

5.0 Wind Climatology

5.1 Monthly and Annual Prevailing Wind Directions, Average Speeds, and Peak Gusts

At the Hanford Meteorology Station, the prevailing wind direction for every month of the year is either WNW or NW (Table 5.1), and the peak gusts for every month are from the SSW, SW, or WSW. Hourly observations of wind direction and speed are taken at the 50-foot level of a 408-foot instrumented tower. The highest monthly average wind speeds occur in June, the lowest in December. The variability in monthly average wind speeds is much greater in the winter months than during the remainder of the year. The highest January average of 10.3 mph is more than 3.5 times greater than the lowest (2.9 mph); however, in June, the highest average (10.7 mph) is only 1.4 times greater than the lowest (7.7 mph).

Table 5.1. Monthly and Annual Prevailing Wind Directions, Average Speeds, and Peak Gusts at 50-Foot Level, 1945 through 2002

Month	Prevailing Direction	Average Speed, mph	Highest Average		Lowest Average		Peak Gusts		
			mph	Year	mph	Year	Speed, mph	Direction	Year
Jan	NW	6.3	10.3	1972	2.9	1985	80	SW	1972
Feb	NW	7.1	11.1	1999	4.6	1963	65	SW	1971
Mar	WNW	8.2	10.7	1977 ^(a)	5.9	1958	70	SW	1956
Apr	WNW	8.9	11.1	1972 ^(a)	7.4	1989 ^(a)	73	SSW	1972
May	WNW	8.8	10.7	1983	5.8	1957	71	SSW	1948
Jun	NW	9.1	10.7	1983 ^(a)	7.7	1950 ^(a)	72	SW	1957
Jul	NW	8.6	10.7	1983	6.8	1955	69	WSW	1979
Aug	WNW	8.0	9.5	1996	6.0	1956	66	SW	1961
Sep	WNW	7.5	9.2	1961	5.4	1957	65	SSW	1953
Oct	NW	6.6	9.1	1946	4.4	1952	72	SW	1997
Nov	NW	6.3	10.0	1990	2.9	1956	67	WSW	1993
Dec	NW	6.0	8.3	1968	3.3	1985	71	SW	1955
Annual	NW	7.6	8.8	1999	6.2	1989	80	SW	Jan 1972

(a) Also in earlier years.

5.2 Days with Peak Gusts Above or Below Specific Thresholds

Table 5.2 lists the number of days by month and year with peak wind gusts (at 50-foot level) above or below specific threshold wind speeds. June and July have the highest average number of days with gusts ≥ 25 mph (nearly 20 each); however, January, March, and April have the highest average number of days with gusts ≥ 40 mph (nearly 3 days), and January and December have the highest average number of days with gusts ≥ 50 mph (0.9 and 0.8 day, respectively). January also has the record highest number of gusts ≥ 40 and ≥ 50 mph at 11 and 7 days, respectively, in 1990. Calendar year 1990 recorded the most days with gusts ≥ 40 and ≥ 50 mph at 57 and 18 days, respectively. Of particular interest is that previous records for these categories were 41 days ≥ 40 mph in 1961 and 10 days ≥ 50 mph in 1972.

5.3 Frequency of Monthly and Annual Wind Direction and Speed at 50-Foot Level

Table 5.3 presents Hanford Meteorology Station data on the percent frequency of monthly and annual wind direction and wind speed at the 50-foot level. This table shows that for every month of the year the prevailing wind direction is either from the WNW or NW. Winds are relatively evenly distributed from the NNE through the SSW at between 2% and 4% on an annual average for each direction.

The wind speed class with the highest frequency of occurrence is 4 to 7 mph, with winds in that category 37% of the time. The speed class with the second highest frequency is 8 to 12 mph, at 25%. Winds averaging greater than 25 mph occur only 1% of the time on an annual basis, with the highest frequency occurring in March (1.6%).

5.4 Composite Wind Roses and Joint Frequency Distributions for the Hanford Meteorological Monitoring Network

Figure 5.1 and Table 5.4 contain composite wind roses and joint frequency distributions at the 30-foot level for the entire Hanford Meteorological Monitoring Network (see Table 1.1 and Figure 1.1) for the entire period of operation 1982 through 2002.

Figure 5.2 and Table 5.5 contain composite wind roses and joint frequency distributions at the 60-meter level for stations 9, 11, 13, and 21 for the entire period of operation 1986 through 2002.

Table 5.2. Number of Days with Peak Gusts Above or Below Specific Thresholds at 50-Foot Level, 1945 through 2002

Month	Days with Peak Gusts \leq 12 mph					Days with Peak Gusts \geq 25 mph					Days with Peak Gusts \geq 40 mph					Days with Peak Gusts \geq 50 mph				
	Avg	Max	Year	Min	Year	Avg	Max	Year	Min	Year	Avg	Max	Year	Min	Year	Avg	Max	Year	Min	Year
Jan	9.6	29	1985	3	1968	7.7	21	1953	0	1985 ^(a)	2.8	11	1990 ^(a)	0	2001 ^(a)	0.9	7	1990	0	2001 ^(a)
Feb	6.2	16	1963	0	1990	8.6	17	1976 ^(a)	2	1952 ^(a)	2.4	10	1999 ^(a)	0	2001 ^(a)	0.6	4	1972	0	2002 ^(a)
Mar	2.7	8	1992	0	1999 ^(a)	13.0	21	1977	4	1992	2.8	9	1956	0	1998 ^(a)	0.6	4	1956	0	2000 ^(a)
Apr	0.6	6	1951	0	2001 ^(a)	16.9	26	1954	8	1946	2.8	8	1991	0	1998 ^(a)	0.4	2	1997 ^(a)	0	2000 ^(a)
May	0.3	3	1955	0	2002 ^(a)	18.8	26	1978	9	1945	2.4	7	2002	0	1997 ^(a)	0.2	2	1993 ^(a)	0	1999 ^(a)
Jun	0.1	1	1980 ^(a)	0	2002 ^(a)	19.7	26	1963	11	1950 ^(a)	2.4	7	1985	0	1982 ^(a)	0.3	2	1992 ^(a)	0	2002 ^(a)
Jul	0.1	1	1957 ^(a)	0	2002 ^(a)	19.5	26	1995	11	1955	1.8	5	1995 ^(a)	0	1981 ^(a)	0.2	1	2002 ^(a)	0	2001 ^(a)
Aug	0.2	2	1972	0	2002 ^(a)	15.8	24	2000	7	1945	1.3	5	1951	0	2000 ^(a)	0.1	1	1998 ^(a)	0	2002 ^(a)
Sep	2.4	9	1987	0	1991 ^(a)	11.3	17	2002 ^(a)	7	1975 ^(a)	1.3	4	1946	0	2002 ^(a)	0.2	2	1953	0	2002 ^(a)
Oct	6.8	15	1974	2	1975 ^(a)	8.9	17	1985 ^(a)	3	1987 ^(a)	1.8	8	1967	0	1993 ^(a)	0.2	2	1967	0	2002 ^(a)
Nov	9.3	20	1956 ^(a)	2	1977 ^(a)	8.3	16	1990	0	1979	2.3	8	1990	0	2002 ^(a)	0.6	4	1998 ^(a)	0	2002 ^(a)
Dec	11.2	23	1985	3	1968	7.5	15	1968	0	1985	2.6	8	1957 ^(a)	0	1989 ^(a)	0.8	5	2001	0	2000 ^(a)
Annual	49.5	87	1952	28	1973	156.3	192	1999	123	1952	26.8	57	1990	10	1978	5.0	18	1990	0	1985

(a) Most recent of multiple occurrences.

Table 5.3. Frequency (%) of Monthly and Annual Wind Direction and Speed at 50-Foot Level, 1955 through 2002

<u>Direction</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Total</u>
N	4.2	4.8	4.6	4.1	3.7	3.6	4.6	4.7	5.5	5.0	4.3	4.3	4.5
NNE	3.6	4.5	4.4	3.7	3.4	3.2	4.1	3.9	5.4	4.1	3.5	3.3	3.9
NE	3.0	3.7	3.4	3.5	3.3	3.1	3.5	3.5	4.2	3.6	3.0	2.9	3.4
ENE	2.3	2.1	2.1	2.4	2.4	2.2	2.5	2.5	2.4	2.7	2.5	2.5	2.4
E	2.6	2.2	2.2	2.5	2.5	2.5	2.9	3.2	3.1	3.0	2.7	2.7	2.7
ESE	2.8	2.6	2.7	2.6	2.7	2.7	2.9	3.3	3.3	3.7	3.3	3.2	3.0
SE	4.0	3.6	3.8	2.9	3.1	2.9	2.9	3.4	3.8	4.9	4.4	4.5	3.7
SSE	3.4	3.3	3.4	3.0	3.0	2.8	2.5	2.8	3.3	4.0	4.0	3.8	3.3
S	3.3	3.3	3.5	3.1	2.7	2.7	2.5	2.6	2.7	3.6	4.1	3.7	3.1
SSW	4.8	4.5	5.0	4.3	3.6	3.5	2.8	3.0	3.4	4.2	5.2	4.7	4.1
SW	6.6	7.7	9.1	8.8	6.9	6.5	5.6	6.0	5.8	6.8	7.8	6.8	7.0
WSW	6.8	7.4	10.4	11.9	10.5	9.6	8.2	8.8	9.2	8.7	8.0	7.3	8.9
W	6.7	8.2	9.7	11.5	11.5	10.9	9.7	10.7	11.2	10.4	8.4	7.2	9.7
WNW	15.3	15.0	14.6	16.3	18.3	19.1	19.5	18.0	15.3	13.4	12.7	13.7	15.9
NW	19.1	18.1	14.5	14.2	17.5	19.5	20.1	17.7	14.7	13.5	15.6	17.9	16.9
NNW	7.4	6.9	5.8	4.6	4.3	4.8	5.4	5.4	5.9	6.4	6.9	7.0	5.9
Calm	3.9	2.2	0.7	0.4	0.4	0.4	0.3	0.4	0.9	2.0	3.5	4.4	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<u>Speed, mph</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Total</u>
Calm	3.9	2.2	0.8	0.4	0.5	0.4	0.3	0.4	0.9	2.0	3.5	4.4	1.6
1-3	30.4	24.3	16.8	13.0	11.6	9.6	10.7	13.4	18.1	26.1	29.7	33.4	19.8
4-7	34.9	35.9	36.6	35.1	35.2	35.8	39.2	42.1	41.6	39.2	36.0	33.9	37.1
8-12	20.3	24.4	27.6	28.8	30.4	30.3	29.3	27.7	25.9	21.7	20.0	18.2	25.4
13-18	6.8	8.5	12.1	15.5	15.8	16.6	14.3	11.8	9.8	7.7	7.0	6.3	11.0
19-24	2.5	3.2	4.4	5.6	5.5	6.2	5.4	4.0	3.2	2.6	2.7	2.6	4.0
25-31	1.0	1.2	1.4	1.4	1.0	1.1	0.9	0.6	0.5	0.6	0.9	1.0	1.0
32-38	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

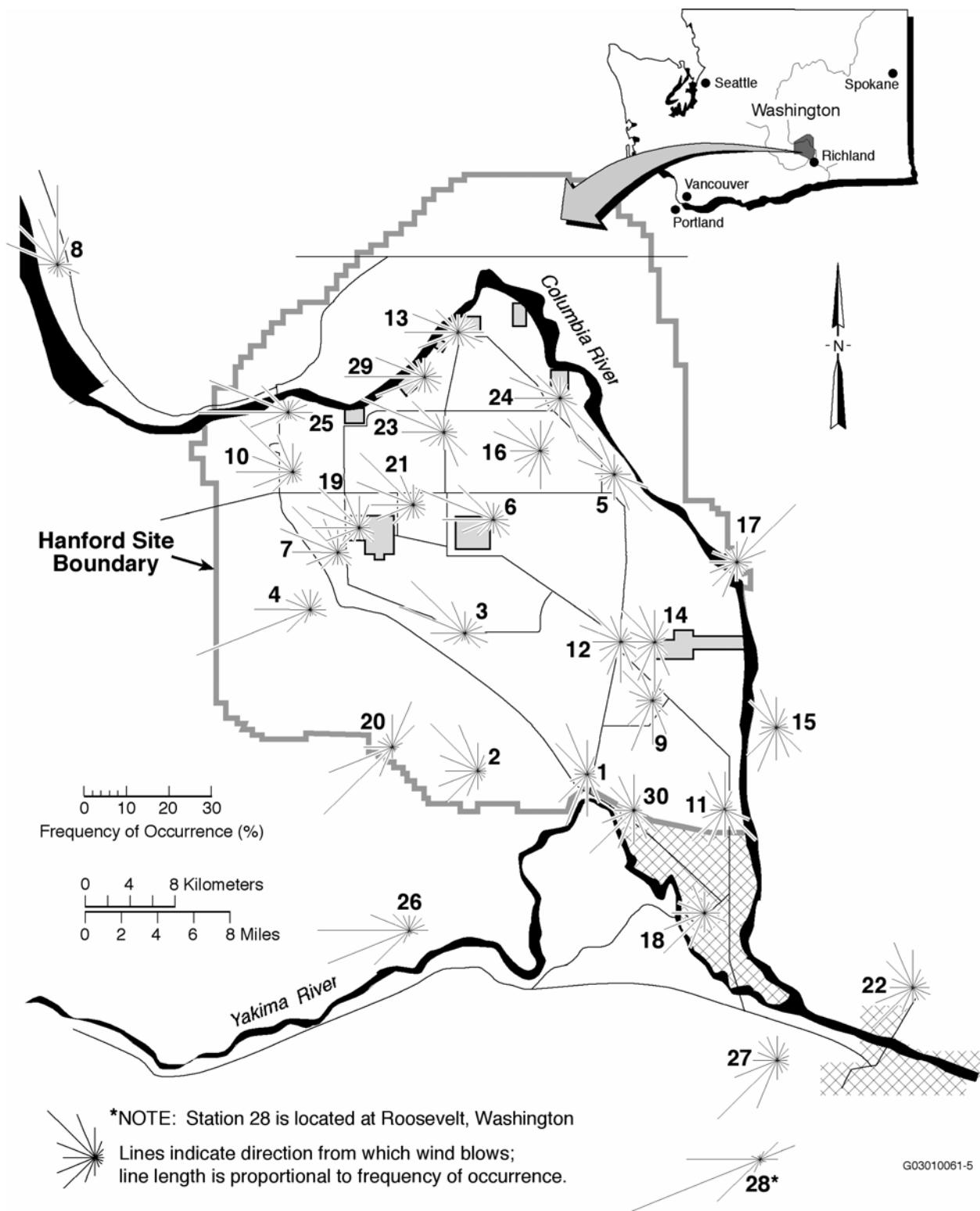


Figure 5.1. Hanford Meteorological Monitoring Network Wind Roses at 30 Feet, 1982 through 2002 (Refer to Table 1.1 for the names of the numbered locations on this map.)

Table 5.4. Joint Frequency Distributions (%) for Hanford Meteorological Monitoring Network Wind Stations at 30 Feet, 1982 through 2002

Station: (1) PROS																	Total Hours:	179420		
SPEED	DIRECTION																Begin:	1/1982	End:	12/2002
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1		
1-3	2.1	1.5	1.2	0.9	1.0	1.2	1.7	2.2	2.4	2.1	1.7	1.2	1.1	1.4	2.1	2.6	0.0	26.4		
4-7	3.2	1.8	1.0	0.7	0.8	1.1	2.2	4.1	4.6	3.6	2.0	0.8	0.7	1.0	3.0	4.9	0.0	35.5		
8-12	1.9	0.9	0.3	0.1	0.1	0.2	0.5	1.1	2.5	4.4	2.4	0.8	0.5	0.6	2.7	3.9	0.0	23.0		
13-18	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.4	2.5	2.0	0.9	0.4	0.2	1.7	1.2	0.0	10.5		
19-24	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.4	0.2	0.0	0.5	0.2	0.0	2.6		
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.7		
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL	7.9	4.5	2.7	1.7	1.9	2.5	4.4	7.5	10.0	13.1	9.2	4.3	3.0	3.2	10.1	12.8	1.1	100.0		

Station: (2) EOC																	Total Hours:	180032		
SPEED	DIRECTION																Begin:	1/1982	End:	12/2002
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0		
1-3	1.3	1.1	1.1	1.0	0.9	0.8	0.8	0.9	1.2	1.2	1.3	1.2	1.6	1.8	1.8	1.4	0.0	19.5		
4-7	2.7	1.9	1.2	0.9	1.0	1.1	1.1	1.2	1.9	2.0	1.4	1.2	2.0	3.6	4.1	3.2	0.0	30.7		
8-12	1.8	0.6	0.2	0.1	0.0	0.1	0.3	0.4	1.1	2.2	2.6	1.9	1.4	3.2	5.9	3.9	0.0	25.7		
13-18	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.7	2.2	2.3	1.4	0.7	3.3	2.4	0.0	13.9		
19-24	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5	2.0	0.8	0.2	0.6	0.4	0.0	6.0		
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.3	0.1	0.0	0.0	0.0	2.6		
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.6		
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1		
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL	6.5	3.8	2.6	1.9	2.0	2.0	2.2	2.5	4.4	6.3	10.5	9.8	7.7	9.5	15.7	11.4	1.0	100.0		

Station: (3) ARMY																	Total Hours:	179847		
SPEED	DIRECTION																Begin:	1/1982	End:	12/2002
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0		
1-3	1.9	1.7	2.0	2.3	2.5	2.3	1.8	1.1	0.9	0.8	0.9	1.2	2.1	3.2	3.2	2.4	0.0	30.3		
4-7	2.0	1.4	1.5	1.8	2.5	2.8	2.1	0.9	0.6	0.4	0.6	0.9	2.4	7.2	7.6	3.4	0.0	38.2		
8-12	0.9	0.5	0.3	0.2	0.4	0.7	0.9	0.6	0.4	0.4	0.6	1.1	1.9	4.8	4.1	1.5	0.0	19.3		
13-18	0.2	0.2	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.6	1.1	1.0	1.1	1.6	0.4	0.0	0.0	7.3		
19-24	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.6	0.3	0.2	0.7	0.1	0.0	2.8		
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.9		
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2		
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL	5.0	3.8	3.8	4.3	5.5	6.0	5.1	2.8	2.0	2.2	3.7	5.2	7.9	16.5	17.3	7.8	1.0	100.0		

Station: (4) RSPG																	Total Hours:	179295		
SPEED	DIRECTION																Begin:	1/1982	End:	12/2002
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calm	TOTAL		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1		
1-3	1.6	1.8	1.9	1.6	1.8	1.7	1.1	0.8	0.8	1.0	1.8	2.6	1.9	1.2	1.1	1.3	0.0	24.1		
4-7	2.6	2.1	1.5	1.1	1.8	2.1	0.9	0.4	0.4	0.7	2.4	9.8	4.5	1.8	1.8	2.2	0.0	35.9		
8-12	0.6	0.4	0.2	0.1	0.1	0.3	0.1	0.1	0.2	0.7	1.6	13.9	5.1	2.3	1.6	1.2	0.0	28.5		
13-18	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.0	2.1	1.8	0.9	0.8	0.5	0.0	8.0		
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.4	0.2	0.1	0.1	0.0	0.0	1.8		
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.5		
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
TOTAL	4.9	4.5	3.7	2.8	3.7	4.1	2.1	1.3	1.6	3.4	7.6	29.0	13.5	6.2	5.4	5.2	1.1	100.0		

Table 5.4. (contd)**Station: (5) EDNA**

SPEED	DIRECTION															Total Hours:	180524	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2
1-3	1.2	0.8	0.7	0.8	1.2	2.0	3.5	3.9	3.1	1.9	1.4	1.3	1.7	2.8	3.2	2.1	0.0	31.7
4-7	2.2	1.1	0.9	1.0	2.0	4.5	7.2	3.8	1.7	0.8	0.7	0.7	1.0	2.5	6.0	4.8	0.0	40.9
8-12	1.2	0.6	0.4	0.2	0.7	1.7	1.4	1.1	0.9	0.6	0.7	0.9	1.1	1.7	2.3	1.9	0.0	17.3
13-18	0.2	0.2	0.2	0.1	0.0	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.6	1.4	1.1	0.2	0.0	6.5
19-24	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.5	0.3	0.0	0.0	1.9
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.4
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	4.9	2.7	2.2	2.1	3.9	8.4	12.3	9.1	6.1	3.9	3.5	3.9	4.7	9.0	12.9	9.2	1.2	100.0

Station: (6) 200E

SPEED	DIRECTION															Total Hours:	180040	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1
1-3	1.5	1.3	1.5	1.5	1.7	1.7	1.6	1.3	1.1	1.0	1.0	1.1	1.4	1.8	1.9	1.6	0.0	23.0
4-7	1.6	1.3	1.0	1.0	1.5	2.1	3.0	2.3	1.5	1.1	1.5	2.4	4.3	6.1	4.4	2.1	0.0	37.3
8-12	0.7	0.7	0.3	0.1	0.2	0.4	0.9	1.1	0.7	0.5	1.0	2.2	4.5	7.5	2.7	0.7	0.0	24.2
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.8	1.2	1.4	3.5	1.4	0.1	0.0	10.0
19-24	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.6	0.3	1.0	0.7	0.0	0.0	3.5
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.2	0.0	0.0	0.8
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	3.9	3.6	3.0	2.7	3.5	4.3	5.6	5.0	3.5	3.2	5.1	7.7	11.9	20.1	11.3	4.5	1.1	100.0

Station: (7) 200W

SPEED	DIRECTION															Total Hours:	165904	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6
1-3	2.2	1.8	1.5	1.4	1.6	1.8	2.1	2.0	1.8	1.6	2.0	2.5	3.4	4.3	3.6	2.6	0.0	36.1
4-7	2.9	1.6	1.0	0.8	1.0	1.5	1.8	1.1	0.7	0.8	1.2	1.8	3.8	6.7	5.2	3.4	0.0	35.2
8-12	0.7	0.5	0.2	0.1	0.1	0.3	0.4	0.2	0.2	0.6	1.0	1.7	2.5	3.0	3.4	1.9	0.0	16.8
13-18	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	1.4	0.8	0.8	2.1	0.5	0.0	7.4
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5	0.5	0.2	0.1	0.9	0.1	0.0	2.4
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.5
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	6.0	4.1	2.9	2.2	2.7	3.6	4.3	3.3	2.9	3.5	5.7	8.0	10.7	14.9	15.2	8.4	1.6	100.0

Station: (8) BVLY

SPEED	DIRECTION															Total Hours:	99294	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
1-3	2.8	2.2	1.7	1.4	1.7	1.8	1.9	1.8	1.6	1.2	1.1	1.1	1.3	1.6	2.1	2.5	0.0	27.7
4-7	8.4	2.8	0.6	0.4	1.4	3.1	1.7	1.1	1.0	0.8	0.7	0.8	1.4	2.6	4.8	6.9	0.0	38.6
8-12	6.7	1.7	0.1	0.0	0.3	0.7	0.3	0.3	0.2	0.3	0.4	0.4	1.2	3.7	3.2	2.0	0.0	21.5
13-18	0.5	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.5	0.3	0.5	0.5	3.4	2.1	0.1	0.0	8.1
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	1.3	0.7	0.0	0.0	2.5
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.6
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	18.3	6.9	2.4	1.9	3.4	5.7	4.0	3.3	3.1	2.6	3.0	2.6	4.5	13.0	13.0	11.5	1.0	100.0

Table 5.4. (contd)**STATION: (9) FFTF**

Begin: 1/1982 End: 12/2002 Total Hours: 179550

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
1-3	1.2	1.1	0.9	0.8	0.8	1.0	1.1	1.1	1.2	1.2	1.1	1.0	1.0	1.1	1.3	1.2	0.0	17.0
4-7	2.8	2.6	1.9	1.1	1.1	1.4	2.7	3.8	4.2	3.6	2.0	1.3	1.4	2.0	3.5	3.3	0.0	38.8
8-12	1.4	1.3	0.7	0.2	0.2	0.3	1.2	3.2	3.9	4.4	1.7	0.8	0.9	1.8	3.9	2.7	0.0	28.5
13-18	0.3	0.3	0.2	0.0	0.0	0.0	0.1	0.3	0.9	3.0	1.8	0.7	0.5	0.8	1.7	0.5	0.0	11.1
19-24	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.8	0.4	0.2	0.2	0.5	0.1	0.0	0.0	3.0
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.8
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	5.7	5.5	3.7	2.2	2.2	2.6	5.0	8.4	10.3	12.9	8.0	4.3	4.0	6.0	11.0	7.8	0.5	100.0

STATION: (10) YAKB

Begin: 1/1982 End: 12/2002 Total Hours: 180346

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
1-3	1.7	1.6	1.4	1.1	0.9	1.0	1.1	1.3	1.2	1.2	1.4	1.9	2.5	2.0	1.7	1.6	0.0	23.5
4-7	3.7	2.9	1.6	0.9	0.8	1.0	1.5	1.2	0.9	0.9	1.6	3.5	7.0	4.4	3.7	3.5	0.0	39.1
8-12	1.3	0.5	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.5	1.5	2.6	3.2	2.5	5.6	3.1	0.0	22.2
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.1	1.4	0.6	0.9	4.0	0.9	0.0	10.0
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.4	0.1	0.3	1.9	0.1	0.0	3.7
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.4	0.0	0.0	0.8
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	6.8	5.1	3.3	2.1	1.8	2.2	2.9	2.8	2.6	3.2	6.4	9.9	13.5	10.1	17.3	9.4	0.6	100.0

STATION: (11) 300A

Begin: 1/1982 End: 12/2002 Total Hours: 167056

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
1-3	1.2	0.7	0.6	0.6	0.8	1.2	1.7	1.8	1.7	1.4	1.3	1.2	1.2	1.4	1.8	1.7	0.0	20.3
4-7	3.5	1.6	1.0	1.2	1.8	4.4	6.8	3.7	3.1	2.5	1.9	1.2	0.9	1.0	2.1	4.0	0.0	40.7
8-12	3.5	1.9	0.8	0.3	0.4	1.3	1.7	0.9	1.6	3.2	3.3	1.6	0.6	0.4	1.1	2.6	0.0	25.1
13-18	0.6	0.5	0.1	0.1	0.0	0.0	0.1	0.1	0.4	1.5	2.4	1.3	0.4	0.2	0.9	0.9	0.0	9.5
19-24	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	0.4	0.2	0.0	0.3	0.2	0.0	2.8
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.1	0.0	0.1	0.0	0.0	0.8
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	8.8	4.8	2.6	2.1	3.0	6.9	10.3	6.5	6.8	9.2	10.4	5.9	3.4	3.0	6.3	9.4	0.6	100.0

STATION: (12) WYEB

Begin: 1/1982 End: 12/2002 Total Hours: 179665

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
1-3	1.3	1.1	1.2	1.2	1.4	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.4	1.3	0.0	20.9	
4-7	2.5	1.6	1.3	1.4	2.1	2.1	2.8	3.6	3.9	2.8	2.3	2.1	2.5	3.1	3.8	3.0	0.0	40.8
8-12	1.2	0.6	0.3	0.2	0.3	0.3	0.9	1.9	2.8	2.3	1.5	1.3	2.1	4.0	3.2	1.5	0.0	24.6
13-18	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.3	1.0	1.5	1.0	0.7	0.9	1.5	1.4	0.3	0.0	9.4
19-24	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.6	0.4	0.2	0.4	0.6	0.1	0.0	3.0
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.8
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	5.3	3.6	3.0	2.8	3.8	4.0	5.2	7.2	9.3	8.6	7.0	5.8	6.9	10.3	10.6	6.3	0.4	100.0

Table 5.4. (contd)**Station: (13) 100N**

Begin: 1/1982 End: 12/2002 Total Hours: 179844

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
1-3	2.1	1.8	2.0	2.3	3.1	3.1	2.5	1.8	1.7	1.7	2.2	2.7	3.2	3.3	3.1	2.5	0.0	39.0
4-7	1.5	1.6	1.6	2.0	2.7	2.6	2.2	1.3	0.9	1.0	2.2	4.4	4.8	3.2	2.1	1.6	0.0	35.7
8-12	0.4	0.8	0.6	0.2	0.2	0.4	0.8	0.5	0.3	0.5	1.2	2.1	3.2	2.3	0.7	0.4	0.0	14.5
13-18	0.2	0.4	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.3	0.8	0.6	1.2	2.0	0.7	0.1	0.0	7.0
19-24	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.7	0.4	0.0	0.0	2.3
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.6
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	4.2	4.7	4.6	4.6	6.1	5.7	3.7	3.1	3.6	6.7	9.9	12.8	11.6	7.1	4.5	0.9	100.0	

Station: (14) WPPS

Begin: 1/1982 End: 12/2002 Total Hours: 180370

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9
1-3	2.5	2.1	1.8	1.3	1.1	1.1	1.4	1.8	2.1	1.9	1.7	1.4	1.6	1.8	2.6	2.8	0.0	28.8
4-7	3.4	2.4	2.1	1.2	0.7	0.9	1.9	4.3	5.3	3.0	1.7	1.2	1.3	1.9	3.8	4.5	0.0	39.3
8-12	1.2	0.7	0.5	0.2	0.1	0.2	0.8	2.0	3.4	2.6	1.4	0.8	0.9	1.7	2.4	1.5	0.0	20.4
13-18	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.7	1.6	1.2	0.5	0.5	0.8	1.3	0.3	0.0	7.8
19-24	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.6	0.2	0.1	0.1	0.5	0.0	0.0	2.2
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.5
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	7.5	5.5	4.6	2.6	1.9	2.2	4.1	8.3	11.5	9.6	6.7	4.2	4.4	6.2	10.8	9.1	0.9	100.0

Station: (15) FRNK

Begin: 1/1982 End: 12/2002 Total Hours: 179945

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
1-3	1.2	1.0	1.0	0.8	0.9	1.1	1.4	1.4	1.2	1.1	1.1	1.1	1.3	1.4	1.6	1.4	0.0	19.1
4-7	4.1	2.7	1.7	1.2	1.5	2.4	4.9	4.3	3.5	3.0	2.4	1.3	1.4	2.1	4.7	5.4	0.0	46.6
8-12	1.6	0.9	0.5	0.3	0.3	0.7	1.7	1.6	2.5	4.8	3.4	1.0	0.5	0.6	2.1	2.5	0.0	25.0
13-18	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.4	1.9	1.9	0.6	0.2	0.2	0.5	0.2	0.0	6.9
19-24	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.2	0.1	0.0	0.1	0.0	0.0	1.3
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	7.0	4.9	3.4	2.4	2.7	4.2	8.2	7.5	7.8	11.2	9.6	4.2	3.5	4.2	8.9	9.5	0.8	100.0

Station: (16) GABL

Begin: 1/1982 End: 12/2002 Total Hours: 179440

SPEED	DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
1-3	1.0	0.9	0.9	0.7	0.6	0.6	0.7	0.8	1.0	1.0	0.9	0.8	0.8	0.7	0.8	0.9	0.0	12.9
4-7	2.3	2.3	1.6	0.9	0.9	1.3	2.1	3.2	2.4	1.8	1.5	1.5	1.7	2.2	2.1	0.0	28.6	
8-12	2.0	2.2	1.0	0.3	0.4	0.5	0.9	1.8	2.4	1.5	1.5	1.6	1.7	2.2	2.9	1.8	0.0	24.8
13-18	1.3	1.4	0.5	0.1	0.1	0.3	1.0	1.4	0.9	1.3	1.4	1.8	2.9	2.5	0.8	0.0	17.7	
19-24	0.4	0.5	0.3	0.0	0.0	0.0	0.3	0.6	0.5	0.9	0.9	0.9	2.7	1.7	0.2	0.0	9.8	
25-31	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.4	0.2	1.3	0.5	0.0	0.0	4.0	
32-38	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.0	0.2	0.0	0.0	0.0	1.0	
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	7.0	7.5	4.5	2.0	2.1	3.2	6.1	9.0	6.8	7.3	6.7	7.0	11.7	10.6	5.8	0.8	100.0	

Table 5.4. (contd)**Station: (17) RING**

SPEED	DIRECTION															Total Hours:	179539	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1
1-3	2.2	3.5	7.3	3.5	2.2	1.7	1.5	1.3	1.5	1.6	2.0	2.4	2.1	1.5	1.4	1.7	0.0	37.3
4-7	1.8	2.1	10.8	3.2	1.2	0.9	1.2	1.4	1.9	2.8	2.5	2.7	2.2	1.3	1.2	1.2	0.0	38.3
8-12	0.8	0.6	0.8	0.4	0.1	0.1	0.3	0.5	1.2	3.3	2.0	1.1	1.5	1.8	0.9	0.4	0.0	15.9
13-18	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.2	1.0	1.0	0.5	0.6	1.4	0.4	0.1	0.0	5.8
19-24	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.1	0.4	0.0	0.0	0.0	0.0	1.3
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	4.9	6.5	19.2	7.2	3.4	2.8	3.0	3.3	4.8	8.8	7.9	6.9	6.5	6.4	4.0	3.3	1.1	100.0

Station: (18) RICH

SPEED	DIRECTION															Total Hours:	180614	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1
1-3	1.3	0.9	0.9	1.1	1.6	2.6	3.1	2.5	2.2	2.1	2.3	2.5	2.6	2.7	2.5	1.9	0.0	32.6
4-7	2.0	1.0	0.9	1.0	1.8	2.8	3.1	1.7	1.7	2.9	4.1	3.2	2.4	2.8	3.0	2.6	0.0	36.8
8-12	1.3	0.7	0.4	0.3	0.2	0.2	0.3	0.2	0.6	2.6	3.9	2.8	1.5	0.9	1.4	1.5	0.0	18.6
13-18	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.2	2.3	1.3	0.9	0.3	0.8	0.7	0.0	8.4
19-24	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.3	0.2	0.1	0.2	0.2	0.0	2.1
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.4
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	5.0	2.7	2.3	2.3	3.6	5.6	6.5	4.5	4.6	9.0	13.5	10.1	7.6	6.7	8.0	6.9	1.1	100.0

Station: (19) PFP

SPEED	DIRECTION															Total Hours:	77741	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2
1-3	3.4	3.2	2.1	1.3	1.5	1.8	2.3	1.9	1.8	1.8	2.3	3.2	5.0	3.7	3.2	0.0	43.5	
4-7	3.5	2.1	0.9	0.6	0.8	1.5	1.9	0.8	0.6	0.7	1.3	1.9	4.1	6.4	5.1	3.7	0.0	36.0
8-12	0.4	0.5	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.6	1.3	1.9	1.4	1.5	3.2	1.2	0.0	13.5
13-18	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.8	1.0	0.4	0.2	1.2	0.2	0.0	4.3
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.5
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	7.3	5.8	3.3	2.1	2.4	3.5	4.5	2.9	2.8	3.4	5.9	8.2	11.0	13.2	13.3	8.3	2.2	100.0

Station: (20) RMTN

SPEED	DIRECTION															Total Hours:	178042	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
1-3	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.6	0.7	0.5	0.4	0.4	0.4	0.4	0.0	7.0
4-7	1.4	1.4	1.4	0.9	0.7	0.5	0.5	0.8	1.4	2.0	1.4	1.0	0.7	0.7	0.9	0.0	15.9	
8-12	2.2	2.5	1.8	0.8	0.4	0.2	0.2	0.3	0.7	1.8	3.5	2.3	1.4	0.9	0.8	1.1	0.0	20.8
13-18	2.0	2.8	1.3	0.3	0.1	0.0	0.1	0.1	0.4	1.5	4.6	3.0	1.6	0.9	0.7	0.9	0.0	20.4
19-24	1.0	2.0	0.8	0.1	0.0	0.0	0.0	0.0	0.1	0.8	3.5	2.8	1.2	0.5	0.3	0.3	0.0	13.6
25-31	0.4	1.4	0.6	0.1	0.0	0.0	0.0	0.0	0.1	0.6	3.1	2.6	0.8	0.2	0.1	0.1	0.0	9.9
32-38	0.1	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.4	1.8	0.3	0.0	0.0	0.0	0.0	6.0
39-46	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6	1.0	0.1	0.0	0.0	0.0	0.0	3.5
> 46	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	2.2
TOTAL	7.6	11.6	7.2	2.7	1.5	1.1	1.3	2.6	7.4	22.5	15.9	6.8	3.6	3.0	3.5	0.6	100.0	

Table 5.4. (contd)**STATION: (21) HMS**

Begin: 1/1982 End: 12/2002 Total Hours: 182731

SPEED	DIRECTION																CALM	TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1
1-3	2.0	1.7	1.7	1.4	1.4	1.5	1.7	1.3	1.2	1.2	1.4	1.4	1.7	1.9	2.1	2.1	0.0	25.7
4-7	2.2	1.4	1.1	1.0	1.2	1.4	1.7	1.6	1.4	1.5	2.3	3.7	5.0	6.2	6.7	3.8	0.0	42.2
8-12	0.5	0.5	0.3	0.1	0.2	0.1	0.2	0.4	0.4	0.6	1.3	2.4	2.5	4.5	5.3	1.1	0.0	20.3
13-18	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.4	1.1	1.1	0.6	1.5	2.5	0.3	0.0	8.2
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.3	0.1	0.2	0.7	0.0	0.0	0.0	2.2
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.3
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	4.8	3.9	3.2	2.5	2.8	3.0	3.6	3.4	3.2	4.0	6.6	9.0	9.9	14.2	17.4	7.3	1.1	100.0

STATION: (22) PASC

Begin: 10/1987 End: 12/2002 Total Hours: 128461

SPEED	DIRECTION																CALM	TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
1-3	4.6	2.8	2.4	2.4	2.5	2.2	1.9	1.4	1.3	1.2	1.1	1.2	1.5	2.1	3.4	5.1	0.0	37.1
4-7	2.8	1.3	0.7	0.9	1.3	1.9	1.9	1.4	1.7	2.6	3.2	2.1	2.1	2.3	3.5	4.3	0.0	33.9
8-12	1.0	0.4	0.2	0.1	0.1	0.2	0.3	0.3	0.5	2.0	4.6	2.3	1.0	0.7	1.3	1.6	0.0	16.4
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	3.0	2.0	0.6	0.2	0.4	0.4	0.0	7.7
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.0	0.2	0.1	0.1	0.0	0.0	0.0	2.6
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	1.0
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	8.6	4.6	3.4	3.4	4.4	4.1	3.2	3.5	6.4	13.4	9.3	5.5	5.3	8.6	11.4	1.1	100.0	

STATION: (23) GABW

Begin: 3/1986 End: 12/2002 Total Hours: 144626

SPEED	DIRECTION																CALM	TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3
1-3	1.5	1.3	1.2	1.3	1.5	1.7	2.3	2.5	2.1	1.6	1.6	1.7	2.6	3.6	3.1	2.0	0.0	31.6
4-7	1.5	1.1	0.9	1.0	1.4	1.3	4.0	5.0	1.6	0.9	1.0	1.5	3.1	7.3	3.9	1.9	0.0	37.3
8-12	0.5	0.5	0.3	0.2	0.2	0.3	1.2	1.0	0.3	0.5	1.0	1.5	2.9	5.3	1.7	0.6	0.0	18.1
13-18	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.2	0.3	0.7	0.9	1.0	3.5	1.1	0.1	0.0	0.0	8.6
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.3	0.2	1.1	0.3	0.0	0.0	0.0	2.6
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.4
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	3.8	3.1	2.6	2.5	3.1	3.3	7.7	8.6	4.2	3.4	4.8	6.0	9.8	21.0	10.3	4.7	1.3	100.0

STATION: (24) 100F

Begin: 3/1986 End: 12/2002 Total Hours: 144759

SPEED	DIRECTION																CALM	TOTAL
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6
1-3	1.8	1.4	1.2	1.1	1.4	1.8	2.7	2.8	2.2	1.8	1.8	2.3	3.6	4.1	3.5	2.4	0.0	36.0
4-7	2.0	1.4	1.1	1.1	1.2	1.7	5.3	5.7	1.6	0.9	1.0	1.6	3.4	3.7	2.6	1.9	0.0	36.0
8-12	1.0	0.7	0.3	0.3	0.2	0.6	2.5	2.5	0.6	0.5	0.8	1.2	2.5	2.6	0.6	0.5	0.0	17.3
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.6	0.8	1.0	1.8	0.5	0.1	0.0	0.0	6.6
19-24	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.2	0.6	0.2	0.0	0.0	2.0
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.4
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	5.0	3.7	2.7	2.6	2.9	4.2	10.8	11.3	4.8	3.6	4.5	6.3	10.7	12.9	7.4	5.0	1.6	100.0

Table 5.4. (contd)**Station: (25) VERN**

Begin: 2/1988 End: 12/2002 Total Hours: 128873

SPEED	DIRECTION																	TOTAL
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
1-3	1.1	1.2	1.3	1.6	2.1	2.0	1.7	1.2	0.9	0.8	1.2	2.3	2.7	1.7	1.2	1.0	0.0	23.8
4-7	0.8	1.4	2.1	2.8	3.4	2.1	1.0	0.5	0.4	0.4	0.6	4.0	7.7	4.1	2.0	1.0	0.0	34.3
8-12	0.5	0.4	0.4	0.5	0.4	0.2	0.1	0.1	0.2	0.4	0.7	2.0	7.8	7.3	2.6	0.7	0.0	24.2
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.7	0.7	2.5	5.3	2.2	0.2	0.0	12.5
19-24	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.4	1.4	0.7	0.0	0.0	3.5
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.6
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	2.7	3.1	4.0	4.9	5.9	4.3	2.9	1.8	1.6	2.1	3.7	9.2	21.1	20.0	8.7	2.9	1.0	100.0

Station: (26) BENT

Begin: 2/1995 End: 12/2002 Total Hours: 68802

SPEED	DIRECTION																	TOTAL
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
1-3	1.1	1.0	0.9	0.8	0.8	0.7	0.5	0.4	0.5	0.7	1.2	1.8	2.4	2.0	1.5	1.1	0.0	17.4
4-7	1.4	1.1	1.6	2.0	2.3	1.2	0.4	0.3	0.5	1.2	5.1	11.9	13.6	5.5	2.8	2.0	0.0	52.9
8-12	0.5	0.7	1.0	0.9	1.0	0.3	0.0	0.0	0.2	0.7	3.1	6.1	4.9	2.0	1.1	0.4	0.0	23.1
13-18	0.3	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.4	1.0	0.5	0.2	0.1	0.1	0.0	4.9
19-24	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.1	0.0	0.0	0.0	0.0	1.1
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	3.4	3.6	3.9	3.8	4.2	2.2	0.9	0.7	1.3	3.1	11.4	20.9	21.6	9.6	5.4	3.7	0.3	100.0

Station: (27) VSTA

Begin: 2/1991 End: 12/2002 Total Hours: 102833

SPEED	DIRECTION																	TOTAL
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
1-3	2.2	2.2	2.0	1.6	1.6	1.8	2.0	1.8	2.0	2.4	2.7	2.5	2.2	1.8	1.8	1.7	0.0	32.4
4-7	3.0	2.0	1.6	1.2	0.8	1.1	1.2	1.2	1.9	4.2	5.8	4.0	2.5	2.5	3.1	3.0	0.0	39.2
8-12	0.6	0.2	0.1	0.0	0.0	0.1	0.1	0.2	0.6	3.9	6.0	2.7	0.8	0.4	1.0	1.2	0.0	18.0
13-18	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6	4.0	1.1	0.4	0.2	0.1	0.1	0.0	7.8
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1	0.3	0.1	0.0	0.0	0.0	0.0	1.7
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	5.8	4.5	3.7	2.9	2.4	3.0	3.3	3.2	4.8	12.3	19.8	10.7	5.9	4.9	6.1	6.0	0.8	100.0

Station: (28) SURF

Begin: 9/1994 End: 12/2002 Total Hours: 72628

SPEED	DIRECTION																	TOTAL
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7
1-3	0.4	0.6	1.1	1.2	1.2	0.8	0.7	0.7	1.1	2.1	3.4	3.7	1.8	0.7	0.4	0.3	0.0	20.2
4-7	0.2	0.4	2.4	3.8	2.0	0.6	0.3	0.2	0.5	1.1	3.9	6.0	1.6	0.2	0.1	0.1	0.0	23.5
8-12	0.2	0.6	1.9	3.0	0.7	0.0	0.0	0.0	0.0	0.1	4.2	9.9	3.6	0.3	0.0	0.0	0.0	24.8
13-18	0.2	0.3	0.2	0.5	0.2	0.0	0.0	0.0	0.0	0.2	2.1	9.1	6.0	0.6	0.0	0.0	0.0	19.2
19-24	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.5	3.2	0.3	0.0	0.0	0.0	0.0	8.6
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	1.1	0.1	0.0	0.0	0.0	0.0	2.7
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.9	2.1	5.7	8.7	4.1	1.5	1.0	0.9	1.6	3.3	14.1	34.7	17.3	2.2	0.6	0.5	0.7	100.0

Table 5.4. (contd)**Station: (29) 100K**

Begin: 3/1996 End: 12/2002 Total Hours: 59365

SPEED	DIRECTION																TOTAL	
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6
1-3	2.1	1.7	1.6	1.9	2.2	2.1	2.0	1.7	1.7	2.1	3.2	4.2	3.0	2.6	2.1	0.0	35.9	
4-7	1.6	1.3	0.9	1.0	1.5	1.6	1.7	1.6	1.1	0.9	1.6	4.8	6.7	3.5	2.1	1.7	0.0	33.5
8-12	0.5	0.6	0.3	0.1	0.3	0.4	0.7	0.7	0.5	0.6	1.0	3.1	5.7	2.5	0.8	0.4	0.0	18.1
13-18	0.2	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.8	0.9	2.0	2.2	0.7	0.1	0.0	8.0
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.3	0.9	0.2	0.0	0.0	0.0	2.4
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	4.4	3.8	3.0	3.0	4.0	4.2	4.5	4.1	3.5	3.7	6.0	12.2	18.9	12.3	6.4	4.3	1.6	100.0

Station: (30) HAMR

Begin: 1/1998 End: 12/2002 Total Hours: 43717

SPEED	DIRECTION																TOTAL	
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
1-3	1.1	0.8	0.8	0.6	0.8	1.1	1.9	2.2	2.1	1.6	1.4	1.1	1.2	1.3	1.4	1.2	0.0	20.7
4-7	4.0	1.8	0.8	0.7	1.0	2.1	4.8	4.5	4.1	3.8	4.0	2.2	1.6	1.8	2.8	3.7	0.0	43.9
8-12	2.6	1.0	0.3	0.1	0.3	0.3	0.4	0.5	1.2	2.9	5.9	2.7	0.7	0.6	1.6	2.4	0.0	23.5
13-18	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.0	2.3	1.3	0.4	0.2	1.3	1.0	0.0	8.8
19-24	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.3	0.2	0.0	0.3	0.1	0.0	2.0
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.5
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
> 46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	8.4	3.9	2.0	1.5	2.0	3.5	7.2	7.2	7.7	9.6	14.4	7.8	4.3	4.0	7.5	8.5	0.6	100.0

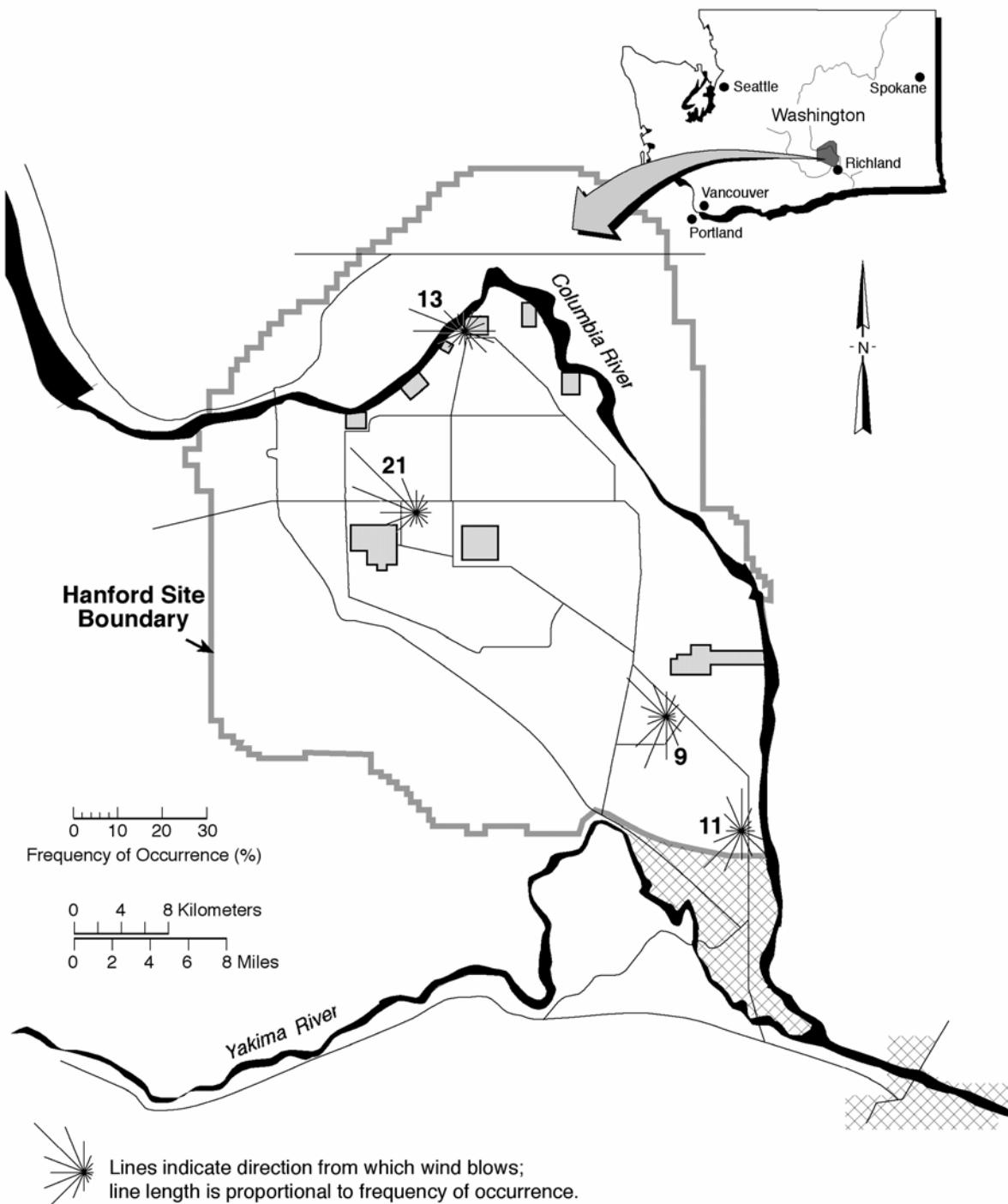


Figure 5.2. Hanford Meteorological Monitoring Network Wind Roses at 60-Meter Level, 1986 through 2002 (Refer to Table 1.1 for the names of the numbered locations on this map.)

Table 5.5. Joint Frequency Distributions (%) for Hanford Meteorological Monitoring Network Wind Stations at 60-Meter Level, 1986 through 2002

Tower: 100 Area																			
SPEED	DIRECTION																	Total Hours:	143212
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	
1-3	1.7	1.6	1.8	2.2	3.1	3.0	2.4	1.7	1.4	1.2	1.3	1.5	1.9	2.0	1.9	1.7	0.0	30.4	
4-7	1.7	1.9	1.6	1.8	3.1	3.2	2.6	1.5	0.9	0.8	1.3	2.0	3.0	3.1	2.2	1.4	0.0	32.0	
8-12	0.7	1.0	0.8	0.4	0.5	0.7	1.2	0.6	0.5	0.5	1.0	1.4	2.7	2.6	0.9	0.6	0.0	15.9	
13-18	0.4	0.6	0.4	0.2	0.2	0.2	0.5	0.4	0.3	0.4	0.8	0.9	2.6	3.0	0.7	0.2	0.0	11.6	
19-24	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.4	1.0	1.9	0.6	0.1	0.0	6.1	
25-31	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.3	0.0	0.0	0.0	2.6	
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.6	
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
>46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	4.8	5.6	4.8	6.9	7.1	6.8	4.4	3.3	3.3	5.3	6.4	11.5	13.5	6.6	4.1	0.7	100.0		

Tower: 200 Area																			
SPEED	DIRECTION																	Total Hours:	148860
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	
1-3	1.2	1.1	1.1	1.0	1.1	1.0	1.2	0.9	0.7	0.6	0.7	0.6	0.8	0.9	1.1	1.3	0.0	15.2	
4-7	2.5	1.9	1.5	1.3	1.6	1.3	1.8	1.6	1.0	1.0	1.2	1.4	2.0	2.9	4.1	3.8	0.0	31.0	
8-12	1.0	0.7	0.5	0.3	0.4	0.3	0.4	0.7	0.4	0.6	1.2	1.8	2.7	4.8	6.2	2.3	0.0	24.4	
13-18	0.2	0.3	0.2	0.1	0.1	0.0	0.1	0.3	0.3	0.5	1.1	1.9	2.0	4.6	5.6	0.6	0.0	17.8	
19-24	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.9	0.9	0.5	1.7	2.5	0.1	0.0	7.3	
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.4	0.1	0.5	1.1	0.0	0.0	
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.6	
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
>46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	5.0	4.2	3.4	2.7	3.2	2.7	3.5	3.6	3.6	2.6	3.5	5.9	7.1	8.1	15.5	20.8	8.0	0.3	

Tower: 300 Area																			
SPEED	DIRECTION																	Total Hours:	143342
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	
1-3	1.0	0.8	0.7	0.6	0.8	1.1	1.2	1.1	0.9	0.8	0.7	0.7	0.8	0.9	1.0	0.0	0.0	14.3	
4-7	2.8	1.8	1.2	1.2	1.7	2.8	4.2	3.1	2.8	2.5	1.9	1.2	0.9	0.8	1.3	2.4	0.0	33.0	
8-12	3.3	2.1	0.9	0.4	0.4	1.3	2.7	1.4	1.9	3.4	3.3	1.6	0.7	0.6	1.1	2.6	0.0	27.9	
13-18	1.8	0.9	0.2	0.1	0.0	0.2	0.4	0.3	0.5	2.0	3.2	1.9	0.6	0.4	1.1	1.9	0.0	15.6	
19-24	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.5	0.9	0.3	0.2	0.7	0.4	0.0	5.5	
25-31	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.3	0.1	0.0	0.2	0.1	0.0	2.1	
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.6	
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
>46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	9.1	5.7	3.1	2.3	3.0	5.3	8.6	6.1	6.5	9.7	11.9	6.7	3.4	2.8	5.4	8.4	0.6	100.0	

Tower: 400 Area																			
SPEED	DIRECTION																	Total Hours:	143601
	N	NNNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL	
CALM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	
1-3	0.8	0.8	0.7	0.6	0.8	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.6	0.7	0.8	0.0	0.0	12.3	
4-7	2.2	2.0	1.6	1.1	1.1	1.3	2.0	2.8	3.0	2.3	1.6	1.2	1.2	1.4	2.1	2.2	0.0	28.9	
8-12	1.9	1.7	1.1	0.4	0.3	0.3	1.3	2.3	3.5	3.7	2.1	0.9	0.9	1.4	2.9	2.7	0.0	27.3	
13-18	0.7	0.6	0.3	0.1	0.0	0.0	0.5	0.8	1.6	3.7	2.4	0.8	0.6	1.5	3.7	1.8	0.0	19.0	
19-24	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.3	1.4	1.4	0.6	0.3	0.9	2.2	0.3	0.0	0.0	8.2	
25-31	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.8	0.3	0.1	0.2	0.6	0.1	0.0	0.0	2.9	
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.8	
39-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
>46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
TOTAL	5.7	5.3	3.8	2.2	2.2	2.5	4.9	7.0	9.4	12.5	9.4	4.5	3.9	6.1	12.4	7.9	0.3	100.0	