

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

July 2013

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

Date	Temperature					Humidity	Deg. Days		Precip Ty 1 fog 2 hvy fog 3 thunder 4 ice plt 5 hail 6 glaze 7 dustsm, hz 8 smk, hz 9 blw snw	Snow Cvr	Precip		Pressure Adj. to Sea Level			Wind						Solar Radiation		
	Maximum	Minimum	Average	Mean	Dew Point		Mean	Heating Base 65°F			Cooling Base 65°F	Water Equivalent	Ice Pellets Snow	Maximum	Minimum	Mean	Avg Speed	Res Speed	Res Dir	Peak			Minute	
																				Speed	Dir		Speed	Dir	Speed	Dir
1	2	3	4A	4B	5	6	7	8		11	12	13	14	15	16	17	18	19	20	21	22	23		
1	74.7	59.8	67.2	66.0	63	89	0	3	.....	0	0.28	0.0	30.05	29.87	29.971	0.1	0.1	32	9	NE	3	32	112
2	74.3	58.8	66.6	65.9	64	93	0	2	.....	0	0.30	0.0	30.08	30.02	30.052	0.0	0.0	313	7	WNW	3	304	123
3	83.1	66.1	74.6	73.5	71	91	0	10	..3.....	0	0.01	0.0	30.11	30.03	30.072	0.3	0.2	227	10	SW	6	225	172	
4	85.6	66.5	76.0	74.0	71	91	0	12	..3.....	0	0.85	0.0	30.11	29.99	30.064	0.5	0.4	224	15	NW	7	323	192	
5	87.2	64.2	75.7	75.1	70	85	0	11	..3.....	0	T	0.0	30.08	29.96	30.024	0.6	0.6	240	12	W	6	233	239	
6	84.2	67.9	76.0	74.8	67	78	0	11	.....	0	0.03	0.0	30.01	29.92	29.976	0.6	0.6	286	14	W	7	296	228
7	78.7	63.9	71.3	70.4	64	80	0	7	.....	0	0.04	0.0	29.97	29.86	29.921	0.1	0.1	221	11	SW	5	220	126
8	79.6	62.7	71.1	69.6	66	90	0	7	..2.....	0	0.05	0.0	30.00	29.86	29.928	0.1	0.1	309	8	NW	4	308	166	
9	85.3	60.6	73.0	71.7	66	84	0	8	.....	0	0.00	0.0	30.03	29.91	29.970	0.1	0.1	262	9	NW	3	221	244
10	80.4	65.2	72.8	73.6	68	84	0	8	.....	0	T	0.0	29.91	29.64	29.754	2.2	2.2	215	21	S	11	230	193
11	78.0	56.4	67.2	69.5	63	80	0	2	..3.....	0	0.30	0.0	29.98	29.65	29.802	0.6	0.5	304	17	WNW	9	299	244	
12	78.1	53.4	65.8	65.4	58	78	0	1	.....	0	0.01	0.0	30.16	29.97	30.076	0.2	0.2	312	10	WNW	5	311	285
13	81.4	53.8	67.6	69.2	62	79	0	3	.....	0	0.00	0.0	30.24	30.15	30.200	0.2	0.2	231	10	SW	4	258	269
14	87.3	66.7	77.0	74.9	68	79	0	12	.....	0	T	0.0	30.26	30.14	30.198	0.1	0.1	229	8	SW	3	291	201
15	88.2	65.4	76.8	76.3	68	77	0	12	.....	0	0.00	0.0	30.17	30.08	30.124	0.2	0.2	296	11	NW	5	279	294
16	87.2	64.1	75.6	75.1	66	76	0	11	.....	0	0.00	0.0	30.17	30.10	30.124	0.2	0.1	323	12	WNW	6	307	291
17	90.9	64.4	77.7	76.9	68	76	0	13	..3.....	0	T	0.0	30.13	29.87	30.017	0.7	0.7	251	14	WNW	7	307	251	
18	87.8	65.5	76.7	75.4	69	81	0	12	..3.....	0	0.02	0.0	29.98	29.84	29.916	0.1	0.1	274	10	SW	6	309	228	
19	91.0*	66.4	78.7*	77.3	69	78	0	14	..3.....	0	0.26	0.0	29.85	29.56	29.677	2.5	2.3	238	32	NW	15	310	246	
20	81.2	62.1	71.6	71.2	64	78	0	7	.....	0	0.74	0.0	29.79	29.56	29.622	1.1	0.9	253	16	WSW	8	291	153
21	74.4	51.1	62.8	62.9	53	71	2	0	.....	0	0.00	0.0	29.98	29.77	29.909	0.1	0.0	354	9	W	2	291	255
22	81.2	48.2	64.7	65.3	57	77	0	0	.....	0	0.51	0.0	29.99	29.77	29.899	0.0	0.0	244	10	SW	3	294	279
23	78.0	64.4	71.2	68.1	65	90	0	6	.....	0	0.34	0.0	29.78	29.47	29.592	0.0	0.0	213	7	SE	3	267	126
24	66.1	47.5	56.8	59.7	55	84	8	0	..3.....	0	0.46	0.0	30.01	29.48	29.724	1.1	1.0	304	18	WNW	8	310	132	
25	71.9	40.9*	56.4*	56.1	48	76	8	0	.....	0	0.00	0.0	30.11	30.00	30.063	0.2	0.2	346	11	NNW	6	299	297
26	73.1	47.8	60.4	59.6	55	84	4	0	.....	0	0.00	0.0	30.08	29.96	30.015	0.1	0.1	332	10	NW	4	308	171
27	80.7	50.2	65.4	64.8	56	77	0	1	.....	0	0.01	0.0	30.00	29.89	29.949	0.1	0.1	235	10	SW	4	276	274
28	77.4	57.9	67.7	68.0	62	81	0	3	.....	0	0.03	0.0	29.91	29.82	29.878	0.4	0.4	208	16	SE	8	154	130
29	76.6	57.5	67.0	66.6	60	80	0	3	..3.....	0	0.15	0.0	30.04	29.88	29.940	0.2	0.2	291	11	WNW	6	304	229	
30	74.3	54.5	64.4	63.4	56	77	0	0	.....	0	0.02	0.0	30.08	30.00	30.033	0.2	0.2	280	11	W	6	302	232
31	80.3	52.3	66.3	65.8	57	75	0	1	.....	0	0.00	0.0	30.08	29.93	30.011	0.1	0.1	236	10	WSW	4	295	272
Sum	Sum	-----	-----	---	----		Ttl	Ttl					For the month:						---					
2498	1826						22	180	Number of Days	4.41	0.0	30.26	29.47	29.952	0.4	0.3	252	32	NW	15	310			
Avg	Avg	Avg	Mean	Avg	Avg	----	----		Precip	Season Ttl		Date	Date	-----	----	----	----	Date	Date	Avg				
80.6	58.9	69.7	69.2	63	81.4	----	----		≥.01 inch	19	28.67	0.0	14	23	-----	----	----	----	19	19	214			
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			22	284	Thunder	9	Precipitation		Snow, Ice Plts												
≥ 90°F	≤ 32°F	≤ 32°F	≤ 0°F	----	----			Heavy Fog	1	1.00	19-20	0.0	-	0			-							
2	0	0	0	----	----			Clear	2	Partly Cloudy		21	Cloudy		8									

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: Solar Radiation is measured in Watts/m² 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 2013: 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	0	29.82	0.00	69	66	92	21	0	0	0	29.58	0.00	68	65	91	20	2	8	0	29.79	0.00	59	56	88	00	0	0
04	0	29.76	0.00	69	67	94	21	1	7	0	29.58	0.00	70	65	85	21	3	8	0	29.84	0.00	57	51	80	00	0	1
07	90	29.73	0.00	72	69	90	21	4	10	35	29.62	0.00	69	64	84	21	1	7	42	29.90	0.00	54	49	84	04	0	2
10	617	29.68	0.00	82	74	75	23	6	15	230	29.58	0.00	73	66	80	23	2	11	350	29.95	0.00	63	54	71	32	0	4
13	891	29.65	0.00	87	76	69	26	1	12	14	29.57	0.00	72	65	79	30	5	10	698	29.95	0.00	68	56	65	31	0	1
16	615	29.57	0.00	91	71	53	25	4	14	411	29.58	0.00	79	65	63	28	3	13	654	29.92	0.00	74	56	53	02	0	0
19	47	29.58	0.00	85	69	59	23	3	12	178	29.68	0.00	78	61	57	30	0	1	172	29.92	0.00	72	56	59	31	0	0
22	0	29.63	0.00	67	64	92	23	0	4	0	29.73	0.00	68	58	72	02	0	2	0	29.95	0.00	55	49	83	32	0	0
JUL 22									JUL 23									JUL 24									
01	0	29.97	0.00	51	49	91	13	0	0	0	29.76	0.00	66	65	95	20	0	0	0	29.49	0.00	65	63	94	21	0	1
04	0	29.96	0.00	49	47	93	13	0	0	0	29.68	0.00	66	65	96	20	0	2	0	29.50	0.22	65	63	94	14	0	11
07	127	29.97	0.00	52	50	95	03	0	0	26	29.66	0.04	65	64	96	20	0	0	19	29.57	0.00	61	59	94	31	2	9
10	659	29.94	0.00	71	54	56	20	0	0	97	29.60	0.06	65	63	96	11	0	0	782	29.67	0.00	63	57	80	31	1	9
13	909	29.92	0.00	74	60	62	30	0	3	77	29.57	0.00	67	65	96	06	0	0	663	29.77	0.00	60	53	77	30	2	9
16	633	29.86	0.00	80	66	62	21	0	5	629	29.52	0.00	76	68	76	18	0	3	195	29.83	0.00	58	50	75	30	3	13
19	183	29.81	0.00	79	66	64	23	0	1	137	29.48	0.00	76	67	72	22	0	1	42	29.89	0.00	56	49	77	02	0	1
22	0	29.80	0.00	65	61	89	23	0	0	0	29.50	0.00	66	63	91	21	0	0	0	29.95	0.00	53	48	81	02	0	0
JUL 25									JUL 26									JUL 27									
01	0	30.01	0.00	45	42	89	02	0	0	0	30.07	0.00	51	48	91	30	0	0	0	29.97	0.00	52	51	94	05	0	0
04	0	30.01	0.00	42	40	92	02	0	0	0	30.05	0.00	49	47	94	30	0	0	0	29.96	0.00	52	51	95	05	0	0
07	26	30.06	0.00	44	42	95	04	0	2	81	30.05	0.00	52	51	96	30	0	0	26	29.97	0.00	53	52	96	19	0	0
10	657	30.11	0.00	60	49	67	07	0	4	322	30.04	0.00	60	57	92	29	0	0	650	29.98	0.00	70	60	70	25	0	7
13	677	30.08	0.00	66	52	61	06	0	1	422	30.00	0.00	69	61	74	30	0	1	865	29.95	0.00	77	59	55	20	0	4
16	656	30.07	0.00	70	55	59	35	0	8	420	29.99	0.00	71	62	72	30	0	4	327	29.93	0.00	79	59	51	23	1	5
19	111	30.07	0.00	70	55	59	29	0	1	158	29.97	0.00	71	62	75	05	0	0	125	29.90	0.00	76	61	61	17	0	1
22	0	30.09	0.00	52	48	87	30	0	0	0	29.97	0.00	54	51	88	05	0	0	0	29.92	0.00	59	55	85	17	0	0
JUL 28									JUL 29									JUL 30									
01	0	29.90	0.00	59	55	89	17	0	0	0	29.90	0.00	64	61	89	24	0	0	0	30.02	0.00	56	53	89	34	0	0
04	0	29.89	0.00	61	57	87	21	0	0	0	29.91	0.00	62	61	94	23	0	0	0	30.02	0.00	57	54	90	25	0	4
07	47	29.89	0.00	63	60	88	14	0	0	84	29.93	0.00	62	61	96	23	0	0	28	30.04	0.00	56	53	90	28	0	0
10	271	29.90	0.00	70	62	77	21	0	1	617	29.95	0.00	71	61	72	05	0	0	635	30.06	0.00	67	57	71	18	2	9
13	352	29.87	0.00	74	63	69	18	0	11	285	29.92	0.00	75	62	63	30	0	1	111	30.05	0.00	68	56	66	26	0	5
16	162	29.85	0.00	75	66	72	22	0	6	221	29.92	0.00	74	61	64	31	0	4	297	30.01	0.00	73	57	57	26	0	7
19	56	29.86	0.00	69	66	89	16	0	1	107	29.94	0.00	69	59	71	05	0	0	44	30.03	0.00	70	60	71	30	0	0
22	0	29.89	0.00	68	64	85	23	2	12	0	30.01	0.00	59	56	89	34	0	0	0	30.04	0.00	58	54	87	29	0	1
JUL 31																											
01	0	30.04	0.00	55	52	90	30	0	0																		
04	0	30.03	0.00	55	53	94	30	0	0																		
07	28	30.06	0.00	55	53	95	26	0	0																		
10	554	30.04	0.00	70	61	73	21	1	7																		
13	831	30.03	0.00	76	62	63	23	0	5																		
16	682	29.98	0.00	80	58	48	23	0	1																		
19	107	29.95	0.00	76	59	57	23	0	0																		
22	0	29.96	0.00	62	57	84	23	0	0																		

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

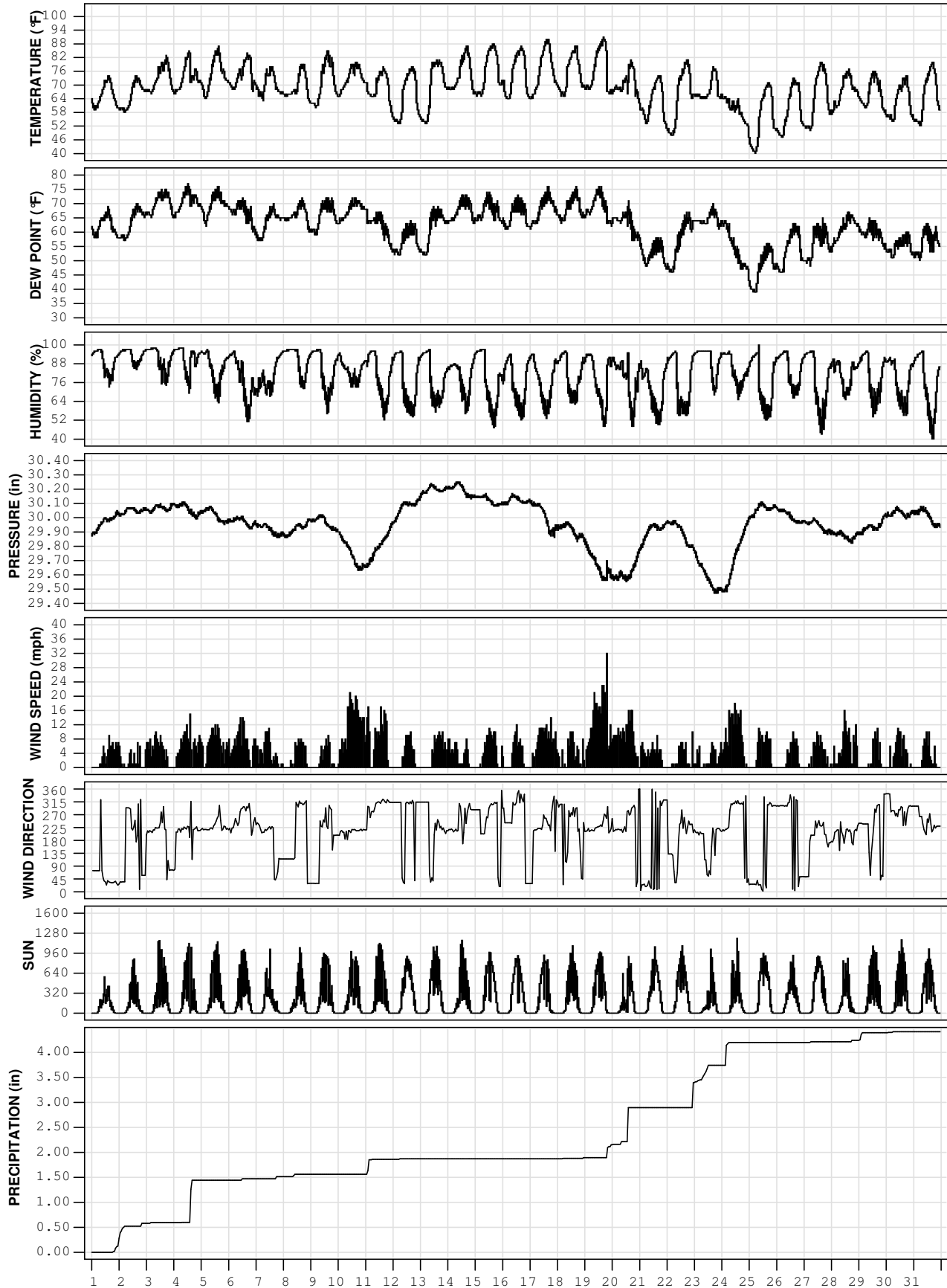
Hour	Averages						Resultant Wind	
	Sunshine	Pressure	Temperature	Dew Point	Humidity	Wind Speed	Direction	Speed
01	0	29.951	63	60	91	0.2	22	0.2
04	0	29.947	62	60	92	0.2	22	0.1
07	61	29.968	63	61	92	0.3	24	0.2
10	490	29.974	72	65	78	0.8	23	0.7
13	594	29.958	76	66	71	0.6	28	0.4
16	456	29.932	78	66	66	0.7	27	0.6
19	120	29.930	75	65	72	0.3	26	0.3
22	0	29.952	65	61	87	0.3	22	0.3

HOURLY PRECIPITATION (Water Equivalent) July 2013: Westford

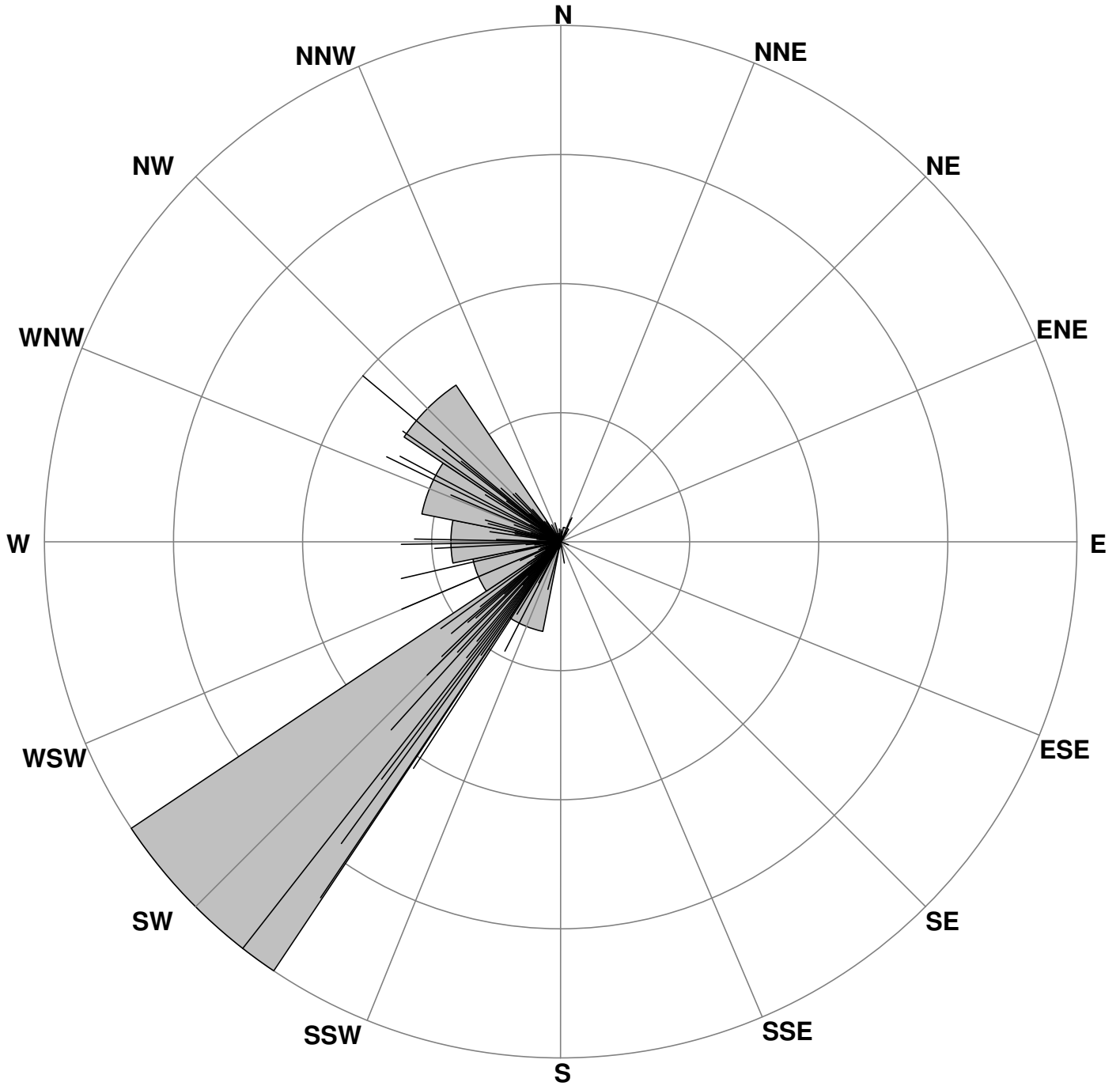
Date	A.M. Hour Ending at												P.M. Hour Ending at												Date
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	
01																		0.01	0.01	0.06	0.03	0.01	0.16	01	
02	0.11	0.03	0.06	0.02	0.02														0.06					02	
03				0.01																				03	
04							0.01									0.66	0.18							04	
05																								05	
06												0.03												06	
07																		0.04						07	
08								0.02	0.03															08	
09																								09	
10																								10	
11		0.07	0.22			0.01																		11	
12						0.01																		12	
13																								13	
14																								14	
15																								15	
16																								16	
17					0.01																			17	
18																						0.01		18	
19																			0.21	0.01		0.04		19	
20	0.01							0.05							0.68									20	
21																								21	
22																								22	
23	0.01		0.02	0.01	0.01		0.04	0.04	0.04	0.04	0.06	0.07										0.50	0.01	23	
24				0.40	0.03	0.02	0.01																	24	
25																								25	
26																								26	
27						0.01																		27	
28																		0.03						28	
29	0.01	0.11	0.03																					29	
30		0.01				0.01																		30	
31																								31	
Sum	0.14	0.22	0.33	0.44	0.07	0.06	0.06	0.09	0.06	0.07	0.06	0.10	0.00	0.68	0.66	0.18	0.00	0.07	0.01	0.28	0.07	0.03	0.56	0.17	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 2013: Westford



**Wind Rose: July 2013
Westford**



**Maximum direction of wind: 19.3 miles from 218°
Maximum sector of wind: 137.4 miles from SW
313.3 total miles of wind**