12.47
SSW	0.04	0.23	1.67	4.55	0.79	7.27
SW	0.01	0.16	0.78	2.09	0.19	3.22
WSW	0.04	0.19	0.54	2.41	0.35	3.53
W	0.01	0.19	0.66	2.53	0.68	4.07
WNW	0.02	0.19	0.67	0.99	0.16	2.03
NW	0.04	0.19	0.55	1.02	0.03	1.84
NNW	0.07	0.21	0.56	0.94	0.07	1.85
TOTAL	0.76	5.34	43.74	45.81	4.35	13500.

bad data observed for 432 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.09	0.72	3.02	1.04	0.04	4.91
NNE	0.15	0.93	4.08	1.43	0.01	6.61
NE	0.15	0.57	2.70	1.02	0.03	4.48
ENE	0.12	0.81	1.72	0.40	0.00	3.05
E	0.10	0.77	1.62	0.24	0.01	2.73
ESE	0.10	0.53	2.47	0.84	0.05	3.99
SE	0.08	0.45	2.83	1.84	0.14	5.35
SSE	0.07	0.52	3.58	3.68	0.63	8.50
S	0.08	0.60	4.39	6.62	0.99	12.67
SSW	0.04	0.64	3.55	5.80	0.46	10.50
SW	0.07	0.57	2.66	3.99	0.12	7.42
WSW	0.10	0.37	2.07	4.79	0.80	8.12
W	0.12	0.54	2.17	2.94	0.37	6.14
WNW	0.07	0.62	2.07	1.37	0.14	4.27
NW	0.13	0.71	2.56	1.64	0.01	5.06
NNW	0.08	0.81	3.17	2.15	0.00	6.20
TOTAL	1.57	10.17	44.66	39.79	3.82	13393.

bad data observed for 539 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.02	0.17	0.92	1.44	0.05	2.61
NNE	0.02	0.18	0.68	0.65	0.00	1.52
NE	0.07	0.14	0.29	0.15	0.00	0.64
ENE	0.04	0.14	0.34	0.16	0.00	0.68
E	0.04	0.15	0.35	0.17	0.04	0.74
ESE	0.01	0.23	0.31	0.41	0.01	0.97
SE	0.05	0.15	0.53	0.52	0.10	1.36
SSE	0.03	0.20	1.31	1.13	0.18	2.85
S	0.01	0.25	2.35	5.22	0.14	7.97
SSW	0.02	0.28	2.92	7.61	0.18	11.00
SW	0.05	0.32	2.21	10.31	0.84	13.73
WSW	0.05	0.40	2.02	13.45	2.02	17.94
W	0.05	0.43	3.51	6.94	1.42	12.36
WNW	0.02	0.48	3.92	4.25	0.96	9.62
NW	0.07	0.47	2.88	4.04	0.62	8.08
NNW	0.06	0.36	2.63	4.53	0.34	7.92
TOTAL	0.61	4.36	27.16	60.97	6.90	12925.

bad data observed for 683 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.06	0.22	0.88	0.83	0.00	1.99
NNE	0.08	0.16	0.69	0.60	0.00	1.53
NE	0.05	0.12	0.28	0.21	0.00	0.65
ENE	0.00	0.08	0.18	0.23	0.00	0.49
E	0.01	0.08	0.22	0.29	0.01	0.60
ESE	0.04	0.12	0.28	0.36	0.00	0.80
SE	0.02	0.11	0.37	0.43	0.10	1.03
SSE	0.01	0.16	1.21	0.93	0.15	2.45
S	0.02	0.23	2.40	5.55	0.18	8.38
SSW	0.01	0.38	2.97	6.61	0.23	10.20
SW	0.04	0.45	3.06	12.06	0.97	16.58
WSW	0.02	0.34	2.98	13.75	2.27	19.37
W	0.03	0.40	3.54	6.97	1.49	12.43
WNW	0.03	0.56	3.40	4.65	0.72	9.36
NW	0.09	0.41	2.89	4.49	0.33	8.22
NNW	0.01	0.44	2.07	3.06	0.37	5.94
TOTAL	0.50	4.26	27.40	61.01	6.82	12927.

bad data observed for 681 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.22	0.84	0.80	0.01	1.92
NNE	0.04	0.27	0.60	0.56	0.02	1.48
NE	0.04	0.12	0.16	0.16	0.00	0.49
ENE	0.02	0.12	0.20	0.13	0.01	0.48
E	0.02	0.10	0.18	0.15	0.01	0.45
ESE	0.02	0.06	0.22	0.37	0.01	0.67
SE	0.00	0.09	0.56	0.34	0.02	1.01
SSE	0.03	0.11	1.27	1.05	0.21	2.67
S	0.02	0.15	2.41	4.69	0.24	7.50
SSW	0.01	0.31	3.64	5.24	0.39	9.59
SW	0.08	0.53	4.45	9.54	0.66	15.25
WSW	0.08	0.45	3.81	14.05	1.91	20.29
W	0.05	0.62	3.99	7.06	1.34	13.06
WNW	0.10	0.66	3.56	4.33	0.95	9.60
NW	0.12	0.69	3.58	4.61	0.33	9.33
NNW	0.01	0.50	2.21	3.32	0.16	6.20
TOTAL	0.68	4.99	31.66	56.40	6.26	12921.

bad data observed for 687 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.27	1.17	0.87	0.02	2.39
NNE	0.03	0.34	1.04	0.61	0.01	2.03
NE	0.04	0.28	0.39	0.12	0.00	0.83
ENE	0.05	0.29	0.32	0.05	0.00	0.70
E	0.03	0.16	0.33	0.31	0.00	0.83
ESE	0.03	0.16	0.63	0.32	0.05	1.20
SE	0.02	0.29	0.88	0.45	0.01	1.65
SSE	0.11	0.43	2.07	2.17	0.19	4.97
S	0.08	0.40	2.11	5.53	0.56	8.67
SSW	0.03	0.32	1.61	3.41	1.34	6.72
SW	0.07	0.34	1.68	3.10	0.56	5.75
WSW	0.12	0.56	2.93	8.16	1.68	13.45
W	0.08	1.01	4.94	6.49	3.85	16.36
WNW	0.03	1.11	7.40	3.49	1.17	13.21
NW	0.05	1.27	7.54	4.13	0.58	13.57
NNW	0.03	0.59	4.25	2.67	0.13	7.67
TOTAL	0.84	7.83	39.29	41.90	10.13	12947.

bad data observed for 661 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.01	0.44	3.02	1.48	0.00	4.95
NNE	0.03	0.48	2.40	0.70	0.13	3.74
NE	0.01	0.39	1.22	0.25	0.01	1.88
ENE	0.02	0.43	1.18	0.73	0.03	2.40
E	0.01	0.33	1.03	0.28	0.02	1.66
ESE	0.01	0.26	1.38	0.68	0.07	2.39
SE	0.01	0.25	2.29	1.41	0.19	4.14
SSE	0.05	0.31	2.85	4.44	0.16	7.81
S	0.02	0.18	1.52	6.84	0.87	9.42
SSW	0.05	0.12	0.75	3.21	1.48	5.61
SW	0.02	0.15	0.94	1.99	0.52	3.61
WSW	0.02	0.35	1.31	4.78	1.77	8.23
W	0.01	0.45	2.40	5.36	5.16	13.37
WNW	0.04	0.79	3.91	3.24	2.57	10.55
NW	0.03	0.91	5.51	3.60	1.55	11.61
NNW	0.04	0.82	4.52	2.98	0.28	8.64
TOTAL	0.36	6.66	36.23	41.96	14.79	12933.

bad data observed for 675 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.10	0.68	2.43	1.37	0.00	4.57
NNE	0.08	0.61	1.98	0.63	0.02	3.32
NE	0.02	0.33	1.64	1.51	0.00	3.51
ENE	0.04	0.28	3.44	2.70	0.00	6.46
E	0.02	0.38	2.55	0.43	0.02	3.40
ESE	0.00	0.41	2.34	0.80	0.04	3.58
SE	0.01	0.32	3.51	1.86	0.09	5.79
SSE	0.02	0.29	4.22	5.00	0.30	9.83
S	0.03	0.18	1.87	6.65	0.46	9.19
SSW	0.02	0.13	1.12	4.02	0.95	6.25
SW	0.03	0.10	0.93	2.53	0.49	4.09
WSW	0.03	0.19	1.11	5.17	1.46	7.96
W	0.00	0.25	1.17	6.08	3.85	11.35
WNW	0.02	0.30	1.53	2.64	2.21	6.70
NW	0.02	0.42	2.31	2.90	1.54	7.19
NNW	0.04	0.56	2.97	2.76	0.46	6.79
TOTAL	0.49	5.44	35.12	47.05	11.90	12947.

bad data observed for 661 half hours

DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.19	1.29	1.45	0.07	3.05
NNE	0.05	0.43	2.75	1.79	0.01	5.03
NE	0.05	0.38	3.50	2.09	0.00	6.02
ENE	0.03	0.39	2.47	0.69	0.00	3.58
E	0.02	0.43	1.72	0.29	0.01	2.47
ESE	0.02	0.36	2.05	0.77	0.05	3.25
SE	0.04	0.24	2.49	0.79	0.08	3.63
SSE	0.04	0.22	3.74	2.89	0.22	7.12
S	0.02	0.18	2.86	6.73	0.22	10.01
SSW	0.06	0.19	1.71	5.82	0.47	8.26
SW	0.05	0.22	1.13	5.71	0.43	7.54
WSW	0.03	0.22	1.07	8.02	0.97	10.31
W	0.10	0.19	1.54	7.13	1.88	10.84
WNW	0.06	0.27	1.54	4.40	1.39	7.66
NW	0.07	0.24	1.38	3.59	0.75	6.04
NNW	0.09	0.26	0.97	3.46	0.43	5.19
TOTAL	0.80	4.41	32.21	55.61	6.97	12936.

bad data observed for 672 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.36	1.71	1.79	0.20	4.11
NNE	0.12	0.40	1.83	1.11	0.02	3.49
NE	0.05	0.29	0.68	0.32	0.00	1.34
ENE	0.04	0.23	0.83	0.15	0.01	1.25
E	0.05	0.29	0.99	0.11	0.02	1.46
ESE	0.05	0.35	0.87	0.43	0.08	1.79
SE	0.05	0.26	0.88	0.46	0.18	1.83
SSE	0.01	0.20	1.80	1.48	0.32	3.81
S	0.03	0.21	2.63	5.36	0.29	8.52
SSW	0.02	0.20	2.64	6.72	0.50	10.07
SW	0.05	0.37	2.19	8.63	0.66	11.90
WSW	0.01	0.39	1.99	9.77	2.16	14.30
W	0.02	0.32	2.36	6.87	1.72	11.27
WNW	0.09	0.49	2.77	4.27	0.69	8.31
NW	0.07	0.56	2.56	4.39	0.65	8.22
NNW	0.09	0.61	2.79	4.41	0.43	8.34
TOTAL	0.80	5.51	29.50	56.26	7.93	12941.

bad data observed for 667 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.13	0.63	2.43	1.25	0.03	4.46
NNE	0.09	0.65	2.79	1.54	0.01	5.08
NE	0.11	0.47	2.13	1.14	0.00	3.85
ENE	0.05	0.49	1.69	0.45	0.01	2.70
E	0.08	0.70	1.26	0.35	0.00	2.39
ESE	0.05	0.49	0.99	0.62	0.05	2.19
SE	0.07	0.37	1.28	1.09	0.23	3.03
SSE	0.06	0.51	2.84	2.59	0.47	6.47
S	0.05	0.66	3.52	5.56	0.51	10.30
SSW	0.11	0.72	3.36	3.48	0.39	8.06
SW	0.10	0.63	2.70	5.04	0.20	8.67
WSW	0.05	0.45	2.15	6.32	0.51	9.48
W	0.06	0.46	2.66	4.85	0.79	8.83
WNW	0.11	0.69	2.89	3.70	0.34	7.73
NW	0.19	0.72	3.88	3.02	0.21	8.02
NNW	0.10	0.89	4.08	3.49	0.19	8.74
TOTAL	1.43	9.52	40.65	44.48	3.93	12768.

bad data observed for 336 half hours

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.07	0.73	1.88	1.07	0.06	3.82
NNE	0.05	0.71	2.18	1.11	0.00	4.05
NE	0.07	0.59	1.03	0.49	0.00	2.18
ENE	0.06	0.66	1.28	0.37	0.00	2.38
E	0.04	0.45	1.05	0.23	0.05	1.83
ESE	0.07	0.31	0.82	0.45	0.03	1.69
SE	0.10	0.29	0.97	0.52	0.15	2.02
SSE	0.05	0.39	3.12	2.48	0.41	6.46
S	0.04	0.47	4.16	4.82	0.91	10.40
SSW	0.06	0.52	3.13	3.69	0.42	7.83
SW	0.05	0.62	2.85	5.54	0.24	9.30
WSW	0.08	0.52	2.44	8.40	0.77	12.21
W	0.05	0.69	3.80	4.21	0.56	9.32
WNW	0.07	0.93	4.49	3.36	0.43	9.28
NW	0.12	1.04	4.44	3.72	0.07	9.39
NNW	0.15	0.94	3.68	2.95	0.13	7.85
TOTAL	1.14	9.86	41.34	43.42	4.23	12803.

bad data observed for 301 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.03	0.43	2.14	1.10	0.03	3.74
NNE	0.11	0.56	2.28	1.34	0.02	4.30
NE	0.08	0.49	1.35	0.66	0.01	2.59
ENE	0.09	0.50	1.17	0.44	0.00	2.20
E	0.11	0.29	0.84	0.19	0.05	1.48
ESE	0.06	0.28	0.87	0.37	0.03	1.61
SE	0.06	0.31	1.37	1.12	0.12	2.97
SSE	0.09	0.58	3.13	3.37	0.72	7.89
S	0.09	0.52	2.85	4.62	1.18	9.25
SSW	0.05	0.41	2.50	2.40	0.60	5.97
SW	0.02	0.33	2.17	3.44	0.14	6.10
WSW	0.08	0.38	2.25	6.45	0.91	10.08
W	0.08	0.50	3.34	4.46	1.43	9.81
WNW	0.06	0.86	5.53	3.04	0.49	9.98
NW	0.05	1.52	7.28	3.43	0.16	12.44
NNW	0.12	1.03	5.08	3.14	0.21	9.59
TOTAL	1.17	9.00	44.16	39.58	6.09	12783.

bad data observed for 321 half hours

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.00	0.24	2.87	2.34	0.11	5.56
NNE	0.02	0.37	3.47	2.62	0.10	6.58
NE	0.00	0.48	2.46	2.14	0.06	5.14
ENE	0.02	0.44	2.08	2.00	0.04	4.59
E	0.02	0.36	1.46	1.28	0.09	3.20
ESE	0.02	0.19	1.38	1.45	0.05	3.08
SE	0.02	0.18	2.05	3.85	0.33	6.43
SSE	0.02	0.23	1.78	5.97	1.38	9.38
S	0.01	0.16	1.14	4.54	1.91	7.76
SSW	0.03	0.11	0.52	1.56	0.70	2.92
SW	0.02	0.16	0.52	1.49	0.31	2.50
WSW	0.02	0.10	0.79	2.64	1.28	4.82
W	0.03	0.26	1.63	3.62	2.90	8.44
WNW	0.00	0.30	3.19	3.47	1.21	8.16
NW	0.01	0.47	5.41	4.50	1.08	11.47
NNW	0.04	0.41	4.88	4.05	0.60	9.98
TOTAL	0.27	4.45	35.62	47.51	12.15	12778.

bad data observed for 326 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.00	0.09	1.49	1.38	0.20	3.17
NNE	0.01	0.12	1.53	1.63	0.05	3.35
NE	0.00	0.21	1.90	3.04	0.19	5.34
ENE	0.02	0.16	2.01	13.50	0.62	16.30
E	0.02	0.09	1.63	4.32	0.11	6.16
ESE	0.02	0.09	1.56	4.18	0.15	5.99
SE	0.01	0.09	1.38	7.16	0.84	9.48
SSE	0.01	0.08	0.77	6.98	2.64	10.47
S	0.02	0.09	0.37	2.82	3.11	6.40
SSW	0.02	0.05	0.16	0.63	0.52	1.37
SW	0.00	0.06	0.23	0.39	0.13	0.82
WSW	0.00	0.02	0.45	2.25	1.77	4.49
W	0.00	0.11	0.89	3.58	3.27	7.85
WNW	0.02	0.17	1.37	2.57	2.22	6.34
NW	0.00	0.13	2.12	3.18	2.06	7.49
NNW	0.01	0.17	1.93	2.38	0.49	4.98
TOTAL	0.13	1.72	19.79	59.97	18.39	12787.

bad data observed for 317 half hours

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.00	0.09	0.44	0.67	0.04	1.24
NNE	0.00	0.10	0.74	1.04	0.05	1.92
NE	0.00	0.12	1.32	6.68	0.33	8.45
ENE	0.00	0.11	3.04	16.64	0.59	20.38
E	0.02	0.16	2.12	5.51	0.03	7.84
ESE	0.00	0.14	1.88	5.71	0.07	7.80
SE	0.00	0.05	1.63	8.00	0.51	10.20
SSE	0.00	0.12	0.97	7.94	2.45	11.49
S	0.02	0.04	0.51	3.27	2.95	6.79
SSW	0.02	0.03	0.16	0.83	0.46	1.50
SW	0.00	0.07	0.16	0.48	0.30	1.01
WSW	0.00	0.03	0.36	2.06	2.39	4.84
W	0.01	0.03	0.34	3.01	3.40	6.80
WNW	0.00	0.02	0.19	2.00	2.17	4.39
NW	0.01	0.09	0.40	1.78	1.15	3.43
NNW	0.02	0.14	0.39	1.09	0.30	1.94
TOTAL	0.09	1.35	14.63	66.73	17.21	12839.

bad data observed for 265 half hours



## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Spring

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.10	0.44	0.66	0.00	1.24
NNE	0.08	0.15	2.83	3.18	0.02	6.26
NE	0.03	0.41	5.22	8.82	0.03	14.51
ENE	0.02	0.39	5.42	3.35	0.01	9.18
E	0.05	0.62	3.72	0.99	0.01	5.38
ESE	0.04	0.60	3.68	1.47	0.03	5.81
SE	0.05	0.43	4.07	3.39	0.14	8.08
SSE	0.05	0.32	4.33	5.60	1.01	11.32
S	0.04	0.30	2.36	4.84	1.37	8.91
SSW	0.04	0.27	1.29	1.89	0.27	3.75
SW	0.02	0.25	0.79	1.61	0.26	2.92
WSW	0.02	0.23	0.80	3.68	1.00	5.72
W	0.01	0.09	0.81	4.31	1.51	6.73
WNW	0.02	0.05	0.71	2.90	0.86	4.54
NW	0.08	0.12	0.59	2.14	0.39	3.32
NNW	0.03	0.12	0.61	1.44	0.11	2.32
TOTAL	0.60	4.45	37.67	50.27	7.02	12814.

bad data observed for 290 half hours

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.08	0.45	3.25	1.54	0.03	5.35
NNE	0.09	0.75	5.49	2.79	0.00	9.13
NE	0.10	0.87	4.10	1.69	0.00	6.77
ENE	0.10	0.69	2.54	0.83	0.01	4.18
E	0.05	0.74	1.54	0.30	0.01	2.64
ESE	0.09	0.78	1.58	0.76	0.04	3.25
SE	0.05	0.59	2.33	1.62	0.12	4.71
SSE	0.09	0.65	3.24	3.46	0.61	8.05
S	0.07	0.43	3.14	4.42	1.29	9.35
SSW	0.08	0.51	2.57	2.91	0.30	6.37
SW	0.12	0.46	2.24	3.32	0.29	6.43
WSW	0.05	0.34	2.18	5.41	0.72	8.71
W	0.09	0.26	1.40	4.67	1.09	7.51
WNW	0.09	0.27	1.54	3.33	0.60	5.83
NW	0.12	0.40	2.00	2.81	0.16	5.48
NNW	0.12	0.44	2.46	3.09	0.12	6.24
TOTAL	1.40	8.63	41.62	42.96	5.38	12820.

bad data observed for 284 half hours

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 0000 to 0300 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.12	0.52	1.88	1.01	0.03	3.55
NNE	0.08	0.57	2.50	0.96	0.00	4.12
NE	0.10	0.53	2.08	0.80	0.00	3.52
ENE	0.10	0.50	1.66	0.37	0.01	2.63
E	0.10	0.58	1.14	0.28	0.03	2.13
ESE	0.08	0.53	1.27	0.80	0.03	2.71
SE	0.08	0.37	1.59	1.38	0.16	3.58
SSE	0.07	0.48	3.03	3.37	0.52	7.46
S	0.06	0.50	3.64	6.84	0.81	11.85
SSW	0.07	0.51	3.48	5.12	0.32	9.49
SW	0.06	0.48	2.50	5.79	0.31	9.14
WSW	0.07	0.46	2.22	7.21	0.90	10.86
W	0.08	0.48	2.83	4.04	0.75	8.18
WNW	0.11	0.63	3.02	2.67	0.36	6.79
NW	0.15	0.66	3.46	2.58	0.22	7.07
NNW	0.11	0.68	3.18	2.81	0.13	6.91
TOTAL	1.42	8.48	39.48	46.04	4.58	51529.

TIME : 0300 to 0600 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.09	0.56	1.68	0.69	0.02	3.04
NNE	0.10	0.55	1.83	0.70	0.00	3.17
NE	0.08	0.48	1.41	0.43	0.00	2.41
ENE	0.09	0.40	1.01	0.32	0.02	1.84
E	0.07	0.43	0.88	0.28	0.01	1.67
ESE	0.07	0.38	1.04	0.75	0.04	2.27
SE	0.06	0.36	1.29	1.00	0.20	2.91
SSE	0.05	0.45	2.93	3.06	0.48	6.97
S	0.07	0.52	4.09	7.04	0.78	12.50
SSW	0.05	0.48	3.52	5.30	0.36	9.71
SW	0.07	0.60	2.84	6.78	0.38	10.66
WSW	0.06	0.59	2.87	8.34	0.98	12.84
W	0.09	0.67	3.28	4.24	0.63	8.91
WNW	0.10	0.86	3.51	2.93	0.34	7.74
NW	0.16	0.87	3.33	2.79	0.13	7.28
NNW	0.14	0.79	2.80	2.18	0.15	6.06
TOTAL	1.35	9.00	38.30	46.84	4.50	51583.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 0600 to 0900 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.07	0.53	1.71	0.91	0.01	3.24
NNE	0.08	0.55	1.83	0.90	0.01	3.37
NE	0.09	0.51	0.96	0.52	0.02	2.10
ENE	0.06	0.49	1.04	0.36	0.02	1.98
E	0.08	0.37	0.84	0.32	0.02	1.62
ESE	0.06	0.30	0.76	0.64	0.05	1.80
SE	0.04	0.35	1.33	1.29	0.20	3.21
SSE	0.07	0.50	3.12	3.61	0.70	8.00
S	0.07	0.51	3.58	6.74	0.88	11.77
SSW	0.07	0.50	3.17	3.86	0.51	8.11
SW	0.07	0.52	2.87	4.80	0.26	8.52
WSW	0.10	0.58	3.06	7.41	0.90	12.05
W	0.10	0.61	3.49	4.46	0.91	9.57
WNW	0.11	0.80	4.12	2.62	0.41	8.06
NW	0.10	1.21	5.26	2.81	0.14	9.51
NNW	0.09	0.92	3.63	2.33	0.12	7.09
TOTAL	1.28	9.24	40.79	43.57	5.12	51640.

TIME : 0900 to 1200 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.03	0.38	2.45	1.68	0.05	4.59
NNE	0.02	0.39	2.82	1.76	0.03	5.03
NE	0.02	0.42	2.00	1.33	0.06	3.84
ENE	0.04	0.42	1.95	2.06	0.04	4.50
E	0.03	0.33	1.43	1.08	0.04	2.91
ESE	0.02	0.25	1.42	1.36	0.11	3.16
SE	0.02	0.29	2.02	3.13	0.33	5.79
SSE	0.04	0.41	2.29	6.26	1.32	10.32
S	0.04	0.32	1.64	6.10	1.70	9.80
SSW	0.04	0.24	0.93	2.10	0.84	4.15
SW	0.03	0.23	0.90	1.65	0.25	3.07
WSW	0.05	0.35	1.43	3.79	0.97	6.59
W	0.04	0.52	2.59	3.59	2.13	8.87
WNW	0.01	0.65	4.56	2.56	0.78	8.57
NW	0.04	0.86	5.97	3.12	0.56	10.55
NNW	0.03	0.54	4.53	2.93	0.22	8.25
TOTAL	0.50	6.61	38.95	44.51	9.44	51780.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 1200 to 1500 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.01	0.26	2.12	1.11	0.08	3.57
NNE	0.03	0.31	2.22	1.11	0.06	3.73
NE	0.01	0.27	1.70	1.87	0.12	3.96
ENE	0.02	0.32	2.13	10.62	0.59	13.68
E	0.02	0.22	1.66	3.47	0.17	5.54
ESE	0.01	0.18	1.73	3.38	0.15	5.46
SE	0.01	0.16	1.99	6.10	0.82	9.07
SSE	0.02	0.18	1.84	7.53	2.34	11.90
S	0.01	0.14	0.86	5.00	2.57	8.58
SSW	0.03	0.13	0.37	1.38	0.84	2.74
SW	0.01	0.12	0.42	0.84	0.24	1.63
WSW	0.01	0.16	0.63	2.35	1.17	4.31
W	0.01	0.24	1.22	3.10	2.67	7.24
WNW	0.03	0.37	2.07	2.07	1.49	6.03
NW	0.01	0.43	3.06	2.34	1.15	6.99
NNW	0.02	0.41	2.86	2.03	0.24	5.55
TOTAL	0.26	3.89	26.86	54.30	14.68	51813.

TIME : 1500 to 1800 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.03	0.32	1.14	0.67	0.01	2.18
NNE	0.03	0.30	1.13	0.80	0.03	2.29
NE	0.02	0.21	1.40	4.53	0.28	6.42
ENE	0.02	0.22	3.46	13.38	0.66	17.73
E	0.01	0.26	2.53	4.37	0.07	7.24
ESE	0.01	0.21	2.26	4.52	0.14	7.13
SE	0.01	0.15	2.55	7.16	0.80	10.67
SSE	0.01	0.16	2.40	7.92	2.28	12.78
S	0.01	0.09	1.06	5.07	2.10	8.35
SSW	0.02	0.06	0.53	1.95	0.62	3.18
SW	0.02	0.06	0.36	1.01	0.27	1.73
WSW	0.02	0.08	0.45	2.36	1.24	4.14
W	0.01	0.10	0.50	2.95	2.36	5.93
WNW	0.01	0.12	0.57	1.45	1.38	3.54
NW	0.03	0.19	0.93	1.56	0.82	3.54
NNW	0.03	0.25	1.41	1.23	0.23	3.15
TOTAL	0.28	2.80	22.69	60.94	13.30	51909.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

All Year

TIME : 1800 to 2100 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.13	0.74	0.74	0.03	1.69
NNE	0.07	0.22	2.67	2.32	0.02	5.30
NE	0.05	0.36	5.06	7.17	0.09	12.73
ENE	0.03	0.47	5.11	3.59	0.04	9.25
E	0.05	0.57	3.39	1.22	0.01	5.25
ESE	0.04	0.50	3.55	1.91	0.04	6.04
SE	0.03	0.35	3.70	3.61	0.23	7.92
SSE	0.04	0.30	4.55	6.06	1.12	12.06
S	0.03	0.23	2.61	6.45	1.16	10.48
SSW	0.04	0.19	1.34	3.32	0.41	5.30
SW	0.02	0.16	0.73	2.49	0.24	3.65
WSW	0.03	0.17	0.63	3.73	0.60	5.15
W	0.03	0.12	0.79	3.71	1.13	5.78
WNW	0.03	0.14	0.78	2.21	0.69	3.84
NW	0.05	0.16	0.67	1.79	0.32	2.99
NNW	0.05	0.16	0.61	1.58	0.17	2.57
TOTAL	0.63	4.25	36.93	51.89	6.29	51854.

TIME : 2100 to 2400 EST.

DIRECTION	WIND SPEED (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.08	0.47	2.49	1.28	0.07	4.38
NNE	0.11	0.65	4.50	2.10	0.01	7.36
NE	0.10	0.61	3.85	1.61	0.01	6.18
ENE	0.10	0.69	2.63	0.84	0.02	4.27
E	0.08	0.67	1.88	0.40	0.03	3.05
ESE	0.09	0.66	2.00	0.88	0.05	3.68
SE	0.06	0.50	2.40	1.66	0.20	4.81
SSE	0.06	0.57	3.51	3.81	0.76	8.72
S	0.06	0.50	3.52	5.98	1.07	11.12
SSW	0.05	0.44	2.70	4.48	0.34	8.01
SW	0.08	0.45	2.00	4.27	0.29	7.09
WSW	0.06	0.32	1.71	5.35	1.00	8.43
W	0.06	0.32	1.62	3.80	0.85	6.66
WNW	0.08	0.39	1.75	2.41	0.38	5.01
NW	0.10	0.49	2.00	2.44	0.21	5.24
NNW	0.09	0.57	2.52	2.67	0.15	5.99
TOTAL	1.25	8.29	41.09	43.96	5.41	51724.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Summer Only consider wind speeds &gt; 0.0 m/s

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.07	0.42	1.79	0.77	0.02	3.08
NNE	0.07	0.48	3.40	1.66	0.01	5.63
NE	0.08	0.61	3.80	3.90	0.17	8.56
ENE	0.09	0.64	3.57	8.18	0.51	12.98
E	0.08	0.60	2.37	2.95	0.12	6.12
ESE	0.06	0.52	2.27	3.02	0.11	5.98
SE	0.04	0.43	2.46	5.15	0.67	8.75
SSE	0.04	0.52	3.44	7.82	2.42	14.24
S	0.07	0.43	2.57	6.62	2.11	11.80
SSW	0.05	0.30	1.63	1.76	0.16	3.90
SW	0.05	0.26	0.96	0.82	0.05	2.14
WSW	0.05	0.27	0.79	1.11	0.30	2.52
W	0.04	0.25	0.85	1.15	0.55	2.85
WNW	0.05	0.37	1.27	1.00	0.36	3.05
NW	0.07	0.52	2.17	1.16	0.18	4.11
NNW	0.07	0.53	2.33	1.31	0.06	4.30
TOTAL	0.98	7.16	35.66	48.39	7.80	100639.

Season : Autumn

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.08	0.49	1.91	0.78	0.01	3.27
NNE	0.07	0.50	2.23	0.96	0.01	3.77
NE	0.07	0.39	2.03	1.62	0.05	4.15
ENE	0.06	0.45	2.44	2.50	0.03	5.49
E	0.06	0.46	1.90	0.93	0.01	3.37
ESE	0.06	0.38	2.14	1.75	0.11	4.44
SE	0.04	0.34	2.65	3.45	0.40	6.88
SSE	0.06	0.41	3.54	5.86	0.96	10.83
S	0.04	0.42	3.36	7.74	1.42	12.99
SSW	0.05	0.40	2.47	4.38	0.79	8.10
SW	0.05	0.42	1.80	3.50	0.19	5.95
WSW	0.06	0.45	2.08	4.74	0.63	7.96
W	0.08	0.51	2.47	3.05	0.71	6.82
WNW	0.09	0.61	2.87	1.50	0.20	5.28
NW	0.11	0.72	3.29	1.52	0.15	5.78
NNW	0.09	0.59	2.74	1.47	0.05	4.94
TOTAL	1.08	7.52	39.92	45.76	5.72	107324.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

SEASON : Winter Only consider wind speeds &gt; 0.0 m/s

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.05	0.32	1.53	1.25	0.04	3.20
NNE	0.06	0.36	1.50	0.83	0.03	2.77
NE	0.04	0.26	1.02	0.60	0.00	1.92
ENE	0.03	0.24	1.12	0.61	0.01	2.01
E	0.02	0.24	0.92	0.25	0.01	1.45
ESE	0.02	0.24	1.01	0.52	0.04	1.83
SE	0.03	0.21	1.44	0.78	0.10	2.56
SSE	0.04	0.24	2.31	2.39	0.22	5.19
S	0.03	0.22	2.27	5.82	0.37	8.71
SSW	0.03	0.24	2.17	5.33	0.69	8.46
SW	0.05	0.31	2.07	6.73	0.64	9.80
WSW	0.04	0.36	2.15	9.64	1.78	13.98
W	0.04	0.46	2.93	6.61	2.59	12.63
WNW	0.05	0.58	3.50	3.91	1.33	9.38
NW	0.06	0.62	3.58	3.97	0.79	9.03
NNW	0.05	0.52	2.80	3.40	0.33	7.09
TOTAL	0.63	5.43	32.33	52.64	8.97	103477.

Season : Spring

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.04	0.35	1.87	1.25	0.06	3.57
NNE	0.06	0.43	2.66	1.91	0.03	5.08
NE	0.05	0.46	2.44	3.09	0.08	6.11
ENE	0.04	0.43	2.41	4.70	0.16	7.74
E	0.05	0.42	1.70	1.65	0.04	3.87
ESE	0.04	0.36	1.59	1.88	0.06	3.93
SE	0.04	0.29	1.89	3.34	0.31	5.87
SSE	0.05	0.36	2.52	4.80	1.21	8.94
S	0.04	0.33	2.26	4.36	1.65	8.64
SSW	0.05	0.33	1.71	2.17	0.46	4.72
SW	0.04	0.32	1.46	2.66	0.23	4.72
WSW	0.04	0.26	1.43	4.65	1.17	7.54
W	0.04	0.30	1.86	4.09	1.87	8.16
WNW	0.05	0.41	2.49	3.05	1.04	7.03
NW	0.07	0.56	3.26	3.07	0.66	7.62
NNW	0.07	0.52	2.89	2.70	0.27	6.45
TOTAL	0.78	6.12	34.43	49.37	9.30	102392.

## DIURNAL WIND SPEED AND DIRECTION ROSES FOR LHSTC Tower 49m AT 49.0 M.

BEGINNING DATE : 50491 END DATE : 300603

Annual, all times combined Only wind speeds &gt; 0. m/s

All times combined

DIRECTION	Wind Speed (M/S)					TOTAL
	0-1	1-2	2-4	4-8	>8	
N	0.06	0.39	1.78	1.01	0.03	3.28
NNE	0.07	0.44	2.44	1.33	0.02	4.30
NE	0.06	0.43	2.31	2.28	0.07	5.15
ENE	0.06	0.44	2.38	3.95	0.17	7.00
E	0.05	0.43	1.72	1.43	0.05	3.68
ESE	0.05	0.38	1.75	1.78	0.08	4.04
SE	0.04	0.32	2.11	3.17	0.37	6.00
SSE	0.05	0.38	2.96	5.21	1.19	9.78
S	0.04	0.35	2.62	6.15	1.38	10.55
SSW	0.04	0.32	2.00	3.43	0.53	6.33
SW	0.05	0.33	1.58	3.45	0.28	5.68
WSW	0.05	0.34	1.62	5.06	0.97	8.04
W	0.05	0.38	2.04	3.74	1.43	7.64
WNW	0.06	0.50	2.55	2.36	0.73	6.19
NW	0.08	0.61	3.08	2.43	0.44	6.64
NNW	0.07	0.54	2.69	2.22	0.18	5.69
TOTAL	0.87	6.57	35.63	49.02	7.92	413832.

bad data observed for 15288 half hours



## APPENDIX B

Frequency analyses of wind speeds, vertical and horizontal stability categories as a function of wind direction, time of day, season and annually.

1. Frequency of occurrence, average wind speeds, vertical and horizontal stability categories vs. wind directions - times of day, seasonal and annual statistics, 10m, Lucas Heights meteorological tower, 050491 to 300603. Pages B1 to B12.
2. Frequency of occurrence, average wind speeds, vertical and horizontal stability categories vs. wind directions - times of day, seasonal and annual statistics, 49m, Lucas Heights meteorological tower, 050491 to 300603. Pages B13 to A24.

STATION : Lucas Heights 10m

SEASON : SUMMER

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.7	5.4	6.6	4.0	2.9	2.7	4.6	11.6	24.5	10.9	5.8	4.4	3.3	2.3	4.0	4.2
	U50%	0.8	0.6	1.0	0.9	0.7	0.9	1.3	1.4	1.6	1.2	1.2	1.3	1.2	1.1	1.0	0.7
	USEPA50%	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	2.8	4.1	4.7	2.3	2.2	2.1	4.4	11.1	26.4	11.9	6.7	4.9	4.4	2.9	4.6	4.6
	U50%	0.8	0.9	0.9	0.9	0.8	0.8	1.3	1.3	1.5	1.2	1.1	1.2	1.3	1.1	1.0	0.8
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	4.6	6.3	6.4	3.9	2.7	2.2	5.1	11.7	19.8	6.5	3.4	3.5	3.9	3.4	9.1	7.4
	U50%	1.3	1.3	1.5	1.3	1.2	1.6	2.0	2.2	2.4	1.6	1.3	1.9	1.7	1.6	1.6	1.4
	USEPA50%	A	A	B	C	C	C	C	C	C	C	C	C	C	C	B	A
0900-1200	PROB(%)	5.5	7.7	10.7	10.2	4.9	4.6	8.2	13.8	11.4	1.7	1.2	1.8	2.6	2.8	7.0	5.7
	U50%	1.8	1.9	2.2	2.4	2.1	2.2	2.8	3.2	3.8	3.0	2.4	3.2	3.2	2.3	2.1	1.9
	USEPA50%	A	A	B	C	C	B	C	C	C	C	C	C	C	B	A	A
1200-1500	PROB(%)	1.2	2.0	8.4	27.1	8.6	6.5	11.7	13.1	9.5	0.7	0.7	1.5	2.1	2.1	3.0	1.8
	U50%	1.9	1.9	3.0	3.3	2.8	3.0	3.5	3.9	4.5	4.3	2.8	3.8	3.9	3.7	2.7	2.1
	USEPA50%	A	A	C	C	C	C	C	C	C	C	C	C	C	B	B	A
1500-1800	PROB(%)	0.3	0.6	10.9	27.1	9.3	8.0	13.8	13.1	9.6	0.8	0.7	1.1	1.8	1.2	1.0	0.7
	U50%	1.2	1.4	3.4	3.1	2.8	2.9	3.3	3.7	4.1	2.8	3.2	3.9	4.3	4.5	2.8	1.6
	USEPA50%	A	A	C	C	C	C	C	C	C	C	C	C	C	C	B	B
1800-2100	PROB(%)	0.5	2.5	22.3	13.1	6.2	5.7	11.4	14.9	14.2	2.5	1.3	1.4	1.3	0.8	0.9	0.9
	U50%	0.7	1.1	2.2	1.8	1.6	1.7	2.1	2.3	3.0	1.6	2.0	2.5	2.8	2.9	1.6	1.2
	USEPA50%	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	2.8	7.6	13.1	6.7	4.3	3.5	6.7	13.0	20.8	7.1	4.0	2.9	1.6	1.2	2.1	2.7
	U50%	0.9	0.9	1.2	1.1	0.9	1.1	1.4	1.6	2.0	1.3	1.2	1.5	1.4	1.2	1.2	0.8
	USEPA50%	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 10m

SEASON : AUTUMN

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	1.4	1.8	2.3	0.8	0.8	1.1	2.7	6.1	25.0	16.0	12.5	11.0	6.2	3.4	5.0	3.9
	U50%	0.8	0.9	1.0	0.8	0.7	1.1	1.8	1.4	1.4	1.2	1.4	1.6	1.4	1.0	1.1	0.8
	USEPA50%	E	E	E	D	E	E	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	1.4	1.2	1.2	0.8	0.6	1.2	2.0	4.9	25.0	16.6	15.3	11.8	6.4	3.8	4.8	3.0
	U50%	0.8	1.0	0.9	0.9	0.8	1.3	1.3	1.4	1.3	1.3	1.5	1.7	1.4	1.1	1.1	0.8
	USEPA50%	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	1.8	1.4	1.1	1.2	1.0	1.4	2.4	5.1	21.8	14.2	12.2	11.6	8.7	4.5	7.4	4.2
	U50%	0.9	0.8	1.1	1.2	1.1	1.5	2.3	1.7	1.7	1.4	1.5	1.8	1.5	1.4	1.3	1.1
	USEPA50%	B	C	C	C	C	C	C	C	D	D	D	D	C	C	C	C
0900-1200	PROB(%)	4.3	3.7	3.7	2.9	2.0	2.6	6.1	10.9	15.0	6.0	3.3	6.2	7.2	6.9	12.3	7.0
	U50%	1.6	1.6	1.8	1.7	1.5	2.0	2.4	2.6	3.0	3.1	2.2	2.6	2.1	1.8	1.9	1.7
	USEPA50%	A	A	A	C	B	B	C	C	C	C	C	C	C	B	B	A
1200-1500	PROB(%)	4.3	4.8	6.5	9.3	3.9	4.8	10.2	13.8	12.9	3.7	1.9	3.4	4.9	3.7	6.5	5.4
	U50%	1.5	1.5	1.9	2.5	2.0	2.3	2.7	3.0	3.6	3.6	2.3	2.9	2.8	2.0	1.8	1.5
	USEPA50%	A	A	B	C	C	C	C	C	C	C	C	C	C	B	A	A
1500-1800	PROB(%)	2.0	2.5	8.4	15.5	6.4	5.9	12.6	14.2	13.6	4.4	1.8	2.7	3.6	1.4	2.2	2.7
	U50%	0.9	0.9	2.1	2.2	1.8	2.1	2.4	2.5	3.0	3.1	2.2	2.7	3.1	2.1	1.6	1.0
	USEPA50%	C	C	D	D	C	C	C	C	D	D	D	D	D	C	C	C
1800-2100	PROB(%)	0.9	3.5	11.9	6.9	4.3	3.8	7.4	13.9	20.9	9.3	4.8	3.8	3.5	1.8	1.6	1.8
	U50%	0.6	0.9	1.3	1.0	1.0	0.9	1.3	1.4	1.7	1.8	1.8	1.9	2.0	1.5	1.5	1.0
	USEPA50%	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	2.8	3.9	4.4	2.0	1.6	1.4	3.4	7.7	22.3	14.8	10.1	8.7	5.4	3.0	3.8	4.7
	U50%	0.8	0.6	0.9	0.8	0.8	0.8	1.4	1.4	1.3	1.3	1.3	1.6	1.5	1.2	1.0	0.8
	USEPA50%	E	D	E	D	D	D	D	D	D	D	D	D	D	D	D	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 10m

SEASON : WINTER

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	1.3	1.2	0.7	0.6	0.6	0.6	0.8	2.7	13.1	14.0	17.9	15.9	10.4	6.4	8.4	5.3
	U50%	0.8	0.7	0.8	1.0	1.0	1.0	1.8	1.2	1.2	1.3	2.0	2.2	1.9	1.6	1.4	1.1
	USEPA50%	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	1.5	1.1	0.9	0.5	0.5	0.5	0.7	2.3	12.5	12.7	20.0	17.6	10.3	6.8	7.9	4.1
	U50%	0.8	0.8	0.9	1.0	1.1	1.1	1.5	1.1	1.3	1.3	1.9	2.2	1.9	1.7	1.5	1.1
	USEPA50%	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	1.5	1.2	0.7	0.5	0.5	0.5	0.8	2.1	10.7	10.9	17.8	18.9	11.7	7.1	10.2	5.0
	U50%	0.9	0.9	0.8	1.0	1.2	1.3	1.3	1.2	1.3	1.3	1.8	2.2	1.9	1.7	1.6	1.2
	USEPA50%	C	D	D	D	C	C	D	D	D	D	D	D	D	D	D	C
0900-1200	PROB(%)	2.0	1.8	1.7	0.8	0.9	1.0	1.7	4.5	9.3	7.0	6.4	13.5	15.7	10.3	16.8	6.7
	U50%	1.4	1.3	1.4	1.3	1.7	1.5	1.8	2.0	2.7	3.3	2.6	3.0	2.4	2.0	1.9	1.7
	USEPA50%	A	A	A	B	C	B	C	C	C	C	C	C	C	C	C	B
1200-1500	PROB(%)	4.2	3.7	2.9	2.6	1.6	2.1	3.8	7.5	10.4	5.9	4.0	8.7	12.7	8.3	13.9	7.7
	U50%	1.5	1.5	1.6	1.9	1.6	1.9	2.0	2.3	3.0	3.7	2.7	3.1	3.6	2.4	2.1	1.6
	USEPA50%	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	B
1500-1800	PROB(%)	3.3	3.1	4.9	6.2	2.9	2.7	5.5	9.5	11.5	6.5	5.2	7.6	11.5	5.3	8.5	5.8
	U50%	0.9	0.8	1.3	1.6	1.2	1.3	1.6	1.7	2.3	2.7	2.1	2.7	3.1	2.8	2.0	1.1
	USEPA50%	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C
1800-2100	PROB(%)	1.5	2.7	5.2	2.8	2.0	1.7	2.6	6.3	18.4	10.1	9.3	10.1	10.6	5.8	7.2	3.7
	U50%	0.8	0.8	1.0	0.8	0.6	0.7	1.0	1.1	1.3	1.8	2.1	2.2	2.2	2.0	1.7	1.2
	USEPA50%	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	2.0	2.2	1.3	0.8	0.6	0.8	1.3	3.4	15.3	13.1	14.7	13.8	10.1	6.1	8.7	5.8
	U50%	0.8	0.6	0.8	0.9	0.7	1.3	1.3	1.1	1.2	1.4	2.0	2.3	2.0	1.7	1.5	1.0
	USEPA50%	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 10m

SEASON : SPRING

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.4	3.3	3.8	1.9	1.6	1.6	3.1	6.8	17.8	11.3	11.0	9.7	7.1	5.8	7.3	5.6
	U50%	0.9	0.6	1.1	0.9	0.8	1.0	1.4	1.2	1.3	1.2	1.4	1.8	1.7	1.4	1.2	0.9
	USEPA50%	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E
0300-0600	PROB(%)	2.1	2.6	2.6	1.7	1.2	1.3	1.8	6.5	18.3	11.6	11.9	12.2	7.3	6.1	7.9	4.9
	U50%	0.6	0.7	1.0	1.0	0.9	1.0	1.1	1.2	1.2	1.2	1.4	1.8	1.5	1.4	1.2	0.9
	USEPA50%	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E
0600-0900	PROB(%)	3.5	3.7	3.8	2.2	1.4	1.4	3.0	7.2	12.6	6.9	7.6	9.3	9.1	7.2	13.8	7.3
	U50%	1.2	1.2	1.5	1.4	1.2	1.4	1.9	2.0	2.1	1.8	2.1	2.5	2.0	1.9	1.7	1.3
	USEPA50%	A	A	B	C	C	C	C	C	C	C	C	C	C	C	C	B
0900-1200	PROB(%)	5.1	5.5	7.9	4.7	3.0	2.8	6.1	9.4	8.2	3.1	2.9	5.1	7.8	7.4	13.6	7.4
	U50%	1.8	1.9	2.1	2.2	2.1	2.3	2.7	3.1	3.7	3.5	3.0	3.4	3.5	2.5	2.3	2.0
	USEPA50%	A	A	B	C	C	B	C	C	C	C	C	C	C	B	B	A
1200-1500	PROB(%)	2.9	3.0	8.2	16.0	5.4	5.3	9.3	10.3	6.9	1.5	1.1	4.8	7.4	6.4	8.1	3.2
	U50%	1.9	1.9	2.7	3.1	2.7	2.9	3.3	3.9	4.7	4.2	3.1	3.9	3.9	3.5	2.8	2.0
	USEPA50%	A	A	C	C	C	C	C	C	C	C	C	C	C	C	B	A
1500-1800	PROB(%)	1.0	1.5	12.7	18.2	6.8	6.3	10.5	11.5	7.9	1.6	1.5	5.0	6.5	4.0	3.8	1.3
	U50%	1.5	1.5	2.8	2.7	2.4	2.6	2.9	3.5	4.3	3.8	2.9	3.9	4.0	3.9	3.0	1.4
	USEPA50%	B	B	D	D	C	C	C	C	C	C	C	C	C	C	C	C
1800-2100	PROB(%)	1.0	4.3	16.5	7.3	4.1	3.6	8.0	11.4	13.1	4.9	4.2	5.9	6.3	3.9	3.9	1.6
	U50%	0.8	1.1	1.8	1.3	1.1	1.1	1.5	1.7	2.2	1.6	1.8	2.2	2.3	2.2	1.8	1.1
	USEPA50%	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E
2100-2400	PROB(%)	3.1	6.1	7.0	3.0	2.1	1.7	4.3	8.7	15.6	8.7	8.1	8.8	7.5	4.8	5.5	4.9
	U50%	0.9	0.7	1.0	1.0	0.8	0.9	1.4	1.3	1.4	1.2	1.4	1.8	1.9	1.7	1.3	0.9
	USEPA50%	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 10m

ALL SEASONS COMBINED

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.0	2.9	3.4	1.8	1.5	1.5	2.8	6.8	20.1	13.1	11.8	10.3	6.8	4.5	6.2	4.7
	U50%	0.9	0.6	1.0	0.9	0.8	1.0	1.4	1.3	1.4	1.2	1.6	1.9	1.7	1.3	1.2	0.9
	USEPA50%	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	1.9	2.3	2.4	1.3	1.1	1.3	2.2	6.2	20.5	13.2	13.5	11.6	7.1	4.9	6.3	4.2
	U50%	0.9	0.6	0.9	0.9	0.9	1.0	1.3	1.3	1.4	1.2	1.5	1.9	1.6	1.4	1.2	0.9
	USEPA50%	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	2.9	3.1	3.0	2.0	1.4	1.4	2.8	6.5	16.2	9.6	10.2	10.8	8.4	5.6	10.1	6.0
	U50%	1.1	1.2	1.4	1.3	1.2	1.5	2.0	2.0	1.9	1.4	1.7	2.1	1.8	1.7	1.6	1.2
	USEPA50%	A	B	B	C	C	C	C	C	C	C	D	D	C	C	C	B
0900-1200	PROB(%)	4.2	4.7	6.0	4.6	2.7	2.8	5.5	9.7	11.0	4.4	3.4	6.6	8.4	6.9	12.4	6.7
	U50%	1.7	1.8	2.0	2.2	2.0	2.1	2.6	2.9	3.3	3.2	2.5	3.0	2.6	2.1	2.0	1.8
	USEPA50%	A	A	B	C	C	B	C	C	C	C	C	C	C	B	B	A
1200-1500	PROB(%)	3.1	3.4	6.5	13.8	4.9	4.7	8.8	11.2	9.9	3.0	1.9	4.6	6.8	5.1	7.9	4.5
	U50%	1.6	1.7	2.4	3.1	2.5	2.7	3.1	3.3	3.8	3.7	2.6	3.3	3.6	2.7	2.2	1.7
	USEPA50%	A	A	C	C	C	C	C	C	C	C	C	C	C	B	B	A
1500-1800	PROB(%)	1.7	1.9	9.2	16.8	6.4	5.7	10.6	12.1	10.6	3.3	2.3	4.1	5.8	3.0	3.9	2.6
	U50%	1.0	1.0	2.6	2.7	2.2	2.4	2.7	2.9	3.2	2.9	2.2	3.1	3.4	3.4	2.2	1.1
	USEPA50%	C	C	D	D	C	C	C	C	D	D	D	D	D	C	C	C
1800-2100	PROB(%)	1.0	3.2	14.0	7.5	4.2	3.7	7.3	11.6	16.7	6.7	4.9	5.3	5.4	3.1	3.4	2.0
	U50%	0.8	1.0	1.7	1.3	1.1	1.2	1.6	1.6	1.8	1.7	2.0	2.2	2.2	2.0	1.7	1.1
	USEPA50%	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	2.7	4.9	6.5	3.1	2.1	1.8	3.9	8.2	18.5	10.9	9.3	8.5	6.2	3.8	5.0	4.5
	U50%	1.0	0.7	1.1	1.0	0.9	1.0	1.4	1.4	1.4	1.3	1.5	1.9	1.8	1.5	1.3	0.9
	USEPA50%	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 10m

ALL TIMES COMBINED

HEIGHT : 10 M.

SEASON	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
SUMMER	PROB(%)	2.5	4.5	10.4	11.8	5.1	4.4	8.2	12.8	17.0	5.3	3.0	2.7	2.6	2.1	4.0	3.5
	U50%	1.1	1.1	2.0	2.7	2.0	2.1	2.6	2.5	2.5	1.4	1.3	1.8	2.0	1.8	1.6	1.2
	USEPA50%	B	C	D	C	C	C	C	C	C	D	D	D	D	D	C	C
AUTUMN	PROB(%)	2.4	2.8	5.0	4.9	2.6	2.8	5.8	9.6	19.6	10.6	7.7	7.4	5.8	3.6	5.5	4.1
	U50%	1.0	1.0	1.5	1.8	1.4	1.8	2.2	2.1	1.9	1.5	1.5	1.9	1.8	1.5	1.4	1.1
	USEPA50%	B	C	D	D	C	C	C	D	D	D	D	D	D	D	C	C
WINTER	PROB(%)	2.2	2.1	2.3	1.9	1.2	1.2	2.1	4.8	12.6	10.0	11.9	13.3	11.6	7.0	10.2	5.5
	U50%	1.0	1.0	1.2	1.3	1.1	1.3	1.6	1.5	1.5	1.6	2.0	2.4	2.3	1.9	1.8	1.2
	USEPA50%	C	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C
SPRING	PROB(%)	2.7	3.7	7.8	6.9	3.2	3.0	5.8	9.0	12.5	6.2	6.0	7.6	7.4	5.7	8.0	4.5
	U50%	1.1	1.2	1.9	2.4	1.9	2.1	2.4	2.5	2.0	1.4	1.7	2.3	2.4	2.1	1.8	1.2
	USEPA50%	B	C	D	D	C	C	C	C	D	D	D	D	D	C	C	C
COMBINED	PROB(%)	2.4	3.3	6.3	6.3	3.0	2.8	5.5	9.0	15.5	8.1	7.2	7.8	6.9	4.6	6.9	4.4
	U50%	1.1	1.1	1.8	2.3	1.7	1.9	2.3	2.2	2.0	1.5	1.7	2.2	2.2	1.9	1.7	1.2
	USEPA50%	B	C	D	D	C	C	C	C	D	D	D	D	D	C	C	C

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

08/28/03 08:26:26

STATION : Lucas Heights 10m

SEASON : SUMMER

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.7	5.4	6.6	4.0	2.9	2.7	4.6	11.6	24.5	10.9	5.8	4.4	3.3	2.3	4.0	4.2
	UBAR	0.9	1.0	1.5	1.5	1.3	1.4	2.0	2.1	2.4	1.9	1.7	1.9	1.9	1.6	1.5	1.1
	usepa	E	E	E	E	E	E	E	D	E	E	E	E	E	E	E	E
0300-0600	PROB(%)	2.8	4.1	4.7	2.3	2.2	2.1	4.4	11.1	26.4	11.9	6.7	4.9	4.4	2.9	4.6	4.6
	UBAR	0.9	0.9	1.5	1.4	1.3	1.5	2.1	2.1	2.4	1.8	1.6	1.9	1.9	1.6	1.5	1.2
	usepa	E	E	E	D	D	D	D	D	D	D	E	E	E	D	E	E
0600-0900	PROB(%)	4.6	6.3	6.4	3.9	2.7	2.2	5.1	11.7	19.8	6.5	3.4	3.5	3.9	3.4	9.1	7.4
	UBAR	1.8	1.8	2.1	1.9	1.8	2.2	2.6	2.9	3.0	2.3	1.9	2.6	2.5	2.2	2.1	1.9
	usepa	B	B	C	C	C	C	C	C	D	C	C	C	C	C	C	B
0900-1200	PROB(%)	5.5	7.7	10.7	10.2	4.9	4.6	8.2	13.8	11.4	1.7	1.2	1.8	2.6	2.8	7.0	5.7
	UBAR	2.2	2.3	2.7	2.9	2.6	2.7	3.3	3.8	4.3	3.5	3.0	3.6	3.6	3.0	2.7	2.3
	usepa	A	B	B	C	C	C	C	C	D	C	C	C	C	C	B	B
1200-1500	PROB(%)	1.2	2.0	8.4	27.1	8.6	6.5	11.7	13.1	9.5	0.7	0.7	1.5	2.1	2.1	3.0	1.8
	UBAR	2.4	2.4	3.5	3.7	3.3	3.4	3.9	4.3	5.0	4.4	3.5	4.3	4.3	4.3	3.4	2.5
	usepa	A	B	C	D	C	C	C	D	D	C	C	C	C	C	B	B
1500-1800	PROB(%)	0.3	0.6	10.9	27.1	9.3	8.0	13.8	13.1	9.6	0.8	0.7	1.1	1.8	1.2	1.0	0.7
	UBAR	1.8	2.1	3.8	3.6	3.1	3.3	3.8	4.2	4.7	3.3	3.6	4.3	4.8	4.9	3.4	2.2
	usepa	B	B	D	D	D	D	D	D	D	C	D	D	D	D	C	B
1800-2100	PROB(%)	0.5	2.5	22.3	13.1	6.2	5.7	11.4	14.9	14.2	2.5	1.3	1.4	1.3	0.8	0.9	0.9
	UBAR	1.2	1.7	2.6	2.3	2.0	2.1	2.7	3.0	3.6	2.3	2.5	3.1	3.2	3.5	2.4	1.7
	usepa	E	E	E	D	D	D	D	D	D	D	E	E	D	D	D	E
2100-2400	PROB(%)	2.8	7.6	13.1	6.7	4.3	3.5	6.7	13.0	20.8	7.1	4.0	2.9	1.6	1.2	2.1	2.7
	UBAR	0.9	1.3	1.8	1.7	1.5	1.6	2.1	2.4	2.8	2.0	1.9	2.2	2.1	1.8	1.8	1.2
	usepa	E	E	E	E	E	E	D	D	D	E	E	E	E	E	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD



STATION : Lucas Heights 10m

SEASON : AUTUMN

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	1.4	1.8	2.3	0.8	0.8	1.1	2.7	6.1	25.0	16.0	12.5	11.0	6.2	3.4	5.0	3.9
	UBAR	1.0	1.0	1.5	1.3	1.2	1.7	2.4	2.1	2.3	2.0	2.0	2.3	2.0	1.5	1.5	1.3
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
0300-0600	PROB(%)	1.4	1.2	1.2	0.8	0.6	1.2	2.0	4.9	25.0	16.6	15.3	11.8	6.4	3.8	4.8	3.0
	UBAR	1.0	1.1	1.5	1.4	1.4	2.0	2.2	2.2	2.2	2.0	2.1	2.2	2.0	1.7	1.6	1.2
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
0600-0900	PROB(%)	1.8	1.4	1.1	1.2	1.0	1.4	2.4	5.1	21.8	14.2	12.2	11.6	8.7	4.5	7.4	4.2
	UBAR	1.3	1.3	1.6	1.7	1.7	2.2	2.7	2.4	2.4	2.3	2.1	2.3	2.1	1.9	1.9	1.5
	usepa	C	C	C	C	C	C	C	D	D	D	D	D	D	C	C	C
0900-1200	PROB(%)	4.3	3.7	3.7	2.9	2.0	2.6	6.1	10.9	15.0	6.0	3.3	6.2	7.2	6.9	12.3	7.0
	UBAR	2.0	2.0	2.2	2.2	2.1	2.6	3.0	3.1	3.5	3.6	2.7	3.0	2.9	2.4	2.3	2.1
	usepa	A	B	B	C	C	C	C	C	C	C	C	C	C	C	B	B
1200-1500	PROB(%)	4.3	4.8	6.5	9.3	3.9	4.8	10.2	13.8	12.9	3.7	1.9	3.4	4.9	3.7	6.5	5.4
	UBAR	2.0	2.0	2.4	2.9	2.5	2.8	3.2	3.6	4.0	4.1	3.0	3.4	3.4	2.7	2.5	2.0
	usepa	A	B	B	D	C	C	C	C	D	C	C	C	C	B	B	B
1500-1800	PROB(%)	2.0	2.5	8.4	15.5	6.4	5.9	12.6	14.2	13.6	4.4	1.8	2.7	3.6	1.4	2.2	2.7
	UBAR	1.3	1.4	2.6	2.6	2.3	2.5	2.9	3.1	3.6	3.6	2.9	3.2	3.5	2.8	2.4	1.4
	usepa	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C
1800-2100	PROB(%)	0.9	3.5	11.9	6.9	4.3	3.8	7.4	13.9	20.9	9.3	4.8	3.8	3.5	1.8	1.6	1.8
	UBAR	1.1	1.3	1.8	1.5	1.4	1.4	2.0	2.2	2.4	2.5	2.4	2.6	2.5	2.3	2.0	1.4
	usepa	E	E	E	E	E	E	D	E	E	D	E	E	E	E	E	E
2100-2400	PROB(%)	2.8	3.9	4.4	2.0	1.6	1.4	3.4	7.7	22.3	14.8	10.1	8.7	5.4	3.0	3.8	4.7
	UBAR	0.9	1.1	1.4	1.2	1.2	1.4	2.1	2.1	2.2	2.0	2.0	2.3	2.1	1.8	1.5	1.2
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 10m

SEASON : WINTER

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	1.3	1.2	0.7	0.6	0.6	0.6	0.8	2.7	13.1	14.0	17.9	15.9	10.4	6.4	8.4	5.3
	UBAR	1.3	1.2	1.3	1.6	1.7	1.6	2.5	2.0	1.8	2.0	2.5	2.8	2.5	2.2	2.1	1.6
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
0300-0600	PROB(%)	1.5	1.1	0.9	0.5	0.5	0.5	0.7	2.3	12.5	12.7	20.0	17.6	10.3	6.8	7.9	4.1
	UBAR	1.2	1.2	1.4	1.7	1.7	1.7	2.9	1.7	2.0	2.0	2.4	2.7	2.5	2.3	2.0	1.6
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
0600-0900	PROB(%)	1.5	1.2	0.7	0.5	0.5	0.5	0.8	2.1	10.7	10.9	17.8	18.9	11.7	7.1	10.2	5.0
	UBAR	1.3	1.3	1.3	1.5	2.0	2.1	2.0	2.1	2.0	2.0	2.4	2.8	2.5	2.4	2.1	1.7
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0900-1200	PROB(%)	2.0	1.8	1.7	0.8	0.9	1.0	1.7	4.5	9.3	7.0	6.4	13.5	15.7	10.3	16.8	6.7
	UBAR	1.9	1.8	1.9	1.9	2.2	2.3	2.3	2.6	3.1	3.7	3.0	3.5	3.4	2.8	2.5	2.1
	usepa	B	B	B	B	C	C	C	C	C	C	C	D	D	C	C	B
1200-1500	PROB(%)	4.2	3.7	2.9	2.6	1.6	2.1	3.8	7.5	10.4	5.9	4.0	8.7	12.7	8.3	13.9	7.7
	UBAR	2.0	1.9	2.0	2.3	2.1	2.4	2.7	2.8	3.5	4.2	3.3	3.7	4.1	3.4	2.9	2.1
	usepa	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	B
1500-1800	PROB(%)	3.3	3.1	4.9	6.2	2.9	2.7	5.5	9.5	11.5	6.5	5.2	7.6	11.5	5.3	8.5	5.8
	UBAR	1.3	1.2	1.8	2.0	1.7	1.9	2.2	2.3	2.9	3.3	2.7	3.3	3.7	3.5	2.8	1.6
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800-2100	PROB(%)	1.5	2.7	5.2	2.8	2.0	1.7	2.6	6.3	18.4	10.1	9.3	10.1	10.6	5.8	7.2	3.7
	UBAR	1.3	1.1	1.5	1.3	1.1	1.5	1.6	1.8	2.0	2.4	2.6	2.7	2.9	2.7	2.4	1.7
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
2100-2400	PROB(%)	2.0	2.2	1.3	0.8	0.6	0.8	1.3	3.4	15.3	13.1	14.7	13.8	10.1	6.1	8.7	5.8
	UBAR	1.3	1.1	1.2	1.4	1.4	1.9	2.3	1.9	1.9	2.2	2.5	2.8	2.6	2.3	2.1	1.5
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 10m

SEASON : SPRING

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.4	3.3	3.8	1.9	1.6	1.6	3.1	6.8	17.8	11.3	11.0	9.7	7.1	5.8	7.3	5.6
	UBAR	1.0	1.1	1.6	1.4	1.3	1.6	2.0	2.1	2.1	1.9	2.0	2.3	2.3	2.0	1.7	1.3
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
0300-0600	PROB(%)	2.1	2.6	2.6	1.7	1.2	1.3	1.8	6.5	18.3	11.6	11.9	12.2	7.3	6.1	7.9	4.9
	UBAR	1.1	1.2	1.5	1.5	1.5	1.6	1.9	2.0	2.1	1.9	2.0	2.4	2.1	2.0	1.7	1.3
	usepa	E	E	E	E	E	D	E	E	E	E	E	E	E	E	E	E
0600-0900	PROB(%)	3.5	3.7	3.8	2.2	1.4	1.4	3.0	7.2	12.6	6.9	7.6	9.3	9.1	7.2	13.8	7.3
	UBAR	1.7	1.7	2.0	1.9	1.8	2.0	2.4	2.7	2.8	2.6	2.6	3.1	2.8	2.6	2.2	1.9
	usepa	B	B	C	C	C	C	C	C	D	D	D	D	D	C	C	B
0900-1200	PROB(%)	5.1	5.5	7.9	4.7	3.0	2.8	6.1	9.4	8.2	3.1	2.9	5.1	7.8	7.4	13.6	7.4
	UBAR	2.3	2.3	2.6	2.6	2.6	2.8	3.2	3.7	4.3	4.1	3.6	3.8	4.1	3.3	3.0	2.5
	usepa	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	B
1200-1500	PROB(%)	2.9	3.0	8.2	16.0	5.4	5.3	9.3	10.3	6.9	1.5	1.1	4.8	7.4	6.4	8.1	3.2
	UBAR	2.4	2.4	3.2	3.5	3.0	3.3	3.8	4.3	5.0	4.5	3.6	4.4	4.5	4.1	3.5	2.5
	usepa	B	B	C	D	C	C	C	C	D	C	C	C	C	C	C	B
1500-1800	PROB(%)	1.0	1.5	12.7	18.2	6.8	6.3	10.5	11.5	7.9	1.6	1.5	5.0	6.5	4.0	3.8	1.3
	UBAR	2.0	2.1	3.3	3.1	2.9	3.0	3.3	4.0	4.7	4.3	3.5	4.4	4.5	4.4	3.5	2.2
	usepa	B	C	D	D	D	D	D	D	D	D	D	D	D	D	C	C
1800-2100	PROB(%)	1.0	4.3	16.5	7.3	4.1	3.6	8.0	11.4	13.1	4.9	4.2	5.9	6.3	3.9	3.9	1.6
	UBAR	1.2	1.7	2.2	1.9	1.6	1.6	2.1	2.5	2.9	2.4	2.4	2.9	3.1	2.9	2.4	1.6
	usepa	E	E	E	E	E	E	D	D	D	D	E	E	D	E	E	E
2100-2400	PROB(%)	3.1	6.1	7.0	3.0	2.1	1.7	4.3	8.7	15.6	8.7	8.1	8.8	7.5	4.8	5.5	4.9
	UBAR	1.0	1.2	1.5	1.6	1.3	1.5	2.0	2.2	2.4	2.0	2.0	2.4	2.7	2.4	1.8	1.3
	usepa	E	E	E	E	E	E	E	D	E	E	E	E	E	E	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 10m

ALL SEASONS COMBINED

HEIGHT : 10 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.0	2.9	3.3	1.8	1.4	1.5	2.8	6.8	20.1	13.1	11.9	10.3	6.8	4.5	6.2	4.7
	UBAR	1.0	1.1	1.5	1.4	1.3	1.5	2.1	2.1	2.2	1.9	2.2	2.4	2.3	2.0	1.8	1.3
	usepa	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
0300-0600	PROB(%)	1.9	2.2	2.3	1.3	1.1	1.3	2.2	6.2	20.5	13.2	13.5	11.7	7.1	4.9	6.3	4.1
	UBAR	1.0	1.0	1.5	1.5	1.4	1.7	2.1	2.1	2.2	1.9	2.1	2.4	2.2	2.0	1.8	1.3
	usepa	E	E	E	E	E	E	D	D	E	E	E	E	E	E	E	E
0600-0900	PROB(%)	2.9	3.1	3.0	1.9	1.4	1.4	2.8	6.5	16.3	9.7	10.3	10.9	8.4	5.6	10.1	5.9
	UBAR	1.6	1.7	2.0	1.8	1.8	2.2	2.5	2.7	2.6	2.3	2.3	2.7	2.4	2.3	2.1	1.8
	usepa	B	B	C	C	C	C	C	D	D	D	D	D	D	C	C	C
0900-1200	PROB(%)	4.2	4.6	5.9	4.6	2.7	2.8	5.5	9.6	11.0	4.5	3.5	6.7	8.4	6.9	12.4	6.7
	UBAR	2.2	2.2	2.5	2.7	2.5	2.7	3.1	3.4	3.8	3.7	3.1	3.5	3.4	2.8	2.6	2.2
	usepa	B	B	B	C	C	C	C	C	C	C	C	C	C	C	B	B
1200-1500	PROB(%)	3.2	3.4	6.5	13.6	4.8	4.7	8.7	11.2	10.0	3.0	1.9	4.6	6.8	5.1	7.9	4.6
	UBAR	2.1	2.1	2.9	3.5	2.9	3.1	3.5	3.8	4.3	4.2	3.2	3.9	4.1	3.6	3.0	2.2
	usepa	B	B	C	D	C	C	C	C	D	C	C	C	C	C	B	B
1500-1800	PROB(%)	1.7	2.0	9.2	16.7	6.3	5.7	10.6	12.1	10.7	3.3	2.3	4.1	5.8	2.9	3.9	2.7
	UBAR	1.4	1.5	3.0	3.1	2.7	2.8	3.2	3.5	3.8	3.5	2.9	3.7	4.0	3.9	3.0	1.7
	usepa	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	C
1800-2100	PROB(%)	1.0	3.2	13.9	7.5	4.2	3.7	7.3	11.6	16.7	6.8	4.9	5.3	5.4	3.1	3.4	2.0
	UBAR	1.2	1.5	2.2	1.9	1.6	1.8	2.3	2.4	2.6	2.4	2.5	2.8	2.9	2.8	2.3	1.6
	usepa	E	E	E	E	D	D	D	D	E	D	E	E	E	E	E	E
2100-2400	PROB(%)	2.7	4.9	6.4	3.1	2.1	1.8	3.9	8.2	18.5	11.0	9.3	8.6	6.2	3.8	5.0	4.5
	UBAR	1.0	1.2	1.6	1.5	1.4	1.6	2.1	2.2	2.3	2.0	2.2	2.5	2.5	2.2	1.9	1.3
	usepa	E	E	E	E	E	E	E	D	E	E	E	E	E	E	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 10m

ALL TIMES COMBINED

HEIGHT : 10 M.

SEASON	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
SUMMER	PROB(%)	2.5	4.5	10.4	11.8	5.1	4.4	8.2	12.8	17.0	5.3	3.0	2.7	2.6	2.1	4.0	3.5
	UBAR	1.6	1.6	2.5	3.0	2.4	2.6	3.1	3.1	3.2	2.1	2.0	2.6	2.8	2.7	2.2	1.7
	usepa	C	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C
AUTUMN	PROB(%)	2.4	2.8	5.0	4.9	2.6	2.8	5.8	9.6	19.6	10.6	7.7	7.4	5.8	3.6	5.5	4.1
	UBAR	1.5	1.5	2.0	2.3	2.0	2.2	2.7	2.7	2.7	2.4	2.2	2.5	2.5	2.1	2.0	1.6
	usepa	C	C	D	D	D	D	D	D	D	D	E	D	D	D	C	C
WINTER	PROB(%)	2.2	2.1	2.3	1.9	1.2	1.2	2.1	4.8	12.6	10.0	11.9	13.3	11.6	7.0	10.2	5.5
	UBAR	1.5	1.4	1.7	1.9	1.7	2.0	2.3	2.3	2.3	2.5	2.5	3.0	3.1	2.7	2.4	1.8
	usepa	C	D	D	D	D	D	D	D	D	D	E	D	D	D	D	D
SPRING	PROB(%)	2.7	3.7	7.8	6.9	3.2	3.0	5.8	9.0	12.5	6.2	6.0	7.6	7.4	5.7	8.0	4.5
	UBAR	1.7	1.7	2.4	2.8	2.3	2.5	2.9	3.1	2.9	2.3	2.3	3.0	3.2	2.9	2.5	1.8
	usepa	C	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C
COMBINED	PROB(%)	2.4	3.3	6.3	6.3	3.0	2.8	5.5	9.0	15.5	8.1	7.2	7.8	6.9	4.6	6.9	4.4
	UBAR	1.6	1.6	2.3	2.7	2.2	2.4	2.8	2.9	2.8	2.4	2.3	2.8	3.0	2.7	2.3	1.7
	usepa	C	D	D	D	D	D	D	D	D	D	E	D	D	D	D	C

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 49m

SEASON : SUMMER

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	4.0	7.3	8.1	5.5	3.7	4.9	5.6	12.7	14.8	7.9	4.5	3.8	3.4	3.7	4.9	5.2
	U50%	2.3	2.6	2.6	2.4	2.1	2.5	3.1	3.8	4.2	3.5	3.2	3.5	3.1	2.8	2.5	2.6
	USEPA50%	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	3.8	5.7	5.7	3.6	3.3	4.0	5.4	12.3	15.7	8.4	5.1	5.1	4.8	5.3	5.9	5.9
	U50%	2.1	2.5	2.4	2.1	1.9	2.6	3.2	3.9	4.1	3.3	3.0	3.2	3.1	2.7	2.6	2.6
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	4.7	6.9	4.4	3.9	3.1	2.9	5.8	13.8	15.1	5.2	2.6	3.9	4.2	5.5	9.3	8.7
	U50%	2.4	2.6	2.2	2.1	2.1	2.8	3.5	4.0	4.5	3.1	2.4	3.0	3.1	2.5	2.5	2.5
	USEPA50%	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C
0900-1200	PROB(%)	5.9	8.5	7.1	10.2	5.6	5.1	8.4	15.5	9.3	1.4	1.0	1.6	3.0	3.4	6.4	7.8
	U50%	3.1	3.2	3.1	3.7	3.3	3.5	4.4	5.4	6.1	4.6	3.9	5.2	5.4	3.6	3.0	3.2
	USEPA50%	B	B	B	C	C	C	C	C	C	C	C	C	C	C	B	B
1200-1500	PROB(%)	1.4	2.4	5.0	27.4	10.0	7.4	12.1	14.8	7.2	0.4	0.5	1.2	2.4	2.5	2.8	2.5
	U50%	3.3	3.3	4.4	5.3	4.7	4.6	5.6	6.5	7.4	7.3	4.9	6.3	7.1	5.9	4.4	4.0
	USEPA50%	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	B
1500-1800	PROB(%)	0.4	1.0	7.7	28.1	10.4	9.4	13.9	14.8	7.1	0.6	0.3	1.0	1.9	1.4	1.0	0.9
	U50%	2.8	4.3	5.5	5.4	4.7	4.7	5.7	6.5	6.8	4.5	4.9	7.2	8.0	8.5	6.0	4.5
	USEPA50%	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
1800-2100	PROB(%)	0.6	3.9	18.9	15.6	7.2	8.0	11.5	16.4	10.0	1.7	0.8	1.0	1.5	1.2	0.7	1.0
	U50%	3.1	3.6	4.1	3.7	3.2	3.3	4.0	4.6	5.3	3.8	4.9	5.3	6.0	6.1	4.5	4.5
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	3.0	10.8	12.4	8.4	5.4	5.7	7.5	15.0	13.7	4.8	2.5	2.4	1.6	1.5	2.2	3.1
	U50%	2.7	3.1	2.9	2.6	2.4	2.6	3.2	3.9	4.4	3.5	3.3	4.7	3.9	3.3	3.1	2.9
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 49m

SEASON : AUTUMN

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	3.0	3.0	1.8	1.5	1.7	2.9	4.3	8.3	14.2	10.8	9.8	11.7	7.8	6.1	7.3	5.8
	U50%	2.4	2.5	2.4	2.0	1.9	2.7	3.4	3.6	4.2	3.7	4.1	4.7	3.3	2.5	2.7	2.9
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	2.4	1.7	1.2	0.9	1.1	2.6	3.3	7.4	15.5	12.0	11.6	14.3	8.8	7.0	5.7	4.7
	U50%	2.3	2.1	2.5	2.5	2.3	3.1	3.2	3.5	4.0	3.9	4.2	4.6	3.3	2.6	2.7	2.7
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	2.2	1.2	0.9	1.4	1.5	2.0	3.3	8.0	15.6	10.8	9.9	13.5	11.1	7.1	7.1	4.3
	U50%	2.2	2.0	1.9	2.1	2.3	3.4	3.5	3.6	4.0	3.8	3.8	4.0	3.4	2.5	2.4	2.6
	USEPA50%	C	B	C	C	C	C	C	D	D	D	D	D	D	C	C	C
0900-1200	PROB(%)	4.5	3.2	2.4	2.7	2.2	3.4	6.8	11.8	13.1	5.0	3.0	6.4	7.7	9.2	10.8	7.7
	U50%	2.8	2.7	2.4	2.7	2.4	3.3	3.6	4.4	5.0	5.0	3.7	4.5	3.6	2.6	2.5	2.8
	USEPA50%	B	A	B	C	C	C	C	C	C	C	C	C	C	C	C	B
1200-1500	PROB(%)	4.6	5.4	4.1	9.2	4.3	6.0	10.8	14.6	10.8	3.2	1.7	3.4	5.3	4.7	6.1	6.0
	U50%	2.7	2.7	3.0	3.9	3.3	3.7	4.3	5.1	6.0	6.0	4.2	5.2	4.9	3.0	2.8	2.7
	USEPA50%	B	A	C	C	C	C	C	C	C	C	C	C	C	C	B	B
1500-1800	PROB(%)	2.4	2.9	6.8	16.1	7.4	7.6	12.9	15.2	9.9	4.0	1.5	2.8	3.7	1.7	2.5	2.9
	U50%	2.5	2.9	3.9	4.0	3.4	3.7	4.3	4.7	5.3	5.6	4.8	5.8	6.1	4.5	3.8	2.7
	USEPA50%	C	C	D	D	D	D	D	D	D	D	D	D	C	C	C	C
1800-2100	PROB(%)	1.7	6.3	12.0	8.6	5.9	6.9	8.8	13.8	12.5	7.0	3.2	3.5	4.0	2.0	1.9	1.8
	U50%	3.0	3.2	3.3	2.9	2.4	2.9	3.3	3.8	4.3	4.5	4.7	5.5	5.5	3.9	4.3	3.6
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	4.9	6.7	4.4	3.1	2.7	4.0	5.4	8.5	12.8	10.5	7.4	8.1	6.1	4.2	5.2	6.2
	U50%	2.6	2.7	2.8	2.1	2.0	2.5	3.0	3.6	3.9	3.9	3.8	4.7	3.9	2.9	2.8	2.9
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 49m

SEASON : WINTER

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.5	1.5	0.6	0.7	0.7	1.0	1.4	2.8	7.9	11.0	13.9	17.8	12.3	9.7	8.0	8.0
	U50%	3.9	3.2	2.1	2.3	2.7	3.1	3.3	3.4	4.0	4.1	4.8	5.8	4.5	3.8	3.9	4.0
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	2.0	1.5	0.6	0.5	0.6	0.8	1.1	2.5	8.3	10.2	16.8	19.2	12.5	9.3	8.2	5.9
	U50%	3.1	3.1	2.6	3.4	3.5	3.2	3.5	3.3	4.1	4.0	4.7	5.7	4.5	4.0	3.9	3.9
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	1.9	1.5	0.5	0.5	0.4	0.7	1.0	2.7	7.5	9.5	15.4	20.2	13.0	9.6	9.3	6.2
	U50%	3.1	2.9	2.5	2.7	2.9	3.7	3.1	3.4	4.0	3.8	4.3	5.1	4.2	3.8	3.7	3.8
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0900-1200	PROB(%)	2.3	2.0	0.8	0.7	0.8	1.2	1.7	5.0	8.6	6.7	5.7	13.6	16.3	13.1	13.6	7.6
	U50%	3.0	2.8	2.0	1.6	2.8	2.5	2.4	3.4	4.6	5.0	4.3	5.0	4.4	2.9	2.9	3.1
	USEPA50%	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C
1200-1500	PROB(%)	4.9	3.7	1.8	2.4	1.7	2.4	4.2	7.8	9.4	5.6	3.6	8.3	13.3	10.6	11.6	8.7
	U50%	2.9	2.6	2.5	2.9	2.5	2.9	3.2	3.8	5.1	5.9	4.5	5.5	6.4	3.9	3.3	3.1
	USEPA50%	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	B
1500-1800	PROB(%)	4.5	3.3	3.5	6.5	3.4	3.6	5.9	9.7	9.2	6.3	4.1	8.0	11.3	6.7	7.2	6.9
	U50%	2.7	2.4	3.2	3.3	2.5	2.7	3.0	3.7	4.4	5.0	4.6	5.5	6.4	5.4	4.5	3.4
	USEPA50%	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800-2100	PROB(%)	3.0	5.1	6.0	3.6	2.4	3.2	3.7	7.2	10.0	8.2	7.6	10.3	10.8	7.6	6.1	5.2
	U50%	3.5	3.1	3.1	2.8	2.3	2.8	3.0	3.3	4.0	4.4	5.0	5.6	5.5	5.1	4.8	4.9
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	4.0	3.5	1.4	1.2	1.4	1.8	1.9	3.8	8.5	10.1	11.9	14.3	11.3	8.3	8.2	8.4
	U50%	3.4	2.7	2.3	2.2	2.1	2.5	2.8	3.4	4.0	4.3	4.8	5.8	5.1	4.1	4.1	4.0
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.



STATION : Lucas Heights 49m

SEASON : SPRING

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	4.5	5.1	3.9	2.7	2.4	2.1	3.0	6.6	10.2	8.1	8.6	9.5	8.8	7.7	8.0	8.7
	U50%	2.6	2.7	2.8	2.3	2.1	2.4	3.2	3.4	3.9	3.4	3.9	4.8	4.4	3.6	3.1	3.2
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	3.8	4.0	2.3	2.3	1.8	1.7	2.1	6.6	10.3	7.8	9.3	12.2	9.3	9.3	9.4	7.8
	U50%	2.6	2.7	2.3	2.3	2.1	2.6	2.8	3.3	3.7	3.6	4.0	4.8	3.6	3.1	3.1	3.0
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	3.7	4.3	2.6	2.2	1.5	1.6	3.0	8.1	9.1	6.0	6.1	10.1	9.8	10.0	12.5	9.5
	U50%	2.8	2.8	2.5	2.4	2.1	2.6	3.2	3.7	4.1	3.5	4.0	4.7	4.1	2.9	2.7	2.9
	USEPA50%	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C
0900-1200	PROB(%)	5.6	6.6	5.1	4.6	3.2	3.1	6.5	9.4	7.7	2.9	2.5	4.8	8.4	8.2	11.5	10.0
	U50%	3.3	3.2	3.2	3.3	3.2	3.5	4.2	5.0	5.7	5.5	4.7	5.8	5.7	3.9	3.5	3.4
	USEPA50%	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	B
1200-1500	PROB(%)	3.2	3.3	5.4	16.3	6.1	6.0	9.4	10.6	6.3	1.4	0.8	4.5	7.9	6.3	7.5	5.0
	U50%	3.5	3.5	4.0	5.0	4.2	4.2	5.1	6.2	7.4	6.7	4.9	6.9	6.9	5.9	4.9	3.8
	USEPA50%	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	B
1500-1800	PROB(%)	1.2	1.9	8.5	20.3	7.8	7.9	10.1	11.6	6.7	1.5	1.0	4.8	6.8	4.4	3.4	1.9
	U50%	3.8	3.8	4.9	4.7	4.1	4.2	4.9	5.9	7.1	6.3	5.5	7.5	7.5	7.5	6.4	5.0
	USEPA50%	C	C	C	D	C	C	C	C	C	C	C	C	C	C	C	C
1800-2100	PROB(%)	1.2	6.4	14.5	9.1	5.4	5.8	8.1	11.3	8.9	3.7	2.9	5.7	6.7	4.5	3.3	2.3
	U50%	3.6	3.6	3.8	3.1	2.5	2.7	3.3	3.9	4.5	3.9	4.2	5.4	5.6	5.4	5.1	4.4
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	5.4	9.2	6.7	4.2	2.7	3.2	4.7	8.1	9.3	6.3	6.4	8.7	7.5	5.8	5.5	6.3
	U50%	2.8	3.0	2.8	2.3	2.0	2.3	2.9	3.6	4.1	3.5	3.8	4.7	4.9	4.4	3.7	3.6
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 49m		ALL SEASONS COMBINED										HEIGHT : 49 M.					
TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	3.5	4.2	3.6	2.6	2.1	2.7	3.6	7.6	11.8	9.4	9.2	10.7	8.1	6.8	7.0	6.9
	U50%	2.6	2.7	2.6	2.3	2.1	2.6	3.2	3.6	4.1	3.8	4.2	5.2	4.0	3.2	3.1	3.2
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0300-0600	PROB(%)	3.0	3.3	2.4	1.8	1.7	2.3	3.0	7.2	12.5	9.6	10.7	12.7	8.9	7.7	7.3	6.1
	U50%	2.4	2.6	2.4	2.3	2.1	2.8	3.1	3.6	4.0	3.8	4.2	5.0	3.8	3.1	3.1	3.0
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0600-0900	PROB(%)	3.1	3.5	2.1	2.0	1.6	1.8	3.3	8.1	11.8	7.9	8.5	11.9	9.5	8.0	9.6	7.2
	U50%	2.6	2.7	2.2	2.2	2.2	3.0	3.3	3.7	4.1	3.6	3.9	4.6	3.8	3.0	2.8	2.9
	USEPA50%	B	B	C	C	C	C	C	C	C	D	D	D	D	C	C	C
0900-1200	PROB(%)	4.6	5.1	3.8	4.5	3.0	3.2	5.8	10.4	9.7	4.0	3.1	6.6	8.9	8.5	10.6	8.3
	U50%	3.1	3.1	3.0	3.4	3.1	3.4	4.0	4.8	5.3	5.1	4.2	5.0	4.5	3.1	3.0	3.1
	USEPA50%	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	B
1200-1500	PROB(%)	3.5	3.7	4.1	13.8	5.5	5.5	9.1	11.9	8.4	2.6	1.6	4.3	7.2	6.0	7.0	5.5
	U50%	3.0	2.9	3.6	4.9	4.1	4.1	4.8	5.5	6.2	6.1	4.5	5.9	6.3	4.2	3.5	3.2
	USEPA50%	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	B
1500-1800	PROB(%)	2.1	2.3	6.6	17.7	7.2	7.1	10.7	12.8	8.2	3.1	1.7	4.2	5.9	3.6	3.5	3.2
	U50%	2.8	3.0	4.5	4.6	3.9	4.1	4.7	5.3	5.6	5.3	4.7	6.1	6.8	6.5	5.0	3.3
	USEPA50%	C	C	D	D	C	C	D	D	D	D	D	D	D	C	C	C
1800-2100	PROB(%)	1.6	5.4	12.8	9.2	5.3	6.0	8.0	12.2	10.3	5.2	3.6	5.2	5.8	3.8	3.0	2.6
	U50%	3.3	3.4	3.7	3.2	2.7	3.0	3.5	4.0	4.4	4.3	4.8	5.5	5.5	5.1	4.8	4.5
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	4.3	7.6	6.2	4.2	3.1	3.7	4.9	8.9	11.1	7.9	7.0	8.4	6.6	5.0	5.3	6.0
	U50%	2.8	3.0	2.8	2.4	2.2	2.5	3.0	3.7	4.1	3.9	4.2	5.2	4.8	3.8	3.5	3.4
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 49m

ALL TIMES COMBINED

HEIGHT : 49 M.

SEASON	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
SUMMER	PROB(%)	3.0	5.8	8.6	12.9	6.1	6.0	8.8	14.4	11.6	3.8	2.2	2.5	2.8	3.1	4.1	4.4
	U50%	2.6	3.0	3.4	4.5	3.5	3.6	4.4	4.9	5.0	3.4	3.2	4.0	4.3	3.2	2.8	2.9
	USEPA50%	C	D	D	D	C	D	D	D	D	D	D	D	D	D	C	C
AUTUMN	PROB(%)	3.2	3.8	4.2	5.4	3.4	4.4	7.0	11.0	13.0	7.9	6.0	7.9	6.8	5.2	5.8	4.9
	U50%	2.6	2.8	3.2	3.4	2.7	3.2	3.8	4.1	4.4	4.1	4.1	4.7	3.8	2.7	2.7	2.8
	USEPA50%	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C
WINTER	PROB(%)	3.1	2.8	1.9	2.0	1.4	1.8	2.6	5.2	8.7	8.5	9.9	14.0	12.6	9.4	9.0	7.1
	U50%	3.1	2.8	2.9	2.9	2.4	2.8	3.0	3.5	4.2	4.3	4.7	5.5	5.0	3.9	3.7	3.6
	USEPA50%	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
SPRING	PROB(%)	3.6	5.1	6.1	7.7	3.9	3.9	5.9	9.0	8.5	4.7	4.7	7.5	8.2	7.0	7.6	6.4
	U50%	3.0	3.1	3.6	4.1	3.2	3.5	4.1	4.6	4.6	3.8	4.0	5.2	5.1	4.0	3.5	3.3
	USEPA50%	C	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C
COMBINED	PROB(%)	3.2	4.4	5.2	7.0	3.7	4.0	6.0	9.9	10.5	6.3	5.7	8.0	7.6	6.2	6.7	5.7
	U50%	2.8	2.9	3.4	3.9	3.1	3.3	3.9	4.3	4.5	4.0	4.2	5.1	4.7	3.5	3.2	3.2
	USEPA50%	C	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.

U50% IS THE 50% PROBABILITY VALUE OF WIND SPEED IN M/S.

USEPA50% IS THE 50% PROBABILITY VALUE OF THE PASQUILL STABILITY CATEGORY BASED ON THE USEPA(1987) METHOD.

STATION : Lucas Heights 49m

SEASON : SUMMER

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	4.0	7.3	8.1	5.5	3.7	4.9	5.6	12.7	14.8	7.9	4.5	3.8	3.4	3.7	4.9	5.2
	UBAR	2.9	3.1	3.0	2.8	2.7	3.2	3.7	4.6	4.9	4.0	3.8	4.3	4.2	3.4	3.2	3.1
	usepa	E	E	E	E	E	E	E	D	D	D	E	E	E	E	E	E
0300-0600	PROB(%)	3.8	5.7	5.7	3.6	3.3	4.0	5.4	12.3	15.7	8.4	5.1	5.1	4.8	5.3	5.9	5.9
	UBAR	2.6	2.9	2.9	2.7	2.5	3.4	4.1	4.7	4.8	3.9	3.5	4.0	3.8	3.4	3.2	3.1
	usepa	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E
0600-0900	PROB(%)	4.7	6.9	4.4	3.9	3.1	2.9	5.8	13.8	15.1	5.2	2.6	3.9	4.2	5.5	9.3	8.7
	UBAR	3.0	3.2	2.9	2.8	2.9	3.5	4.3	4.9	5.1	3.9	3.3	4.0	4.2	3.3	3.1	3.2
	usepa	B	C	C	C	C	C	D	D	D	D	C	D	D	C	C	C
0900-1200	PROB(%)	5.9	8.5	7.1	10.2	5.6	5.1	8.4	15.5	9.3	1.4	1.0	1.6	3.0	3.4	6.4	7.8
	UBAR	3.6	3.7	3.8	4.2	3.9	4.1	5.0	6.0	6.6	5.1	4.6	5.7	5.9	4.8	3.9	3.8
	usepa	B	B	C	C	C	C	C	D	D	C	C	C	C	C	C	B
1200-1500	PROB(%)	1.4	2.4	5.0	27.4	10.0	7.4	12.1	14.8	7.2	0.4	0.5	1.2	2.4	2.5	2.8	2.5
	UBAR	4.2	4.0	5.1	5.8	5.1	5.1	6.1	7.0	7.9	7.1	5.8	6.9	7.5	6.8	5.6	4.8
	usepa	B	B	C	D	D	D	D	D	D	D	C	D	D	C	C	C
1500-1800	PROB(%)	0.4	1.0	7.7	28.1	10.4	9.4	13.9	14.8	7.1	0.6	0.3	1.0	1.9	1.4	1.0	0.9
	UBAR	3.8	4.7	6.0	5.9	5.1	5.2	6.1	7.1	7.6	5.1	5.5	7.4	8.2	9.2	6.7	5.1
	usepa	B	C	D	D	D	D	D	D	D	D	C	D	D	D	C	C
1800-2100	PROB(%)	0.6	3.9	18.9	15.6	7.2	8.0	11.5	16.4	10.0	1.7	0.8	1.0	1.5	1.2	0.7	1.0
	UBAR	4.0	4.1	4.6	4.2	3.7	3.8	4.7	5.6	6.1	4.4	5.3	5.8	6.7	7.0	5.2	5.1
	usepa	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	3.0	10.8	12.4	8.4	5.4	5.7	7.5	15.0	13.7	4.8	2.5	2.4	1.6	1.5	2.2	3.1
	UBAR	3.1	3.6	3.5	3.1	3.1	3.2	4.0	4.9	5.1	4.0	3.9	5.1	4.9	4.0	3.7	3.5
	usepa	E	E	E	E	E	E	E	D	D	D	D	E	D	E	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 49m

SEASON : AUTUMN

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	3.0	3.0	1.8	1.5	1.7	2.9	4.3	8.3	14.2	10.8	9.8	11.7	7.8	6.1	7.3	5.8
	UBAR	3.1	3.0	2.9	2.6	2.5	3.5	4.2	4.4	4.9	4.4	4.6	5.1	4.3	3.3	3.4	3.5
	usepa	E	E	E	E	E	E	D	E	D	E	E	D	E	E	E	E
0300-0600	PROB(%)	2.4	1.7	1.2	0.9	1.1	2.6	3.3	7.4	15.5	12.0	11.6	14.3	8.8	7.0	5.7	4.7
	UBAR	3.0	2.7	2.8	3.1	3.0	3.9	4.0	4.3	4.7	4.5	4.7	5.0	4.0	3.5	3.3	3.4
	usepa	E	E	E	E	E	E	E	E	D	E	E	D	E	E	E	E
0600-0900	PROB(%)	2.2	1.2	0.9	1.4	1.5	2.0	3.3	8.0	15.6	10.8	9.9	13.5	11.1	7.1	7.1	4.3
	UBAR	2.9	2.5	2.7	2.8	3.0	4.2	4.4	4.3	4.6	4.5	4.3	4.6	4.1	3.2	3.0	3.3
	usepa	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D
0900-1200	PROB(%)	4.5	3.2	2.4	2.7	2.2	3.4	6.8	11.8	13.1	5.0	3.0	6.4	7.7	9.2	10.8	7.7
	UBAR	3.3	3.2	3.1	3.4	3.1	4.1	4.4	5.0	5.6	5.6	4.3	5.0	4.7	3.4	3.3	3.4
	usepa	B	B	B	C	C	C	C	D	D	D	C	D	D	C	C	B
1200-1500	PROB(%)	4.6	5.4	4.1	9.2	4.3	6.0	10.8	14.6	10.8	3.2	1.7	3.4	5.3	4.7	6.1	6.0
	UBAR	3.2	3.2	3.6	4.3	3.8	4.3	5.0	5.7	6.5	6.3	4.9	5.8	5.7	4.1	3.8	3.3
	usepa	B	B	C	D	C	C	D	D	D	D	C	C	C	C	C	B
1500-1800	PROB(%)	2.4	2.9	6.8	16.1	7.4	7.6	12.9	15.2	9.9	4.0	1.5	2.8	3.7	1.7	2.5	2.9
	UBAR	3.0	3.4	4.5	4.5	3.9	4.3	5.0	5.5	6.0	6.2	5.4	6.4	6.7	5.3	4.6	3.4
	usepa	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800-2100	PROB(%)	1.7	6.3	12.0	8.6	5.9	6.9	8.8	13.8	12.5	7.0	3.2	3.5	4.0	2.0	1.9	1.8
	UBAR	3.4	3.7	3.8	3.3	2.9	3.4	4.1	4.6	4.9	5.2	5.0	5.7	5.9	4.6	4.5	4.1
	usepa	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E
2100-2400	PROB(%)	4.9	6.7	4.4	3.1	2.7	4.0	5.4	8.5	12.8	10.5	7.4	8.1	6.1	4.2	5.2	6.2
	UBAR	3.1	3.1	3.2	2.7	2.5	3.3	3.8	4.5	4.7	4.5	4.4	5.2	4.5	3.6	3.4	3.5
	usepa	E	E	E	E	E	E	E	D	D	D	E	D	D	E	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 49m

SEASON : WINTER

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	2.5	1.5	0.6	0.7	0.7	1.0	1.4	2.8	7.9	11.0	13.9	17.8	12.3	9.7	8.0	8.0
	UBAR	4.4	3.7	2.7	3.1	3.4	3.6	4.2	4.4	4.5	4.7	5.3	6.1	5.2	4.7	4.6	4.5
	usepa	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	E
0300-0600	PROB(%)	2.0	1.5	0.6	0.5	0.6	0.8	1.1	2.5	8.3	10.2	16.8	19.2	12.5	9.3	8.2	5.9
	UBAR	3.8	3.6	3.3	3.9	4.1	3.5	4.5	4.3	4.6	4.5	5.2	5.9	5.3	4.7	4.5	4.6
	usepa	E	E	E	D	E	E	D	E	E	E	D	D	D	D	D	E
0600-0900	PROB(%)	1.9	1.5	0.5	0.5	0.4	0.7	1.0	2.7	7.5	9.5	15.4	20.2	13.0	9.6	9.3	6.2
	UBAR	3.8	3.5	3.2	3.1	3.5	4.3	3.8	4.4	4.5	4.4	4.9	5.6	5.0	4.7	4.3	4.4
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
0900-1200	PROB(%)	2.3	2.0	0.8	0.7	0.8	1.2	1.7	5.0	8.6	6.7	5.7	13.6	16.3	13.1	13.6	7.6
	UBAR	3.7	3.3	2.6	2.4	3.5	3.6	3.3	4.0	5.1	5.6	5.0	5.5	5.8	4.1	3.8	3.8
	usepa	C	C	B	B	C	C	C	C	D	D	D	D	D	D	C	C
1200-1500	PROB(%)	4.9	3.7	1.8	2.4	1.7	2.4	4.2	7.8	9.4	5.6	3.6	8.3	13.3	10.6	11.6	8.7
	UBAR	3.5	3.3	2.9	3.4	3.0	3.7	4.0	4.3	5.7	6.5	5.5	6.2	7.1	5.6	4.6	3.8
	usepa	B	B	B	C	C	C	C	C	D	D	C	D	D	C	C	C
1500-1800	PROB(%)	4.5	3.3	3.5	6.5	3.4	3.6	5.9	9.7	9.2	6.3	4.1	8.0	11.3	6.7	7.2	6.9
	UBAR	3.2	3.0	3.6	3.7	3.0	3.3	3.7	4.4	5.1	5.7	5.4	6.1	7.0	6.5	5.5	4.2
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800-2100	PROB(%)	3.0	5.1	6.0	3.6	2.4	3.2	3.7	7.2	10.0	8.2	7.6	10.3	10.8	7.6	6.1	5.2
	UBAR	4.1	3.5	3.5	3.2	2.9	3.4	3.6	4.1	4.6	5.0	5.4	5.9	6.1	5.8	5.4	5.3
	usepa	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D
2100-2400	PROB(%)	4.0	3.5	1.4	1.2	1.4	1.8	1.9	3.8	8.5	10.1	11.9	14.3	11.3	8.3	8.2	8.4
	UBAR	4.0	3.3	3.0	2.8	2.7	3.4	4.0	4.4	4.5	4.9	5.3	6.1	5.7	4.8	4.7	4.6
	usepa	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 49m

SEASON : SPRING

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	4.5	5.1	3.9	2.7	2.4	2.1	3.0	6.6	10.2	8.1	8.6	9.5	8.8	7.7	8.0	8.7
	UBAR	3.3	3.4	3.3	2.9	2.7	3.3	4.0	4.3	4.5	4.1	4.4	5.1	5.1	4.3	3.8	3.8
	usepa	E	E	E	E	E	E	E	E	D	E	E	D	D	D	E	E
0300-0600	PROB(%)	3.8	4.0	2.3	2.3	1.8	1.7	2.1	6.6	10.3	7.8	9.3	12.2	9.3	9.3	9.4	7.8
	UBAR	3.4	3.2	3.0	2.8	2.9	3.2	3.7	4.2	4.6	4.2	4.5	5.2	4.4	4.0	3.8	3.7
	usepa	E	E	D	E	E	D	D	D	D	D	D	D	E	D	E	E
0600-0900	PROB(%)	3.7	4.3	2.6	2.2	1.5	1.6	3.0	8.1	9.1	6.0	6.1	10.1	9.8	10.0	12.5	9.5
	UBAR	3.4	3.4	3.1	2.9	2.8	3.3	3.9	4.7	5.0	4.5	4.6	5.2	5.2	3.8	3.4	3.6
	usepa	C	C	C	C	C	C	C	D	D	D	D	D	D	D	C	C
0900-1200	PROB(%)	5.6	6.6	5.1	4.6	3.2	3.1	6.5	9.4	7.7	2.9	2.5	4.8	8.4	8.2	11.5	10.0
	UBAR	3.9	3.8	3.8	3.8	3.8	4.1	4.8	5.8	6.4	6.2	5.3	6.3	6.7	5.1	4.6	4.3
	usepa	B	B	C	C	C	C	C	D	D	C	C	C	C	C	C	C
1200-1500	PROB(%)	3.2	3.3	5.4	16.3	6.1	6.0	9.4	10.6	6.3	1.4	0.8	4.5	7.9	6.3	7.5	5.0
	UBAR	4.3	4.1	4.6	5.4	4.7	4.8	5.6	6.8	7.7	7.2	5.5	7.5	7.6	6.9	6.1	4.8
	usepa	B	C	C	D	D	D	D	D	D	D	C	D	D	C	C	C
1500-1800	PROB(%)	1.2	1.9	8.5	20.3	7.8	7.9	10.1	11.6	6.7	1.5	1.0	4.8	6.8	4.4	3.4	1.9
	UBAR	4.3	4.3	5.3	5.2	4.6	4.7	5.4	6.5	7.5	7.1	6.4	7.8	8.1	8.1	6.8	5.4
	usepa	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800-2100	PROB(%)	1.2	6.4	14.5	9.1	5.4	5.8	8.1	11.3	8.9	3.7	2.9	5.7	6.7	4.5	3.3	2.3
	UBAR	4.0	4.1	4.2	3.7	3.1	3.4	4.0	4.8	5.4	4.7	4.8	6.0	6.4	6.2	5.5	4.8
	usepa	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	5.4	9.2	6.7	4.2	2.7	3.2	4.7	8.1	9.3	6.3	6.4	8.7	7.5	5.8	5.5	6.3
	UBAR	3.5	3.5	3.2	3.0	2.6	3.0	3.7	4.4	5.0	4.2	4.3	5.2	5.7	5.2	4.3	4.2
	usepa	E	E	E	E	E	E	E	D	D	D	E	D	D	D	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD

STATION : Lucas Heights 49m

ALL SEASONS COMBINED

HEIGHT : 49 M.

TIME (EST.)	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0000-0300	PROB(%)	3.5	4.2	3.5	2.6	2.1	2.7	3.6	7.6	11.8	9.5	9.2	10.8	8.1	6.8	7.1	6.9
	UBAR	3.4	3.2	3.1	2.8	2.7	3.3	4.0	4.5	4.8	4.3	4.7	5.4	4.9	4.1	3.8	3.8
	usepa	E	E	E	E	E	E	E	D	D	E	D	D	E	E	E	E
0300-0600	PROB(%)	3.0	3.2	2.4	1.8	1.7	2.3	2.9	7.1	12.5	9.6	10.8	12.8	8.9	7.7	7.3	6.1
	UBAR	3.1	3.1	2.9	2.9	2.8	3.5	4.0	4.5	4.7	4.3	4.7	5.3	4.5	4.0	3.8	3.7
	usepa	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E
0600-0900	PROB(%)	3.1	3.4	2.0	1.9	1.6	1.8	3.2	8.1	11.8	7.9	8.6	12.0	9.6	8.0	9.5	7.2
	UBAR	3.2	3.2	3.0	2.9	3.0	3.7	4.2	4.7	4.8	4.4	4.5	5.1	4.7	3.9	3.5	3.6
	usepa	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	C
0900-1200	PROB(%)	4.6	5.1	3.8	4.5	2.9	3.2	5.8	10.4	9.7	4.1	3.1	6.6	8.9	8.5	10.6	8.3
	UBAR	3.6	3.6	3.6	3.9	3.7	4.1	4.6	5.4	5.9	5.6	4.8	5.5	5.8	4.2	3.9	3.8
	usepa	B	B	C	C	C	C	C	D	D	D	C	D	D	C	C	C
1200-1500	PROB(%)	3.5	3.7	4.1	13.7	5.5	5.5	9.1	12.0	8.5	2.7	1.7	4.3	7.2	6.0	7.0	5.6
	UBAR	3.6	3.5	4.3	5.3	4.6	4.6	5.4	6.1	6.8	6.5	5.4	6.5	7.0	5.7	4.9	4.0
	usepa	B	B	C	D	D	C	D	D	D	D	C	D	D	C	C	C
1500-1800	PROB(%)	2.1	2.3	6.6	17.7	7.2	7.1	10.7	12.8	8.2	3.1	1.7	4.2	5.9	3.5	3.5	3.2
	UBAR	3.4	3.6	5.1	5.2	4.4	4.6	5.3	6.0	6.4	6.0	5.5	6.7	7.4	7.1	5.7	4.3
	usepa	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800-2100	PROB(%)	1.7	5.4	12.8	9.2	5.2	6.0	8.0	12.2	10.4	5.2	3.7	5.2	5.8	3.8	3.0	2.6
	UBAR	3.9	3.9	4.2	3.8	3.2	3.5	4.2	4.9	5.2	5.0	5.2	5.9	6.2	5.8	5.2	5.0
	usepa	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D
2100-2400	PROB(%)	4.0	7.5	6.1	4.2	3.0	3.7	4.9	8.8	11.1	8.0	7.1	8.4	6.6	5.0	5.3	6.0
	UBAR	3.4	3.4	3.3	3.0	2.8	3.2	3.9	4.6	4.9	4.5	4.7	5.5	5.4	4.6	4.2	4.1
	usepa	E	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD



STATION : Lucas Heights 49m

ALL TIMES COMBINED

HEIGHT : 49 M.

SEASON	STATS.	DIRECTION															
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
SUMMER	PROB(%)	3.0	5.8	8.6	12.9	6.1	6.0	8.8	14.4	11.6	3.8	2.2	2.5	2.8	3.1	4.1	4.4
	UBAR	3.2	3.5	4.1	4.8	4.1	4.1	5.0	5.7	5.7	4.1	3.8	4.8	5.2	4.5	3.7	3.5
	usepa	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
AUTUMN	PROB(%)	3.2	3.8	4.2	5.4	3.4	4.4	7.0	11.0	13.0	7.9	6.0	7.9	6.8	5.2	5.8	4.9
	UBAR	3.1	3.2	3.7	3.9	3.3	3.9	4.5	4.9	5.2	4.8	4.6	5.1	4.7	3.6	3.5	3.4
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
WINTER	PROB(%)	3.1	2.8	1.9	2.0	1.4	1.8	2.6	5.2	8.7	8.5	9.9	14.0	12.6	9.4	9.0	7.1
	UBAR	3.8	3.4	3.3	3.4	3.1	3.5	3.8	4.3	4.8	5.0	5.2	5.9	5.9	5.0	4.6	4.3
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
SPRING	PROB(%)	3.6	5.1	6.1	7.7	3.9	3.9	5.9	9.0	8.5	4.7	4.7	7.5	8.2	7.0	7.6	6.4
	UBAR	3.7	3.7	4.1	4.5	3.8	4.0	4.7	5.3	5.6	4.6	4.6	5.7	6.0	5.1	4.5	4.1
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
COMBINED	PROB(%)	3.2	4.4	5.2	7.0	3.7	4.0	6.0	9.9	10.5	6.3	5.7	8.0	7.6	6.2	6.7	5.7
	UBAR	3.5	3.5	3.9	4.5	3.7	4.0	4.7	5.2	5.3	4.8	4.8	5.6	5.6	4.7	4.2	3.9
	usepa	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

BEGINNING DATE : 50491 END DATE : 300603

NOTE : PROB(%) IS THE FREQUENCY OF OCCURRENCE OF A WIND DIRECTION IN THE TIME PERIOD.  
 UBAR IS THE AVERAGE WIND SPEED IN M/S.  
 USEPA IS THE AVERAGE PASQUILL STABILITY CATEGORY USING THE USEPA(1987) METHOD