

2004

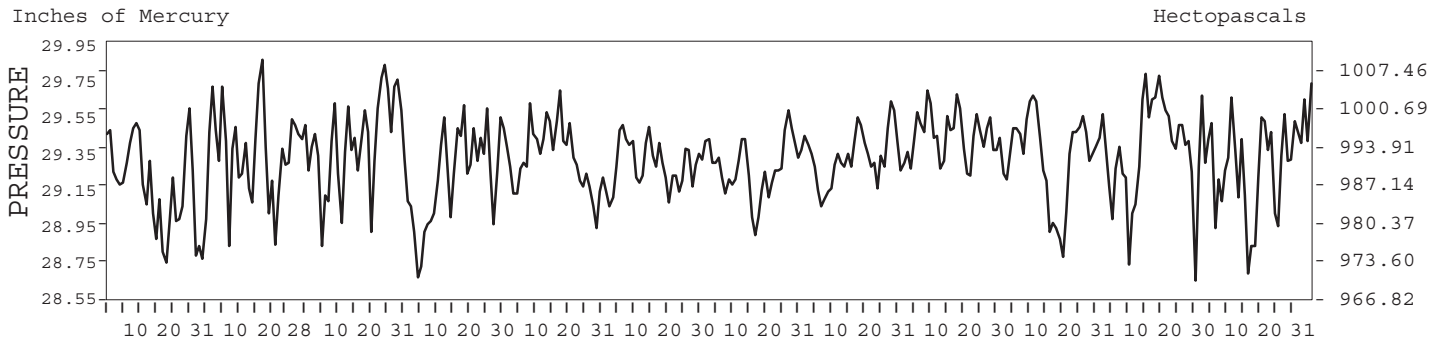
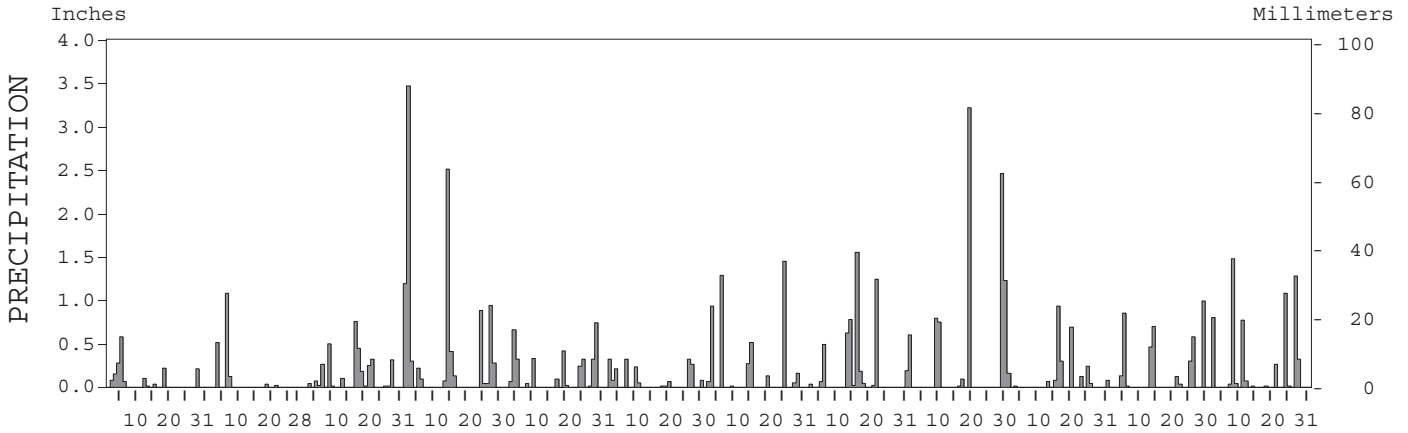
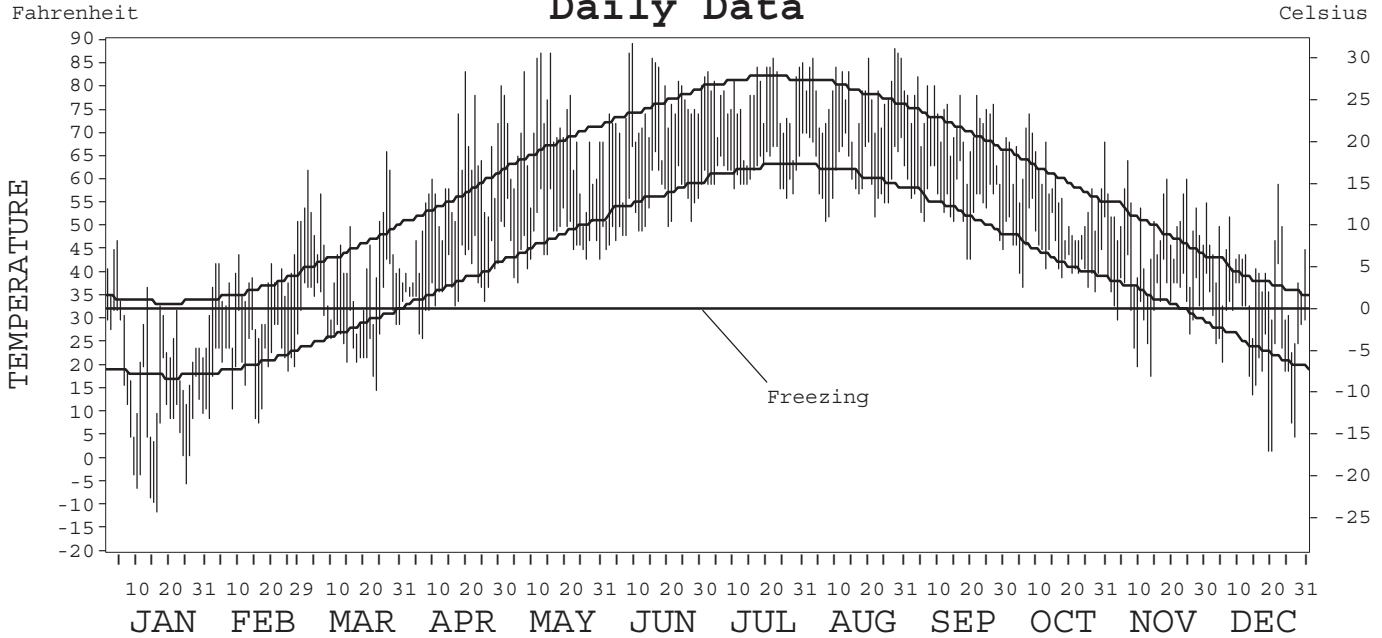
LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2435

BLUE HILL OBSERVATORY,
MILTON, MASSACHUSETTS (MQE)

Daily Data



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METEOROLOGICAL DATA FOR 2004

MILTON, MA (MQE)

LATITUDE: 42° 12' 44" N LONGITUDE: 71° 06' 53" W ELEVATION (FT): GRND: 654 BARO: 657 TIME ZONE: EASTERN (UTC + 5) WBAN: 14753

ELEMENT		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	23.6	37.2	43.8	57.7	68.5	74.4	77.1	78.0	71.9	58.5	49.5	40.1	56.7	
	HIGHEST DAILY MAXIMUM	47	51	66	83	87	89	86	88	82	74	64	59	89	
	DATE OF OCCURRENCE	04	29+	26	19	15+	09	22	28	04	08	07	23	JUN 09	
	MEAN DAILY MINIMUM	9.9	21.3	29.3	37.9	47.7	54.5	61.7	61.3	54.9	44.4	33.6	24.7	40.1	
	LOWEST DAILY MINIMUM	-11	8	15	26	38	45	56	51	43	36	18	2	-11	
	DATE OF OCCURRENCE	16	16	23	06	05	01	26	07	20+	28	14	21+	JAN 16	
	AVERAGE DRY BULB	16.8	29.3	36.6	47.8	58.1	64.5	69.4	69.7	63.4	51.5	41.6	32.4	48.4	
	MEAN WET BULB	14.7	24.8	32.4	41.3	52.2		64.3	64.9	58.6	47.5		29.5		
	MEAN DEW POINT	5.6	14.4	26.4	33.7	47.3		61.8	62.1	55.5	43.6		23.8		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAXIMUM ≤ 32°	24	6	5	0	0	0	0	0	0	0	0	6	41		
MINIMUM ≤ 32°	31	29	21	4	0	0	0	0	0	0	11	23	119		
MINIMUM ≤ 0°	7	0	0	0	0	0	0	0	0	0	0	0	7		
H/C	HEATING DEGREE DAYS	1486	1030	875	510	224	83	12	18	83	413	696	1002	6432	
	COOLING DEGREE DAYS	0	0	0	1	22	74	155	170	43	0	0	0	465	
RH	MEAN (PERCENT)	63	58	72	66	75	71	80	81	79	78	70	73	72	
	HOUR 01 LST	65	61	75	75	85	80	90	93	90	84	75	78	79	
	HOUR 07 LST	69	68	81	75	82	78	87	89	87	87	78	79	80	
	HOUR 13 LST	54	49	61	53	62	56	65	64	64	63	59	63	59	
	HOUR 19 LST	62	55	73	64	73	67	78	79	81	76	68	73	71	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	3	3	3	7	11	3	5	3	3	6	0	2	49	
	THUNDERSTORMS	0	0	0	0	2	2	2	1	0	0	0	0	7	
CLOUDINESS	SUNRISE-SUNSET: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
	MIDNIGHT-MIDNIGHT: (OKTAS)														
	CEILOMETER (≤ 12,000 FT.)														
	SATELLITE (> 12,000 FT.)														
NUMBER OF DAYS WITH:															
CLEAR															
PARTLY CLOUDY															
CLOUDY															
PR	MEAN STATION PRESS. (IN.)	29.16	29.36	29.41	29.23	29.32	29.30	29.28	29.32	29.44	29.33	29.40	29.30	29.32	
	MEAN SEA-LEVEL PRESS. (IN.)	29.90	30.10	30.14	29.95	30.04		29.98	30.03	30.15	30.04		30.04		
WINDS	RESULTANT SPEED (MPH)		8.9	1.9	2.4	4.0			5.7	1.1	2.2	5.3	5.0		
	RES. DIR. (TENS OF DEGS.)		29	26	26	22			21	25	29	26	25		
	MEAN SPEED (MPH)	14.8	13.4	14.3	14.1	11.8	11.6	10.5	11.0	11.0	11.6	13.5	14.8	12.7	
	PREVAIL. DIR. (TENS OF DEGS.)	29	32	30	31	19	27	18	18	18	31	31	30	18	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	43	43	39	45	36	32	36	38	33	32	47	48	48	
	DIR. (TENS OF DEGS.)	28	30	27	18	18	32	26	24	18	21	25	16	16	
	DATE OF OCCURRENCE	29	08	06	14	02	03	02	21	09	16	05	23	DEC 23	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	55	56	49	59	47	39	44	52	45	39	61	63	63	
DIR. (TENS OF DEGS.)	27	29	28	17	18	31	25	24	18	21	26	16	16		
DATE OF OCCURRENCE	29	08	06	14	02	03	02	21	09	16	05	23	DEC 23		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	1.72	1.76	4.49	9.38	3.57	1.95	4.86	5.82	8.71	2.55	4.17	6.16	55.14	
	GREATEST 24-HOUR (IN.)	0.56	1.15	1.19	3.47	0.98	0.58	1.45	1.57	3.37	1.18	1.16	1.58	3.47	
	DATE OF OCCURRENCE	4-5	06-07	31	01	03-04	25-26	24	14-15	28-29	15-16	12-13	26-27	APR 01	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	10	5	17	13	13	12	10	13	8	10	10	13	134	
PRECIPITATION ≥ 0.10	6	3	10	9	8	6	7	8	6	5	8	7	83		
PRECIPITATION ≥ 1.00	0	1	1	2	0	0	2	2	3	0	0	3	14		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	8.5	3.0	15.8	0.5	0.0	0.0	T	0.0	0.0	0.0	7.8	16.2	51.8	
	GREATEST 24-HOUR (IN.)	2.7	2.3	8.0	0.5	0.0	0.0	T	0.0	0.0	0.0	7.8	13.8	13.8	
	DATE OF OCCURRENCE	28	06	16-17	05			02+				12-13	26-27	DEC 26-27	
	MAXIMUM SNOW DEPTH (IN.)	4	4	10	1	0	0	0	0	0	0	7	13	13	
	DATE OF OCCURRENCE	31+	01	18	05							13	27	DEC 27	
	NUMBER OF DAYS WITH:														
SNOWFALL ≥ 1.0	3	1	4	0	0	0	0	0	0	0	2	3	13		

NORMALS, MEANS, AND EXTREMES

MILTON, MA (MQE)

LATITUDE: 42° 12' 44" N LONGITUDE: 71° 06' 53" W ELEVATION (FT): GRND: 654 BARO: 657 TIME ZONE: EASTERN (UTC + 5) WBAN: 14753

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	33.8	36.3	44.8	55.5	67.0	75.5	81.2	78.9	71.0	60.3	49.3	38.6	57.7
	MEAN DAILY MAXIMUM	42	33.4	35.9	44.4	55.6	66.9	75.3	80.7	78.8	70.8	60.5	49.1	38.1	57.5
	HIGHEST DAILY MAXIMUM	119	68	68	89	94	93	99	100	101	99	88	81	74	101
	YEAR OF OCCURRENCE		1950	1985	1998	1976	2000	1919	1977	1975	1953	1963	1950	1998	AUG 1975
	MEAN OF EXTREME MAXS.	42	54.1	54.6	66.9	78.3	86.1	89.5	92.9	90.2	85.7	77.5	68.1	59.1	75.2
	NORMAL DAILY MINIMUM	30	18.1	20.3	27.8	37.1	47.0	55.9	62.0	60.9	53.2	42.9	34.2	23.8	40.3
	MEAN DAILY MINIMUM	42	18.1	19.7	27.6	36.8	46.8	55.9	61.9	61.0	53.4	43.3	34.4	23.7	40.2
	LOWEST DAILY MINIMUM	119	-16	-21	-5	6	27	36	44	39	28	21	5	-19	-21
	YEAR OF OCCURRENCE		1957	1934	1950	1923	1911	1945	1988	1965	1914	1936	1932	1933	FEB 1934
	MEAN OF EXTREME MINS.	42	-9	1.6	10.6	24.6	36.4	44.9	52.8	49.8	39.9	29.3	19.0	4.7	26.1
	NORMAL DRY BULB	30	26.0	28.3	36.3	46.3	57.0	65.7	71.6	69.9	62.1	51.6	41.8	31.2	49.0
	MEAN DRY BULB	42	25.8	27.9	36.0	46.2	56.8	65.6	71.4	70.0	62.0	51.9	41.8	31.0	48.9
	MEAN WET BULB	5	22.8	27.9	32.5	39.9	50.5	60.4	64.5	65.5	59.1	47.0	39.8	28.8	44.9
	MEAN DEW POINT	5	15.9	19.1	25.4	31.8	44.7	56.4	61.0	62.2	56.1	42.0	34.2	21.6	39.2
	NORMAL NO. DAYS WITH:														
	MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.1	0.4	1.3	3.2	1.4	0.3	0.0	0.0	0.0	6.7
MAXIMUM ≤ 32°	30	14.6	10.6	3.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.0	8.7	38.3	
MINIMUM ≤ 32°	30	28.1	24.7	21.8	7.3	0.2	0.0	0.0	0.0	*	3.0	13.5	25.3	123.9	
MINIMUM ≤ 0°	30	2.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.6	
H/C	NORMAL HEATING DEG. DAYS	30	1207	1034	894	562	271	74	9	22	138	422	698	1040	6371
	NORMAL COOLING DEG. DAYS	30	0	0	1	3	21	93	215	173	49	3	0	0	558
RH	NORMAL (PERCENT)														
	HOUR 01 LST														
	HOUR 07 LST														
	HOUR 13 LST														
	HOUR 19 LST														
S	PERCENT POSSIBLE SUNSHINE	112	46	50	48	49	52	55	57	58	56	55	47	46	52
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	12	4.8	4.3	5.9	5.2	6.6	4.8	4.0	5.0	5.3	5.3	4.4	3.9	59.5
	THUNDERSTORMS	12	0.3	0.3	0.5	1.0	2.7	3.4	3.7	3.3	1.5	0.6	0.3	0.1	17.7
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)														
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH:														
	CLEAR														
	PARTLY CLOUDY														
	CLOUDY														
PR	MEAN STATION PRESSURE (IN)	5	29.25	29.33	29.29	29.27	29.31	29.30	29.28	29.33	29.38	29.37	29.34	29.28	29.31
	MEAN SEA-LEVEL PRES. (IN)	5	29.98	30.08	30.01	29.99	30.02	30.01	29.98	30.01	30.09	30.08	30.04	30.03	30.03
WINDS	MEAN SPEED (MPH)	62	17.2	17.0	17.2	16.3	14.4	13.7	12.9	12.6	13.5	15.1	16.2	16.7	15.2
	PREVAIL. DIR (TENS OF DEGS)														
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	6	46	58	55	54	51	48	45	41	46	51	56	60	60
	DIR. (TENS OF DEGS)		28	19	14	16	26	29	31	28	15	27	16	16	16
	YEAR OF OCCURRENCE		2002	2000	1999	2000	2002	2000	1999	2001	1999	2003	1999	2000	DEC 2000
	MAXIMUM 5-SECOND:														
	SPEED (MPH)	6	63	61	74	70	64	61	54	52	59	69	76	78	78
DIR. (TENS OF DEGS)		21	28	15	15	21	29	32	24	15	28	16	15	15	
YEAR OF OCCURRENCE		2000	2001	1999	2000	2000	2000	1999	2004	1999	2003	1999	2000	DEC 2000	
PRECIPITATION	NORMAL (IN)	30	4.78	4.06	4.79	4.32	3.79	3.93	3.74	4.06	4.13	4.42	4.64	4.56	51.22
	MAXIMUM MONTHLY (IN)	119	11.61	9.32	13.07	10.37	9.16	17.32	11.67	18.78	12.37	11.76	9.78	12.60	18.78
	YEAR OF OCCURRENCE		1979	1969	2001	1987	1954	1998	1938	1955	1999	1996	1983	1969	AUG 1955
	MINIMUM MONTHLY (IN)	119	0.89	0.71	0.06	0.92	0.50	0.14	0.13	0.53	0.45	0.22	0.55	0.92	0.06
	YEAR OF OCCURRENCE		1955	1987	1915	1892	1944	1999	1952	1981	1914	1924	1976	1955	MAR 1915
	MAXIMUM IN 24 HOURS (IN)	118	3.10	4.85	6.62	3.47	5.02	6.10	4.67	9.93	5.86	7.41	5.06	5.68	9.93
	YEAR OF OCCURRENCE		1889	1886	1968	2004	1984	1998	1979	1955	1961	1996	1955	1969	AUG 1955
	NORMAL NO. DAYS WITH:														
	PRECIPITATION ≥ 0.01	30	12.1	10.6	12.0	11.6	12.1	11.2	9.7	10.1	9.5	9.7	10.8	12.7	132.1
	PRECIPITATION ≥ 1.00	30	1.5	1.2	1.2	1.2	0.7	0.9	1.2	1.1	1.3	1.2	1.4	1.4	14.3
SNOWFALL	NORMAL (IN)	30	15.9	13.0	11.4	3.8	0.3	0.0	0.0	0.0	0.3	3.1	10.7	58.5	
	MAXIMUM MONTHLY (IN)	119	56.3	65.4	52.0	24.2	7.8	T	T	0.0	0.0	6.8	23.0	45.2	65.4
	YEAR OF OCCURRENCE		1948	1969	1956	1996	1977	1991	2004		1979	1889	1945	FEB 1969	
	MAXIMUM IN 24 HOURS (IN)	115	20.0	28.2	27.2	15.1	7.8	T	T	0.0	0.0	6.8	16.0	21.0	28.2
	YEAR OF OCCURRENCE		1898	1969	1960	1996	1977	1991	2004		1979	1898	1960	FEB 1969	
	MAXIMUM SNOW DEPTH (IN)	41	27	41	43	27	8	0	0	0	0	5	12	23	43
	YEAR OF OCCURRENCE		1978	1969	1969	1997	1977				1979	1971	2003	MAR 1969	
	NORMAL NO. DAYS WITH:														
SNOWFALL ≥ 1.0	30	4.0	3.0	3.0	0.7	0.1	0.0	0.0	0.0	0.0	0.1	0.9	2.7	14.5	

PRECIPITATION (inches) 2004 BLUE HILL OBSERVATORY, MA (MQE)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	6.15	3.99	3.57	3.32	3.28	4.28	3.54	7.72	7.10	6.39	6.09	6.95	62.38
1976	6.52	3.06	3.29	2.45	2.84	0.91	4.51	8.92	2.41	5.73	0.55	3.52	44.71
1977	4.85	2.67	5.62	4.05	3.41	4.82	2.23	3.11	5.05	6.43	3.17	6.29	51.70
1978	9.85	2.97	3.24	1.88	5.00	1.53	2.04	5.91	1.36	3.24	2.28	4.19	43.49
1979	11.61	4.22	3.08	4.34	4.67	1.00	5.55	6.76	4.73	4.09	4.17	1.68	55.90
1980	0.97	1.07	6.07	5.08	1.58	3.91	2.43	2.09	0.69	4.72	3.19	1.19	32.99
1981	1.25	7.93	0.63	3.16	1.60	1.89	4.09	0.53	3.76	4.14	5.60	7.24	41.82
1982	5.61	3.25	3.14	4.03	3.47	13.73	4.66	1.84	2.37	3.69	4.34	2.11	52.24
1983	5.53	6.15	10.02	7.57	3.33	1.27	1.11	6.59	1.67	3.35	9.78	6.08	62.45
1984	2.81	7.80	9.00	4.34	9.14	4.10	5.26	0.91	1.73	5.02	1.59	3.21	54.91
1985	1.31	2.91	3.17	1.80	3.58	4.66	4.53	4.04	2.74	1.83	8.16	1.32	40.05
1986	4.11	3.55	3.09	1.80	1.92	7.13	4.97	4.65	1.04	3.61	6.37	7.71	49.95
1987	7.94	0.71	5.42	10.37	2.45	2.18	1.23	4.09	9.62	2.38	4.91	2.99	54.29
1988	3.38	5.46	4.23	2.36	3.67	0.91	10.66	1.28	1.78	3.11	8.93	1.52	47.29
1989	1.00	3.45	3.83	5.03	4.74	4.44	7.31	6.96	5.39	8.07	4.77	1.14	56.13
1990	4.85	5.21	2.21	5.62	7.81	1.35	5.04	6.03	1.86	6.23	1.96	3.95	52.12
1991	4.00	2.03	5.64	5.05	1.54	3.30	2.95	6.46	6.72	6.51	5.01	2.80	52.01
1992	3.64	2.31	4.48	3.33	1.50	5.09	2.85	5.36	3.40	1.95	5.06	9.80	48.77
1993	3.15	4.42	8.72	6.59	1.23	2.12	1.77	1.67	4.16	4.36	2.97	8.01	49.17
1994	6.25	4.00	7.98	2.46	5.23	1.01	1.84	6.92	5.00	0.39	5.10	6.48	52.66
1995	4.32	3.28	2.20	1.86	2.12	1.83	2.54	2.21	3.63	5.94	6.01	3.42	39.36
1996	8.49	3.53	4.01	6.68	3.37	3.05	5.48	3.31	8.78	11.76	2.59	8.31	69.36
1997	3.43	2.16	6.75	4.96	3.07	1.33	1.18	2.94	1.36	2.00	7.41	3.31	39.90
1998	7.22	6.82	5.96	5.18	8.18	17.32	2.06	5.84	1.53	7.37	1.83	1.69	71.00
1999	8.47	6.02	5.04	1.17	3.82	0.14	4.77	2.08	12.37	4.35	2.43	2.38	53.04
2000	4.57	3.70	4.86	6.56	3.37	7.45	5.06	1.97	3.03	3.27	4.61	5.20	53.65
2001	3.15	2.68	13.07	1.48	2.48	7.51	2.16	4.83	2.72	0.79	1.10	3.56	45.53
2002	3.65	2.30	4.25	3.31	6.80	4.31	3.17	2.76	4.92	4.00	7.12	6.81	53.40
2003	2.88	5.76	5.15	5.74	4.60	5.61	3.25	4.75	2.54	6.10	3.20	8.21	57.79
2004	1.72	1.76	4.49	9.38	3.57	1.95	4.86	5.82	8.71	2.55	4.17	6.16	55.14
POR= 119 YRS	4.27	3.96	4.53	4.05	3.66	3.63	3.63	4.00	4.00	3.88	4.29	4.30	48.20

WBAN : 14753

AVERAGE TEMPERATURE (°F) 2004 BLUE HILL OBSERVATORY, MA (MQE)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	30.9	28.5	34.1	42.7	60.0	64.6	73.0	69.3	59.9	54.4	48.0	30.5	49.7
1976	22.0	34.0	37.5	51.4	57.0	69.3	70.0	68.5	61.3	48.0	37.2	24.2	48.4
1977	18.6	27.5	41.9	48.2	59.5	63.8	71.5	70.8	61.3	51.2	43.5	29.0	48.9
1978	23.6	22.3	32.6	44.2	56.6	65.5	70.5	70.0	59.0	50.3	40.9	31.3	47.2
1979	28.3	18.5	39.2	45.8	58.9	64.4	72.9	68.8	62.0	50.8	46.7	34.2	49.2
1980	26.6	24.5	34.8	47.7	57.2	63.3	73.1	71.1	64.0	49.1	38.1	25.7	47.9
1981	17.7	34.6	36.2	48.7	58.5	67.3	71.8	69.4	60.0	48.5	40.8	29.9	48.6
1982	19.0	27.5	35.5	44.5	56.3	61.1	71.7	66.1	61.7	51.7	44.7	35.5	47.9
1983	27.5	29.8	37.7	46.8	54.0	66.7	73.5	70.0	65.6	51.3	43.5	29.3	49.6
1984	23.9	35.2	30.0	45.0	56.2	67.6	70.6	70.9	60.3	53.6	42.0	36.3	49.3
1985	20.6	30.0	37.7	47.4	57.4	62.1	71.3	68.5	62.9	53.1	43.1	28.1	48.5
1986	28.7	25.5	38.7	47.1	57.4	63.0	68.3	67.2	60.4	50.9	39.4	32.4	48.3
1987	25.9	26.1	36.9	45.3	57.7	66.2	71.1	68.2	62.0	50.5	41.5	32.9	48.7
1988	24.8	29.4	36.9	44.7	56.9	66.0	72.8	73.3	61.5	47.8	44.1	29.4	49.0
1989	31.2	27.3	35.1	44.8	58.6	65.7	70.2	69.4	63.2	53.5	39.8	17.9	48.1
1990	34.2	31.2	38.2	46.2	53.6	65.5	71.0	71.0	62.1	56.0	44.8	36.8	50.9
1991	26.9	33.0	39.0	49.5	62.1	66.7	72.1	71.1	60.7	54.2	42.3	32.4	50.8
1992	27.9	29.2	32.6	44.0	55.2	65.3	67.9	68.2	61.1	49.2	39.7	31.1	47.6
1993	27.8	22.5	32.7	45.8	58.5	66.3	72.4	72.2	62.1	49.5	42.6	30.7	48.6
1994	19.1	23.8	35.6	49.5	55.5	68.9	75.3	69.0	60.9	52.7	45.8	35.4	49.3
1995	32.4	25.9	37.3	45.0	55.5	66.6	74.1	70.3	61.2	56.3	38.1	26.6	49.1
1996	26.1	27.3	33.6	46.6	56.3	66.5	69.8	69.5	62.0	51.4	37.5	36.6	48.6
1997	26.1	33.3	34.7	45.1	54.2	66.6	72.4	69.6	62.3	51.0	39.0	32.4	48.9
1998	31.8	34.3	39.4	48.6	59.9	63.7	72.0	71.3	64.5	52.1	42.2	36.9	51.4
1999	27.9	32.4	37.5	47.9	59.3	69.7	74.6	70.6	66.2	51.1	45.8	34.8	51.5
2000	24.9	32.0	41.7	45.3	57.0	65.8	67.9	68.6	61.5	52.0	41.1	26.1	48.7
2001	27.1	28.8	33.4	47.8	59.1	69.4	68.4	72.9	64.0	54.5	46.3	37.5	50.8
2002	34.4	34.0	38.8	48.5	55.8	64.2	72.2	73.0	66.1	49.5	40.1	30.1	50.6
2003	20.4	23.8	35.5	43.2	54.4	64.0	72.6	72.2	63.8	50.5	43.8	33.1	48.1
2004	16.8	29.3	36.6	47.8	58.1	64.5	69.4	69.7	63.4	51.5	41.6	32.4	48.4
POR= 119 YRS	26.2	27.0	35.1	45.8	56.7	65.4	71.1	69.3	62.4	52.1	41.3	30.3	48.6

HEATING DEGREE DAYS (base 65°F) 2004 BLUE HILL OBSERVATORY, MA (MQE)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1975-76	3	31	156	327	502	1061	1327	895	847	450	254	50	5903
1976-77	7	37	135	522	826	1257	1428	1045	710	503	214	92	6776
1977-78	7	17	148	419	640	1109	1278	1188	997	618	284	50	6755
1978-79	19	19	196	447	717	1036	1134	1296	790	573	207	66	6500
1979-80	15	41	138	445	546	949	1183	1168	927	512	245	116	6285
1980-81	0	18	112	489	799	1208	1461	843	888	482	230	22	6552
1981-82	3	16	168	501	721	1080	1417	1046	907	611	269	143	6882
1982-83	8	50	132	407	601	911	1159	979	840	543	337	56	6023
1983-84	4	23	108	431	638	1101	1267	857	1079	592	277	58	6435
1984-85	14	5	170	349	679	882	1370	975	839	522	247	113	6165
1985-86	0	20	110	363	651	1138	1119	1100	803	527	278	113	6222
1986-87	42	39	156	435	762	1003	1205	1081	866	584	272	55	6500
1987-88	6	41	121	442	699	987	1238	1025	864	605	267	90	6385
1988-89	17	22	117	531	615	1098	1043	1050	923	598	207	72	6293
1989-90	9	20	123	349	751	1454	948	941	825	563	350	63	6396
1990-91	10	17	128	299	603	866	1171	889	798	461	147	69	5458
1991-92	6	12	168	333	675	1004	1143	1033	998	624	333	64	6393
1992-93	30	29	160	482	756	1043	1146	1184	996	567	204	61	6658
1993-94	4	2	148	474	665	1054	1417	1149	905	456	300	22	6596
1994-95	4	22	139	373	571	910	1004	1089	852	593	296	52	5905
1995-96	0	17	152	275	801	1181	1196	1086	968	551	290	29	6546
1996-97	4	15	137	416	819	873	1200	878	935	591	329	102	6299
1997-98	8	9	127	437	772	1005	1026	855	799	489	183	84	5794
1998-99	0	6	67	394	676	865	1141	908	845	505	192	34	5633
1999-00	3	16	56	423	568	929	1236	948	719	583	261	89	5831
2000-01	19	17	146	399	708	1199	1168	1007	973	512	238	26	6412
2001-02	15	1	86	333	550	847	943	863	805	495	294	108	5340
2002-03	10	20	53	487	742	1073	1373	1148	906	651	328	107	6898
2003-04	3	9	62	442	629	981	1486	1030	875	510	224	83	6334
2004-	12	18	83	413	696	1002							

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COOLING DEGREE DAYS (base 65°F) 2004 BLUE HILL OBSERVATORY, MA (MQE)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1975	0	0	0	0	42	84	255	169	10	5	0	0	565
1976	0	0	0	48	13	184	171	150	30	3	0	0	599
1977	0	0	4	4	48	60	218	204	45	0	0	0	583
1978	0	0	0	0	31	72	196	180	23	0	0	0	502
1979	0	0	0	0	26	56	264	167	57	14	0	0	584
1980	0	0	0	0	7	72	258	213	87	0	0	0	637
1981	0	0	0	0	36	95	224	156	27	0	0	0	538
1982	0	0	0	0	7	34	221	89	40	2	0	0	393
1983	0	0	0	2	4	115	274	190	134	13	0	0	732
1984	0	0	0	0	11	142	195	191	36	2	0	0	577
1985	0	0	0	3	17	32	203	135	54	1	0	0	445
1986	0	0	0	0	49	61	149	113	22	4	0	0	398
1987	0	0	0	0	52	100	203	148	36	0	1	0	540
1988	0	0	0	0	23	128	266	289	23	4	0	0	733
1989	0	0	0	0	16	100	178	163	76	1	0	0	534
1990	0	0	0	8	0	84	203	208	48	26	3	0	580
1991	0	0	0	0	64	124	234	208	50	5	0	0	685
1992	0	0	0	0	36	77	123	135	48	0	0	0	419
1993	0	0	0	0	12	108	244	233	66	1	0	0	664
1994	0	0	0	0	12	146	329	154	20	0	0	0	661
1995	0	0	0	0	11	108	291	185	44	10	0	0	649
1996	0	0	0	4	27	81	159	163	55	0	0	0	489
1997	0	0	0	0	2	157	243	159	54	6	0	0	621
1998	0	0	14	2	32	54	225	206	61	0	0	0	594
1999	0	0	0	0	23	180	308	194	100	0	0	0	805
2000	0	0	0	0	23	121	118	133	49	2	0	0	446
2001	0	0	0	4	60	167	126	253	61	15	0	0	686
2002	0	0	0	8	13	92	240	277	92	12	0	0	734
2003	0	0	0	3	5	84	246	239	32	0	0	0	609
2004	0	0	0	1	22	74	155	170	43	0	0	0	465

SNOWFALL (inches) 2004 BLUE HILL OBSERVATORY, MA (MQE)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1975-76	0.0	0.0	0.0	T	2.3	23.9	17.3	2.4	13.7	T	0.0	0.0	59.6
1976-77	0.0	0.0	0.0	0.0	1.6	22.5	27.1	9.5	12.7	T	7.8	0.0	81.2
1977-78	0.0	0.0	0.0	0.0	0.8	7.6	35.6	30.4	19.0	0.1	T	0.0	93.5
1978-79	0.0	0.0	0.0	0.0	7.5	8.0	9.0	9.1	0.1	3.2	0.0	0.0	36.9
1979-80	0.0	0.0	0.0	6.8	0.0	6.2	0.7	6.9	4.7	T	0.0	0.0	25.3
1980-81	0.0	0.0	0.0	0.0	7.3	8.1	16.1	8.3	2.5	T	0.0	0.0	42.3
1981-82	0.0	0.0	0.0	0.0	T	27.3	17.4	10.9	6.0	14.0	0.0	0.0	75.6
1982-83	0.0	0.0	0.0	0.0	T	15.8	11.2	28.5	1.0	T	0.0	0.0	56.5
1983-84	0.0	0.0	0.0	0.0	T	9.5	23.6	0.6	26.7	T	0.0	0.0	60.4
1984-85	0.0	0.0	0.0	0.0	0.2	5.2	11.1	16.7	10.4	3.5	T	0.0	47.1
1985-86	0.0	0.0	0.0	0.0	5.1	2.9	1.6	13.8	3.0	T	T	0.0	26.4
1986-87	0.0	0.0	0.0	0.0	13.5	6.4	38.3	5.6	8.4	13.5	0.0	0.0	85.7
1987-88	0.0	0.0	0.0	0.0	11.4	12.1	20.3	16.3	8.5	T	0.0	0.0	68.6
1988-89	0.0	0.0	0.0	T	0.0	8.4	1.4	10.2	9.3	4.7	0.0	0.0	34.0
1989-90	0.0	0.0	0.0	0.0	5.6	7.3	13.3	25.8	5.7	1.5	0.2	0.0	59.4
1990-91	0.0	0.0	0.0	0.0	0.4	5.6	11.7	5.8	5.5	T	0.0	T	29.0
1991-92	0.0	0.0	0.0	T	0.2	7.5	1.1	5.0	11.9	1.5	0.0	0.0	27.2
1992-93	0.0	0.0	0.0	0.0	0.5	19.0	13.5	12.8	35.5	3.0	0.0	0.0	84.3
1993-94	0.0	0.0	0.0	0.0	0.3	15.0	33.0	33.9	18.9	0.0	0.0	0.0	101.1
1994-95	0.0	0.0	0.0	0.0	1.6	1.3	4.3	10.0	0.7	T	T	0.0	17.9
1995-96	0.0	0.0	0.0	0.0	5.8	25.3	47.6	18.3	23.2	24.2	T	0.0	144.4
1996-97	0.0	0.0	0.0	T	2.6	9.3	12.2	7.8	22.6	15.1	0.0	0.0	69.6
1997-98	0.0	0.0	0.0	0.0	4.1	15.3	15.8	1.0	5.3	0.1	0.0	0.0	41.6
1998-99	0.0	0.0	0.0	0.0			19.7	14.4	22.5	T	0.0	0.0	
1999-00	0.0	0.0	0.0	T	T	T	18.6	11.1	3.0	1.0	0.0	0.0	33.7
2000-01	0.0	0.0	0.0	0.6	T	9.6	19.7	19.3	41.4	0.0	0.0	0.0	90.6
2001-02	0.0	0.0	0.0	T	T	10.1	15.7	6.4	6.8	1.3	T	0.0	40.3
2002-03	0.0	0.0	0.0	1.3	8.2	21.8	12.7	51.3	13.3	4.5	0.0	0.0	113.1
2003-04	0.0	0.0	0.0	0.5	T	29.7	8.5	3.0	15.8	0.5	0.0	0.0	58.0
2004-	T	0.0	0.0	0.0	7.8	16.2							
POR= 118 YRS	0.0	0.0	0.0	0.2	2.8	11.0	15.4	15.8	11.7	3.3	0.1	T	60.3

WBAN : 14753

REFERENCE NOTES:

<p>PAGE 1: THE TEMPERATURE GRAPH SHOWS NORMAL MAXIMUM AND NORMAL MINIMUM DAILY TEMPERATURES (SOLID CURVES) AND THE ACTUAL DAILY HIGH AND LOW TEMPERATURES (VERTICAL BARS).</p> <p>PAGE 2 AND 3: H/C INDICATES HEATING AND COOLING DEGREE DAYS. RH INDICATES RELATIVE HUMIDITY W/O INDICATES WEATHER AND OBSTRUCTIONS S INDICATES SUNSHINE. PR INDICATES PRESSURE. CLOUDINESS ON PAGE 3 IS THE SUM OF THE CEILOMETER AND SATELLITE DATA NOT TO EXCEED EIGHT EIGHTHS(OKTAS).</p> <p>GENERAL: T INDICATES TRACE PRECIPITATION, AN AMOUNT GREATER THAN ZERO BUT LESS THAN THE LOWEST REPORTABLE VALUE. + INDICATES THE VALUE ALSO OCCURS ON EARLIER DATES. BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA. NORMALS ARE 30-YEAR AVERAGES (1971 - 2000). ASOS INDICATES AUTOMATED SURFACE OBSERVING SYSTEM. PM INDICATES THE LAST DAY OF THE PREVIOUS MONTH. POR (PERIOD OF RECORD) BEGINS WITH THE JANUARY DATA MONTH AND IS THE NUMBER OF YEARS USED TO COMPUTE THE MEAN. INDIVIDUAL MONTHS WITHIN THE POR MAY BE MISSING. WHEN THE POR FOR A NORMAL IS LESS THAN 30 YEARS, THE NORMAL IS PROVISIONAL AND IS BASED ON THE NUMBER OF YEARS INDICATED. 0.* OR * INDICATES THE VALUE OR MEAN-DAYS-WITH IS BETWEEN 0.00 AND 0.05. CLOUDINESS FOR ASOS STATIONS DIFFERS FROM THE NON-ASOS OBSERVATION TAKEN BY A HUMAN OBSERVER. ASOS STATION CLOUDINESS IS BASED ON TIME-AVERAGED CEILOMETER DATA FOR CLOUDS AT OR BELOW 12,000 FEET AND ON SATELLITE DATA FOR CLOUDS ABOVE 12,000 FEET. THE NUMBER OF DAYS WITH CLEAR, PARTLY CLOUDY, AND CLOUDY CONDITIONS FOR ASOS STATIONS IS THE SUM OF THE CEILOMETER AND SATELLITE DATA FOR THE SUNRISE TO SUNSET PERIOD.</p>	<p>GENERAL CONTINUED: CLEAR INDICATES 0 - 2 OKTAS, PARTLY CLOUDY INDICATES 3 - 6 OKTAS, AND CLOUDY INDICATES 7 OR 8 OKTAS. WHEN AT LEAST ONE OF THE ELEMENTS (CEILOMETER OR SATELLITE) IS MISSING, THE DAILY CLOUDINESS IS NOT COMPUTED. WIND DIRECTION IS RECORDED IN TENS OF DEGREES (2 DIGITS) CLOCKWISE FROM TRUE NORTH. "00" INDICATES CALM. "36" INDICATES TRUE NORTH. RESULTANT WIND IS THE VECTOR AVERAGE OF THE SPEED AND DIRECTION. AVERAGE TEMPERATURE IS THE SUM OF THE MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURE DIVIDED BY 2. SNOWFALL DATA COMPRISE ALL FORMS OF FROZEN PRECIPITATION, INCLUDING HAIL. A HEATING (COOLING) DEGREE DAY IS THE DIFFERENCE BETWEEN THE AVERAGE DAILY TEMPERATURE AND 65° F. DRY BULB IS THE TEMPERATURE OF THE AMBIENT AIR. DEW POINT IS THE TEMPERATURE TO WHICH THE AIR MUST BE COOLED TO ACHIEVE 100 PERCENT RELATIVE HUMIDITY. WET BULB IS THE TEMPERATURE THE AIR WOULD HAVE IF THE MOISTURE CONTENT WAS INCREASED TO 100 PERCENT RELATIVE HUMIDITY.</p> <p>ON JULY 1, 1996, THE NATIONAL WEATHER SERVICE BEGAN USING THE "METAR" OBSERVATION CODE THAT WAS ALREADY EMPLOYED BY MOST OTHER NATIONS OF THE WORLD. THE MOST NOTICEABLE DIFFERENCE IN THIS ANNUAL PUBLICATION WILL BE THE CHANGE IN UNITS FROM TENTHS TO EIGHTS(OKTAS) FOR REPORTING THE AMOUNT OF SKY COVER.</p>
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2004
BLUE HILL OBSERVATORY,
MILTON, MASSACHUSETTS (MQE)

The altitude of the Observatory and its proximity to Massachusetts Bay play major roles in determining the climate of Blue Hill. The elevation of 635 feet marks the summit as the highest point of a wooded range that extends east-northeast to west-southwest. The station lies at the southwest end of this range and has a three-quadrant unrestricted exposure, at approximately 400 feet above the surrounding terrain. The orographic effect created by this difference in elevation is responsible for lower temperatures, more precipitation, higher winds, more frequent occurrences of fog, and longer periods of snow cover than at nearby lower elevations. Eight miles to the northeast lies the nearest approach of Boston Harbor, and thus, the station is within range of the sea breeze.

Summer temperatures are generally comfortable. Winters at the summit are more severe than those experienced at surrounding areas. Average occurrence of last freezing temperature in the spring is late April and the first in the fall is late October. The freeze-free period is about 178 days. Records indicate that the freeze-free period at base stations is from 6 to 7 weeks shorter than at the summit. This seeming paradox is due to temperature inversions, in which the colder air is found at lower elevations. This condition develops on clear, calm nights, and is responsible for the shorter freeze-free period in base areas.

Total precipitation is fairly evenly distributed throughout the year. Precipitation occurrences are most frequent January through March and least frequent August through October. Hourly precipitation occurrences indicate a coastal type distribution for the year as a whole, with maxima in the early morning and minima in the early afternoon. In the summer, however, convective action or the continental influence dominates, causing a late afternoon maximum. Coastal storms or northeasters are prolific producers of rain and snow.

The main snow season extends from November through early April. Nearly 14 percent of the annual total precipitation occurs as snow or sleet.

Wind velocities are higher in winter than in summer. Speeds average greatest from January through March and least in August. Surface contour is a factor in the stations wind force, particularly from the southerly and westerly directions. These are the steepest slopes of the hill, and winds velocities increase. Peak winds have been recorded from these directions. Winds from the east-northeast and northeast are somewhat slowed by striking the lower range first.

STATION LOCATION

BLUE HILL OBSERVATORY, MILTON,
MASSACHUSETTS

LOCATION	Occupied From	Occupied To	Airline Distances and Directions from previous Location	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATIC OBSERVING EQUIPMENT *	* TYPE M = AMOS T = AUTOB S = ASOS W = AWOS REMARKS	
						GROUND												
						SEA LEVEL	GROUND	WIND INSTRUMENT	EXTREME THERMOMETERS	PSYCHROMETER	SUNSHINE SWITCH	TIPPING BUCKET	RAIN GAUGE	WINDHOLE RAIN GAUGE	8 INCH RAIN GAUGE			HYGROMETER
*NOTE: Blue Hill Observatory	10/15/98	Present	NA	42°13'	71°07'	a654											S	ASOS Commissioned 10/15/98. a. Ground elevation.

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* NOTES: For earlier station history see previous edition.