5.0 Wind Climatology

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

At the HMS, 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). Tables 5.2 and 5.3 provide the monthly and annual average wind speeds (in mph), and monthly and annual peak gusts (in mph) respectively for the entire period of record (1945-2004).

Table 5.1. Monthly and Annual Prevailing Wind Directions, Average Speeds, and Peak Gusts at 50-Foot Level, 1945 through 2004

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	7.0	11.1	1999	4.6	1963	65	SSW	1999[a]
Mar	WNW	8.2	10.7	1977[a]	5.9	1958	70	SW	1956
Apr	WNW	8.8	11.1	1972[a]	7.2	2004	73	SSW	1972
May	WNW	8.9	10.7	1983	5.8	1957	71	SSW	1948
Jun	NW	9.1	10.7	1983[a]	7.3	1982	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	7.4	9.2	1961	5.4	1957	65	SSW	1953
Oct	NW	6.6	9.1	1946	4.4	1952	72	SW	1997
Nov	NW	6.4	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 5.4 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, April, and December 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.

Table 5.2. Monthly and Annual Average Wind Speed (mph) at 50-Foot Level

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann.
1945	5.2	7.6	8.2	9.4	8.1	10.0	9.1	7.8	8.5	7.1	7.9	5.8	7.9
1946	6.2	6.7	9.1	8.1	8.9	8.6	9.4	9.1	7.7	**9.1**[a]	6.8	6.9	8.0
1947	7.2	6.7	6.3	8.0	9.3	9.9	8.9	8.6	7.8	7.5	6.2	4.7	7.6
1948	6.4	8.4	9.0	8.0	7.8	7.7	8.1	7.7	8.0	6.0	7.6	6.6	7.6
1949	4.4	7.8	7.7	8.4	9.2	10.7	8.8	8.0	7.4	7.2	5.9	**8.3**[a]	7.8
1950	6.4	5.1	7.3	9.3	9.5	7.7	9.0	8.6	7.0	7.1	7.2	5.2	7.4
1951	7.9	6.3	8.8	8.7	10.5	9.2	9.3	8.4	7.3	6.7	6.1	6.0	7.9
1952	4.5	5.5	8.3	8.4	8.5	8.5	8.0	8.1	6.5	**4.4**[a]	3.2	5.1	6.6
1953	9.6	6.9	9.1	8.5	8.9	8.1	8.6	7.2	7.7	6.1	6.2	7.0	7.8
1954	7.9	7.9	7.9	10.3	8.5	9.7	8.3	7.7	7.4	6.6	6.0	6.0	7.8
1955	3.1	7.2	10.2	9.4	9.0	9.3	**6.8**[a]	8.4	6.9	6.7	7.2	6.5	7.6
1956	6.8	6.3	9.7	8.4	7.6	8.8	7.2	**6.0**[a]	6.0	5.9	**2.9**[a]	5.2	6.7
1957	3.7	5.6	6.1	7.9	**5.8**[a]	8.5	9.1	7.2	**5.4**[a]	4.9	4.6	7.2	6.3
1958	5.2	6.1	**5.9**[a]	7.4	6.7	8.2	8.7	7.7	8.7	6.3	7.1	5.0	6.9
1959	7.0	6.8	8.9	**11.1**[a]	9.3	9.1	8.8	8.7	8.1	6.0	5.7	5.3	7.9
1960	3.5	8.1	9.0	8.8	9.1	9.9	8.4	8.8	7.2	7.2	7.5	3.9	7.6
1961	6.9	9.4	8.6	9.4	8.6	8.4	8.2	7.5	**9.2**[a]	7.4	5.9	6.7	8.0
1962	6.6	6.6	7.7	9.3	8.7	9.4	8.8	8.1	7.2	5.7	6.6	4.9	7.5
1963	5.6	**4.6**[a]	8.8	7.6	8.8	10.5	9.6	7.2	6.5	7.1	7.5	3.9	7.3
1964	7.6	7.1	**10.7**[a]	10.1	10.4	9.7	9.1	8.4	8.2	6.3	5.3	6.6	8.3
1965	6.3	8.5	7.8	9.0	10.5	9.7	8.0	8.2	7.4	6.4	6.5	5.7	7.8
1966	7.3	7.8	8.9	9.9	9.8	9.6	8.4	9.0	6.9	7.2	6.3	6.6	8.1
1967	8.2	8.9	9.1	7.8	8.3	8.7	8.7	7.2	7.4	8.8	7.5	6.7	8.1
1968	7.9	6.8	9.1	10.1	9.4	10.5	9.3	7.8	8.4	7.1	5.4	**8.3**[a,b]	8.3
1969	6.5	6.8	8.2	8.7	8.1	9.0	9.0	8.2	7.7	6.6	4.3	5.1	7.4
1970	6.6	7.1	8.3	11.0	9.0	9.8	9.3	8.0	8.6	7.0	6.8	7.3	8.2
1971	8.0	8.6	8.9	8.4	10.1	8.4	8.3	7.8	8.0	7.2	5.4	6.8	8.0
1972	**10.3**[a]	7.3	7.5	**11.1**[a,b]	8.4	8.3	8.6	7.3	7.7	5.9	4.2	6.5	7.8
1973	6.3	5.4	8.2	9.3	9.4	10.6	9.1	8.4	7.1	6.7	7.5	6.7	7.9
1974	9.3	8.0	9.1	10.3	9.0	9.0	8.1	7.5	7.3	5.6	5.5	5.9	7.9
1975	6.4	7.5	8.9	9.0	9.6	10.5	8.5	9.0	6.8	7.1	7.7	7.2	8.2
1976	4.9	10.8	9.6	9.9	9.3	10.4	9.5	7.6	7.2	5.9	5.4	4.9	8.0
1977	4.3	6.8	**10.7**[a,b]	8.6	9.0	9.2	9.1	8.3	6.2	6.3	8.2	7.9	7.9
1978	6.1	6.3	7.2	8.9	9.7	9.1	7.8	7.6	8.2	5.8	5.9	6.4	7.4
1979	3.8	7.0	6.9	8.7	9.9	9.7	9.0	8.3	8.0	7.0	4.9	6.8	7.5
1980	6.4	6.4	9.6	8.7	8.5	8.3	9.0	9.0	8.4	5.3	5.4	5.0	7.5
1981	4.7	6.9	7.8	9.8	8.0	9.1	8.0	6.5	6.4	6.3	5.7	6.7	7.2
1982	6.6	8.0	8.6	8.9	8.7	**7.3**[a]	8.2	8.3	8.0	6.4	6.1	6.8	7.7
1983	7.2	7.7	8.8	8.1	**10.7**[a]	**10.7**[a]	**10.7**[a]	9.0	8.3	5.7	7.9	5.7	8.4
1984	5.7	6.2	7.4	9.2	9.0	8.8	8.6	8.2	7.9	6.6	6.5	5.3	7.5
1985	**2.9**[a]	6.0	7.3	9.4	9.1	9.9	9.0	8.1	7.3	7.3	6.7	**3.3**[a]	7.2
1986	6.5	6.8	6.7	8.5	8.6	8.5	9.1	7.5	7.3	5.3	7.3	4.0	7.2
1987	5.5	6.6	7.4	7.8	9.0	7.8	8.7	7.9	6.2	5.1	5.6	4.7	6.9
1988	5.8	6.5	9.0	7.8	8.6	8.4	9.1	7.6	7.2	6.1	7.0	4.8	7.3
1989	6.5	5.2	6.2	7.4	7.1	7.9	7.0	6.1	6.1	5.2	6.0	3.9	**6.2**[a]
1990	9.2	8.9	6.6	7.8	8.7	9.2	8.8	7.1	6.2	7.9	**10.0**[a]	6.9	8.1
1991	5.2	6.5	7.7	10.0	8.9	8.3	8.5	7.7	7.1	6.7	6.0	5.8	7.4
1992	5.6	5.3	6.1	8.2	8.1	8.2	7.4	7.1	7.9	5.8	5.3	6.7	6.8
1993	6.0	5.8	6.3	8.0	8.1	8.9	8.4	7.7	5.7	4.9	5.3	4.7	6.6
1994	4.4	5.9	7.1	7.8	7.6	8.5	7.8	8.6	7.1	7.9	8.1	7.1	7.3
1995	6.8	8.3	8.4	8.6	8.9	8.7	9.4	8.5	6.9	7.0	6.8	5.6	7.8
1996	6.5	7.2	7.7	9.2	9.3	9.4	8.9	**9.5**[a]	8.0	7.2	6.1	7.1	8.0
1997	6.6	7.4	9.6	9.1	8.2	9.0	8.4	8.0	8.1	8.3	6.2	5.5	7.9
1998	7.8	7.3	7.3	7.6	8.0	9.8	8.1	8.1	6.7	7.0	8.8	7.8	7.9
1999	7.7	**11.1**[a]	9.3	8.8	10.4	9.7	9.4	8.2	7.7	7.7	7.5	7.5	**8.8**[a]
2000	7.0	6.5	7.3	7.9	9.9	9.8	8.3	8.0	7.5	6.4	6.4	5.2	7.5
2001	5.3	6.4	8.0	8.6	9.1	8.8	8.6	7.9	7.4	8.0	5.9	7.7	7.6
2002	8.2	6.1	8.9	9.0	9.1	9.0	9.3	8.2	7.6	6.2	5.7	5.7	7.8
2003	5.2	7.1	9.3	7.8	8.2	9.1	8.4	7.6	7.4	8.6	9.9	5.5	7.8
2004	5.4	5.3	8.3	**7.2**[a]	8.4	8.2	8.3	7.5	7.7	6.9	5.6	5.5	7.0
Avg.[c]	6.3	7.0	8.2	8.8	8.9	9.1	8.6	8.0	7.4	6.6	6.4	6.0	7.6
Normal	6.3	7.0	7.9	8.8	8.9	9.1	8.6	7.9	7.3	6.5	6.4	6.1	7.6

(a) Greatest and least values.
(b) Most recent of multiple occurrences.
(c) Based on entire period of record (1945-2004).

Table 5.3. Monthly and Annual Peak Wind Gusts (mph) at 50-Foot Level

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann.
1945	55	49	45	46	38	41	45	35	39	41	41	50	55
1946	44	50	45	43	43	54	44	42	41	50	54	35	54
1947	57	48	43	45	47	53	50	50	43	47	47	60	60
1948	50	48	53	46	**71**[a]	61	39	40	58	40	45	54	71
1949	41	56	46	46	48	43	44	38	42	44	64	52	64
1950	45	44	50	51	45	44	40	42	37	63	52	36	63
1951	62	43	51	40	45	42	46	46	45	46	50	42	62
1952	40	46	44	49	43	36	44	48	38	32	29	52	52
1953	64	44	45	43	43	45	50	43	**65**[a]	46	39	63	65
1954	46	54	48	52	44	45	40	41	50	43	56	44	56
1955	34	55	58	40	44	49	41	43	43	45	50	**71**[a]	71
1956	59	44	**70**[a]	42	46	40	43	44	45	44	46	60	70
1957	31	59	52	53	**34**[a]	**72**[a]	41	38	44	**30**[a]	39	58	72
1958	50	50	55	54	38	39	38	37	40	48	58	38	58
1959	49	50	43	50	44	41	40	40	43	40	44	55	55
1960	46	42	54	48	43	43	40	42	37	53	59	35	59
1961	45	47	50	49	50	60	42	**66**[a]	50	45	52	58	66
1962	42	36	42	53	49	53	42	43	43	49	57	35	57
1963	45	46	65	38	38	38	41	38	41	50	41	30	65
1964	51	44	53	50	49	46	49	41	45	40	45	46	53
1965	54	63	45	40	43	50	49	47	42	54	43	40	63
1966	57	47	47	41	55	40	51	44	43	49	45	49	57
1967	65	56	56	**35**[a]	44	39	41	40	53	61	49	46	65
1968	42	46	48	51	44	47	55	38	50	42	39	55	55
1969	43	35	54	60	46	42	38	42	39	41	38	39	60
1970	40	38	46	46	41	49	53	38	39	40	42	44	53
1971	59	**65**[a]	62	50	54	39	**36**[a]	37	40	41	44	45	65
1972	**80**[a]	64	61	**73**[a]	40	46	40	36	40	34	40	44	**80**[a]
1973	37	34	42	41	43	48	39	43	38	45	51	51	51
1974	58	43	57	44	42	46	39	39	46	33	36	61	61
1975	60	52	58	52	42	47	39	45	**33**[a]	42	51	68	68
1976	43	57	65	43	55	42	48	**30**[a]	38	32	43	45	65
1977	33	51	47	47	37	41	38	39	35	44	59	52	59
1978	37	32	**36**[a]	64	40	49	43	34	39	34	52	58	64
1979	20	44	40	38	54	46	**69**[a]	36	54	36	**22**[a]	54	69
1980	56	**31**[a]	46	43	48	39	40	38	36	43	41	51	56
1981	28	48	45	49	39	62	38	43	37	55	66	44	66
1982	54	48	46	52	39	**35**[a]	47	54	41	38	34	60	60
1983	61	46	65	45	44	45	44	39	40	33	43	28	65
1984	44	36	40	37	45	53	42	50	50	44	45	62	62
1985	**17**[a]	45	46	44	44	46	48	43	43	48	44	**23**[a]	**48**[a]
1986	47	49	54	46	46	45	48	40	41	38	34	35	54
1987	38	51	39	45	46	40	46	40	43	32	46	54	54
1988	37	51	50	63	56	40	44	44	42	38	42	41	63
1989	58	39	42	49	49	43	43	42	42	46	51	36	58
1990	73	55	51	58	44	46	45	40	43	53	59	58	73
1991	43	44	61	50	45	47	46	42	43	55	48	56	61
1992	60	45	34	56	46	59	43	37	42	42	49	46	60
1993	51	39	40	42	54	56	45	39	40	34	**67**[a]	61	67
1994	40	52	46	38	45	46	51	40	38	49	50	45	52
1995	39	44	49	39	54	42	52	40	39	48	56	61	61
1996	54	55	46	55	42	43	48	43	49	43	44	44	55
1997	49	42	59	54	36	48	45	55	48	**72**[a]	33	41	72
1998	43	50	39	37	55	50	47	50	35	46	56	55	56
1999	55	**65**[a]	52	40	45	42	44	44	43	46	41	62	65
2000	53	33	43	43	51	44	44	39	46	40	55	45	55
2001	35	33	56	50	51	44	40	41	44	63	44	69	69
2002	57	44	60	50	52	47	53	41	39	43	36	63	63
2003	39	52	53	48	41	45	41	45	44	60	54	36	60
2004	63	31	51	55	41	42	40	44	42	38	44	40	63

(a) Greatest and least values.

Table 5.4. Number of Days with Peak Gusts Above or Below Specific Thresholds at 50-Foot Level, 1945 through 2004

	Days with Peak Gusts ≤12 mph					Days with Peak Gusts ≥25 mph					Days with Peak Gusts ≥40 mph					Days with Peak Gusts ≥50 mph				
Month	Avg	Max	Year	Min	Year	Avg	Max	Year	Min	Year	Avg	Max	Year	Min	Year	Avg	Max	Year	Min	Year
Jan	9.8	29	1985	3	1968	7.6	21	1953	0	1985[a]	2.8	11	1990[a]	0	2003[a]	0.9	7	1990	0	2003[a]
Feb	6.1	16	1963	0	1990	8.5	17	1976[a]	2	2004[a]	2.4	10	1999[a]	0	2004[a]	0.6	4	1972	0	2004[a]
Mar	2.6	8	1992	0	2003[a]	13.2	21	1977	4	1992	2.9	9	1956	0	1998[a]	0.6	4	1956	0	2000[a]
Apr	0.6	6	1951	0	2003[a]	16.9	26	1954	8	1946	2.8	8	1991	0	1998[a]	0.4	2	1997[a]	0	2003[a]
May	0.3	3	1955	0	2003[a]	18.8	26	1978	9	1945	2.4	7	2002	0	1997[a]	0.2	2	1993[a]	0	2004[a]
Jun	0.1	1	1980[a]	0	2003[a]	19.7	26	1963	11	1950[a]	2.4	7	1985	0	1982[a]	0.2	2	1992[a]	0	2004[a]
Jul	0.1	1	1957[a]	0	2003[a]	19.6	26	1995	11	1955	1.8	5	1995[a]	0	1981[a]	0.2	1	2002[a]	0	2004[a]
Aug	0.2	2	1972	0	2003[a]	15.9	24	2000	7	1945	1.3	5	1951	0	2000[a]	0.1	1	1998[a]	0	2004[a]
Sep	2.3	9	1987	0	2003[a]	11.4	17	2002[a]	7	1975[a]	1.4	4	1946	0	2002[a]	0.2	2	1953	0	2004[a]
Oct	6.7	15	1974	2	2003[a]	9.1	19	2003	3	1987[a]	1.9	8	2003[a]	0	2004[a]	0.2	2	2003[a]	0	2004[a]
Nov	9.2	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	2004[a]
Dec	11.2	23	1985	3	1968	7.4	15	1968	0	1985	2.6	8	1957[a]	0	2003[a]	0.8	5	2001	0	2004[a]
Annual	49.2	87	1952	28	1973	156.4	192	1999	123	1952	26.9	57	1990	10	1978	5.0	18	1990	0	1985

(a) Most recent of multiple occurrences.

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

Table 5.5 presents HMS 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 5.6 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 2004.

Figure 5.2 and Table 5.7 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 2004.

Table 5.5. Frequency (%) of Monthly and Annual Wind Direction and Speed at 50-Foot Level, 1955 through 2004

Direction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
N	4.2	4.8	4.6	4.2	3.7	3.6	4.6	4.7	5.5	5.0	4.4	4.2	4.5
NNE	3.6	4.6	4.4	3.7	3.3	3.3	4.1	3.9	5.3	4.1	3.5	3.3	3.9
NE	3.0	3.8	3.4	3.5	3.3	3.2	3.5	3.5	4.1	3.6	3.0	2.9	3.4
ENE	2.4	2.2	2.1	2.4	2.4	2.2	2.5	2.5	2.4	2.6	2.5	2.6	2.4
E	2.6	2.2	2.2	2.5	2.5	2.5	2.9	3.1	3.1	3.0	2.7	2.8	2.7
ESE	2.9	2.6	2.7	2.6	2.7	2.7	2.9	3.4	3.2	3.8	3.3	3.2	3.0
SE	4.0	3.6	3.8	2.9	3.1	2.9	3.0	3.5	3.9	4.9	4.4	4.5	3.7
SSE	3.5	3.3	3.4	3.0	3.0	2.9	2.6	2.9	3.3	4.0	4.0	3.8	3.3
S	3.4	3.2	3.5	3.2	2.7	2.7	2.5	2.6	2.7	3.6	4.1	3.6	3.1
SSW	4.8	4.4	5.0	4.4	3.6	3.5	2.7	3.0	3.4	4.2	5.1	4.7	4.1
SW	6.6	7.5	9.2	8.9	7.0	6.5	5.5	6.0	5.8	6.9	7.7	6.7	7.0
WSW	6.8	7.3	10.6	11.9	10.6	9.6	8.2	8.9	9.2	8.8	8.0	7.2	8.9
W	6.7	8.2	9.8	11.5	11.6	10.9	9.8	10.8	11.2	10.4	8.4	7.3	9.7
WNW	15.2	15.2	14.5	16.1	18.3	19.1	19.6	18.0	15.4	13.3	12.8	13.8	15.9
NW	19.1	18.0	14.3	14.1	17.5	19.3	20.0	17.5	14.7	13.5	15.6	18.0	16.8
NNW	7.4	6.9	5.7	4.6	4.3	4.8	5.4	5.4	5.9	6.4	7.0	7.1	5.9
Calm	3.7	2.1	0.7	0.4	0.4	0.3	0.3	0.4	0.9	1.9	3.4	4.2	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

Speed, mph	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Calm	3.7	2.1	0.7	0.4	0.5	0.4	0.3	0.4	0.9	2.0	3.4	4.3	1.6
1-3	30.7	24.4	16.9	13.1	11.6	9.7	10.8	13.4	17.9	25.9	29.5	33.4	19.8
4-7	35.1	36.2	36.4	35.3	35.2	35.9	39.2	42.3	41.6	39.2	36.2	34.2	37.2
8-12	20.0	24.3	27.7	28.8	30.6	30.3	29.3	27.8	26.0	21.8	20.1	18.2	25.4
13-18	6.6	8.3	12.1	15.3	15.7	16.5	14.2	11.6	9.8	7.8	6.9	6.2	10.9
19-24	2.5	3.1	4.5	5.5	5.4	6.1	5.3	3.9	3.2	2.6	2.7	2.5	3.9
25-31	1.0	1.2	1.4	1.4	1.0	1.1	0.9	0.5	0.5	0.6	1.0	0.9	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

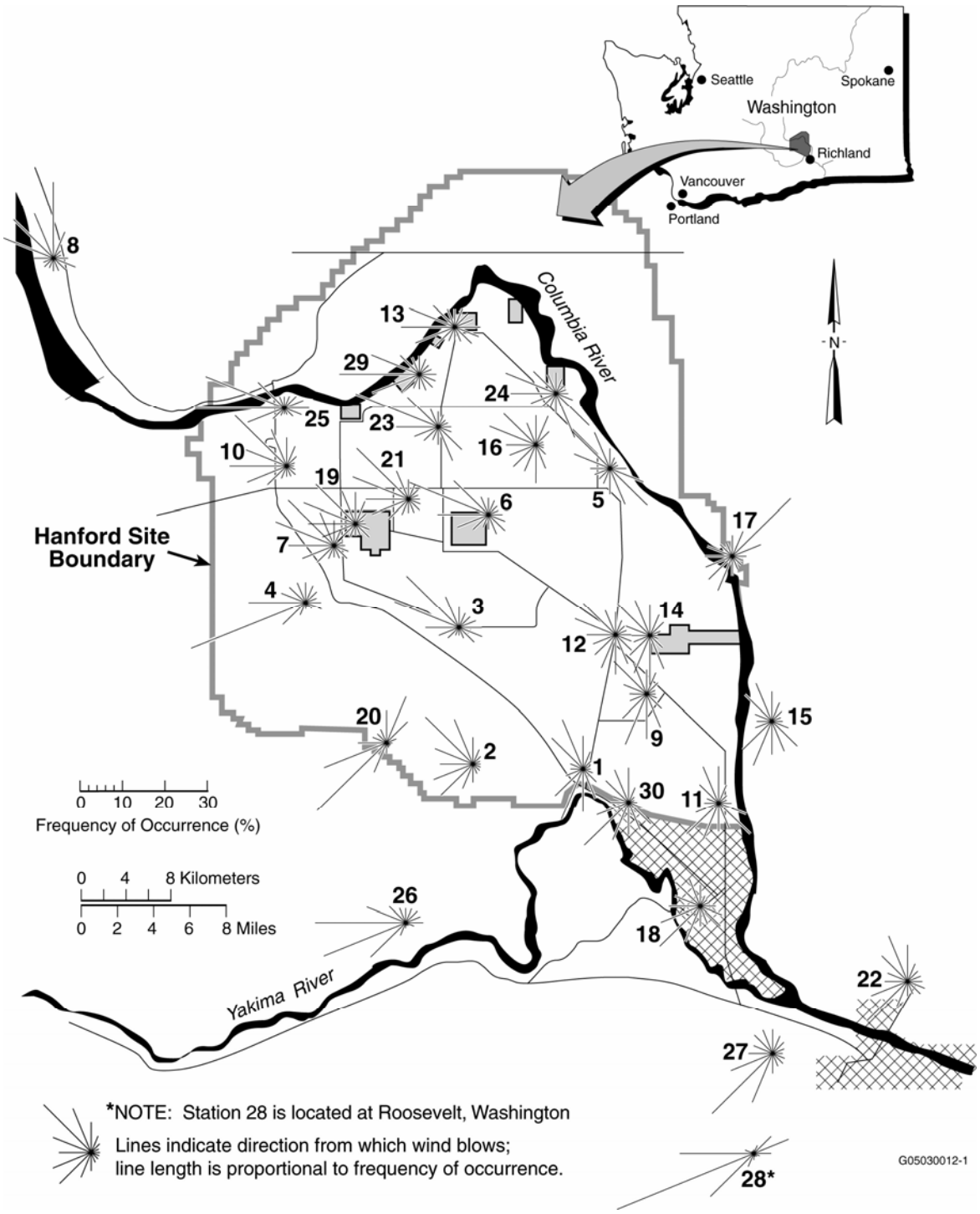

Figure 5.1. Hanford Meteorological Monitoring Network Wind Roses at 30 Feet, 1982 through 2004 (Refer to Table 1.1 for the names of the numbered locations on this map.)

Table 5.6. Joint Frequency Distributions (%) for Hanford Meteorological Monitoring Network Wind Stations at 30 Feet, 1982 through 2004

Station: (1) PROS

Begin: 1/1982 End: 12/2004 Total Hours: 196909

DIRECTION

SPEED	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	2.1	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	2.2	2.6	0.0	26.4
4-7	3.1	1.8	1.0	0.7	0.8	1.1	2.3	4.2	4.6	3.6	1.9	0.8	0.7	1.0	3.1	4.9	0.0	35.5
8-12	1.9	0.8	0.3	0.1	0.1	0.2	0.5	1.1	2.6	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	0.5	2.5	1.9	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	7.8	4.4	2.7	1.7	1.9	2.5	4.5	7.6	10.1	13.2	9.1	4.3	3.0	3.2	10.3	12.7	1.1	100.0

Station: (2) EOC

Begin: 1/1982 End: 12/2004 Total Hours: 197429

DIRECTION

SPEED	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	1.1	1.1	1.0	0.9	0.8	0.8	0.9	1.2	1.2	1.3	1.3	1.6	1.8	1.8	1.4	0.0	19.3
4-7	2.7	1.9	1.3	0.9	1.0	1.1	1.2	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	1.5	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	0.9	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	0.1	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	0.1	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	6.4	3.8	2.6	1.9	1.9	2.0	2.3	2.5	4.3	6.4	10.5	9.9	7.7	9.6	15.7	11.3	1.1	100.0

Station: (3) ARMY

Begin: 1/1982 End: 12/2004 Total Hours: 197288

DIRECTION

SPEED	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	1.9	1.7	2.0	2.2	2.5	2.3	1.8	1.2	0.9	0.8	0.9	1.2	2.2	3.2	3.3	2.4	0.0	30.5
4-7	2.0	1.3	1.4	1.8	2.5	2.8	2.1	0.9	0.6	0.4	0.6	0.9	2.4	7.2	7.5	3.4	0.0	37.9
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	1.6	0.0	19.3
13-18	0.2	0.2	0.1	0.0	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	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	0.0
> 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	5.1	3.7	3.8	4.3	5.4	5.9	5.1	2.9	2.0	2.2	3.6	5.2	7.9	16.4	17.3	7.9	1.2	100.0

Station: (4) RSPG

Begin: 1/1982 End: 12/2004 Total Hours: 196792

DIRECTION

SPEED	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	1.6	1.8	1.9	1.6	1.8	1.7	1.2	0.8	0.8	1.0	1.8	2.6	1.8	1.2	1.1	1.2	0.0	23.8
4-7	2.6	2.1	1.5	1.1	1.8	2.1	0.8	0.4	0.4	0.7	2.4	9.7	4.4	1.7	1.7	2.2	0.0	35.8
8-12	0.6	0.4	0.2	0.1	0.2	0.3	0.1	0.1	0.2	0.7	1.7	14.1	5.1	2.3	1.6	1.2	0.0	28.8
13-18	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.0	2.2	1.8	1.0	0.8	0.5	0.0	8.2
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.5	0.3	0.1	0.1	0.1	0.0	1.9
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	4.4	3.7	2.8	3.7	4.1	2.1	1.3	1.6	3.3	7.6	29.1	13.5	6.2	5.4	5.2	1.0	100.0

Table 5.6. (contd)

Station: (5) EDNA

Begin: 1/1982 End: 12/2004 Total Hours: 197948

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	1.1	2.0	3.5	3.9	3.1	1.9	1.4	1.3	1.7	2.8	3.2	2.1	0.0	31.6
4-7	2.2	1.1	0.9	1.0	2.0	4.6	7.3	3.8	1.7	0.8	0.7	0.7	1.0	2.5	6.0	4.8	0.0	41.0
8-12	1.1	0.5	0.4	0.2	0.8	1.8	1.4	1.1	0.9	0.6	0.7	0.9	1.1	1.7	2.3	2.0	0.0	17.4
13-18	0.2	0.2	0.2	0.1	0.0	0.1	0.2	0.3	0.4	0.4	0.5	0.7	0.6	1.4	1.0	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	4.8	2.7	2.2	2.1	3.9	8.5	12.4	9.1	6.2	3.9	3.5	3.9	4.7	9.0	12.9	9.1	1.2	100.0

Station: (6) 200E

Begin: 1/1982 End: 12/2004 Total Hours: 197532

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	1.4	1.5	1.7	1.7	1.7	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	2.4	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	0.3	0.4	0.9	1.1	0.6	0.5	1.0	2.2	4.5	7.6	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	1.3	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	2.9	2.6	3.4	4.3	5.6	5.0	3.5	3.2	5.1	7.8	12.0	20.1	11.3	4.5	1.1	100.0

Station: (7) 200W

Begin: 1/1982 End: 12/2004 Total Hours: 183404

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	1.6	1.4	1.6	1.8	2.1	2.0	1.8	1.6	1.9	2.4	3.4	4.2	3.6	2.6	0.0	36.0
4-7	2.9	1.6	1.0	0.8	1.0	1.6	1.8	1.0	0.7	0.8	1.2	1.8	3.7	6.7	5.2	3.4	0.0	35.2
8-12	0.8	0.5	0.2	0.1	0.1	0.3	0.4	0.2	0.2	0.6	1.0	1.7	2.5	3.1	3.4	1.8	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	2.0	0.5	0.0	7.4
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.5	0.2	0.1	0.8	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	0.1	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	2.3	2.7	3.7	4.3	3.2	2.8	3.4	5.7	8.0	10.7	14.9	15.2	8.3	1.6	100.0

Station: (8) BVLY

Begin: 8/1991 End: 12/2004 Total Hours: 116753

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	2.9	2.2	1.7	1.5	1.7	1.9	2.0	1.8	1.7	1.3	1.1	1.1	1.3	1.6	2.2	2.6	0.0	28.5
4-7	8.5	2.8	0.6	0.4	1.5	3.2	1.7	1.1	1.0	0.8	0.7	0.8	1.5	2.8	5.0	7.0	0.0	39.1
8-12	6.3	1.6	0.1	0.0	0.3	0.7	0.3	0.3	0.2	0.3	0.4	0.4	1.2	3.8	3.3	1.8	0.0	20.9
13-18	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5	0.2	0.4	3.2	2.0	0.1	0.0	7.7
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	1.1	0.6	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	0.0	0.1	0.0	0.0	0.3	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	18.1	6.8	2.5	1.9	3.5	5.7	4.0	3.2	3.1	2.6	3.0	2.7	4.6	12.8	13.1	11.5	1.0	100.0

Table 5.6. (contd)

Station: (9) FFTF

Begin: 1/1982 End: 12/2004 Total Hours: 197029

DIRECTION

SPEED	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	0.9	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	2.7	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	38.7
8-12	1.4	1.3	0.7	0.2	0.2	0.3	1.2	3.2	4.0	4.4	1.7	0.8	0.9	1.7	3.8	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	11.2
19-24	0.0	0.1	0.0	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	3.0
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	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	0.0	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	10.4	12.9	8.0	4.3	4.0	5.9	10.8	7.8	0.5	100.0

Station: (10) YAKB

Begin: 1/1982 End: 12/2004 Total Hours: 197837

DIRECTION

SPEED	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	1.2	1.2	1.2	1.4	1.9	2.4	2.0	1.7	1.6	0.0	23.3
4-7	3.7	2.9	1.6	0.9	0.8	1.0	1.5	1.2	0.9	0.9	1.5	3.5	7.0	4.4	3.7	3.5	0.0	39.2
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	3.3	2.5	5.6	3.1	0.0	22.4
13-18	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.2	1.4	0.6	1.0	3.9	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	0.1	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	5.2	3.3	2.1	1.8	2.2	2.9	2.7	2.6	3.2	6.3	10.0	13.6	10.2	17.1	9.4	0.6	100.0

Station: (11) 300A

Begin: 1/1982 End: 12/2004 Total Hours: 184540

DIRECTION

SPEED	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	1.2	0.7	0.6	0.6	0.8	1.2	1.7	1.8	1.7	1.4	1.3	1.1	1.2	1.3	1.8	1.7	0.0	20.3
4-7	3.5	1.6	1.1	1.1	1.8	4.4	6.9	3.7	3.0	2.5	1.9	1.2	0.9	1.0	2.1	4.0	0.0	40.8
8-12	3.4	1.9	0.8	0.3	0.4	1.3	1.7	0.9	1.7	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	0.5	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	0.0	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	8.7	4.8	2.7	2.1	3.0	7.0	10.4	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: 12/2004 Total Hours: 197155

DIRECTION

SPEED	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	1.2	1.2	1.2	1.4	1.5	1.5	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.4	1.4	0.0	21.0
4-7	2.6	1.6	1.3	1.4	2.1	2.1	2.9	3.6	3.9	2.8	2.3	2.1	2.4	3.1	3.8	3.0	0.0	40.9
8-12	1.2	0.6	0.3	0.2	0.3	0.4	0.9	2.0	2.9	2.3	1.4	1.3	2.1	4.0	3.2	1.5	0.0	24.5
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	0.8	1.5	1.4	0.3	0.0	9.3
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	0.0	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	5.5	3.7	3.0	2.8	3.8	4.0	5.3	7.4	9.3	8.5	6.8	5.7	6.8	10.2	10.5	6.3	0.4	100.0

Table 5.6. (contd)

Station: (13) 100N

Begin: 1/1982 End: 12/2004 Total Hours: 197310

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	2.1	2.4	3.2	3.1	2.5	1.8	1.7	1.6	2.1	2.6	3.2	3.3	3.1	2.5	0.0	39.0
4-7	1.5	1.6	1.6	2.0	2.7	2.7	2.2	1.3	0.9	1.0	2.2	4.3	4.8	3.2	2.1	1.5	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	2.2	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	4.7	6.1	6.2	5.7	3.7	3.1	3.6	6.7	9.9	12.7	11.6	7.1	4.5	0.9	100.0

Station: (14) WPPS

Begin: 1/1982 End: 12/2004 Total Hours: 197858

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	2.5	2.1	1.8	1.3	1.1	1.0	1.4	1.8	2.1	1.8	1.6	1.4	1.5	1.7	2.6	2.7	0.0	28.4
4-7	3.4	2.4	2.2	1.2	0.7	0.8	1.9	4.3	5.3	3.0	1.7	1.2	1.3	1.8	3.8	4.4	0.0	39.4
8-12	1.2	0.7	0.5	0.2	0.1	0.2	0.8	2.1	3.4	2.6	1.4	0.8	0.9	1.7	2.5	1.5	0.0	20.7
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	0.2	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	7.4	5.5	4.6	2.6	1.9	2.1	4.1	8.4	11.6	9.6	6.7	4.2	4.4	6.2	10.7	9.0	1.0	100.0

Station: (15) FRNK

Begin: 1/1982 End: 12/2004 Total Hours: 197437

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	1.2	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	19.2
4-7	4.1	2.7	1.7	1.2	1.5	2.5	5.1	4.4	3.5	3.0	2.4	1.3	1.4	2.0	4.7	5.4	0.0	46.9
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	24.8
13-18	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.4	1.9	1.8	0.6	0.2	0.2	0.4	0.2	0.0	6.7
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.1	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	4.8	3.4	2.4	2.7	4.3	8.3	7.6	7.8	11.2	9.5	4.2	3.5	4.2	8.8	9.5	0.7	100.0

Station: (16) GABL

Begin: 1/1982 End: 12/2004 Total Hours: 196876

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	DIRECTION																	
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	0.9	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	0.9	1.3	2.1	3.2	2.4	1.7	1.5	1.5	1.7	2.2	2.1	0.0	28.6
8-12	2.0	2.2	1.1	0.3	0.4	0.5	0.9	1.8	2.5	1.5	1.5	1.6	1.8	2.2	2.9	1.8	0.0	24.9
13-18	1.3	1.4	0.5	0.1	0.1	0.1	0.3	1.0	1.4	0.9	1.3	1.5	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	0.0	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	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.4	0.2	1.2	0.5	0.0	0.0	4.0
32-38	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.1	0.0	0.2	0.0	0.0	0.0	1.1
39-46	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	0.0	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	0.0
TOTAL	7.0	7.4	4.5	2.0	2.0	2.1	3.2	6.1	9.0	6.8	7.3	6.7	7.0	11.7	10.5	5.7	0.8	100.0

Table 5.6. (contd)

Station: (17) RING

Begin: 1/1982 End: 12/2004 Total Hours: 197025

DIRECTION

SPEED	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	2.1	3.4	7.2	3.5	2.1	1.7	1.4	1.3	1.5	1.6	1.9	2.3	2.1	1.4	1.4	1.6	0.0	36.6
4-7	1.8	2.1	11.1	3.3	1.2	0.9	1.2	1.4	1.9	2.8	2.4	2.7	2.2	1.3	1.2	1.2	0.0	38.7
8-12	0.9	0.7	0.9	0.4	0.1	0.1	0.3	0.6	1.2	3.3	2.0	1.1	1.5	1.8	0.9	0.5	0.0	16.2
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	0.3	0.1	0.0	5.9
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	0.1	0.4	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	5.0	6.5	19.4	7.2	3.4	2.7	3.0	3.3	4.8	8.8	7.8	6.8	6.5	6.4	3.9	3.4	1.1	100.0

Station: (18) RICH

Begin: 1/1982 End: 12/2004 Total Hours: 198106

DIRECTION

SPEED	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	2.6	2.2	2.1	2.3	2.4	2.5	2.7	2.5	1.9	0.0	32.7
4-7	2.0	1.0	0.9	1.0	1.8	2.9	3.2	1.7	1.7	3.0	4.1	3.2	2.3	2.7	3.0	2.6	0.0	36.9
8-12	1.3	0.7	0.4	0.3	0.2	0.2	0.3	0.2	0.6	2.6	3.9	2.7	1.5	0.9	1.3	1.5	0.0	18.5
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	8.3
19-24	0.0	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	0.1	0.0	2.0
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	5.1	2.7	2.3	2.3	3.7	5.6	6.6	4.5	4.7	9.0	13.4	10.0	7.5	6.6	7.9	6.9	1.1	100.0

Station: (19) PFP

Begin: 2/1994 End: 12/2004 Total Hours: 95233

DIRECTION

SPEED	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	1.4	1.5	1.8	2.3	1.9	1.8	1.8	2.3	3.2	4.9	5.1	3.8	3.2	0.0	43.6
4-7	3.4	2.1	0.9	0.6	0.8	1.5	1.9	0.8	0.6	0.7	1.2	1.9	4.3	6.4	5.1	3.7	0.0	36.0
8-12	0.4	0.4	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.6	1.3	1.9	1.5	1.5	3.1	1.2	0.0	13.3
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	0.6
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	8.3	11.1	13.2	13.2	8.2	2.2	100.0

Station: (20) RMTN

Begin: 1/1982 End: 12/2004 Total Hours: 195512

DIRECTION

SPEED	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	0.3	0.4	0.3	0.4	0.6	0.7	0.5	0.4	0.4	0.4	0.4	0.0	6.9
4-7	1.4	1.4	1.3	0.9	0.7	0.5	0.5	0.5	0.8	1.4	2.0	1.4	0.9	0.7	0.7	0.9	0.0	15.7
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	20.7
13-18	2.1	2.8	1.3	0.3	0.1	0.0	0.1	0.1	0.4	1.6	4.7	3.0	1.6	0.9	0.7	0.9	0.0	20.6
19-24	1.0	2.1	0.8	0.1	0.0	0.0	0.0	0.0	0.2	0.9	3.6	2.8	1.2	0.5	0.3	0.3	0.0	13.8
25-31	0.4	1.4	0.6	0.1	0.0	0.0	0.0	0.0	0.1	0.6	3.2	2.6	0.7	0.2	0.1	0.0	0.0	10.0
32-38	0.1	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.5	1.7	0.2	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	1.7	0.9	0.1	0.0	0.0	0.0	0.0	3.5
> 46	0.0	0.2	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	2.2
TOTAL	7.6	11.8	7.0	2.6	1.5	1.1	1.1	1.3	2.6	7.5	22.9	15.8	6.7	3.5	3.0	3.5	0.6	100.0

Table 5.6. (contd)

Station: (21) HMS

Begin: 1/1982 End: 12/2004 Total Hours: 200231

DIRECTION

SPEED	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	2.0	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	3.8	5.1	6.3	6.7	3.8	0.0	42.5
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	4.4	5.2	1.1	0.0	20.2
13-18	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.5	1.1	1.1	0.6	1.4	2.5	0.2	0.0	8.1
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.3	0.1	0.2	0.7	0.0	0.0	2.1
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	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	3.8	3.2	2.5	2.8	3.0	3.6	3.4	3.2	4.0	6.6	9.2	10.0	14.2	17.2	7.2	1.1	100.0

Station: (22) PASC

Begin: 10/1987 End: 12/2004 Total Hours: 145942

DIRECTION

SPEED	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	4.7	2.8	2.4	2.3	2.5	2.4	2.0	1.5	1.3	1.2	1.1	1.2	1.5	2.1	3.4	5.4	0.0	37.8
4-7	2.7	1.2	0.7	0.8	1.2	1.9	1.9	1.5	1.7	2.7	3.3	2.2	2.0	2.2	3.5	4.3	0.0	33.8
8-12	1.0	0.4	0.2	0.1	0.1	0.2	0.3	0.3	0.5	2.1	4.7	2.3	0.9	0.6	1.2	1.5	0.0	16.3
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	3.0	1.9	0.6	0.2	0.3	0.3	0.0	7.5
19-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.9	0.2	0.1	0.1	0.0	0.0	2.4
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.1	0.0	0.0	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	0.1	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	8.6	4.6	3.4	3.3	3.8	4.4	4.2	3.2	3.5	6.5	13.5	9.2	5.4	5.2	8.5	11.6	1.1	100.0

Station: (23) GABW

Begin: 3/1986 End: 12/2004 Total Hours: 162118

DIRECTION

SPEED	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	1.3	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	31.8
4-7	1.5	1.1	0.9	1.0	1.3	1.3	4.0	5.0	1.6	0.9	1.1	1.5	3.1	7.3	3.8	1.9	0.0	37.3
8-12	0.5	0.5	0.3	0.1	0.2	0.3	1.2	1.0	0.3	0.5	1.0	1.5	2.9	5.4	1.7	0.6	0.0	18.1
13-18	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.7	0.9	1.0	3.5	1.0	0.1	0.0	8.5
19-24	0.0	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	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	0.1	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	3.7	3.1	2.5	2.5	3.1	3.3	7.7	8.7	4.2	3.4	4.8	6.1	9.8	21.0	10.0	4.6	1.3	100.0

Station: (24) 100F

Begin: 3/1986 End: 12/2004 Total Hours: 162247

DIRECTION

SPEED	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	1.8	1.4	1.2	1.1	1.4	1.9	2.7	2.8	2.2	1.8	1.8	2.4	3.5	4.1	3.5	2.4	0.0	36.0
4-7	2.0	1.3	1.0	1.1	1.2	1.7	5.3	5.7	1.6	0.9	1.0	1.6	3.3	3.7	2.6	2.0	0.0	36.0
8-12	1.0	0.6	0.3	0.3	0.2	0.6	2.6	2.4	0.6	0.5	0.8	1.3	2.5	2.5	0.6	0.6	0.0	17.4
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.6	0.8	1.0	1.8	0.5	0.1	0.0	6.6
19-24	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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	0.0	0.1	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	5.0	3.6	2.7	2.6	2.9	4.2	10.9	11.3	4.8	3.6	4.6	6.4	10.6	12.8	7.4	5.0	1.6	100.0

Table 5.6. (contd)

Station: (25) VERN

Begin: 2/1988 End: 12/2004 Total Hours: 146365

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
									DIRECTION									
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	0.9	1.2	2.3	2.7	1.7	1.2	1.0	0.0	23.9
4-7	0.8	1.4	2.2	2.8	3.4	2.1	1.0	0.5	0.4	0.4	0.6	4.1	7.7	4.1	2.0	1.0	0.0	34.5
8-12	0.5	0.3	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	2.1	0.2	0.0	12.3
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	0.6	0.0	0.0	3.4
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	0.1	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	1.9	1.6	2.1	3.7	9.2	21.1	20.0	8.6	2.9	1.0	100.0

Station: (26) BENT

Begin: 2/1995 End: 12/2004 Total Hours: 86230

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
									DIRECTION									
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	0.6	0.4	0.5	0.7	1.2	1.9	2.6	2.0	1.5	1.1	0.0	17.8
4-7	1.3	1.1	1.5	2.0	2.4	1.2	0.4	0.2	0.5	1.3	5.3	12.0	13.7	5.7	2.8	2.0	0.0	53.6
8-12	0.5	0.7	1.0	0.9	1.0	0.3	0.0	0.0	0.2	0.7	3.2	5.9	4.6	1.9	1.1	0.5	0.0	22.4
13-18	0.3	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.3	0.9	0.5	0.2	0.1	0.1	0.0	4.7
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	3.3	3.6	3.9	3.7	4.2	2.2	0.9	0.7	1.3	3.2	11.5	20.8	21.4	9.8	5.4	3.7	0.3	100.0

Station: (27) VSTA

Begin: 2/1991 End: 12/2004 Total Hours: 120292

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
									DIRECTION									
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	2.2	2.2	2.0	1.6	1.6	1.9	2.1	1.8	2.1	2.4	2.8	2.6	2.2	1.8	1.8	1.7	0.0	32.9
4-7	2.9	2.0	1.6	1.2	0.8	1.1	1.1	1.2	2.0	4.3	5.9	4.0	2.4	2.5	3.1	3.0	0.0	39.0
8-12	0.5	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	17.9
13-18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5	4.0	1.1	0.4	0.2	0.1	0.1	0.0	7.7
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	1.6
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	5.7	4.5	3.7	2.9	2.4	3.1	3.3	3.2	4.8	12.3	20.0	10.6	5.8	4.9	6.1	6.0	0.7	100.0

Station: (28) SURF

Begin: 9/1994 End: 12/2004 Total Hours: 90080

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
									DIRECTION									
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	1.2	1.2	1.2	0.8	0.7	0.7	1.1	2.1	3.5	3.7	1.8	0.7	0.4	0.3	0.0	20.3
4-7	0.2	0.4	2.4	4.0	2.0	0.6	0.3	0.3	0.4	1.0	4.0	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	4.4	10.1	3.6	0.3	0.0	0.0	0.0	24.9
13-18	0.2	0.3	0.2	0.5	0.2	0.0	0.0	0.0	0.0	0.0	2.1	9.1	5.9	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	0.0	0.4	4.4	3.2	0.3	0.0	0.0	0.0	8.5
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	1.1	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	0.0	0.1	0.1	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	5.8	8.8	4.1	1.5	1.0	0.9	1.6	3.3	14.3	34.6	17.3	2.2	0.6	0.5	0.7	100.0

Table 5.6. (contd)

Station: (29) 100K

Begin: 3/1996 End: 12/2004 Total Hours: 76852

DIRECTION

SPEED	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	1.8	1.8
1-3	2.1	1.8	1.7	1.9	2.2	2.1	2.1	1.8	1.7	1.6	2.1	3.1	4.1	3.0	2.7	2.2	0.0	36.3
4-7	1.6	1.3	0.8	1.0	1.5	1.6	1.7	1.6	1.2	0.9	1.6	4.7	6.6	3.4	2.1	1.7	0.0	33.3
8-12	0.5	0.6	0.3	0.1	0.2	0.4	0.7	0.7	0.4	0.6	1.1	3.0	5.6	2.5	0.8	0.4	0.0	18.0
13-18	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.9	0.9	1.9	2.2	0.7	0.1	0.0	7.9
19-24	0.0	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	2.3
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	0.2	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	3.9	3.0	3.1	4.0	4.2	4.5	4.2	3.5	3.6	6.0	12.0	18.7	12.2	6.4	4.4	1.8	100.0

Station: (30) HAMR

Begin: 1/1998 End: 12/2004 Total Hours: 61209

DIRECTION

SPEED	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	0.9	0.8	0.7	0.8	1.2	2.0	2.3	2.2	1.7	1.4	1.2	1.3	1.3	1.4	1.3	0.0	21.5
4-7	3.9	1.8	0.8	0.7	1.0	2.1	4.9	4.3	4.0	3.8	4.0	2.4	1.6	1.7	2.8	3.6	0.0	43.7
8-12	2.5	1.0	0.3	0.1	0.3	0.3	0.4	0.4	1.2	3.0	6.1	2.6	0.7	0.6	1.6	2.3	0.0	23.3
13-18	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	1.0	2.3	1.5	0.4	0.2	1.2	0.9	0.0	8.7
19-24	0.1	0.1	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	1.9
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	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	8.2	3.9	2.0	1.5	2.1	3.6	7.3	7.1	7.7	9.6	14.6	8.0	4.3	3.9	7.4	8.3	0.5	100.0

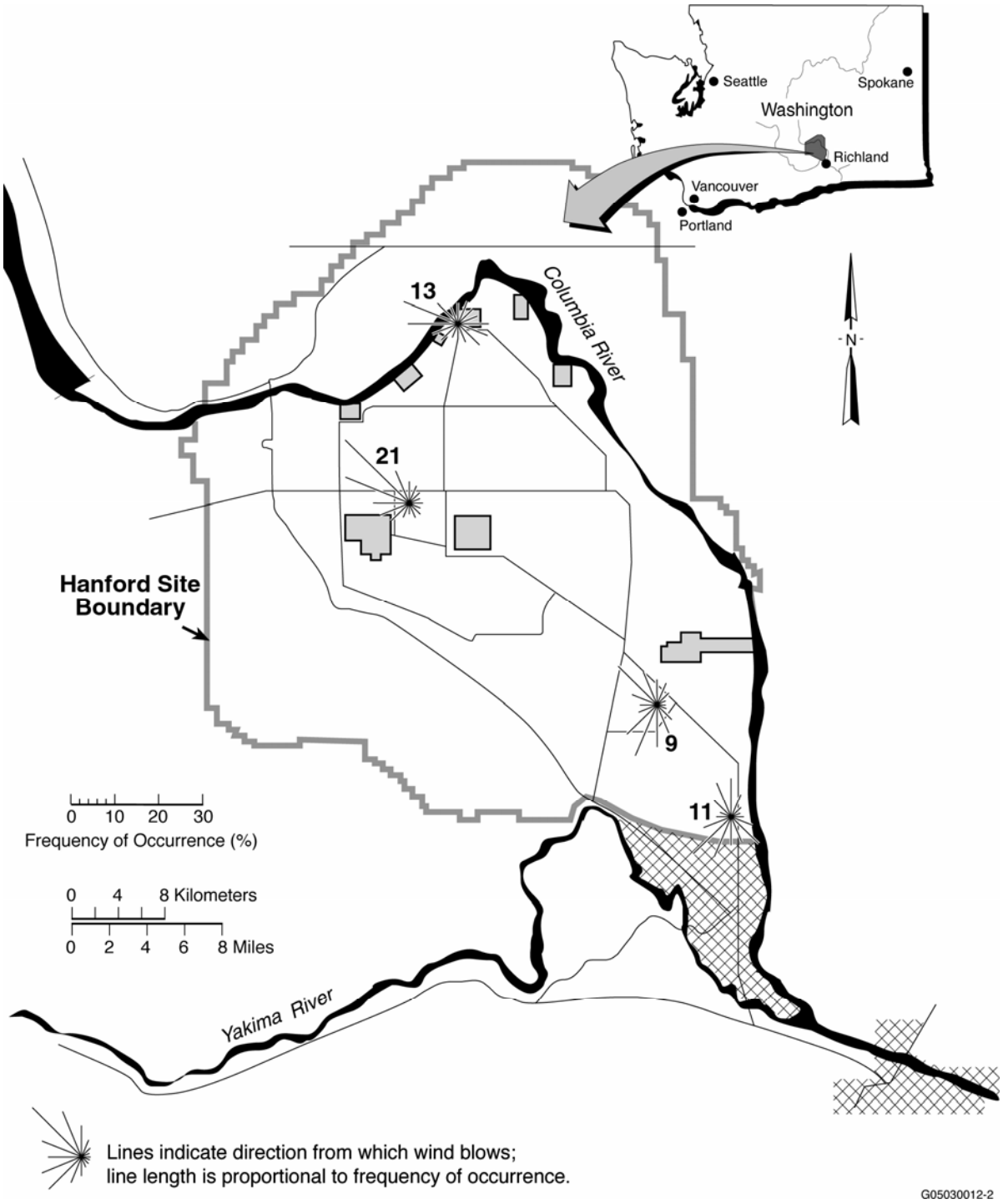

Figure 5.2. Hanford Meteorological Monitoring Network Wind Roses at 60-Meter Level, 1986 through 2004 (Refer to Table 1.1 for the names of the numbered locations on this map.)

Table 5.7. Joint Frequency Distributions (%) for Hanford Meteorological Monitoring Network Wind Stations at 60-Meter Level, 1986 through 2004

Tower: 100 Area (13)

Begin: 1/1986 End: 12/2004 Total Hours: 160692

DIRECTION

SPEED	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	0.7	0.7
1-3	1.8	1.6	1.8	2.3	3.2	3.0	2.4	1.7	1.4	1.2	1.3	1.5	1.9	2.0	1.9	1.7	0.0	30.7
4-7	1.7	1.8	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	32.1
8-12	0.7	1.0	0.7	0.4	0.5	0.7	1.2	0.6	0.5	0.5	1.0	1.3	2.6	2.6	0.9	0.6	0.0	15.9
13-18	0.4	0.6	0.3	0.2	0.1	0.2	0.5	0.4	0.3	0.4	0.8	0.9	2.5	3.0	0.7	0.2	0.0	11.5
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	5.9
25-31	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.3	0.7	0.3	0.0	0.0	2.5
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	0.1	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	5.5	4.8	4.8	7.0	7.2	6.9	4.5	3.3	3.4	5.3	6.4	11.4	13.4	6.6	4.1	0.7	100.0

Tower: 200 Area (21)

Begin: 1/1986 End: 12/2004 Total Hours: 166377

DIRECTION

SPEED	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	0.3	0.3
1-3	1.3	1.1	1.1	1.0	1.0	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	3.7	0.0	31.0
8-12	1.0	0.7	0.5	0.3	0.4	0.3	0.4	0.7	0.5	0.6	1.2	1.9	2.8	4.9	6.1	2.2	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	4.7	5.5	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	2.4	0.1	0.0	7.3
25-31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.4	0.1	0.5	1.1	0.0	0.0	3.1
32-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.1	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	0.1	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	3.1	2.7	3.5	3.6	2.6	3.5	5.9	7.2	8.2	15.7	20.5	7.9	0.3	100.0

Tower: 300 Area (11)

Begin: 1/1986 End: 12/2004 Total Hours: 156397

DIRECTION

SPEED	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	1.0	0.8	0.7	0.6	0.8	1.1	1.3	1.2	1.1	0.9	0.8	0.7	0.7	0.8	0.9	1.0	0.0	14.4
4-7	2.7	1.7	1.2	1.2	1.7	2.8	4.3	3.2	2.9	2.5	2.0	1.2	0.9	0.8	1.4	2.4	0.0	33.2
8-12	3.2	2.0	0.9	0.4	0.4	1.2	2.7	1.5	1.9	3.5	3.3	1.7	0.7	0.6	1.2	2.6	0.0	28.0
13-18	1.7	0.9	0.2	0.1	0.0	0.2	0.4	0.3	0.5	2.0	3.3	1.9	0.6	0.4	1.1	1.9	0.0	15.5
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	0.1	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	8.8	5.7	3.1	2.3	2.9	5.3	8.7	6.2	6.6	9.9	12.1	6.8	3.4	2.8	5.6	8.3	0.6	100.0

Tower: 400 Area (9)

Begin: 1/1986 End: 12/2004 Total Hours: 161044

DIRECTION

SPEED	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	0.3	0.3
1-3	0.9	0.8	0.7	0.7	0.8	0.8	1.0	1.0	0.9	0.8	0.8	0.6	0.7	0.6	0.7	0.8	0.0	12.5
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	29.0
8-12	1.9	1.7	1.0	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	27.4
13-18	0.7	0.5	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	18.9
19-24	0.1	0.2	0.1	0.0	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	8.1
25-31	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	0.3	0.1	0.2	0.6	0.1	0.0	2.8
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	0.1	0.0	0.0	0.7
39-46	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	0.0	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	0.1
TOTAL	5.8	5.3	3.8	2.2	2.1	2.5	4.9	7.0	9.5	12.5	9.4	4.5	3.9	6.1	12.3	7.9	0.3	100.0