

# LOCAL CLIMATOLOGICAL DATA

## Monthly Summary

### March 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 Speed	Res Speed	Res Dir	Peak			Minute	
														Maximum	Minimum	Mean				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	37.2	14.9	26.1	27.3	16	64	39	0	.....	0	0.00	0.0	30.23	29.97	30.130	2.2	1.8	181	18	S	9	180		
2	35.5	11.9	23.7	32.1	29	88	42	0	.....	0	0.17	0.3	29.96	29.40	29.607	7.5	5.9	199	30	WNW	15	293		
3	11.2	-15.3	-2.1	-5.6	-21	47	67	0	.....	0	0.00	0.0	30.22	29.52	30.021	4.2	4.0	307	27	NW	13	293		
4	29.8	-8.9	10.4	12.8	-2	50	55	0	.....	0	0.00	0.0	30.20	29.90	30.048	8.6	8.3	182	31	S	16	180		
5	33.1	18.6	25.8	24.8	21	85	40	0	.....	0	0.20	2.0	29.91	29.54	29.730	2.2	1.1	241	20	SSW	8	203		
6	19.4	-0.2	9.6	10.7	0	64	56	0	.....	0	0.01	0.4	30.22	29.84	30.019	1.8	1.6	320	19	WNW	7	293		
7	26.9	-3.7	11.6	14.8	-4	45	54	0	.....	0	0.00	0.0	30.36	30.00	30.190	6.8	6.5	184	31	SSW	15	180		
8	38.3	23.3	30.8	30.8	18	60	35	0	.....	0	0.05	0.4	30.09	29.50	29.905	8.6	8.4	193	33	S	17	203		
9	36.6	1.8	19.2	18.6	8	64	46	0	.....	0	T	T	29.92	29.37	29.694	5.7	2.8	264	38	SSW	17	180		
10	10.4	1.5	5.9	7.0	-8	50	60	0	.....	0	T	T	30.08	29.86	29.975	6.0	4.9	257	26	W	0	0		
11	28.5	5.4	17.0	18.2	5	56	49	0	.....	0	0.00	0.0	30.10	29.84	30.015	8.1	7.5	194	25	S	0	0		
12	36.8	22.7	29.8	30.0	20	68	36	0	.....	0	0.02	0.3	30.08	29.80	29.883	6.2	5.0	196	29	SSW	0	0		
13	22.7	4.5	13.6	11.6	-5	48	52	0	.....	0	0.00	0.0	30.29	30.09	30.217	1.2	1.0	332	13	N	0	95		
14	21.4	1.1	11.2	11.8	-8	41	54	0	.....	0	0.00	0.0	30.45	30.25	30.340	1.1	0.7	323	13	NNW	0	0		
15	39.9	15.6	27.8	26.5	15	63	38	0	.....	0	0.00	0.0	30.27	30.06	30.161	0.9	0.5	204	14	S	0	0		
16	54.7	21.9	38.3	40.8	25	56	27	0	.....	0	0.00	0.0	30.07	29.80	29.945	4.6	4.5	184	19	SSW	6	188		
17	64.5	39.9	52.2	49.8	40	71	13	0	.....	0	0.00	0.0	29.83	29.69	29.768	2.5	2.1	181	14	S	0	0		
18	40.1	23.2	31.6	33.8	19	57	34	0	.....	0	0.00	0.0	30.24	29.81	30.003	2.1	2.0	341	19	NNW	0	0		
19	39.3	15.1	27.2	28.2	8	44	38	0	.....	0	0.00	0.0	30.42	30.24	30.339	0.7	0.4	273	11	S	1	189		
20	35.8	28.5	32.1	32.1	25	76	33	0	.....	0	0.55	0.0	30.27	29.88	30.141	7.2	7.1	181	28	S	0	0		
21	52.8	35.3	44.0	42.3	39	88	21	0	.....	0	0.53	0.0	29.87	29.63	29.692	2.0	1.8	179	17	S	0	0		
22	39.9	34.4	37.2	37.4	36	96	28	0	12.....	0	0.04	0.0	29.76	29.63	29.711	0.3	0.2	202	11	WSW	0	0		
23	37.8	32.5	35.1	34.9	33	94	30	0	12.....	0	0.46	T	29.99	29.74	29.852	1.3	1.0	207	11	S	0	0		
24	52.5	30.7	41.6	40.9	33	76	24	0	.....	0	0.01	0.0	30.07	29.94	30.007	2.2	1.9	195	14	S	0	181		
25	60.4	40.5	50.5	48.8	38	69	15	0	.....	0	0.10	0.0	29.95	29.69	29.818	8.0	7.9	181	30	S	0	0		
26	47.6	37.2	42.4	41.9	39	91	23	0	.....	0	0.20	0.0	29.87	29.78	29.831	1.4	0.8	205	14	NW	0	0		
27	47.7	29.3	38.5	37.9	27	67	27	0	.....	0	0.01	0.0	30.26	29.86	30.069	3.2	2.5	262	19	W	0	0		
28	60.9	27.6	44.3	46.2	29	55	21	0	.....	0	0.05	0.0	30.31	29.95	30.171	5.6	5.0	167	40	S	24	189		
29	65.0	40.3	52.6	52.7	45	77	13	0	.....	0	0.82	0.0	29.95	29.68	29.846	10.5	9.1	191	37	S	5	275		
30	40.5	24.1	32.3	30.3	26	86	33	0	.....	0	0.42	8.0	30.03	29.86	29.935	2.3	2.1	310	16	NW	7	311		
31	26.0	15.6	20.8	21.5	10	63	45	0	.....	0	0.08	2.0	29.94	29.81	29.846	5.0	4.7	311	25	NW	0	0		
Sum	Sum	-----	-----	---	----	Ttl	Ttl						For the month:						---					
1193	569					1148	0	Number of Days		3.72	13.4	30.45	29.37	29.965	4.2	2.6	206	40	S	24	189			
Avg	Avg	Avg	Mean	Avg	Avg	----	----	Precip		Season Ttl	Date	Date	-----	----	----	----	Date	Date	Avg					
38.5	18.4	28.4	28.7	18	66.3	----	----	>.01 inch	17	6.80	88.4	14	9	-----	----	----	----	28	28					
Number of Days								Season to Date	Snow, Ice >1.0 inch	3	Greatest in 24 Hours and Dates						Greatest Depth on Ground of Snow, Ice Pellets or Ice and Date							
Max Temperature				Min Temperature				7145	0	Thunder	0	Precipitation		Snow, Ice Plts										
> 90°F	< 32°F	< 32°F	< 0°F	----	----	Heavy Fog	2	1.06	20-21	8.0	30	0				-								
0	9	24	4	----	----	Clear	7	Partly Cloudy	10	Cloudy	14													

**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<sup>2</sup> 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

March 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																																												
MAR 01																						MAR 02																						MAR 03																					
01	30.17	0.00	17	10	72	00	0	0		29.95	0.00	31	29	93	18	6	11		29.63	0.00	3	-6	64	31	8	21																																							
04	30.18	0.00	16	10	76	00	0	0		29.84	0.00	32	28	88	18	8	18		29.82	0.00	-10	-22	54	31	3	10																																							
07	30.21	0.00	16	11	82	00	0	0		29.71	0.00	33	29	86	15	7	11		29.98	0.00	-15	-29	48	29	8	19																																							
10	30.21	0.00	30	14	50	06	1	3		29.58	0.00	35	32	90	18	7	18		30.07	0.00	-10	-27	43	29	7	14																																							
13	30.14	0.00	36	20	52	20	3	10		29.52	0.00	35	33	92	18	10	20		30.09	0.00	-3	-21	41	31	6	17																																							
16	30.09	0.00	35	19	51	18	2	5		29.44	0.00	35	33	92	20	7	11		30.11	0.00	2	-19	37	00	1	6																																							
19	30.06	0.00	34	20	55	18	4	11		29.42	0.00	34	32	91	22	5	9		30.18	0.00	-5	-18	54	00	0	0																																							
22	30.00	0.00	34	23	64	20	8	17		29.41	0.00	32	25	85	27	9	14		30.21	0.00	-5	-22	42	24	2	7																																							
MAR 04																						MAR 05																						MAR 06																					
01	30.19	0.00	-7	-21	50	00	0	0		29.91	0.00	29	20	67	20	5	8		29.84	0.00	19	15	84	29	3	8																																							
04	30.19	0.00	-3	-20	43	18	3	11		29.85	0.00	27	23	85	22	0	2		29.94	0.00	16	12	87	31	4	10																																							
07	30.15	0.00	0	-18	42	20	5	10		29.77	0.00	27	24	87	00	0	0		29.98	0.00	9	4	80	00	0	5																																							
10	30.09	0.00	11	-10	39	18	14	27		29.68	0.00	33	28	82	00	0	0		29.98	0.00	14	2	60	33	2	7																																							
13	29.99	0.00	20	4	50	18	14	26		29.56	0.00	27	23	86	00	0	0		29.99	0.00	14	-5	43	33	2	7																																							
16	29.96	0.00	23	10	58	18	11	19		29.59	0.00	20	17	88	29	2	5		30.02	0.00	11	-11	36	31	3	8																																							
19	29.94	0.00	27	14	59	15	11	21		29.70	0.00	19	17	91	31	2	6		30.16	0.00	3	-8	61	00	0	0																																							
22	29.92	0.00	29	15	54	20	11	21		29.79	0.00	19	16	89	31	3	8		30.20	0.00	1	-7	68	00	0	0																																							
MAR 07																						MAR 08																						MAR 09																					
01	30.25	0.00	3	-7	64	09	0	1		30.00	0.00	24	9	52	18	7	12		29.44	0.00	36	30	79	18	15	24																																							
04	30.30	0.00	2	-9	60	18	2	3		30.03	0.00	24	12	62	20	6	13		29.40	0.00	36	30	79	27	5	14																																							
07	30.34	0.00	-1	-8	70	00	0	0		30.09	0.00	24	15	69	20	3	7		29.54	0.00	28	24	84	31	7	16																																							
10	30.33	0.00	12	-5	45	18	10	17		30.08	0.00	28	18	65	20	6	8		29.68	0.00	19	12	74	31	4	11																																							
13	30.19	0.00	22	-3	33	20	8	14		29.96	0.00	36	21	55	20	6	16		29.76	0.00	15	4	61	33	5	11																																							
16	30.10	0.00	26	-4	27	18	11	21		29.83	0.00	38	21	51	18	9	16		29.83	0.00	13	-6	42	31	4	14																																							
19	30.06	0.00	25	-1	31	18	11	24		29.72	0.00	37	22	54	18	14	33		29.89	0.00	6	-10	47	00	0	2																																							
22	30.01	0.00	25	4	39	18	11	22		29.61	0.00	37	23	57	18	17	30		29.92	0.00	7	-3	61	24	5	10																																							
MAR 10																						MAR 11																						MAR 12																					
01	29.91	0.00	5	-8	52	22	5	12		30.09	0.00	11	1	63	24	8	14		29.82	0.00	29	13	52	18	10	20																																							
04	29.87	0.00	3	-9	55	22	2	6		30.08	0.00	9	-3	58	22	3	11		29.81	0.00	30	19	64	18	11	17																																							
07	29.91	0.00	5	-6	59	20	6	13		30.10	0.00	6	-1	70	18	6	11		29.84	0.00	30	23	76	20	9	18																																							
10	29.97	0.00	8	-7	51	24	8	15		30.08	0.00	15	4	61	18	11	18		29.84	0.00	34	24	67	20	10	18																																							
13	30.01	0.00	7	-11	42	29	11	21		30.00	0.00	23	9	56	18	11	20		29.82	0.00	36	27	70	24	4	8																																							
16	30.01	0.00	10	-12	36	27	7	12		29.94	0.00	26	9	47	18	10	17		29.86	0.00	30	26	84	31	3	8																																							
19	30.05	0.00	9	-9	44	24	6	12		29.95	0.00	26	9	48	20	8	16		29.98	0.00	26	21	79	33	2	6																																							
22	30.07	0.00	9	-4	53	22	2	6		29.90	0.00	25	9	50	18	6	11		30.06	0.00	25	10	53	31	2	6																																							
MAR 13																						MAR 14																						MAR 15																					
01	30.12	0.00	20	6	55	00	2	8		30.29	0.00	6	-9	50	00	1	7		30.26	0.00	19	-2	39	18	2	4																																							
04	30.19	0.00	11	0	60	00	2	7		30.33	0.00	1	-9	61	00	0	0		30.21	0.00	17	13	84	13	0	1																																							
07	30.28	0.00	6	-3	66	33	0	2		30.42	0.00	2	-10	56	02	1	3		30.23	0.00	16	12	85	00	0	1																																							
10	30.25	0.00	13	-3	47	27	2	5		30.44	0.00	12	-9	37	33	3	7		30.19	0.00	30	19	63	18	2	6																																							
13	30.21	0.00	13	-3	47	29	4	10		30.38	0.00	16	-11	29	31	2	6		30.14	0.00	37	18	46	33	0	2																																							
16	30.17	0.00	15	-6	38	27	3	6		30.31	0.00	20	-10	26	27	2	5		30.10	0.00	39	16	40	31	1	5																																							
19	30.23	0.00	6	-10	46	02	0	1		30.31	0.00	18	-9	30	00	0	0		30.11	0.00	29	20	67	00	0	0																																							
22	30.26	0.00	5	-10	48	00	0	1		30.26	0.00	17	1	49	20	2	5		30.08	0.00	25	19	75	00	0	0																																							
MAR 16																						MAR 17																						MAR 18																					
01	30.07	0.00	24	18	77	00	0	0		29.83	0.00	48	38	69	18	4	7		29.82	0.00	37	33	86	04	0	2																																							
04	30.05	0.00	24	17	73	00	0	0		29.78	0.00	47	39	72	15	6	10		29.84	0.00	34	30	83	00	2	8																																							
07	30.05	0.00	28	17	64	18	1	3		29.78	0.00	46	40	80	18	7	11		29.94	0.00	33	26	75	00	3	8																																							
10	30.02	0.00	41	24	51	18	9	14		29.77	0.00	54	43	65	15	3	6		30.00	0.00	37	25	61	33	3	7																																							
13	29.93	0.00	51	28	40	20	6	9		29.72	0.00	60	44	56	18	2	6		30.02	0.00	37	22	53	31	4	8																																							
16	29.85	0.00	54	28	36	18	6	12		29.70	0.00	59	42	54	29	0	1		30.06	0.00	36	12	37	00	5	14																																							
19	29.83	0.00	50	33	51	18	8	15		29.77	0.00	42	38	85	00	0	0		30.12	0.00	30	5	34	00	2	6																																							
22	29.81	0.00	49	35	59	18	6	13		29.79	0.00	43	40	90	00	0	0		30.19	0.00	27	3	34	00	1	5																																							

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

March 2003: Westford

Hour	MAR 19								MAR 20								MAR 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																																																																																			
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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.

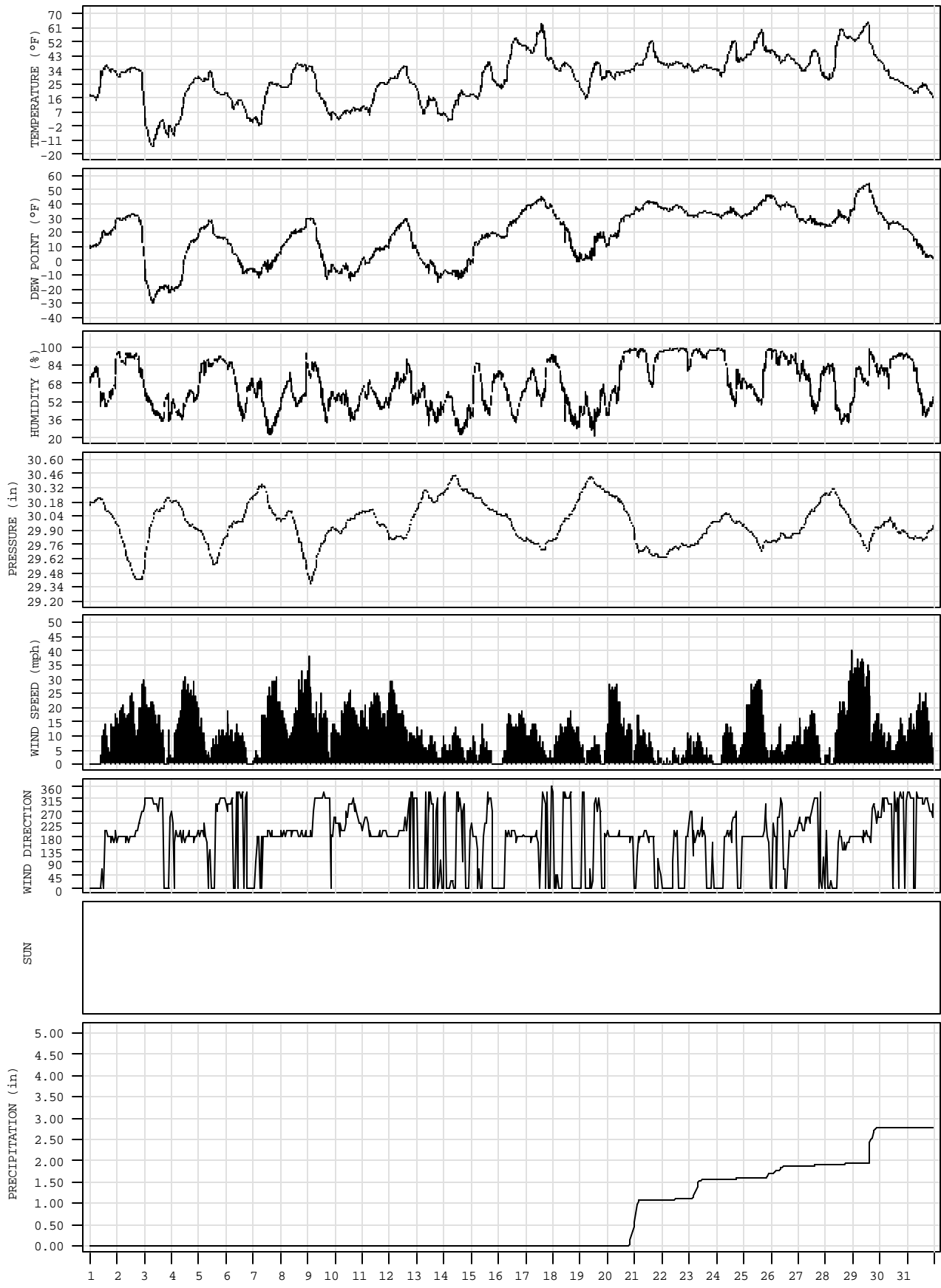
Hour	Averages						Resultant Wind	
	Sunshine	Pressure	Temperature	Dew Point	Humidity	Wind Speed	Direction	Speed
01		29.963	27	18	70	3.7	21	2.3
04		29.967	25	17	74	3.7	19	2.3
07		29.994	24	17	75	4.0	20	2.7
10		29.992	30	18	64	5.7	20	3.9
13		29.954	34	20	59	5.1	22	2.9
16		29.932	34	19	57	4.2	21	2.2
19		29.959	29	18	66	3.4	20	2.3
22		29.957	28	18	67	3.6	21	2.8

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

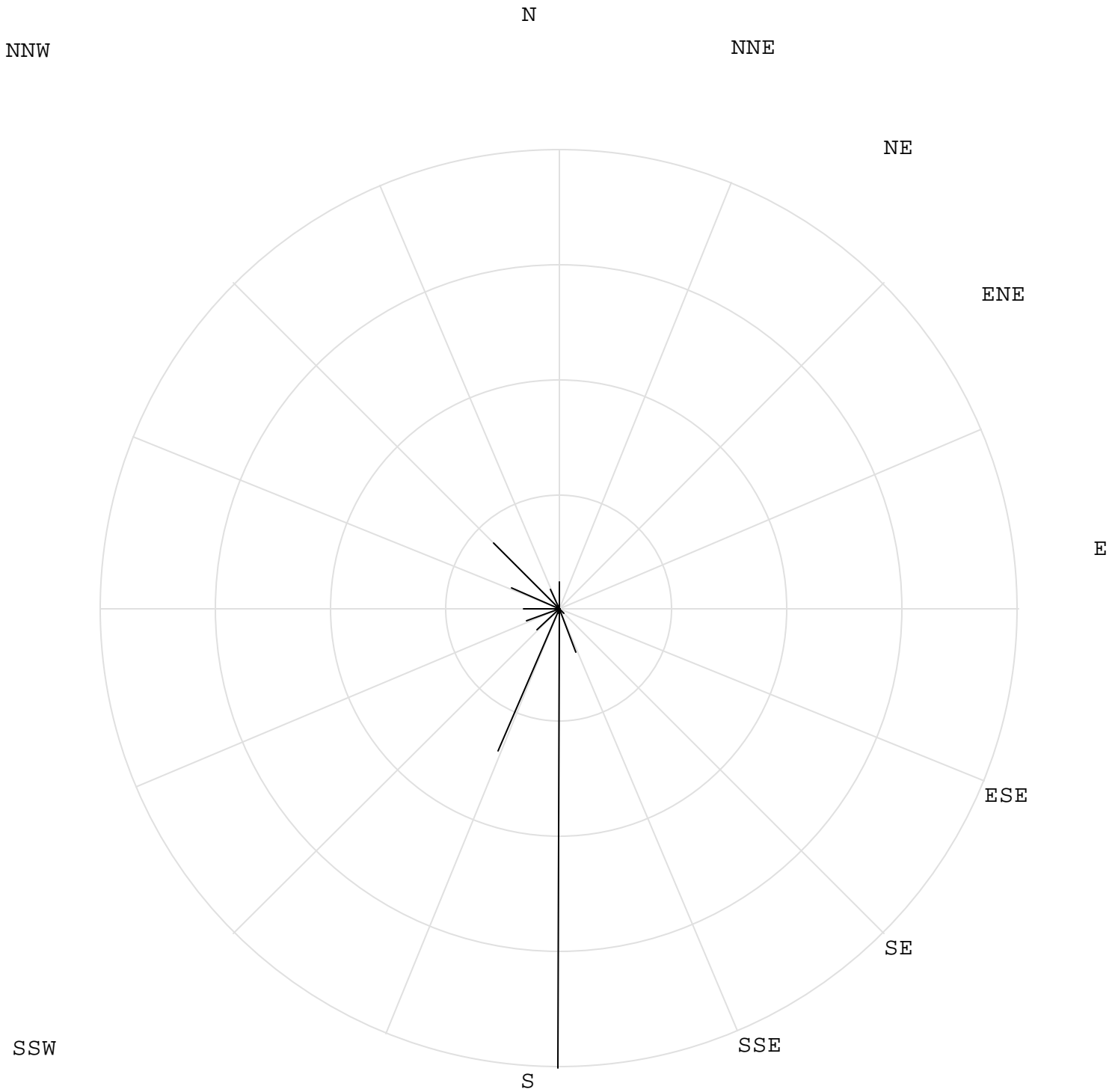
Date	A.M. Hour Ending at												P.M. Hour Ending at												Date
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	
01																								01	
02																									02
03																									03
04																									04
05																									05
06																									06
07																									07
08																									08
09																									09
10																									10
11																									11
12																									12
13																									13
14																									14
15																									15
16																									16
17																									17
18																									18
19																									19
20																		0.01	0.04	0.08	0.11	0.11	0.09	0.11	20
21	0.23	0.21	0.04	0.03															0.02						21
22											0.04	0.02	0.02												22
23			0.04	0.03	0.07	0.07	0.07	0.09	0.05		0.02														23
24																		0.01							24
25																				0.02	0.04	0.04			25
26		0.02	0.04	0.03				0.01	0.04	0.01	0.02	0.02	0.01												26
27														0.01											27
28															0.48	0.06	0.04	0.05	0.04	0.02	0.04				28
29																	0.14	0.04	0.02	0.04					29
30																									30
31																									31
Sum	0.23	0.23	0.12	0.09	0.07	0.07	0.07	0.10	0.09	0.01	0.04	0.06	0.03	0.00	0.49	0.06	0.04	0.21	0.10	0.12	0.19	0.15	0.09	0.11	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  
March 2003: Westford



Wind Rose: March 2003  
Westford



Maximum direction of wind: 1461.3 miles from 180°.  
3114.8 total miles of wind.