

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

July 2004

Station: Westford
 Latitude: 44° 37' 39" N Longitude: 73° 02' 29" W Elevation (Ground): 850 feet Time Zone: Eastern

Date	Temperature					Humidity	Deq 65°F		Days 65°F	Precip Ty	Snow Cvr	Precip		Pressure			Wind					Sun				
	Maximum	Minimum	Average	Mean	Dew Point		Mean	Heating Base				Cooling Base	Water Equivalent	Ice Pellets Snow	Adj. to Sea Level			Avg	Res	Res	Peak		Minute		Mean Index	
															Maximum	Minimum	Mean				Speed		Dir	Speed		Dir	Speed	Dir
1	2	3	4A	4B	5	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	78.3	50.7	64.5	63.3	57	82	1	0	..3.....	0	0.38	0.0	30.07	29.90	29.999	2.4	2.3	189	17	S	4	202				
2	72.1	55.7	63.9	64.5	58	80	2	0	.....	0	0.00	0.0	29.97	29.90	29.937	2.3	1.6	267	18	WNW	0	0			
3	77.9	53.1	65.5	65.3	55	73	0	0	.....	0	0.00	0.0	30.01	29.93	29.969	0.7	0.6	319	16	N	0	0			
4	81.6	50.2	65.9	68.9	58	71	0	0	.....	0	0.00	0.0	29.99	29.77	29.894	2.2	2.1	191	19	SSW	4	224			
5	76.7	64.0	70.3	69.6	64	83	0	5	.....	0	0.53	0.0	29.78	29.65	29.715	4.9	4.6	192	33	S	0	0			
6	72.8	51.4	62.1	63.3	56	79	3	0	.....	0	0.02	0.0	29.88	29.74	29.843	1.5	1.3	311	19	WNW	0	0			
7	79.2	47.9*	63.5	64.1	56	78	2	0	.....	0	0.17	0.0	29.90	29.73	29.819	0.5	0.3	159	13	WSW	0	159			
8	79.6	59.3	69.4	67.8	65	90	0	4	..3.....	0	0.37	0.0	29.78	29.67	29.721	2.4	2.2	178	16	S	0	0				
9	72.7	59.2	65.9	64.4	59	83	0	0	.....	0	0.06	0.0	29.93	29.77	29.856	1.9	1.7	288	14	W	5	263			
10	74.9	59.2	67.1	65.7	60	83	0	2	.....	0	0.03	0.0	30.03	29.93	29.967	1.9	1.6	271	19	WNW	0	0			
11	77.0	57.3	67.1	65.9	59	81	0	2	.....	0	0.00	0.0	30.13	30.03	30.066	0.6	0.3	312	13	WNW	0	0			
12	80.5	57.3	68.9	69.0	62	80	0	3	.....	0	0.00	0.0	30.04	29.89	29.969	3.2	3.0	189	19	SSW	5	184			
13	75.3	59.9	67.6	67.6	60	78	0	2	.....	0	0.00	0.0	29.90	29.77	29.847	3.0	2.7	171	17	S	2	160			
14	75.6	59.9	67.8	67.1	61	80	0	2	.....	0	0.00	0.0	29.77	29.51	29.624	2.3	2.1	164	19	S	0	0			
15	76.1	61.5	68.8	65.6	63	90	0	3	.....	0	0.77	0.0	29.51	29.40	29.447	0.9	0.6	210	12	SSW	0	0			
16	73.9	61.2	67.6	65.7	63	92	0	2	.....	0	0.52	0.0	29.65	29.50	29.549	1.6	1.5	199	14	SSW	0	0			
17	79.4	61.6	70.5	68.8	64	87	0	5	.....	0	0.01	0.0	29.88	29.65	29.768	0.7	0.6	301	11	WNW	0	0			
18	81.6	58.1	69.8	67.4	64	89	0	4	..3.....	0	0.27	0.0	29.93	29.85	29.889	0.3	0.1	39	13	SSW	0	0				
19	79.4	61.6	70.5	68.9	64	86	0	5	..3.....	0	0.12	0.0	29.85	29.68	29.750	0.5	0.4	315	9	WNW	0	0				
20	80.5	62.3	71.4	68.6	64	86	0	6	..3.....	0	1.80	0.0	29.86	29.72	29.789	1.2	0.9	192	12	SSW	0	0				
21	83.2	60.2	71.7	70.9	64	80	0	6	.....	0	0.00	0.0	29.92	29.83	29.865	0.4	0.3	198	11	NE	0	0			
22	84.3*	66.0	75.2*	74.6	66	76	0	10	..3.....	0	0.30	0.0	29.84	29.69	29.765	3.4	3.2	189	24	S	0	0				
23	76.8	57.5	67.2	67.7	66	95	0	2	..3.....	0	0.68	0.0	30.00	29.72	29.807	2.6	2.4	191	19	S	0	0				
24	69.4	49.1	59.3*	59.7	51	74	6	0	.....	0	0.00	0.0	30.32	30.01	30.207	1.0	0.7	338	14	WNW	0	0			
25	72.1	50.4	61.3	59.8	53	79	4	0	.....	0	0.00	0.0	30.34	30.20	30.269	0.3	0.2	306	8	WNW	0	0			
26	73.9	53.2	63.6	63.6	59	85	2	0	.....	0	0.00	0.0	30.20	30.06	30.128	0.3	0.2	306	16	W	0	0			
27	67.9	57.3	62.6	61.3	59	93	3	0	.....	0	0.06	0.0	30.10	29.99	30.050	0.8	0.6	187	16	S	0	0			
28	68.3	56.5	62.4	61.7	59	91	3	0	.....	0	T	0.0	29.98	29.92	29.950	0.4	0.2	120	10	S	0	0			
29	79.4	60.4	69.9	68.4	63	84	0	4	.....	0	0.00	0.0	30.02	29.94	29.985	0.5	0.4	285	10	WSW	0	0			
30	81.1	61.5	71.3	71.6	65	80	0	6	..3.....8.	0	0.04	0.0	30.05	29.92	29.994	2.2	2.0	191	18	SSW	0	0				
31	78.1	70.6	74.3	72.8	70	91	0	9	..3.....	0	0.53	0.0	29.93	29.80	29.855	4.6	4.5	195	26	SSE	0	0				
Sum	Sum	-----	-----	---	----	Ttl	Ttl	Number of Days		For the month:			---													
2380	1794					26	82			6.66	0.0	30.34	29.40	29.880	1.7	1.1	204	33	S	5	263					
Avg	Avg	Avg	Mean	Avg	Avg	----	----	Precip		Season Ttl		Date	Date	-----	----	----	---	Date	Date	Avg						
76.8	57.9	67.3	66.6	61	83.2	----	----	≥ .01 inch 18		21.61	0.0	25	15	-----	----	----	---	5	9							
Number of Days							Season to Date		Snow, Ice ≥1.0 inch 0		Greatest in 24 Hours and Dates					Greatest Depth on Ground of Snow, Ice Pellets or Ice and Date										
Max Temperature			Min Temperature			26	123	Thunder 9		Precipitation		Snow, Ice Plts														
≥ 90°F	< 32°F	< 32°F	< 0°F	----	----	----	----	Heavy Fog 0		1.80	19-20	0.0	-	0			-									
0	0	0	0	----	----	----	----	Clear 2		Partly Cloudy 20		Cloudy 9														

NOTES:
 Units are: Temperature=°F, Wind=mph, Pressure=inches Hg, Precipitation=inches.
 Data in column 4A are (MAX+MIN) ÷ 2, whereas columns 4B, 5, 6, 15, 16, 23 are means via continuous observations for 24 hours.
 Column 5: Dew point is calculated from temperature and humidity and is continuously averaged for 24 hours.
 Data in columns 9, 10, 12 are entered manually by the station observer.
 Columns 17-18: Resultant wind is calculated by the vector sum of continuous wind observations.
 Column 23: Sunshine index is measured in Watts/m^2 and is continuously averaged for 24 hours.
 Data in columns 4B, 5, 6, 15, 16, 23 are updated continuously, there by achieving a "true" mean.

OBSERVATIONS AT 3-HOUR INTERVALS

July 2004: Westford

Hour	JUL 19									JUL 20									JUL 21								
	Sunshine	Pressure	Rainfall rate	Temperature	Dew Point	Humidity	Direction	Speed	Gust	Sunshine	Pressure	Rainfall rate	Temperature	Dew Point	Humidity	Direction	Speed	Gust	Sunshine	Pressure	Rainfall rate	Temperature	Dew Point	Humidity	Direction	Speed	Gust
01		29.84	0.00	63	63	98	00	0	0		29.73	0.00	65	63	94	00	0	0		29.87	0.00	62	60	93	00	0	0
04		29.80	0.00	62	62	98	00	0	3		29.73	0.00	65	64	96	20	3	7		29.86	0.00	62	60	93	24	0	2
07		29.79	0.00	63	63	98	02	0	1		29.79	0.08	63	62	97	24	1	3		29.90	0.00	62	61	96	20	0	1
10		29.76	0.00	72	66	81	31	0	1		29.83	0.01	63	62	98	18	0	2		29.90	0.00	75	66	73	20	0	4
13		29.73	0.00	73	68	83	31	3	7		29.80	0.00	72	67	83	18	4	10		29.88	0.00	78	65	66	13	2	7
16		29.69	0.00	75	66	74	29	2	7		29.78	0.00	79	64	60	24	2	6		29.84	0.00	83	70	65	29	1	3
19		29.69	0.00	74	65	75	00	0	0		29.80	0.00	78	68	70	27	0	1		29.84	0.00	79	70	74	00	0	0
22		29.73	0.00	65	62	92	00	0	0		29.84	0.00	68	60	76	27	0	1		29.84	0.00	70	66	86	18	0	1
JUL 22									JUL 23									JUL 24									
01		29.82	0.00	67	63	86	18	0	3		29.74	0.00	68	67	96	18	2	8		30.03	0.00	57	54	90	00	1	6
04		29.83	0.00	67	62	85	20	2	5		29.72	0.00	70	67	90	18	5	12		30.08	0.00	55	49	79	00	1	7
07		29.82	0.00	69	64	83	18	3	7		29.74	0.00	69	67	95	20	3	8		30.18	0.00	53	49	84	00	1	6
10		29.79	0.00	77	69	74	20	5	12		29.76	0.00	69	69	98	18	5	11		30.23	0.00	60	51	72	00	1	5
13		29.73	0.00	82	70	66	20	9	19		29.78	0.00	72	70	94	20	4	11		30.25	0.00	66	56	70	02	1	6
16		29.70	0.00	83	67	59	18	6	16		29.80	0.00	67	66	95	27	2	10		30.26	0.00	69	54	60	29	3	14
19		29.70	0.00	79	65	63	18	3	13		29.90	0.00	64	63	97	33	1	5		30.27	0.00	67	49	53	02	0	5
22		29.74	0.00	70	68	96	00	0	0		29.96	0.00	61	60	96	00	0	0		30.32	0.00	53	48	85	00	0	0
JUL 25									JUL 26									JUL 27									
01		30.30	0.00	53	50	92	00	0	0		30.19	0.00	54	53	96	00	0	0		30.07	0.00	59	58	97	00	0	0
04		30.30	0.00	51	49	91	00	0	0		30.17	0.00	54	54	97	00	0	0		30.06	0.00	58	58	97	00	0	0
07		30.33	0.00	52	50	93	00	0	0		30.17	0.00	56	55	98	00	0	0		30.08	0.00	59	59	98	00	0	0
10		30.32	0.00	62	55	76	02	0	1		30.16	0.00	69	61	76	00	0	2		30.10	0.00	63	62	97	20	2	7
13		30.28	0.00	68	59	72	29	1	5		30.12	0.00	74	62	68	29	2	6		30.06	0.00	67	62	83	18	1	7
16		30.23	0.00	70	57	62	02	0	1		30.09	0.00	72	60	66	27	1	3		30.05	0.00	62	61	94	20	0	1
19		30.21	0.00	67	57	70	00	0	0		30.08	0.00	68	63	82	00	0	0		30.00	0.00	61	59	93	13	0	3
22		30.21	0.00	54	52	94	00	0	0		30.08	0.00	60	59	95	00	0	0		30.00	0.00	58	56	95	18	0	5
JUL 28									JUL 29									JUL 30									
01		29.97	0.00	57	56	94	00	0	0		29.94	0.00	62	61	98	18	1	5		30.02	0.00	62	61	97	22	0	1
04		29.96	0.00	57	56	96	00	0	0		29.95	0.00	62	61	98	00	0	0		30.02	0.00	64	61	91	18	1	6
07		29.96	0.00	57	56	95	00	0	0		30.00	0.00	63	63	98	29	0	2		30.05	0.00	63	61	95	00	0	0
10		29.96	0.00	60	58	92	00	1	5		30.02	0.00	67	64	88	27	0	3		30.04	0.00	74	66	74	18	3	7
13		29.94	0.00	64	60	86	11	2	5		30.00	0.00	75	64	70	24	2	7		29.99	0.00	80	67	65	20	5	10
16		29.93	0.00	68	63	83	18	1	5		29.98	0.00	78	64	62	31	2	7		29.97	0.00	79	66	66	18	5	14
19		29.93	0.00	67	63	87	00	0	0		29.97	0.00	77	64	64	24	0	2		29.94	0.00	77	68	74	18	4	11
22		29.95	0.00	63	62	96	00	0	0		30.01	0.00	62	61	96	00	0	0		29.94	0.00	73	67	81	18	0	5
JUL 31																											
01		29.92	0.00	71	70	96	20	0	2																		
04		29.89	0.00	72	70	96	20	4	12																		
07		29.90	0.00	71	70	97	18	3	11																		
10		29.86	0.00	72	70	93	18	6	13																		
13		29.82	0.00	76	69	79	20	9	21																		
16		29.80	0.00	74	72	93	20	3	7																		
19		29.80	0.00	74	71	91	20	4	7																		
22		29.84	0.00	73	68	85	18	5	13																		

WEATHER NOTES

NOTES:
 Units are: Temperature=°F, Wind=mph, Pressure=inches Hg, Precipitation=inches.
 Wind Direction: Directions are those from which the wind is blowing, indicated in tens of degrees from true north: i.e., 09 for East, 18 for South, 27 for West, and 00 or 36 for North.
 Wind Speed: The observed one-minute average speed in miles-per-hour.
 Wind Gust: The maximum instantaneous wind speed for the 10-minute period preceding the observation.
 Rainfall Rate: The instantaneous rainfall rate at the time of observation, calculated by timing consecutive 0.01" pulses from the electronic rain gauge and interpolating this rate for one hour.

SUMMARY BY HOUR

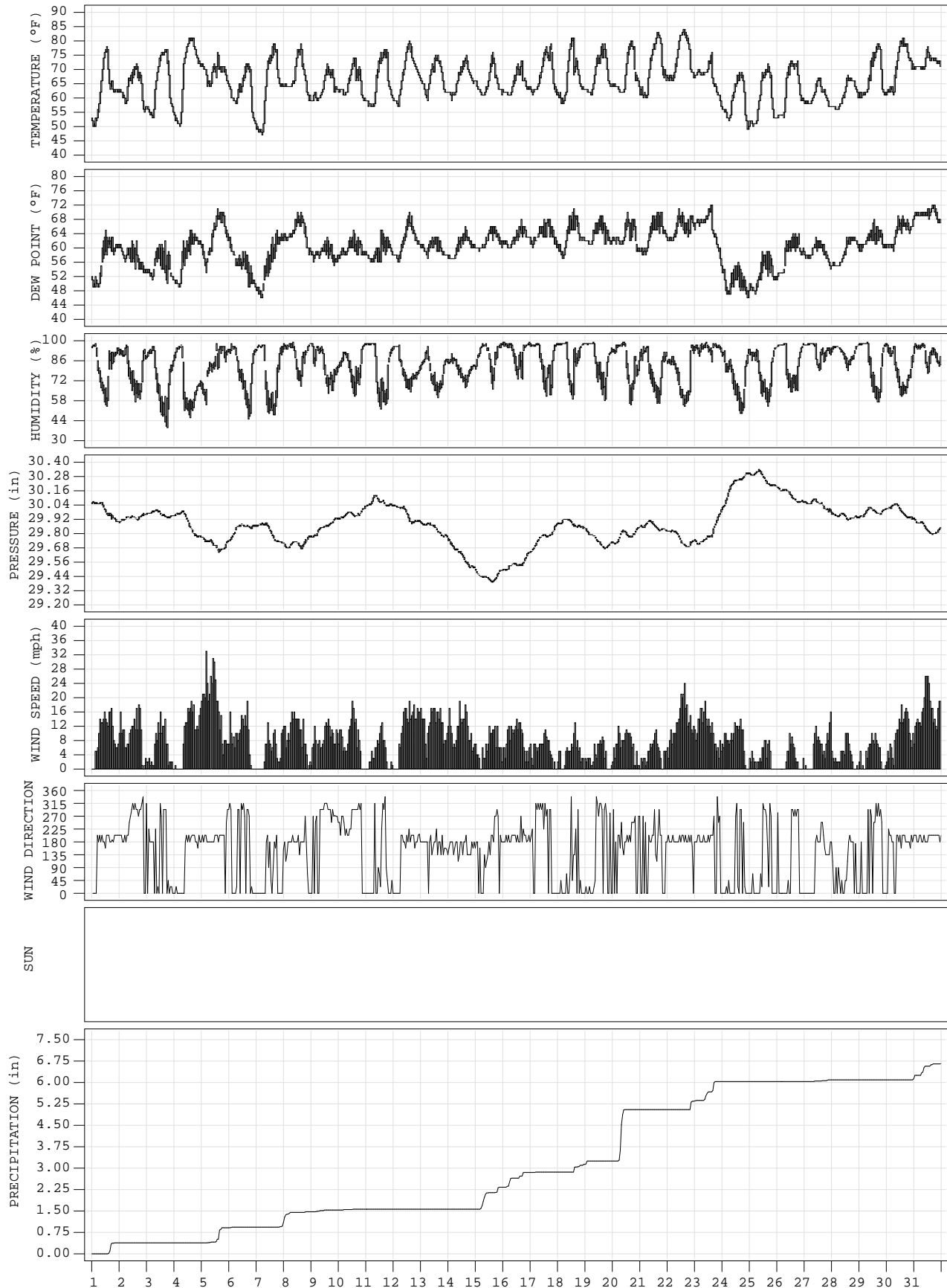
Hour	Averages						Resultant Wind	
	Sunshine	Pressure	Temperature	Dew Point	Humidity	Wind Speed	Direction	Speed
01		29.884	61	59	92	0.8	19	0.6
04		29.880	61	58	92	1.4	20	1.0
07		29.903	61	59	93	1.1	19	0.9
10		29.904	68	62	80	2.3	18	1.7
13		29.879	73	63	72	3.3	21	2.1
16		29.856	74	63	71	2.4	22	1.4
19		29.857	71	62	76	1.2	20	0.8
22		29.880	63	60	90	0.7	20	0.5

HOURLY PRECIPITATION (Water Equivalent)
July 2004: Westford

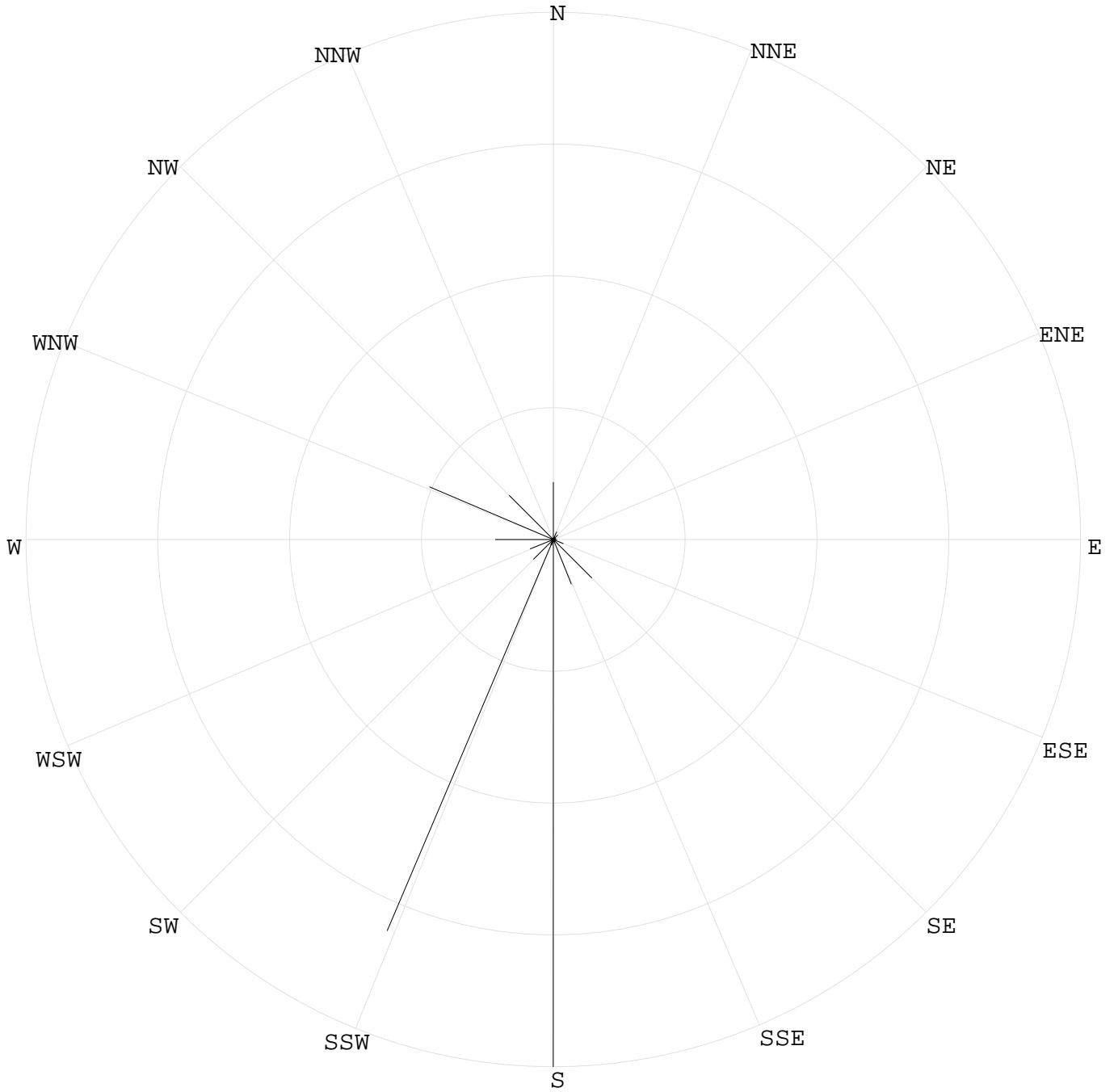
Date	A.M. Hour Ending at												P.M. Hour Ending at												Date
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	
01																								01	
02																0.02	0.08	0.24	0.03		0.01				02
03																									03
04																									04
05						0.01		0.01	0.01				0.01	0.09		0.32	0.02	0.06							05
06		0.01	0.01																						06
07																									07
08	0.18	0.09	0.01	0.01	0.02	0.04		0.02										0.01	0.01		0.02		0.02	0.13	08
09					0.01	0.01						0.02													09
10					0.02								0.01												10
11																									11
12																									12
13																									13
14																									14
15					0.03	0.10	0.14	0.15	0.11	0.04		0.01					0.01	0.01	0.15	0.02					15
16				0.03	0.01	0.14	0.13	0.01							0.07		0.12	0.01							16
17				0.01																					17
18															0.17	0.01		0.01	0.01	0.04			0.03		18
19	0.02	0.10																							19
20						0.03	0.33	0.91	0.35	0.17	0.01														20
21																									21
22																									22
23	0.01	0.01							0.04	0.12	0.08	0.06				0.04	0.28	0.04				0.26	0.03	0.01	23
24																									24
25																									25
26																									26
27									0.01	0.01					0.01				0.01	0.02					27
28																									28
29																									29
30																								0.04	30
31	0.12						0.09	0.02	0.16	0.05					0.05		0.03							0.01	31
Sum	0.33	0.21	0.02	0.04	0.10	0.33	0.69	1.12	0.68	0.39	0.09	0.09	0.02	0.09	0.31	0.46	0.57	0.27	0.04	0.22	0.32	0.03	0.05	0.19	Sum

During a frozen precipitation event, hourly precipitation totals may not be recorded. In this case, daily amounts are typically entered in the last column (hour ending at 12 A.M.)

HOURLY-BY-HOURLY DATA
July 2004: Westford



Wind Rose: July 2004
Westford



Maximum direction of wind: 443.2 miles from 180°.
1236.7 total miles of wind.