

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

November 2019

Station: Westford

Latitude: 44° 37' 38" 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 duststm 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	Res	Res	Peak			2 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	65.3*	29.6	47.5*	43.8	34	70	17	0	.....	0	1.56	0.0	30.18	29.16	29.714	9.1	8.6	235	41	SW	24	229	55
2	45.7	24.2	35.0	33.4	27	78	30	0	.....	0	0.00	0.0	30.20	29.96	30.107	1.1	1.0	195	12	SSE	7	189	80
3	44.8	32.2	38.5	38.1	31	75	26	0	...4.....	0	0.01	0.0	30.14	29.91	29.989	3.7	3.5	211	20	SSW	12	221	41	
4	46.4	27.6	37.0	39.7	29	66	28	0	.....	0	0.00	0.0	30.26	30.12	30.186	4.9	4.7	178	28	SSE	16	178	63
5	50.6	38.4	44.5	45.7	37	72	20	0	.....	0	0.12	0.0	30.12	29.96	30.055	7.0	6.4	191	33	SSE	15	260	18
6	41.3	29.5	35.4	36.4	26	65	29	0	.....	0	0.00	0.0	30.26	30.07	30.200	4.4	4.0	239	21	SW	14	253	79
7	38.4	25.8	32.1	32.6	27	80	33	0	.....	1	0.12	1.2	30.18	30.03	30.077	1.7	1.0	224	15	S	9	183	9
8	25.9	17.6	21.8	23.8	20	84	43	0	.....	3	0.20	2.4	30.23	30.00	30.103	4.0	3.9	282	24	W	13	255	12
9	33.8	13.1	23.4	25.8	17	70	41	0	.....	1	0.00	0.0	30.24	30.00	30.144	5.0	5.0	174	26	S	13	172	82
10	40.4	30.7	35.6	35.1	22	60	29	0	.....	T	0.08	T	30.01	29.83	29.914	6.0	5.8	176	29	SSE	15	179	60
11	31.6	20.5	26.1	24.5	22	90	38	0	.....	2	0.33	2.8	30.22	29.91	30.116	1.5	1.5	345	12	W	6	8	15
12	22.7	9.6	16.2	17.5	12	80	48	0	.....	5	0.56	4.5	30.04	29.77	29.902	4.9	4.8	269	29	W	16	261	14
13	20.3	3.7	12.0*	10.0	3	73	53	0	.....	5	0.00	0.0	30.42	30.04	30.263	2.2	2.1	267	21	W	13	261	90
14	30.5	7.1	18.8	21.6	13	71	46	0	.....	4	T	T	30.43	30.15	30.287	4.5	4.5	174	29	SSE	14	166	31
15	34.6	18.1	26.3	30.3	23	75	38	0	.....	3	0.12	0.4	30.35	29.99	30.084	5.5	3.6	216	29	WNW	14	263	11
16	24.0	4.4	14.2	13.0	4	69	51	0	.....	3	T	0.2	30.61	30.35	30.538	0.8	0.7	315	15	NW	7	258	89
17	35.5	1.8*	18.6	17.8	5	62	46	0	.....	3	0.00	0.0	30.54	30.16	30.372	0.8	0.7	182	11	S	8	182	82
18	37.5	16.3	26.9	27.2	21	78	38	0	.....6...	0	T	0.0	30.16	29.73	29.929	0.6	0.5	32	9	NNE	4	47	53
19	32.5	25.9	29.2	29.2	27	91	35	0	.....6...	2	0.23	0.3	29.91	29.71	29.789	0.2	0.2	282	9	WNW	5	271	24
20	32.4	28.1	30.3	30.0	29	95	35	0	.....	3	0.14	1.5	30.12	29.90	30.004	0.0	0.0	0	0	NW	0	323	14
21	35.8	20.2	28.0	29.5	27	92	37	0	.....	2	0.11	0.0	30.19	29.74	30.069	1.2	1.2	165	22	SSE	12	170	48
22	42.4	25.5	34.0	35.4	30	81	31	0	.....	1	0.03	T	29.86	29.51	29.646	9.1	6.6	219	33	S	17	283	11
23	35.6	15.8	25.7	27.5	19	70	39	0	.....	1	0.00	0.0	29.94	29.66	29.844	3.9	2.9	203	26	W	14	267	60
24	37.4	30.2	33.8	33.7	26	73	31	0	.....	1	0.00	0.0	29.66	29.37	29.492	1.5	0.4	148	16	SSE	9	166	24
25	44.1	27.9	36.0	36.1	30	79	29	0	.....	T	0.00	0.0	29.84	29.48	29.672	2.3	2.1	206	18	SW	12	246	42
26	48.3	35.5	41.9	42.2	36	78	23	0	.....	0	0.00	0.0	30.03	29.80	29.879	4.4	4.2	179	24	SSE	15	167	43
27	46.2	30.2	38.2	38.0	35	90	27	0	.....	0	0.49	0.0	30.03	29.44	29.773	1.3	0.9	151	20	W	12	233	23
28	41.8	24.9	33.3	29.3	27	92	31	0	.....6...	1	0.89	1.3	30.28	29.47	29.902	3.6	2.9	298	24	N	10	244	3
29	26.3	18.7	22.5	23.7	21	91	42	0	.....6...	1	0.01	T	30.28	30.13	30.239	2.1	2.0	299	16	WNW	8	283	4
30	18.7	5.9	12.3	14.5	11	86	52	0	.....	2	0.01	1.0	30.15	30.08	30.121	1.4	1.3	330	13	N	7	273	9
Sum	Sum	-----	-----	---	----	Ttl	Ttl				Total	Total	For the month:						---					
1111	639					1066	0		Number of Days		5.00	15.6	30.61	29.16	30.014	3.3	2.1	215	41	SW	24	229		
Avg	Avg	Avg	Mean	Avg	Avg	----	----		Precip		Season Ttl		Date	Date	-----	----	----	---	Date	Date	Avg			
37.0	21.3	29.2	29.5	23	77.9	----	----		≥.01 inch	17	51.29	15.6	16	1	-----	----	----	---	1	1	40			
Number of Days						Season to Date	Snow, Ice ≥1.0 inch	7	Greatest in 24 Hours and Dates						Greatest Depth on Ground of Snow, Ice Pellets or Ice and Date									
Max Temperature			Min Temperature			2034	288	Thunder	0	Precipitation			Snow, Ice Plts											
≥ 90°F	≤ 32°F	≤ 32°F	≤ 0°F	----	----	Heavy Fog	0	1.56	1	4.5	12	5			12+									
0	9	28	0	----	----	Clear	2	Partly Cloudy			8	Cloudy			20									

NOTES:

- Units: Temperature=°F, Wind=mph, Pressure=Inches Hg, Precipitation=inches.
- Column 4A: value is (MAX+MIN) ÷ 2.
- Data in columns 4B, 5, 6, 15, 16, 23 are updated continuously, there by achieving a "true" mean.
- 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 W/m² and is continuously averaged for 24 hours.

OBSERVATIONS AT 3-HOUR INTERVALS

November 2019: Westford

Table with multiple columns for weather parameters (Sunshine, Pressure, Rainfall rate, Temperature, Dew Point, Humidity, Wind) grouped by date (NOV 01 to NOV 18). Each date block contains 24 rows of hourly data with numerical values.

MAXIMUM SHORT DURATION PRECIPITATION

Table showing Maximum Short Duration Precipitation for various time periods (5 to 180 minutes). Columns include Time Period (minutes) and Precipitation values. Rows include Ended: Date and Ended: Time.

The precipitation amounts may occur at any time during the month. The time indicated is the ending time of the interval. Date and time are not entered for trace amounts.

OBSERVATIONS AT 3-HOUR INTERVALS

November 2019: Westford

Hour	NOV 19									NOV 20									NOV 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
00	0	29.73	0.00	28	23	79	27	0	0	0	29.90	0.00	29	27	94	35	0	0	0	30.12	0.00	30	29	95	30	0	0
03	0	29.72	0.00	27	22	81	29	2	9	0	29.92	0.00	28	27	94	35	0	0	0	30.15	0.00	26	24	92	30	0	0
06	0	29.72	0.00	27	25	93	32	0	0	0	29.94	0.00	29	28	96	35	0	0	0	30.17	0.00	24	23	94	29	0	0
09	49	29.75	0.00	29	28	94	32	0	0	40	29.98	0.00	30	28	95	29	0	0	146	30.18	0.00	25	25	97	29	0	0
12	86	29.75	0.00	30	29	93	32	0	0	62	29.98	0.00	32	29	91	30	0	0	70	30.14	0.00	33	29	87	05	0	0
15	25	29.80	0.00	31	29	93	28	0	0	28	30.01	0.00	31	30	94	29	0	0	44	30.08	0.00	33	30	88	16	0	7
18	0	29.85	0.00	29	28	95	34	0	0	0	30.07	0.00	30	29	96	28	0	0	0	30.01	0.00	27	26	95	12	0	2
21	0	29.90	0.00	29	28	94	35	0	0	0	30.11	0.00	31	30	96	30	0	0	0	29.89	0.00	33	30	89	17	4	12
NOV 22									NOV 23									NOV 24									
00	0	29.74	0.00	36	34	93	16	6	14	0	29.86	0.00	26	17	69	25	6	20	0	29.66	0.00	33	24	69	17	6	17
03	0	29.68	0.00	38	35	87	16	12	24	0	29.90	0.00	23	14	67	30	4	12	0	29.61	0.00	33	23	67	19	2	6
06	0	29.58	0.00	40	35	85	17	8	25	0	29.92	0.00	19	14	79	30	0	0	0	29.56	0.00	35	24	63	17	7	13
09	14	29.53	0.00	42	38	84	18	8	22	174	29.92	0.00	22	16	78	20	2	5	134	29.51	0.00	34	24	67	08	2	8
12	47	29.53	0.00	40	34	80	22	6	17	264	29.88	0.00	32	21	64	18	3	9	90	29.43	0.00	36	25	66	01	1	5
15	28	29.57	0.00	35	32	89	26	8	12	72	29.82	0.00	35	20	55	17	5	11	42	29.39	0.00	37	29	71	02	0	2
18	0	29.70	0.00	30	23	75	27	10	22	0	29.78	0.00	31	22	71	16	3	9	0	29.42	0.00	32	27	82	28	5	8
21	0	29.79	0.00	28	19	69	25	11	19	0	29.74	0.00	31	23	73	16	5	12	0	29.45	0.00	31	27	86	01	0	2
NOV 25									NOV 26									NOV 27									
00	0	29.48	0.00	31	27	83	03	0	0	0	29.83	0.00	38	33	82	17	2	5	0	30.02	0.00	36	33	91	24	0	0
03	0	29.52	0.00	32	28	85	19	2	4	0	29.84	0.00	39	35	84	16	3	7	0	30.02	0.00	34	32	94	24	0	0
06	0	29.58	0.00	34	29	84	17	3	9	0	29.82	0.00	39	34	84	16	4	10	0	30.02	0.00	32	31	96	24	0	0
09	69	29.65	0.00	38	32	81	18	2	6	125	29.83	0.00	41	35	79	17	9	19	56	29.95	0.00	34	33	96	00	0	1
12	396	29.67	0.00	44	32	62	24	6	18	118	29.82	0.00	47	37	68	19	6	18	86	29.85	0.00	39	36	88	04	2	4
15	42	29.72	0.00	42	31	65	21	0	2	46	29.85	0.00	48	38	68	18	8	18	56	29.63	0.00	45	36	71	15	3	9
18	0	29.77	0.00	33	28	84	21	0	0	0	29.95	0.00	45	37	75	19	3	8	0	29.52	0.00	41	38	92	16	2	6
21	0	29.82	0.00	33	29	85	16	3	6	0	30.00	0.00	40	35	82	24	1	4	0	29.46	0.00	41	39	93	17	1	3
NOV 28									NOV 29									NOV 30									
00	0	29.47	0.00	42	39	91	22	9	20	0	30.27	0.00	26	25	93	28	3	10	0	30.13	0.00	19	16	89	33	3	9
03	0	29.49	0.00	38	36	93	25	6	14	0	30.27	0.00	26	24	92	29	1	9	0	30.14	0.00	17	14	89	33	1	5
06	0	29.60	0.00	30	29	95	29	2	13	0	30.28	0.00	25	23	92	32	3	8	0	30.15	0.00	13	10	87	02	2	5
09	5	29.80	0.00	28	27	94	32	4	13	9	30.26	0.00	25	23	92	29	4	12	14	30.14	0.00	15	12	87	32	0	5
12	9	29.96	0.00	27	26	93	30	5	13	14	30.25	0.00	25	22	89	01	5	12	56	30.12	0.00	18	13	82	34	2	9
15	5	30.08	0.00	26	24	91	35	3	9	7	30.23	0.00	23	21	89	30	5	15	12	30.09	0.00	17	13	83	33	3	8
18	0	30.17	0.00	26	23	88	33	2	11	0	30.23	0.00	22	20	90	29	0	4	0	30.12	0.00	16	11	83	02	1	6
21	0	30.25	0.00	26	24	92	30	2	8	0	30.20	0.00	21	18	89	28	0	8	0	30.10	0.00	10	6	86	00	0	0

WEATHER NOTES

NOTES:
 Units: 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 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
00	0	29.999	29	24	81	2.7	20	2.0
03	0	29.993	28	22	81	3.0	22	1.9
06	0	30.003	26	22	83	2.6	20	1.8
09	88	30.023	29	23	81	3.5	19	2.5
12	159	30.014	33	24	72	4.4	22	2.6
15	64	30.001	34	24	71	3.8	23	2.4
18	0	30.026	30	23	77	2.9	24	1.8
21	0	30.035	28	22	78	3.8	23	2.4

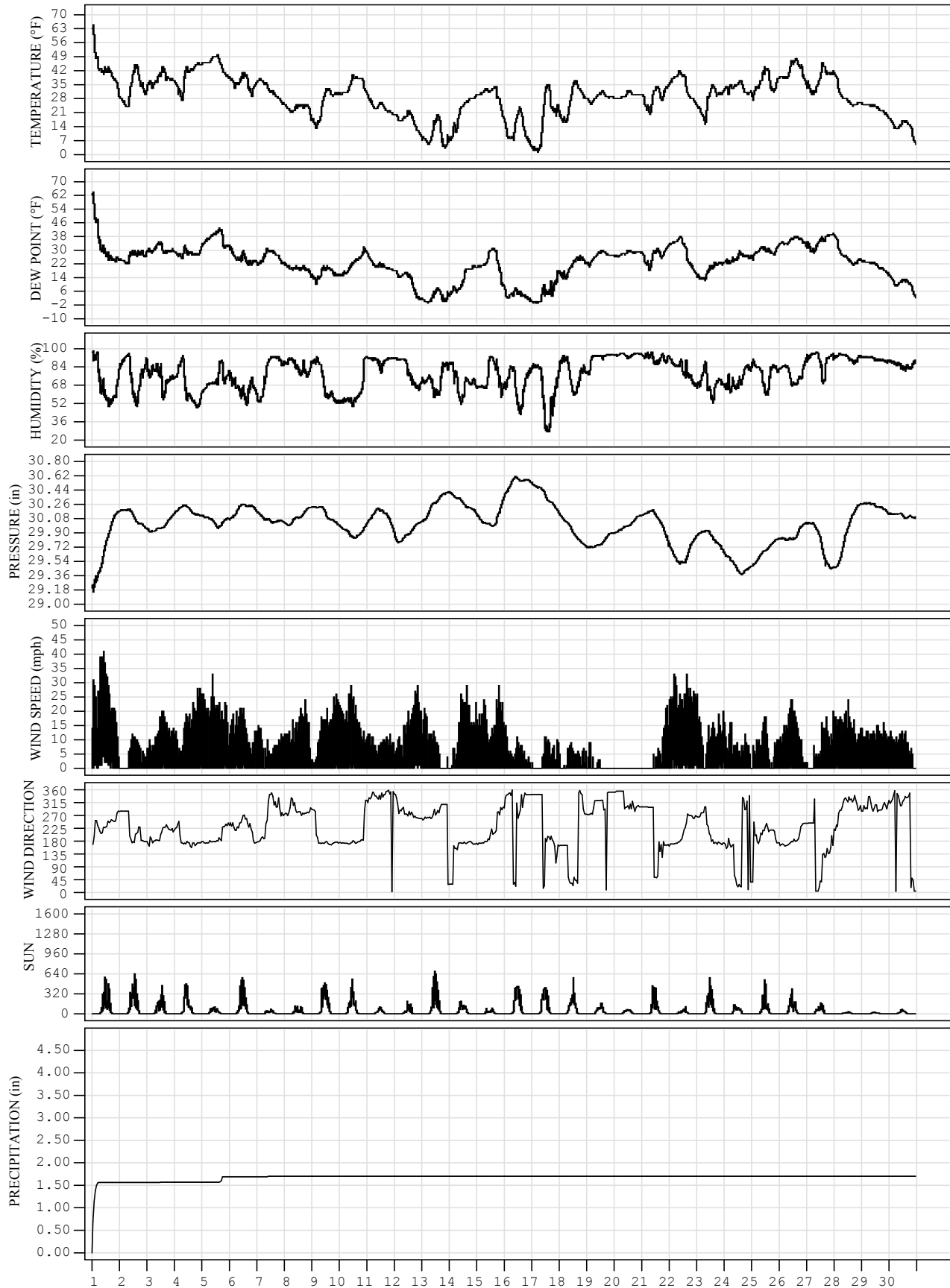
HOURLY PRECIPITATION (Water Equivalent) November 2019: Westford

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	0.70	0.44	0.24	0.12	0.05	0.01																		01	
02																									02
03												0.01													03
04																									04
05															0.01	0.02	0.09								05
06																									06
07										0.01															07
08																									08
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29																									29
30																									30
Sum	0.70	0.44	0.24	0.12	0.05	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.00	Sum

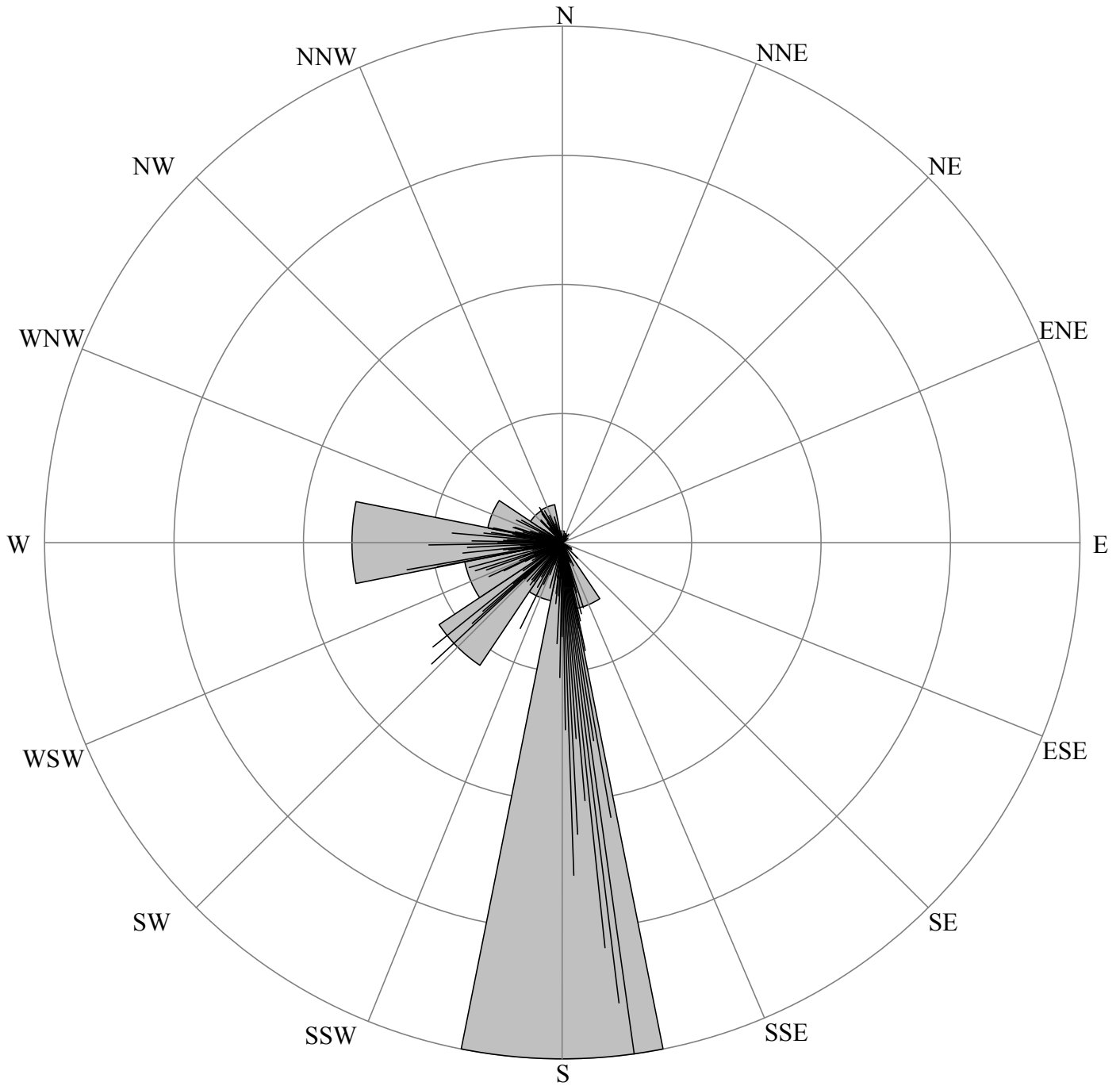
During a frozen precipitation event, hourly precipitation totals may not be recorded. In this case, daily amounts are typically entered in the last column (hour ending at 12 A.M.)

HOUR-BY-HOUR DATA

November 2019: Westford



Wind Rose: November 2019
Westford



Maximum direction of wind: 126.8 miles from 172°
Maximum sector of wind: 951.5 miles from S
2368.7 total miles of wind