

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

December 2003

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 duststm 8 smk, hz 9 blw snw	Snow Cvr	Precip		Pressure			Wind						Sun			
	Maximum	Minimum	Average	Mean	Dew Point		Mean	Heating			Cooling	Water Equivalent	Ice Pellets Snow	Adj. to Sea Level			Avg	Res	Res	Peak			Minute		Mean Index
														Maximum	Minimum	Mean				Speed	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	37.5	21.8	29.6	31.1	22	71	36	0	.....	0	T	0.0	29.86	29.42	29.637	8.4	5.9	255	35	W	0	0		
2	21.9	10.0	15.9	15.1	5	65	50	0	.....	0	0.02	0.2	30.34	29.83	30.095	5.2	5.0	314	25	NW	10	297		
3	21.0	9.7	15.3	14.0	7	73	50	0	.....	0	T	T	30.45	30.33	30.398	3.6	3.3	283	25	NW	0	0		
4	20.5	7.4	14.0	15.6	11	83	52	0	.....	0	0.06	1.8	30.39	30.32	30.353	1.3	0.7	279	14	WNW	0	0		
5	18.9	-0.4	9.2	7.8	2	77	56	0	.....	0	0.00	0.0	30.41	30.28	30.356	0.3	0.2	3	8	N	0	0		
6	14.9	2.0	8.4	11.1	7	83	57	0	.....	0	0.69	14.6	30.28	30.02	30.187	1.3	1.3	359	17	N	0	0		
7	18.1	14.0	16.1	16.1	13	86	49	0	.....	0	0.68	11.0	30.01	29.91	29.961	3.9	3.8	355	20	N	8	350		
8	24.8	9.2	17.0	16.8	10	75	49	0	.....	0	0.00	0.0	30.23	29.99	30.132	0.7	0.7	358	12	N	0	0		
9	26.6	4.1	15.4	13.7	8	78	50	0	.....	0	0.00	0.0	30.31	30.21	30.254	0.2	0.1	25	7	SSW	0	0		
10	37.6	11.2	24.4	26.4	20	77	41	0	.....	0	0.00	0.0	30.21	29.79	30.063	4.5	4.0	162	25	SSE	0	0		
11	46.7	30.9	38.8	40.1	37	89	27	0	.....	0	1.03	0.1	29.78	29.26	29.478	5.3	2.2	209	29	W	0	0		
12	30.9	14.4	22.6	24.1	15	67	43	0	.....	0	T	T	30.09	29.41	29.821	9.2	8.7	270	29	W	0	0		
13	14.6	-0.6	7.0*	8.3	-2	64	58	0	.....	0	0.00	0.0	30.53	30.10	30.365	3.0	2.9	303	17	WNW	0	0		
14	20.8	-1.8*	9.5	10.0	3	73	56	0	.....	0	0.92	9.2	30.49	29.92	30.289	1.1	0.8	159	16	SSE	0	0		
15	21.3	17.8	19.5	19.5	16	87	46	0	.....	0	1.20	12.0	29.99	29.67	29.786	5.4	5.0	312	28	WNW	0	0		
16	34.3	8.4	21.3	21.7	15	75	44	0	.....	0	0.00	0.0	30.17	29.83	30.032	3.9	3.0	175	25	S	0	0		
17	39.1	29.3	34.2	34.1	30	86	31	0	.....	0	0.91	5.5	29.82	29.18	29.576	4.7	2.9	180	24	S	0	0		
18	29.3	20.3	24.8	24.8	21	85	41	0	.....	0	0.50	4.5	29.53	29.09	29.289	7.3	7.1	246	27	W	0	0		
19	25.6	15.2	20.4	20.1	14	76	45	0	.....	0	T	T	29.74	29.54	29.660	2.8	2.4	215	16	W	0	0		
20	20.3	1.5	10.9	14.7	10	82	55	0	.....	0	0.02	1.3	30.11	29.72	29.914	0.5	0.5	353	10	N	0	0		
21	27.3	0.0	13.6	17.5	13	82	52	0	.....	0	0.05	0.5	30.12	29.89	29.987	6.8	6.6	189	33	S	0	0		
22	36.5	27.2	31.9	31.9	23	70	34	0	.....	0	0.00	0.0	29.95	29.86	29.898	6.7	6.6	178	20	S	2	189		
23	45.4	35.6	40.5	40.4	32	73	25	0	.....	0	0.00	0.0	30.00	29.87	29.927	5.1	5.0	180	21	S	0	0		
24	50.5*	38.5	44.5*	44.5	40	86	21	0	.....	0	0.55	0.0	29.91	29.57	29.756	2.8	2.0	163	19	S	0	0		
25	40.6	28.1	34.3	33.6	32	95	31	0	.....	0	0.55	4.6	29.79	29.67	29.729	1.7	1.1	266	20	SW	0	0		
26	29.8	23.8	26.8	27.1	23	86	39	0	.....	0	0.40	4.0	29.97	29.64	29.775	5.5	5.0	254	26	WSW	0	0		
27	29.4	15.4	22.4	21.6	17	83	43	0	.....	0	0.00	0.0	30.37	29.98	30.229	0.6	0.5	9	11	N	0	0		
28	40.3	14.3	27.3	27.8	15	62	38	0	.....	0	0.00	0.0	30.39	30.09	30.273	3.6	3.5	174	21	S	3	166		
29	46.4	34.4	40.4	41.9	19	40	25	0	.....	0	0.00	0.0	30.08	29.75	29.943	7.5	7.3	181	22	S	0	0		
30	46.0	33.2	39.6	39.0	30	71	26	0	.....	0	0.16	T	29.94	29.48	29.671	7.3	5.5	218	30	SW	0	0		
31	37.2	28.1	32.7	32.6	25	72	33	0	.....	0	0.03	0.5	30.19	29.80	29.987	5.9	3.5	228	32	WNW	0	0		
Sum	Sum	-----	-----	---	----	Ttl	Ttl						For the month:						---						
954	503					1303	0	Number of Days		7.77	69.8	30.53	29.09	29.962	4.1	2.0	228	35	W	10	297				
Avg	Avg	Avg	Mean	Avg	Avg	----	----	Precip		Season Ttl	Date	Date	-----	----	----	----	----	Date	Date	Avg					
30.8	16.2	23.5	24.0	17	76.6	----	----	>.01 inch	16	48.62	74.1	13	18	-----	----	----	----	1	2						
Number of Days								Season to Date	Snow, Ice >1.0 inch	10	Greatest in 24 Hours and Dates						Greatest Depth on Ground of Snow, Ice Pellets or Ice and Date								
Max Temperature				Min Temperature				3028	316	Thunder	1	Precipitation		Snow, Ice Plts											
> 90°F	< 32°F	< 32°F	< 0°F	----	----	Heavy Fog	0	0.00	-	14.6	6														
0	18	27	4	----	----	Clear	6	Partly Cloudy	7	Cloudy	18														

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/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

December 2003: Westford

Hour	Wind			Sunshine	Pressure	Rainfall rate	Temperature	Dew Point	Humidity	Wind			Sunshine	Pressure	Rainfall rate	Temperature	Dew Point	Humidity	Wind					
	Direction	Speed	Gust							Direction	Speed	Gust							Direction	Speed	Gust			
DEC 01																								
01	29.49	0.00	38	28	69	18	11	20	29.84	0.00	22	11	64	33	0	2	30.34	0.00	11	4	73	31	4	12
04	29.43	0.00	37	30	77	18	9	19	29.90	0.00	20	8	57	29	6	13	30.37	0.00	11	4	73	29	8	18
07	29.46	0.00	36	35	95	18	6	13	29.97	0.00	17	6	66	00	2	10	30.42	0.00	11	4	75	31	1	3
10	29.58	0.00	32	29	88	29	8	18	30.06	0.00	15	9	75	31	6	14	30.45	0.00	14	8	76	27	5	9
13	29.63	0.00	32	20	61	27	13	25	30.10	0.00	14	2	58	31	8	16	30.40	0.00	19	11	70	24	3	7
16	29.75	0.00	28	15	58	27	9	17	30.20	0.00	12	1	60	31	5	13	30.40	0.00	20	8	61	29	6	12
19	29.84	0.00	25	12	56	31	3	10	30.29	0.00	11	0	61	31	8	20	30.42	0.00	14	7	76	27	1	2
22	29.85	0.00	24	13	63	29	5	13	30.33	0.00	10	1	67	29	7	14	30.38	0.00	13	8	79	27	1	3
DEC 02																								
DEC 03																								
DEC 04																								
DEC 05																								
DEC 06																								
DEC 07																								
DEC 08																								
DEC 09																								
DEC 10																								
DEC 11																								
DEC 12																								
DEC 13																								
DEC 14																								
DEC 15																								
DEC 16																								
DEC 17																								
DEC 18																								

MAXIMUM SHORT DURATION PRECIPITATION

Time Period (minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ended: Date	00	00	00	00	00	00	00	00	00	00	00	00
Ended: Time	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

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

December 2003: Westford

Hour	DEC 19								DEC 20								DEC 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	29.55	0.00	18	11	76	22	5	8	29.73	0.00	19	15	86	00	0	2	30.11	0.00	2	-3	82	00	0	0	0	
04	29.59	0.00	17	9	73	24	3	7	29.75	0.00	17	14	89	00	0	2	30.09	0.00	7	2	81	18	2	6	6	
07	29.62	0.00	19	11	69	22	2	5	29.83	0.00	16	12	84	00	0	5	30.05	0.00	13	8	79	18	7	13	13	
10	29.68	0.00	20	12	72	18	4	8	29.90	0.00	18	12	78	33	1	3	30.00	0.00	19	14	83	18	16	26	26	
13	29.67	0.00	25	14	64	20	5	9	29.90	0.00	19	12	73	31	3	6	29.92	0.00	22	19	88	20	9	16	16	
16	29.68	0.00	22	16	79	18	3	6	29.98	0.00	15	10	79	00	1	5	29.92	0.00	24	19	82	20	8	13	13	
19	29.73	0.00	22	18	85	04	0	2	30.07	0.00	12	8	84	00	1	2	29.92	0.00	26	20	79	20	6	10	10	
22	29.73	0.00	20	16	83	00	0	2	30.11	0.00	7	4	84	00	0	0	29.91	0.00	26	21	79	18	6	11	11	
DEC 22								DEC 23								DEC 24										
01	29.89	0.00	28	20	72	18	9	17	29.95	0.00	36	28	73	18	2	3	29.91	0.00	44	30	58	18	7	12	12	
04	29.88	0.00	28	20	70	18	9	13	29.97	0.00	37	30	75	18	6	10	29.89	0.00	43	31	63	18	3	7	7	
07	29.89	0.00	29	20	68	18	8	14	30.00	0.00	37	30	74	18	3	6	29.90	0.00	42	38	83	18	4	9	9	
10	29.90	0.00	31	21	68	18	8	14	29.97	0.00	40	33	74	18	3	6	29.84	0.00	41	41	97	06	1	3	3	
13	29.87	0.00	32	23	68	18	7	14	29.90	0.00	42	35	76	18	5	9	29.71	0.00	49	46	92	15	6	12	12	
16	29.90	0.00	34	25	69	18	6	11	29.88	0.00	44	38	78	18	6	12	29.64	0.00	45	44	96	06	0	1	1	
19	29.92	0.00	35	27	72	18	5	9	29.88	0.00	40	35	82	20	1	6	29.58	0.00	50	48	93	18	6	14	14	
22	29.93	0.00	36	27	70	18	5	8	29.88	0.00	44	34	69	18	5	10	29.61	0.00	43	42	98	00	0	0	0	
DEC 25								DEC 26								DEC 27										
01	29.68	0.00	40	39	98	22	0	2	29.68	0.00	28	27	94	22	9	18	30.00	0.00	25	17	72	29	1	5	5	
04	29.74	0.00	37	36	98	24	4	7	29.64	0.00	30	24	80	24	10	18	30.09	0.00	21	18	85	00	0	0	0	
07	29.78	0.00	35	35	98	20	0	2	29.68	0.00	27	26	95	24	8	13	30.17	0.00	17	15	92	06	0	1	1	
10	29.77	0.00	35	34	97	00	0	0	29.75	0.00	27	26	95	29	3	7	30.24	0.00	24	18	80	02	1	6	6	
13	29.70	0.00	33	32	94	00	1	5	29.76	0.00	26	24	89	27	4	7	30.25	0.00	28	19	68	04	1	3	3	
16	29.71	0.00	32	29	88	00	2	7	29.83	0.00	26	23	89	24	4	7	30.32	0.00	26	21	81	00	0	0	0	
19	29.73	0.00	30	29	95	24	4	7	29.88	0.00	26	20	77	22	1	2	30.36	0.00	20	18	92	00	0	0	0	
22	29.69	0.00	29	29	97	22	5	11	29.94	0.00	27	18	70	31	3	10	30.36	0.00	18	16	92	00	0	0	0	
DEC 28								DEC 29								DEC 30										
01	30.35	0.00	19	17	92	00	0	0	30.06	0.00	39	12	32	18	11	18	29.72	0.00	46	27	47	18	7	12	12	
04	30.37	0.00	16	14	90	00	0	0	30.06	0.00	35	15	44	20	6	11	29.62	0.00	45	26	47	15	6	10	10	
07	30.39	0.00	16	13	88	00	0	0	30.02	0.00	39	13	34	18	11	21	29.55	0.00	43	28	55	18	8	16	16	
10	30.36	0.00	26	18	71	15	4	7	30.02	0.00	40	16	37	18	9	16	29.51	0.00	40	34	80	20	7	12	12	
13	30.24	0.00	34	15	46	18	5	9	29.90	0.00	45	22	39	20	5	10	29.50	0.00	38	36	94	20	10	18	18	
16	30.22	0.00	36	17	45	18	5	8	29.87	0.00	45	23	41	18	8	12	29.70	0.00	36	29	78	24	11	21	21	
19	30.18	0.00	38	12	35	18	5	8	29.85	0.00	46	25	45	18	6	11	29.82	0.00	34	31	89	24	11	24	24	
22	30.11	0.00	39	14	35	15	10	16	29.80	0.00	45	27	49	18	6	13	29.91	0.00	34	26	73	27	6	13	13	
DEC 31																										
01	29.97	0.00	33	26	75	27	6	13																		
04	30.07	0.00	32	24	72	31	6	12																		
07	30.14	0.00	29	23	78	33	2	7																		
10	30.15	0.00	30	23	74	29	2	5																		
13	30.01	0.00	33	23	66	18	3	7																		
16	29.85	0.00	35	24	64	18	8	13																		
19	29.81	0.00	36	25	64	20	10	25																		
22	29.85	0.00	31	30	96	24	7	14																		

WEATHER NOTES

SUMMARY BY HOUR

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.

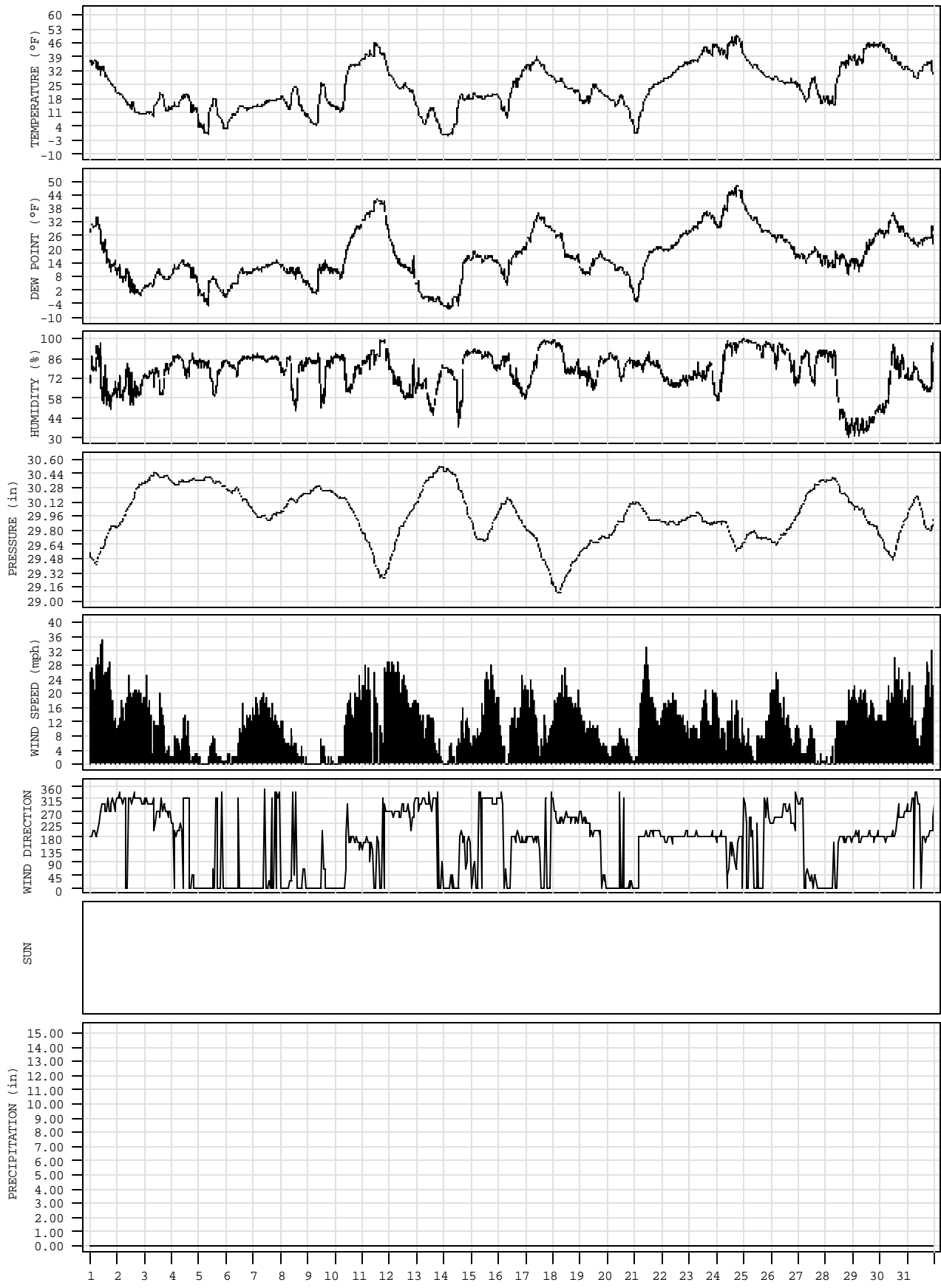
Hour	Averages						Resultant Wind	
	Sunshine	Pressure	Temperature	Dew Point	Humidity	Wind Speed	Direction	Speed
01								
04	29.946	23	16	77	4.2	21	2.6	2.6
07	29.952	22	15	77	4.0	23	2.3	2.3
10	29.974	21	16	79	3.3	21	2.0	2.0
13	29.992	24	18	78	4.0	24	1.8	1.8
16	29.945	27	18	71	5.0	23	2.5	2.5
19	29.955	26	19	74	4.0	23	2.2	2.2
22	29.967	25	18	77	3.5	22	2.0	2.0
	29.965	24	18	79	4.2	23	2.0	2.0

**HOURLY PRECIPITATION (Water Equivalent)
December 2003: Westford**

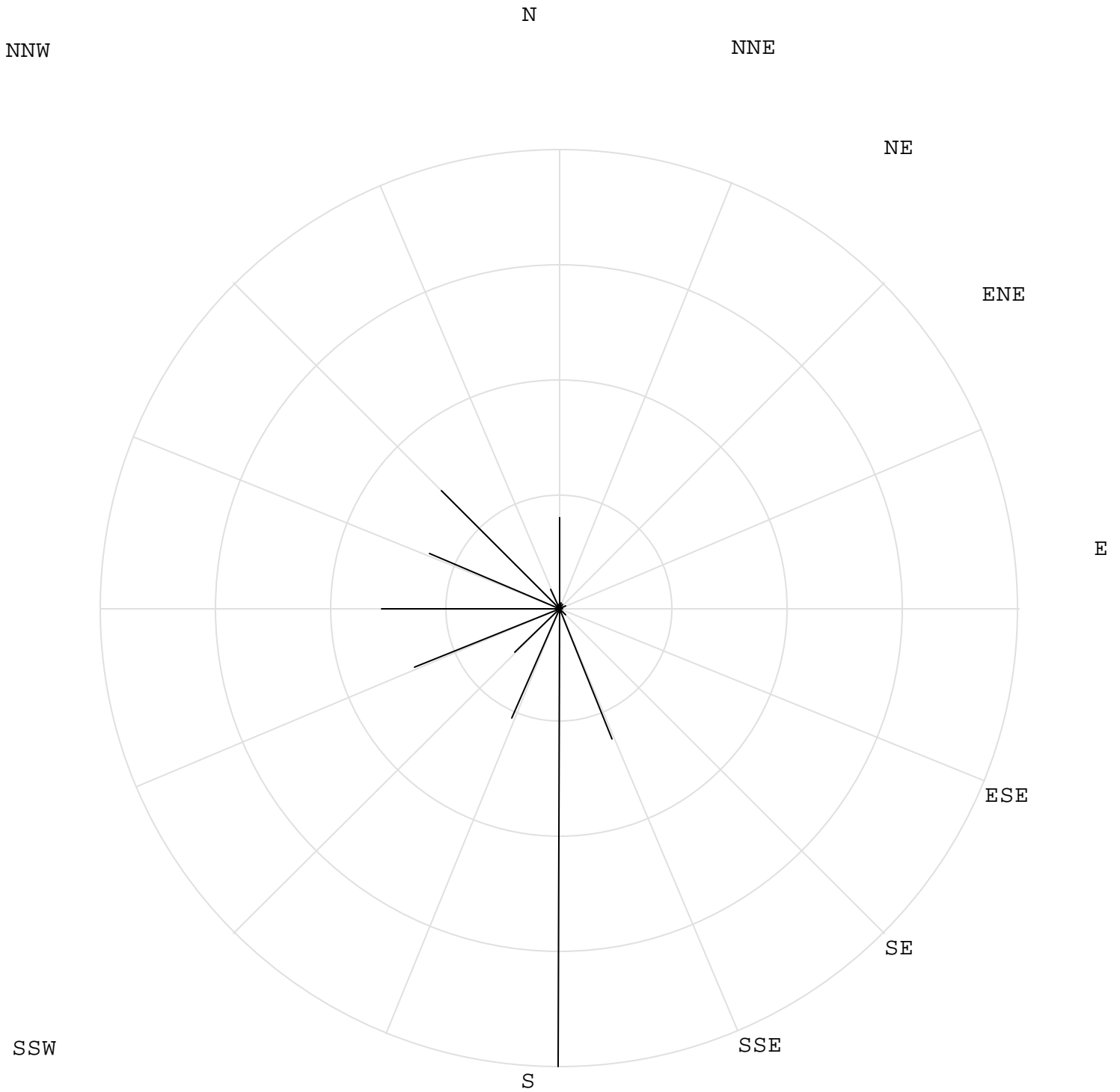
Date	A.M. Hour Ending at												P.M. Hour Ending at												Date
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	
01																								01	
02																									02
03																									03
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29																									29
30																									30
31																									31
Sum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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.)

HOURLY-BY-HOURLY DATA
December 2003: Westford



Wind Rose: December 2003
Westford



Maximum direction of wind: 880.8 miles from 180°.
3027.0 total miles of wind.