

2003

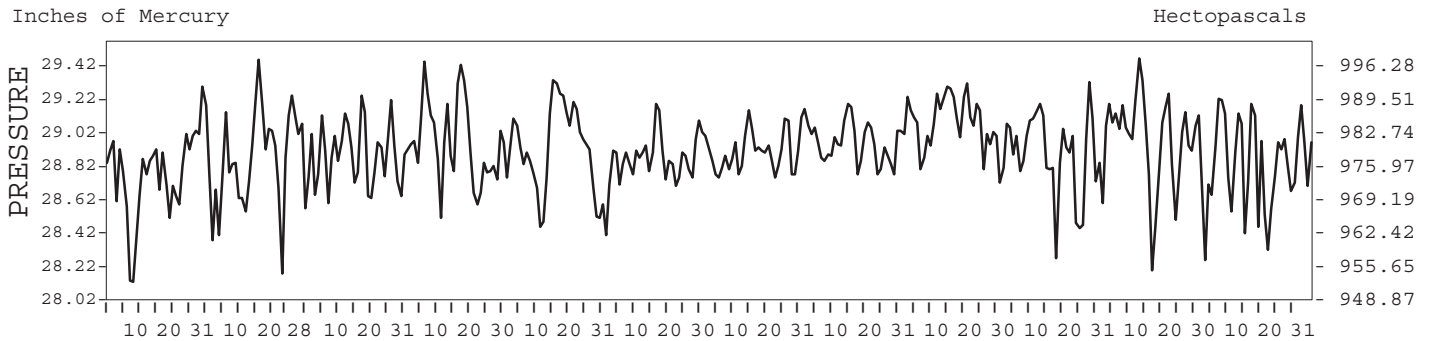
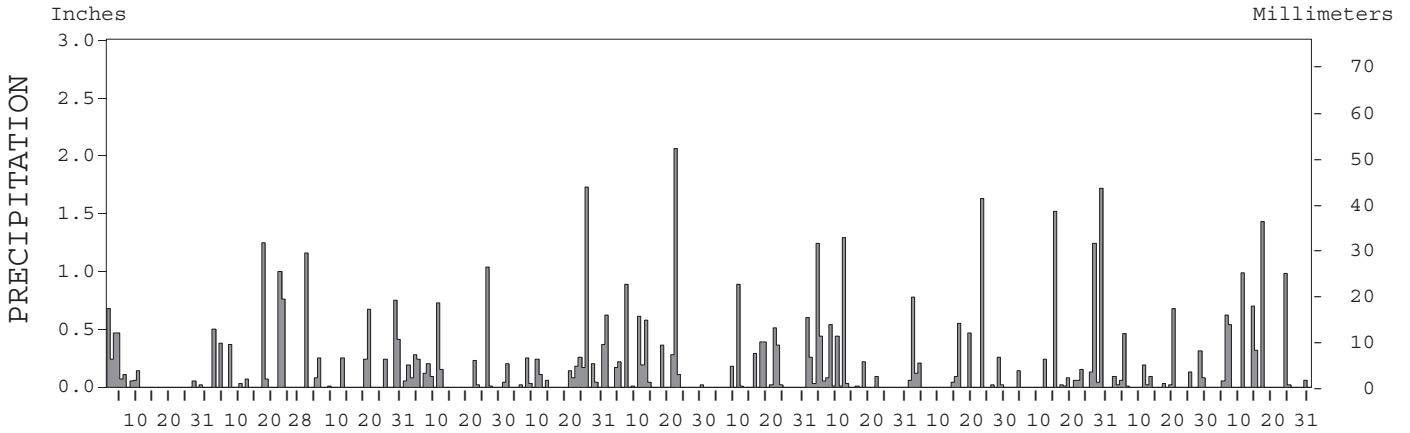
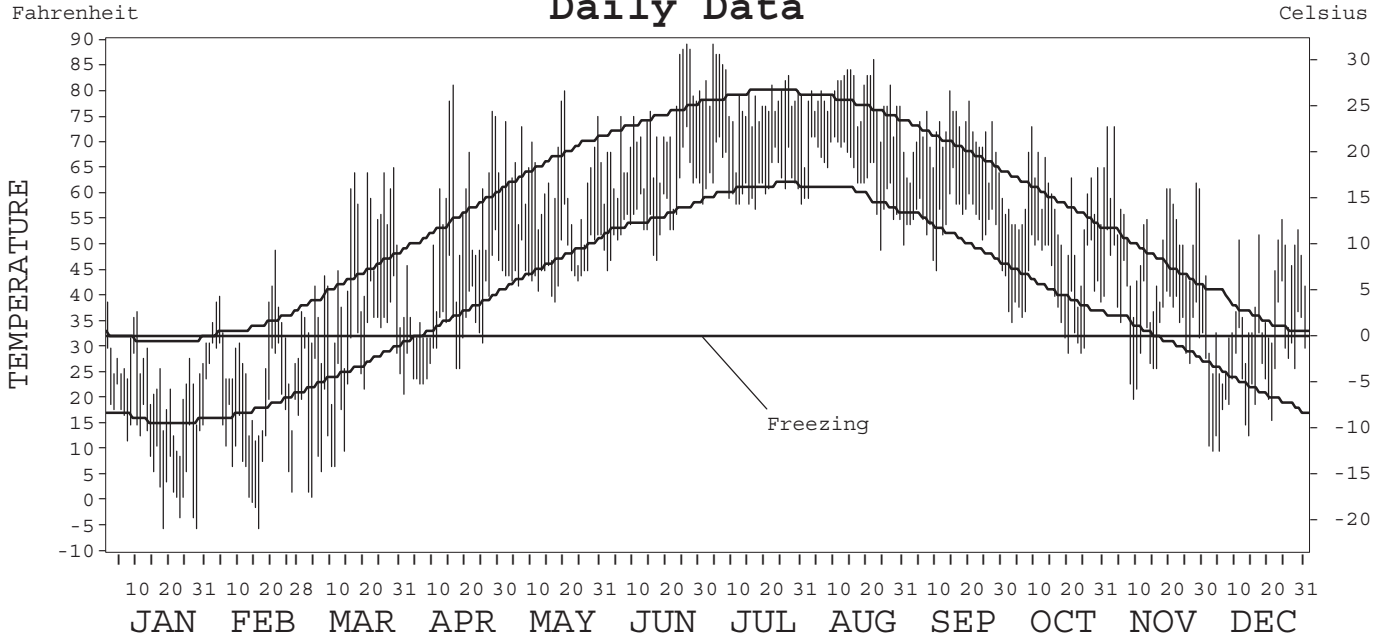
# LOCAL CLIMATOLOGICAL DATA ANNUAL SUMMARY WITH COMPARATIVE DATA



ISSN 0198-2451

## WORCESTER, MASSACHUSETTS (ORH)

### Daily Data



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# METEOROLOGICAL DATA FOR 2003

## WORCESTER, MA (ORH)

LATITUDE: 42° 16' 02" N      LONGITUDE: 71° 52' 34" W      ELEVATION (FT): GRND: 963      BARO: 966      TIME ZONE: EASTERN (UTC + 5)      WBAN: 94746

	ELEMENT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	
TEMPERATURE °F	MEAN DAILY MAXIMUM	24.2	28.0	45.0	51.3	62.1	71.5	78.8	78.1	70.3	56.7	51.3	38.1	54.6	
	HIGHEST DAILY MAXIMUM	39	49	65	81	80	89	89	86	80	73	55	55	89	
	DATE OF OCCURRENCE	01	21	29	16	20	26	04	22	14	09	03+	24	JUL 04	
	MEAN DAILY MINIMUM	11.2	15.1	24.9	33.7	45.8	56.1	62.4	63.2	54.6	40.7	35.4	24.4	39.0	
	LOWEST DAILY MINIMUM	-5	-5	1	21	39	45	57	49	45	29	20	10	-5	
	DATE OF OCCURRENCE	28+	16	04	01	17	02	17	24	30+	24+	09	05+	FEB 16	
	AVERAGE DRY BULB	17.7	21.6	35.0	42.5	54.0	63.8	70.6	70.7	62.5	48.7	43.4	31.3	46.8	
	MEAN WET BULB	16.0					60.0	65.1	65.7		44.5	38.0	27.8		
	MEAN DEW POINT	9.3					57.6	61.9	62.6		39.9	31.1	20.4		
	NUMBER OF DAYS WITH:														
	MAXIMUM ≥ 90°	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MAXIMUM ≤ 32°	28	19	5	5	0	0	0	0	0	0	0	9	66	
MINIMUM ≤ 32°	31	28	20	15	0	0	0	0	0	5	10	25	134		
MINIMUM ≤ 0°	4	3	0	0	0	0	0	0	0	0	0	0	7		
H/C	HEATING DEGREE DAYS	1456	1209	925	667	337	104	4	16	91	497	641	1040	6987	
	COOLING DEGREE DAYS	0	0	0	0	4	76	185	200	23	0	0	0	488	
RH	MEAN (PERCENT)	70	67	69	66	76	83	77	79	80	74	67	67	73	
	HOUR 01 LST	73	71	77	71	81	91	87	87	87	83	73	70	79	
	HOUR 07 LST	76	72	78	73	82	88	85	85	86	82	74	73	80	
	HOUR 13 LST	62	59	59	59	68	73	61	64	68	61	56	60	62	
	HOUR 19 LST	70	66	64	62	76	80	76	80	80	76	69	66	72	
S	PERCENT POSSIBLE SUNSHINE														
W/O	NUMBER OF DAYS WITH:														
	HEAVY FOG (VISBY ≤ 1/4 MI)	4	6	7	10	8	6	6	5	10	6	6	7	81	
	THUNDERSTORMS	0	0	0	0	0	0	1	0	0	0	0	0	1	
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.)	28.77	28.85	28.87	28.95	28.91	28.85	28.90	28.96	29.06	28.89	28.93	28.84	28.90	
	MEAN SEA-LEVEL PRESS. (IN.)	29.91		29.99		30.00	29.93	29.97	30.03	30.14	29.99	30.04	29.96		
WINDS	RESULTANT SPEED (MPH)	8.5		6.3	2.1	1.5	2.0	5.1	4.8	0.4	5.7	5.7	7.5		
	RES. DIR. (TENS OF DEGS.)	29		26	34	35	29	25	25	36	26	27	28		
	MEAN SPEED (MPH)	12.0	11.1	11.2	9.8	8.9	8.9	9.1	8.4	7.9	10.4	10.8	13.3	10.2	
	PREVAIL. DIR. (TENS OF DEGS.)	27	28	23	04	05	26	27	21	07	25	28	28	27	
	MAXIMUM 2-MINUTE WIND:														
	SPEED (MPH)	38	40	39	29	22	31	28	23	24	39	43	43	43	
	DIR. (TENS OF DEGS.)	28	28	28	28	27	30	24	27	18	26	28	28	28	
	DATE OF OCCURRENCE	22	23+	03	24+	13	01	27+	27+	23	15	14	11	DEC 11	
	MAXIMUM 5-SECOND WIND:														
	SPEED (MPH)	49	53	47	38	30	40	35	33	32	53	58	56	58	
DIR. (TENS OF DEGS.)	30	30	27	24	01	30	23	17	17	28	26	28	26		
DATE OF OCCURRENCE	12	02	03	15	03+	01	27	10	23	15	29+	11	NOV 29+		
PRECIPITATION	WATER EQUIVALENT:														
	TOTAL (IN.)	2.36	4.43	4.06	3.43	4.12	6.16	3.06	5.34	4.25	5.41	2.19	5.71	50.52	
	GREATEST 24-HOUR (IN.)	0.92	1.44	1.16	1.05	1.73	2.20	0.90	1.29	1.63	1.76	0.70	1.43	2.20	
	DATE OF OCCURRENCE	01-02	22-23	02	26-27	26	21-22	11-12	12	23	28-29	19-20	17	JUN 21-22	
	NUMBER OF DAYS WITH:														
	PRECIPITATION ≥ 0.01	11	9	10	14	17	14	10	16	12	13	14	10	150	
PRECIPITATION ≥ 0.10	6	6	8	9	11	11	7	8	7	7	5	7	92		
PRECIPITATION ≥ 1.00	0	2	1	1	1	1	0	2	1	3	0	1	13		
SNOWFALL	SNOW, ICE PELLETS, HAIL:														
	TOTAL (IN.)	22.0	38.9	8.3	5.1	0.0	0.0	0.0	0.0	0.0	1.5	T	21.5	97.3	
	GREATEST 24-HOUR (IN.)	7.0	18.8	5.0	2.0	0.0	0.0	0.0	0.0	0.0	1.5	T	7.2	18.8	
	DATE OF OCCURRENCE	04	17	06	08						23	29+	06	FEB 17	
	MAXIMUM SNOW DEPTH (IN.)														
	DATE OF OCCURRENCE														
NUMBER OF DAYS WITH:															
SNOWFALL ≥ 1.0	9	6	2	3	0	0	0	0	0	1	0	3	24		

# NORMALS, MEANS, AND EXTREMES

## WORCESTER, MA (ORH)

LATITUDE: 42° 16' 02" N      LONGITUDE: 71° 52' 34" W      ELEVATION (FT): GRND: 963      BARO: 966      TIME ZONE: EASTERN (UTC + 5)      WBAN: 94746

ELEMENT		POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	31.4	34.1	43.0	54.4	66.3	74.4	79.3	77.1	69.0	58.4	47.1	36.2	55.9
	MEAN DAILY MAXIMUM	49	31.5	33.9	42.2	54.5	65.9	74.6	77.6	77.2	69.4	59.2	47.2	35.8	55.8
	HIGHEST DAILY MAXIMUM	47	60	67	84	91	92	94	96	96	91	85	78	72	96
	YEAR OF OCCURRENCE		2002	1985	1998	1976	1962	1988	1988	1975	1983	1963	1982	1998	JUL 1988
	MEAN OF EXTREME MAXS.	50	51.2	52.2	65.1	76.4	83.9	88.1	88.3	87.8	84.0	76.0	66.6	56.9	73.0
	NORMAL DAILY MINIMUM	30	15.8	17.8	25.6	35.5	46.2	55.0	60.8	59.5	51.3	40.7	32.0	21.6	38.5
	MEAN DAILY MINIMUM	50	15.7	17.3	25.5	35.6	46.0	55.3	59.7	59.5	51.7	41.4	32.3	21.6	38.5
	LOWEST DAILY MINIMUM	48	-19	-12	-4	11	28	36	43	38	30	20	6	-13	-19
	YEAR OF OCCURRENCE		1957	1967	1986	1982	1970	1986	1988	1992	1969	1989	1962	JAN 1957	
	MEAN OF EXTREME MINS.	50	-2.4	-1.5	7.7	22.7	34.5	43.2	50.2	48.1	37.9	27.3	17.2	2.7	24.0
	NORMAL DRY BULB	30	23.6	26.0	34.3	45.0	56.3	64.7	70.1	68.3	60.2	49.6	39.6	28.9	47.2
	MEAN DRY BULB	49	23.9	25.8	33.8	45.0	55.9	65.0	68.6	68.3	60.4	50.3	39.7	28.6	47.1
	MEAN WET BULB	17	22.3	23.9	30.5	39.6	49.6	58.8	60.0	62.6	51.3	45.3	36.1	25.1	42.1
	MEAN DEW POINT	17	15.2	15.9	22.1	31.3	42.3	53.8	56.1	58.5	47.0	39.2	30.0	18.5	35.8
	NORMAL NO. DAYS WITH: MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.1	0.1	0.6	1.6	0.7	*	0.0	0.0	0.0	3.1
	MAXIMUM ≤ 32°	30	17.2	13.1	4.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.8	11.2	48.0
	MINIMUM ≤ 32°	30	29.1	25.9	24.2	9.9	0.4	0.0	0.0	0.0	0.1	4.5	16.8	27.3	138.2
MINIMUM ≤ 0°	30	2.9	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.0	
H/C	NORMAL HEATING DEG. DAYS	30	1284	1094	952	601	278	74	9	20	158	478	764	1119	6831
	NORMAL COOLING DEG. DAYS	30	0	0	0	0	7	64	166	122	12	0	0	0	371
RH	NORMAL (PERCENT)	30	66	64	63	61	65	70	71	73	74	70	69	68	68
	HOUR 01 LST	30	68	67	68	69	75	80	81	83	84	78	75	72	75
	HOUR 07 LST	30	72	72	72	68	72	76	78	81	83	79	77	74	75
	HOUR 13 LST	30	60	57	55	51	54	58	59	61	62	57	60	61	58
	HOUR 19 LST	30	66	63	60	58	61	67	70	74	76	70	69	68	67
S	PERCENT POSSIBLE SUNSHINE														
W/O	MEAN NO. DAYS WITH: HEAVY FOG (VISBY ≤ 1/4 MI)	31	5.9	5.8	7.9	6.6	7.0	7.6	5.9	6.0	7.6	6.8	7.3	6.8	81.2
	THUNDERSTORMS	31	0.0	0.1	0.7	1.2	2.3	3.4	4.2	3.3	1.3	1.0	0.4	0.1	18.0
CLOUDINESS	MEAN: SUNRISE-SUNSET (OKTAS)														
	MIDNIGHT-MIDNIGHT (OKTAS)														
	MEAN NO. DAYS WITH: CLEAR	1			1.0				5.9						
	PARTLY CLOUDY	1	1.0		1.0		2.0		12.1						
CLOUDY	1	1.0	1.0	1.0				13.0							
PR	MEAN STATION PRESSURE (IN)	30	28.87	28.87	28.86	28.85	28.88	28.88	28.91	28.95	28.97	28.96	28.92	28.89	28.90
	MEAN SEA-LEVEL PRES. (IN)	18	30.01	30.00	29.99	29.95	29.98	29.95	29.99	30.05	30.08	30.08	30.05	30.02	30.01
WINDS	MEAN SPEED (MPH)	31	12.2	12.4	12.5	11.5	10.5	9.9	9.2	8.9	9.5	10.2	11.2	11.8	10.8
	PREVAIL. DIR (TENS OF DEGS)	18	28	28	29	29	28	28	26	26	25	27	28	29	28
	MAXIMUM 2-MINUTE: SPEED (MPH)	7	41	49	47	43	51	36	33	43	41	39	43	45	51
	DIR. (TENS OF DEGS)		30	28	27	21	31	31	30	31	32	26	28	27	31
	YEAR OF OCCURRENCE		2000	1996	1997	2000	1998	2001	2001	2002	1999	2003	2003	2000	MAY 1998
	MAXIMUM 5-SECOND: SPEED (MPH)	7	57	70	61	58	94	47	43	52	55	53	58	59	94
	DIR. (TENS OF DEGS)		30	29	27	19	26	31	28	31	31	28	26	19	26
YEAR OF OCCURRENCE		2000	1996	1997	2000	1998	2002	1996	2002	2002	2003	2003	2000	MAY 1998	
PRECIPITATION	NORMAL (IN)	30	4.07	3.10	4.23	3.92	4.35	4.02	4.19	4.09	4.27	4.67	4.34	3.80	49.05
	MAXIMUM MONTHLY (IN)	48	11.16	8.37	7.96	8.79	9.94	12.17	8.11	8.01	13.13	10.19	10.40	9.83	13.13
	YEAR OF OCCURRENCE		1979	1981	1972	1987	1984	1982	1959	1991	1974	1990	1972	1973	SEP 1974
	MINIMUM MONTHLY (IN)	48	0.89	0.25	0.74	0.75	0.86	0.32	0.74	1.03	0.69	0.70	0.67	0.74	0.25
	YEAR OF OCCURRENCE		1970	1987	1981	2001	1959	1999	1987	1981	1986	2001	1976	1989	FEB 1987
	MAXIMUM IN 24 HOURS (IN)	48	2.97	2.46	4.56	3.34	3.03	3.98	3.87	5.00	4.79	3.91	2.98	3.00	5.00
	YEAR OF OCCURRENCE		1978	1973	1987	2000	1967	1986	3087	1991	1960	1990	1972	1986	AUG 1991
	NORMAL NO. DAYS WITH: PRECIPITATION ≥ 0.01	30	11.9	10.6	11.9	11.9	12.3	11.3	9.7	9.1	9.5	8.9	10.8	12.2	130.1
PRECIPITATION ≥ 1.00	30	0.9	0.9	1.0	0.9	1.1	0.9	1.2	1.2	1.1	1.5	1.2	1.0	12.9	
SNOWFALL	NORMAL (IN)	30	15.9	13.6	11.3	3.3	0.5	0.0	0.0	0.0	0.*	0.3	4.2	11.7	60.8
	MAXIMUM MONTHLY (IN)	41	46.8	45.2	44.1	21.0	12.7	0.1	0.0	T	T	7.5	20.7	37.0	46.8
	YEAR OF OCCURRENCE		1987	1962	1993	1987	1977	1992		1994	1994	1979	1971	1992	JAN 1987
	MAXIMUM IN 24 HOURS (IN)	41	18.7	24.0	19.7	17.0	12.7	0.1	0.0	T	T	7.5	14.8	28.1	28.1
	YEAR OF OCCURRENCE		1961	1962	1993	1987	1977	1992		1994	1994	1979	1971	1992	DEC 1992
	MAXIMUM SNOW DEPTH (IN)	42	35	42	33	17	10	0	0	0	0	8	15	29	42
	YEAR OF OCCURRENCE		1966	1961	1969	1987	1977					1979	1971	1992	FEB 1961
	NORMAL NO. DAYS WITH: SNOWFALL ≥ 1.0	30	4.1	3.2	2.8	0.8	0.1	0.0	0.0	0.0	0.0	0.0	1.2	3.2	15.4

PRECIPITATION (inches) 2003 WORCESTER, MA (ORH)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	3.54	2.75	5.05	3.24	5.15	4.35	3.22	3.50	13.13	3.45	3.06	6.04	56.48
1975	5.35	3.52	3.37	2.66	2.07	3.32	3.92	4.59	7.21	6.06	5.28	4.61	51.96
1976	6.03	2.57	2.74	2.45	3.46	2.95	3.28	5.72	2.38	4.99	0.67	3.20	40.44
1977	2.76	2.46	5.75	3.69	2.20	4.00	3.84	2.73	6.54	6.33	3.69	4.99	48.98
1978	9.90	2.08	3.22	2.24	3.69	1.57	3.57	5.00	1.02	3.85	2.07	3.56	41.77
1979	11.16	2.64	3.71	4.49	4.14	0.79	5.74	7.39	3.80	4.36	3.58	1.89	53.69
1980	0.95	0.73	6.86	4.77	2.23	4.55	3.59	1.95	1.82	6.16	4.58	1.06	39.25
1981	0.93	8.37	0.74	3.85	4.48	2.45	7.90	1.03	4.66	5.49	3.13	5.94	48.97
1982	5.00	3.22	3.67	4.30	2.96	12.17	3.61	3.36	2.69	2.67	4.32	1.70	49.67
1983	4.85	4.67	7.84	8.59	5.97	2.56	1.32	6.26	1.38	5.77	8.75	6.37	64.33
1984	2.44	5.78	5.47	4.23	9.94	2.85	5.69	1.17	1.68	3.99	2.71	2.84	48.79
1985	1.16	2.72	2.89	1.26	5.46	5.24	6.35	3.74	3.77	3.12	6.41	1.93	44.05
1986	5.56	3.14	2.93	1.59	3.14	7.21	4.83	3.20	0.69	2.72	5.63	7.25	47.89
1987	5.52	0.25	6.57	8.79	1.55	4.55	0.74	4.61	6.37	4.18	2.77	1.85	47.75
1988	2.71	2.78	3.46	3.45	4.47	1.25	6.27	2.19	2.70	3.66	7.91	1.42	42.27
1989	1.18	2.47	2.66	4.25	6.17	5.27	5.67	5.65	4.71	8.21	4.00	0.74	50.98
1990	3.75	3.88	1.52	4.78	7.65	1.74	2.44	6.84	1.73	10.19	2.41	5.46	52.39
1991	2.98	2.08	4.92	5.04	4.16	3.06	2.78	8.01	6.40	3.44	5.47	2.89	51.23
1992	3.01	2.51	4.15	2.59	2.54	4.68	5.25	4.83	3.58	2.36	4.94	4.61	45.05
1993	2.56	2.38	5.46	4.00	1.79	2.36	3.34	1.90	8.85	3.88	4.85	5.11	46.48
1994	4.78	1.86	5.38	2.73	5.87	2.48	3.09	7.64	4.84	1.24	4.54	4.81	49.26
1995	3.71	2.86	1.85	2.19	2.39	1.51	4.33	2.02	3.15	8.65	4.61	1.04	38.31
1996	6.30	2.66	2.20	6.70	3.34	3.01	6.50	3.99	6.07	5.81	2.93	6.91	56.42
1997	3.25	1.71	4.66	3.22	2.72	1.60	2.97	4.34	1.44	2.11	5.50	2.32	35.84
1998	4.59	3.17	5.82	3.30	5.89	9.68	1.76	2.38	1.69	4.93	2.28	1.46	46.95
1999	6.01	3.38	4.09	0.92	2.77	0.32	4.14	1.87	8.81	3.57	3.38	2.55	41.81
2000	3.11	2.59	3.82	6.85	3.51	5.84	4.04	2.09	3.01	2.05	3.61	3.62	44.14
2001	1.64	2.40	6.53	0.75	2.26	6.27	1.91	2.31	3.42	0.70	1.36	2.77	32.32
2002	2.36	1.43	4.21	3.67	5.55	4.83	2.65	2.94	3.97	4.39	3.83	4.24	44.07
2003	2.36	4.43	4.06	3.43	4.12	6.16	3.06	5.34	4.25	5.41	2.19	5.71	50.52
POR= 55 YRS	3.69	3.21	4.11	3.93	3.99	3.75	3.55	4.07	3.97	4.13	4.34	3.88	46.62

WBAN : 94746

AVERAGE TEMPERATURE (°F) 2003 WORCESTER, MA (ORH)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	26.4	23.9	33.5	47.5	52.4	64.0	69.7	69.7	59.7	45.8	39.4	30.4	46.9
1975	27.5	25.2	31.3	40.8	60.1	63.6	71.8	67.5	57.3	51.5	45.2	27.3	47.4
1976	19.2	31.2	35.1	49.1	55.0	68.0	67.8	67.2	58.9	46.4	34.6	21.9	46.2
1977	16.2	24.9	39.1	45.9	58.1	62.4	69.3	68.6	59.6	49.3	41.1	26.0	46.7
1978	20.9	20.0	30.8	42.4	56.6	64.3	68.2	68.1	57.6	48.4	39.2	28.8	45.4
1979	25.3	16.5	38.2	44.7	57.7	63.6	71.2	67.7	60.0	49.0	44.3	31.9	47.5
1980	25.0	22.2	33.1	46.0	57.0	61.5	71.3	69.9	61.1	47.3	36.4	24.2	46.3
1981	15.9	32.8	34.7	47.4	57.9	66.0	70.7	67.4	58.2	46.7	39.1	27.8	47.1
1982	17.1	25.7	33.8	43.6	58.3	61.5	71.5	65.9	61.3	50.8	43.8	34.8	47.3
1983	26.1	29.1	36.6	46.6	54.7	67.9	72.3	70.2	64.9	50.3	42.0	27.3	49.0
1984	22.7	34.0	29.2	45.6	55.4	68.1	70.0	71.4	59.6	53.9	41.1	34.9	48.8
1985	20.1	28.6	37.2	47.4	57.8	61.4	70.4	67.9	62.0	51.7	40.9	25.3	47.6
1986	25.9	23.1	36.4	48.1	57.9	62.6	68.2	66.8	59.4	49.6	37.1	30.3	47.1
1987	24.0	24.5	36.8	45.7	57.6	65.8	70.7	66.6	60.6	48.8	39.4	30.8	47.6
1988	23.0	26.6	35.0	43.8	57.3	64.6	72.6	72.3	60.2	45.5	41.7	27.2	47.5
1989	28.5	24.4	33.0	42.4	57.0	64.0	68.7	67.3	60.6	50.7	36.5	15.1	45.7
1990	31.3	28.8	36.2	43.9	51.5	64.6	69.2	68.8	59.3	53.0	42.1	34.0	48.6
1991	23.8	30.3	36.5	48.2	61.2	64.7	70.0	69.1	58.7	51.9	40.2	29.7	48.7
1992	25.3	27.1	30.7	42.3	55.5	63.5	65.9	65.5	59.2	46.8	37.8	28.7	45.7
1993	26.0	19.6	31.3	45.7	57.8	64.5	70.4	70.0	59.5	47.2	39.7	28.9	46.7
1994	15.9	21.1	33.5	47.7	54.3	67.2	72.9	66.3	59.0	50.9	43.5	33.3	47.1
1995	29.8	23.0	36.1	42.6	54.4	65.5		59.4	53.5	35.5	24.1		
1996	23.4	24.9	31.6	45.3	54.9	65.9		68.9	61.1	49.7	35.9	33.2	
1997	23.6	0.0	31.9	43.5	52.2	65.8	69.1	67.6	60.3	48.8	36.2	30.0	44.1
1998		32.9	37.0	47.2	59.7	62.9	70.0	70.3	63.1	50.3	40.2	35.7	
1999	26.0	31.3	36.3	46.7	58.1	68.2	72.4	68.5	64.6	49.1	44.5	32.9	49.9
2000	23.0	30.0	40.4	44.7	56.2	64.6	66.5	66.9	59.5	50.1	39.2	23.7	47.1
2001	24.7	26.1	31.1	46.8	58.1	67.0	66.6	72.2	62.2	52.5	44.5	35.4	48.9
2002	31.8	32.1	36.0	47.7	54.2	63.4	70.8	71.1	64.7	47.7	37.6	28.1	48.8
2003	17.7	21.6	35.0	42.5	54.0	63.8	70.6	70.7	62.5	48.7	43.4	31.3	46.8
POR= 55 YRS	23.3	25.3	33.7	45.2	56.0	64.9	68.6	68.4	60.5	50.3	39.7	28.4	47.0

HEATING DEGREE DAYS (base 65°F) 2003 WORCESTER, MA (ORH)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1974-75	6	9	190	592	760	1063	1158	1110	1037	721	180	104	6930
1975-76	2	47	223	413	586	1161	1412	972	920	511	310	60	6617
1976-77	17	46	192	571	905	1331	1508	1115	798	571	244	115	7413
1977-78	16	32	189	481	711	1202	1359	1255	1054	674	288	69	7330
1978-79	33	38	229	511	767	1116	1225	1354	824	601	243	80	7021
1979-80	25	53	180	500	614	1019	1235	1233	983	562	246	148	6798
1980-81	2	19	165	540	853	1259	1516	894	934	521	241	42	6986
1981-82	1	29	204	562	772	1145	1478	1094	961	639	212	127	7224
1982-83	7	55	140	436	632	929	1199	996	871	548	318	44	6175
1983-84	5	20	115	459	682	1163	1303	892	1099	577	300	54	6669
1984-85	9	1	184	338	713	928	1382	1011	855	518	230	121	6290
1985-86	2	25	128	406	713	1223	1206	1166	879	501	262	119	6630
1986-87	48	49	182	471	830	1069	1266	1130	867	571	273	58	6814
1987-88	9	56	152	495	761	1052	1298	1107	922	629	253	115	6849
1988-89	19	32	155	597	693	1166	1123	1129	984	674	257	90	6919
1989-90	7	38	172	436	846	1540	1035	1006	884	632	413	58	7067
1990-91	22	30	192	379	683	957	1270	965	877	501	167	80	6123
1991-92	13	16	222	402	739	1090	1222	1092	1056	676	321	82	6931
1992-93	40	55	203	558	810	1117	1204	1259	1039	574	229	74	7162
1993-94	10	5	201	545	754	1115	1515	1226	968	515	337	49	7240
1994-95	5	48	182	431	636	975	1086	1170	887	667	329	58	6474
1995-96			191	352	877	1260	1279	1158	1031	587	331	36	
1996-97		14	159	467	863	980	1277		1020	638	394	93	
1997-98	15	18	158	498	858	1079		891	872	527	180	111	
1998-99	3	8	98	450	736	902	1201	938	882	540	226	39	6023
1999-00	7	27	91	486	609	989	1295	1008	758	602	289	100	6261
2000-01	26	38	190	455	769	1273	1243	1081	1045	544	258	44	6966
2001-02	38	1	117	391	608	910	1022	913	892	527	337	125	5881
2002-03	13	28	73	537	816	1137	1456	1209	925	667	337	104	7302
2003-	4	16	91	497	641	1040							

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COOLING DEGREE DAYS (base 65°F) 2003 WORCESTER, MA (ORH)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	0	0	0	4	8	59	159	164	36	0	0	0	430
1975	0	0	0	0	33	69	218	132	0	1	0	0	453
1976	0	0	0	37	7	154	110	119	16	0	0	0	443
1977	0	0	2	4	37	44	156	150	32	0	0	0	425
1978	0	0	0	0	32	57	138	137	14	0	0	0	378
1979	0	0	0	0	24	44	225	142	38	10	0	0	483
1980	0	0	0	0	8	48	206	178	57	0	0	0	497
1981	0	0	0	0	29	78	184	110	10	0	0	0	411
1982	0	0	0	0	8	29	216	92	34	0	0	0	379
1983	0	0	0	4	4	138	238	188	118	11	0	0	701
1984	0	0	0	2	10	156	171	209	30	0	0	0	578
1985	0	0	0	0	15	22	177	120	47	0	0	0	381
1986	0	0	0	0	50	54	151	111	21	2	0	0	389
1987	0	0	0	0	49	90	193	110	25	0	0	0	467
1988	0	0	0	0	24	112	260	266	17	1	0	0	680
1989	0	0	0	0	16	70	131	116	47	0	0	0	380
1990	0	0	0	6	0	52	159	153	25	10	0	0	405
1991	0	0	0	4	57	79	173	149	40	2	0	0	504
1992	0	0	0	0	30	44	75	78	37	0	0	0	264
1993	0	0	0	0	12	67	181	163	44	0	0	0	467
1994	0	0	0	0	12	122	260	97	9	0	0	0	500
1995	0	0	0	0	6	77			29	3	0	0	
1996	0	0	0	2	23	70		143	47	0	0	0	
1997	0		0	0	0	123	148	106	25	2	0	0	
1998		0	10	0	21	58	165	181	47	0	0	0	
1999	0	0	0	0	19	142	245	140	86	0	0	0	632
2000	0	0	0	0	22	95	82	104	31	1	0	0	335
2001	0	0	0	4	51	109	95	232	41	7	0	0	539
2002	0	0	0	16	10	82	199	226	70	6	0	0	609
2003	0	0	0	0	4	76	185	200	23	0	0	0	488

SNOWFALL (inches) 2003 WORCESTER, MA (ORH)

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1974-75	0.0	0.0	0.0	T	1.2	13.1	22.6	21.9	4.9	1.4	0.0	0.0	65.1
1975-76	0.0	0.0	0.0	T	1.5	18.1	21.6	4.7	16.4	T	T	0.0	62.3
1976-77	0.0	0.0	0.0	T	3.0	13.5	21.7	13.8	21.5	1.0	12.7	0.0	87.2
1977-78	0.0	0.0	0.0	0.0	2.2	13.7	34.2	20.8	15.0	T	T	0.0	85.9
1978-79	0.0	0.0	0.0	0.0	5.4	13.1	16.0	6.5	1.3	5.4	0.0	0.0	47.7
1979-80	0.0	0.0	0.0	7.5	0.0	2.1	0.8	6.5	9.7	T	0.0	0.0	26.6
1980-81	0.0	0.0	0.0	0.0	9.0	6.8	12.5	11.4	3.3	T	T	0.0	43.0
1981-82	0.0	0.0	0.0	T	T	24.6	16.7	6.5	11.0	15.1	0.0	0.0	73.9
1982-83	0.0	0.0	0.0	0.0	0.5	6.4	18.6	32.1	3.5	2.3	T	0.0	63.4
1983-84	0.0	0.0	0.0	T	1.1	17.2	24.1	3.3	30.9	T	T	0.0	76.6
1984-85	0.0	0.0	0.0	0.0	T	7.0	9.7	11.0	7.2	4.9	0.0	0.0	39.8
1985-86	0.0	0.0	0.0	0.0	6.9	9.1	5.8	14.5	2.3	0.1	0.3	0.0	39.0
1986-87	0.0	0.0	0.0	0.0	11.5	4.9	46.8	3.0	6.4	21.0	0.0	0.0	93.6
1987-88	0.0	0.0	0.0	0.0	10.2	12.9	25.2	15.8	6.4	0.6	0.0	0.0	71.1
1988-89	0.0	0.0	0.0	0.4	T	5.0	2.8	7.7	8.5	3.7	0.0	0.0	28.1
1989-90	0.0	0.0	0.0	0.0	7.9	10.2	11.3	15.2	6.4	2.1	0.0	T	53.1
1990-91	0.0	0.0	0.0	0.0	0.7	5.0	11.3	9.1	9.3	0.2	0.0	0.0	35.6
1991-92	0.0	0.0	0.0	0.0	5.8	14.5	2.7	8.4	11.8	2.7	0.0	0.1	46.0
1992-93	0.0	0.0	T	0.0	1.9	37.0	14.6	19.7	44.1	2.8	0.0	T	120.1
1993-94	0.0	0.0	0.0	T	0.2	12.9	34.1	25.9	27.1	0.0	T	0.0	100.2
1994-95	0.0	T	T	0.0	2.9	3.2	4.5	14.3	T	T	0.0	0.0	24.9
1995-96	0.0	0.0	0.0	0.0									
1996-97													
1997-98													
1998-99													
1999-00													
2000-01													
2001-02													
2002-03							22.0	38.9	8.3	5.1	0.0	0.0	
2003-	0.0	0.0	0.0	1.5	T	21.5							
POR= 41 YRS	0.0	T	T	0.5	3.5	13.4	16.0	16.3	13.6	3.5	0.3	0.0	67.1

WBAN : 94746

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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2003  
WORCESTER,  
MASSACHUSETTS (ORH)

Worcester Municipal Airport is located on the crest of a hill, 1,000 feet above sea level. It is about 500 feet above and 3 1/2 miles northwest of the city proper. The airport is surrounded by ridges and valleys with many of the valleys containing reservoirs. Only two of the ridges extend above the airport elevation. One is 400 feet higher and 2 1/2 miles to the northwest, and the other is 1,000 feet higher and 15 miles to the north.

The proximity to the Atlantic Ocean, Long Island Sound, and the Berkshire Hills plays an important part in determining the weather and, hence, the climate of Worcester. Rapid weather changes occur when storms move up the east coast after developing off the Carolina Coast. In the majority of these cases, they pass to the south and east, resulting in northeast and easterly winds with rain or snow and fog. Storms developing in the Texas-Oklahoma area normally travel up the St. Lawrence River Valley and, depending on the movement and intensity, usually deposit little precipitation over the area. However, they do bring an influx of warm air into the region. Wintertime cold snaps are quite frequent, but temperatures are usually modified by the passage of the air over land and mountains before reaching the county. Summertime thunderstorms develop over the hills to the west, with a majority moving toward the northeast. From the use of radar, we find many break up just before reaching Worcester, or pass either north or south of the city proper.

Airport site temperatures are moderate. The normal mean for the warmest month, July, is around 70 degrees. Though winters are reasonably cold, prolonged periods of severe cold weather are extremely rare. The three coldest months, December through February, have an average temperature of over 25 degrees. A review of Worcester Cooperative records since 1901 shows maximum temperatures above 100 degrees and minimum temperatures below -24 degrees.

Precipitation is usually plentiful and well distributed throughout the year. The annual snowfall for all Worcester sites since 1901, averages slightly less than 60 inches. The airport location averages slightly higher.

Based on the 1951-1980 period, the average first occurrence of 32 degrees Fahrenheit in the fall is October 17 and the average last occurrence in the spring is April 27.

# STATION LOCATION

WORCESTER, MASSACHUSETTS

LOCATION	Occupied From	Occupied To	Airline Distances and Directions from previous Location	LATITUDE NORTH	LONGITUDE WEST	ELEVATION ABOVE										AUTOMATIC OBSERVING EQUIPMENT *	* TYPE	REMARKS
						GROUND												
						SEA LEVEL	GROUND	WIND	EXTREME	PSYCHROMETER	SUNSHINE	TIPPING GAUGE	WEIGHING	8 INCH	HYGROMETER			
*NOTES: <u>AIRPORT</u> Building on SE corner of airport Control Tower Building East side of runways Municipal Airport	11/29/47	4/27/54		42°16'	71°52'	986	69	5	4					3			CAA taking observations.	
Worcester Regional Airport	4/27/54	07/01/95	3/4 mi. NW	42°16'	71°52'	986	a22 h33 k33	5 f5	d6	NA	b5 j4	NA	5 g5 m4	e4 i5	M		Weather Bureau opened office 1/1/55 and assumed observation a. 69 feet prior to relocation to field site 8/25/59. b. Installed 11/1/55. 3 feet to 10/18/67. M. Commissioned 11/29/56. 20' to 5/10/66 & 6' thereafter. d. 4 feet to 5/10/66. Removed before 12/73. e. Commissioned 2/28/75. f. Moved 265' SSW 11/18/81. g. Moved 285' SSW 11/18/81. h. Raised 8/1/84. i. Minor move 6/1/85. j. Moved about 500; NW 6/1/85. k. Moved 2370' SE 6/1/85. m. Minor move 11/18/85	
	07/01/95	Present	NA	42°16'	71°53'	n963									S		ASOS Commissioned 07/01/95 n. Ground Elevation	

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\* NOTES: For earlier station history see previous edition.