

LATITUDE 41° 46'
 LONGITUDE 70° 40'
 ELEV. (GROUND) 25 feet

CLIMATOLOGICAL SUMMARY

STATION East Wareham, Massachusetts

MEANS AND EXTREMES FOR PERIOD 1931-1960

Month	Temperature (°F)							** Mean degree days	Precipitation Totals (Inches)							Mean number of days					Month		
	Means			Extremes					Mean	Greatest daily	Year	Snow, Sleet				Precip. .10 inch or more	Temperatures						
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year					Mean	Maximum monthly	Year	Greatest daily		Year	90° and above	Max.			Min.	
																			30° and below	32° and below		32° and below	0° and below
(a)	30	30	30	30	Year	30	Year	30	30	Year	30	Year	30	30	30	30	30						
Jan	38.5	19.5	29.0	67	1932	-24	1942	1110	4.30	2.84	1958	7.5	21.6	1948	9.2	1956	8	0	8	27	2	Jan	
Feb	38.7	19.4	29.1	59	1954+	-22	1948	1000	3.54	3.23	1952	7.2	21.0	1952	11.5	1952	7	0	6	26	1	Feb	
Mar	45.0	27.2	36.1	74	1948	-5	1948	890	4.80	2.52	1956	6.6	24.0	1956	12.0	1931	9	0	2	22	*	Mar	
Apr	55.1	36.3	45.7	85	1942	16	1954	575	4.28	2.60	1940	0.1	1.0	1958+	1.0	1958+	7	0	0	9	0	Apr	
May	65.9	45.8	55.9	92	1931	26	1948	280	3.45	3.54	1954	0	0	0	0	0	7	*	0	1	0	May	
Jun	74.3	55.0	64.7	99	1943	36	1932	65	3.26	3.76	1931	0	0	0	0	0	6	1	0	0	0	Jun	
Jul	80.8	61.2	71.0	99	1937	41	1943+	0	2.88	2.73	1953	0	0	0	0	0	5	2	0	0	0	Jul	
Aug	79.6	59.9	69.8	100	1949+	38	1940	20	4.29	4.73	1953	0	0	0	0	0	6	1	0	0	0	Aug	
Sep	72.7	52.9	62.8	96	1953	30	1941+	95	3.84	6.09	1936	0	0	0	0	0	5	*	0	*	0	Sep	
Oct	63.2	42.6	52.9	89	1931	18	1936	375	3.44	2.15	1939	T	T	1957+	T	1957+	6	0	0	5	0	Oct	
Nov	53.0	33.4	43.2	74	1956	9	1938	650	4.60	3.74	1945	0.5	3.0	1955+	3.0	1955+	8	0	*	15	0	Nov	
Dec	41.5	22.2	31.9	64	1932	-15	1933	1020	4.20	3.21	1952	5.1	19.1	1954	8.0	1939	7	0	6	26	1	Dec	
Year	59.0	39.6	49.3	100	Aug. 1949+	-24	Jan. 1942	6080	46.88	6.09	Sept. 1936	27.0	24.0	Mar. 1956	12.0	Mar. 1931	81	4	22	131	4	Year	

(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F

+ Also on earlier dates, months, or years.

* Less than one half.

THE CLIMATE OF EAST WAREHAM

Moderately warm summers, moderately cold winters, and ample rainfall characterize the climate. Buzzards Bay and the Atlantic Ocean to the south frequently affect the weather. In summer the immediate coastline is most affected by cooling sea breezes. The entire area may be effectively and enjoyably moderated, while heat waves prevail farther inland, by the passage of the heat-laden southerly or southwesterly winds over the cooling sea surfaces. In winter, temperature is less frequently affected since winds are then more from westerly and northerly directions. But even in winter, the presence of many ponds and lakes in Wareham and to the north has some warming effect. Yet, the generally prevailing westerly winds sufficiently limit the ocean effects that the climate has many continental characteristics. Temperatures range widely from winter to summer and from day to night. Much day to day variation also occurs because this area is near the favored paths of weather systems which bring in alternately warm and cold air, from southerly and northerly directions. Precipitation usually accompanies the change. The surrounding area is almost entirely less than 100 feet above sea level and is generally flat to rolling land, moderately wooded. The range in elevation is too small to be a controlling factor in climate, excepting local minimum temperatures. Lowlands are subject to cold nighttime temperatures, especially over bog soils. Cold air produced by radiational heat loss drains into and collects on low areas. Bog soil, especially, with low heat conductivity, is prone to very low minima as it has little capacity to warm up this cold air. More conductive sandy soil, by tapping underground heat storage, can prevent such extreme clear-sky, nighttime temperatures.

Favorable summer temperatures are indicated by the relatively low extreme maxima. The highest temperature of record is only 100°. One year in 10 fails to reach even 90°. The occurrence of 90° temperatures varies from summer to summer, with a maximum frequency of 15 days in 1952. The 95° mark occurs in less than one year in three. About one winter in six has no zero weather, while one in 10 has more than 10 days with minima of zero or lower. The most was 14 occurrences in the winter of 1933-34. The same season may be noticeably different one year to another. This variation is much more marked for winter than for summer. The winter average, based upon the three months, December-February, has varied from as cold as 24.2° for 1933-34 to as mild as 35.3° for 1936-37. Normal is 30.0°. Summer (June-August) extremes, however, have varied only from 65.9° in 1940 to 71.8° in 1952. Normal is 68.5°. The growing season for tender crops averages 160 days, from the average date of the last 32° freeze in spring, May 1, to the first in fall, October 8. Of interest for crops able to withstand some freezing, there is an 185 day season between the average dates of occurrence of 28°, from April 19 to October 21. For 24°, the season is 211 days, April 8 to November 5. For 16°, there are 266 days from March 10 to December 1. Though dates of the last and first seasonal freezes vary from year to year, about two-thirds of the cases fall within 10 days of the average date. The extreme dates for the last freeze in spring are April 13 (1954) and May 30 (1946). The fall extremes are September 19 (1943) and October 24 (1962). These

data, based upon records of the East Wareham weather station, may be reasonably applicable also to much surrounding garden and farm land, but not to "frost pocket" areas or the cranberry bogs, where frost occasionally may be a threat even during some of the summer months.

There is no dry season, though the monthly normal precipitation figures show a moderate decrease in midsummer. Normal totals for the four three-month seasons are remarkably even. The wettest, spring, has 12.53 inches, or not so much more than the driest season, summer, with 10.43 inches. Seldom does a month receive less than 1.0 inch of precipitation, though June of 1949 had none. Months with 10 inches or more are also rare, though 12.61 inches fell in August 1946, the wettest of record. Though there is no regular dry season, shorter periods of droughty weather may occur at any time of year and, in the growing season, cause concern for agriculture. These periods warrant the use of irrigation for high value crops grown in the vicinity. Fortunately the plentifulness of annual precipitation provides water for this purpose. The driest one year in 10 will still have about 37.2 inches, or more than the normal for many agricultural areas elsewhere in the United States. This abundant and regular supply of rainfall as a source of fresh water is a valuable asset utilized by local industry. The cranberry growers are especially dependent upon this supply of fresh water. The combination of suitable bogs, abundant rainfall, and other favorable weather conditions has made Plymouth County, of which East Wareham is a part, the nation's foremost county in the production of cranberries.

An average of one day per month has 1.0 inch or more of precipitation. The annual frequency has varied from as few as 2 to as many as 20. The average frequency of days with measurable amounts (0.01 inch or more) is 129 days per year, with extremes ranging from 96 to 147 days. There is little month to month variation in these average frequencies. Days with 1.0 inch or more are, however, somewhat more common in early spring, late summer, and fall. Days with measurable amounts are more common in winter and spring than in summer and fall, with the average reaching a maximum of 13 days for March and a minimum of 8 in September. Showers and thunderstorm activity provide the heavier rains of the warm season while coastal storms or "northeasters" are prolific producers of rain, and sometimes snow, during the cool season.

The principal snowfall season is December through March, though sometimes measurable amounts have fallen in November and April. Though the average seasonal total is 27 inches, the 1952-53 season had but 10.5 inches and the 1947-48 season had 53.3 inches. Days with 1 inch or more have varied from as few as 4 to as many as 19. Days with 4 inches or more have varied from none to 5 in a season, with an average of 2. Days with 8 inches or more average less than once per season, but have occurred twice the same season. Only about one season in 10 has as much as 10 inches in one day. The March 3-5, 1960, snowstorm brought a total of 18.9 inches. Snow cover does not remain on the ground all winter in this area. The average length of the longest continuous snow cover of

East Wareham, Mass.
Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	28.1	29.6	36.8	47.2	56.8	64.2	71.4	70.1	64.6	54.6	46.4	35.2	50.4
1932	37.2	29.7	29.7	45.1	55.0	63.4	68.6	70.4	64.6	54.6	41.9	34.8	49.6
1933	35.1	30.8	35.4	45.4	57.7	65.4	67.8	66.0	63.4	57.4	36.8	27.3	48.8
1934	29.0	17.0	33.3	46.2	57.2	65.4	72.0	66.8	65.1	48.4	44.4	29.7	47.9
1935	23.5	26.0	37.3	44.4	53.8	63.6	71.4	69.0	61.0	51.2	45.8	27.8	47.9
1936	27.0	23.4	42.4	43.4	56.0	64.4	68.8	68.4	61.8	53.2	39.2	36.0	48.7
1937	36.8	33.0	33.2	44.2	56.4	64.4	71.4	73.7	60.8	51.2	42.2	31.4	49.9
1938	27.2	31.6	37.7	46.4	54.2	64.2	71.9	71.2	61.2	56.6	44.3	33.6	49.8
1939	27.8	32.8	34.0	44.3	55.1	64.0	69.8	73.5	62.0	52.6	39.3	32.4	49.0
1940	20.9	29.6	32.8	42.4	55.0	62.3	69.5	65.8	61.0	48.0	42.4	34.9	47.0
1941	26.8	28.3	33.6	48.6	56.6	64.1	70.0	68.0	62.9	54.6	46.2	35.2	49.6
1942	26.1	27.4	39.9	47.3	59.2	65.6	70.0	69.0	63.4	53.4	42.1	27.9	49.2
1943	27.0	28.8	33.3	41.4	53.7	66.6	69.7	67.7	59.8	51.9	41.4	27.4	47.7
1944	28.3	26.8	33.7	43.7	59.4	64.6	71.6	71.0	64.5	51.7	41.6	29.8	48.9
1945	23.8	29.0	42.6	50.8	54.6	64.7	71.7	68.8	66.4	51.5	44.4	26.6	49.6
1946	29.5	28.0	43.0	44.6	54.9	64.0	68.8	66.4	64.4	55.9	47.4	34.9	50.2
1947	33.7	28.8	36.0	44.4	55.0	62.7	73.4	71.5	64.2	56.4	39.4	29.0	49.5
1948	22.2	24.2	36.0	44.8	53.8	61.2	71.0	71.7	62.0	51.7	46.9	33.1	48.3
1949	34.9	33.0	35.8	47.1	56.3	68.5	75.0	71.4	62.4	55.5	42.6	35.1	51.5
1950	35.4	27.1	31.7	42.9	53.3	65.3	71.9	70.1	60.4	55.2	46.4	32.6	49.4
1951	32.7	32.0	38.4	49.6	57.5	64.4	72.5	69.9	65.0	54.1	42.1	33.9	51.1
1952	32.6	34.0	35.4	48.0	55.7	68.2	75.6	71.6	63.9	51.4	43.1	34.2	50.9
1953	33.4	31.2	38.5	47.3	57.2	66.5	70.9	68.8	64.5	53.2	45.7	37.8	51.5
1954	26.4	33.6	37.1	46.6	54.4	65.2	69.3	67.8	61.7	53.2	43.2	32.5	49.0
1955	27.0	29.2	36.3	46.3	57.0	63.7	74.2	72.4	61.6	54.4	41.0	24.1	49.0
1956	29.0	31.1	31.8	43.0	51.2	65.1	69.2	69.8	60.5	51.2	43.3	36.2	48.4
1957	22.2	31.9	37.1	46.9	56.5	69.1	71.1	67.1	64.3	55.0	44.9	38.3	50.1
1958	30.7	23.8	37.8	46.4	58.4	62.2	70.7	70.3	62.9	51.2	44.1	23.7	48.1
1959	27.1	23.8	35.6	46.4	58.4	62.7	71.4	71.3	66.2	53.3	43.2	33.7	49.6
1960	28.9	34.2	30.1	45.7	58.2	66.0	69.9	69.5	61.0	51.3	44.6	26.6	48.9
1961	22.3	27.0	35.1	43.6	53.1	64.9	70.4	70.3	66.2	54.6	42.3	31.9	48.5
1962	27.8	26.5	35.6	46.3	54.1	65.1	67.3	67.3	59.2	50.5	39.2	28.4	47.3

The Climate of East Wareham (continued)

1 inch or more is only 15 days. The average seasonal maximum snow depth is 9 inches, occurring at an average date of February 8. The longest snow cover period of the winter has varied from so short as only 2 days (1936-37) to as many as 38 days (1960-61). The ground is bare much of the time in an average winter.

Glaze (ice) storms resulting from freezing precipitation occur on an average of once or twice a year but reach serious proportions only rarely. Hail may fall about once a year. Prevailing winds are from the southwest in the warmer part of the year and from the northwest in the colder part.

In summary, East Wareham's climate offers very comfortable summer temperature levels. Winters are not severely cold, though an occasional sub-zero reading may occur. Though free from harsh levels of heat or cold, this climate yet provides the frequent variation in day to day conditions which is thought to be stimulating to physical and mental activities.

Robert F. Lautzenheiser, State Climatologist
Weather Bureau Office, Boston, Massachusetts

East Wareham, Mass.
Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	3.27	3.11	6.88	3.02	4.90	6.86	3.91	5.25	1.81	5.60	.78	4.07	49.46
1932	6.51	2.67	4.96	1.56	2.57	3.12	2.91	3.25	6.61	4.35	6.31	2.78	47.70
1933	3.62	4.59	5.96	6.90	1.81	2.60	3.76	3.76	12.15	4.87	3.06	3.27	56.33
1934	3.65	2.89	2.79	4.99	2.03	3.00	1.37	2.29	1.36	4.91	2.48	4.13	37.19
1935	4.74	2.62	2.35	5.15	2.03	3.83	3.35	1.51	6.24	1.96	8.39	2.18	44.37
1936	7.56	2.39	6.97	3.06	2.10	4.78	1.83	4.95	7.36	3.53	1.79	9.06	55.38
1937	5.33	1.60	4.03	5.25	2.96	3.26	.07	4.73	7.71	3.73	4.68	3.61	46.96
1938	3.76	2.60	3.29	3.92	3.67	9.65	4.83	4.14	5.55	4.39	4.14	3.54	53.48
1939	4.16	3.94	7.74	4.96	2.26	2.03	2.38	3.50	4.60	3.69	2.16	2.67	44.09
1940	2.04	3.59	4.70	7.15	4.15	3.21	4.31	1.24	6.08	2.55	6.41	3.35	48.78
1941	4.94	2.06	3.48	3.21	3.15	6.62	4.05	3.42	1.11	1.77	2.21	3.29	39.31
1942	4.35	3.69	8.45	1.64	1.79	2.14	3.24	6.94	3.35	4.12	6.15	4.11	49.65
1943	3.50	2.41	3.83	2.31	4.45	1.38	3.55	2.70	2.29	4.08	3.17	1.37	35.04
1944	3.49	2.21	4.94	4.61	.47	3.31	.67	1.45	4.29	2.11	9.92	3.87	41.34
1945	4.28	4.76	2.79	1.84	3.71	5.17	2.77	3.27	1.38	4.68	10.61	8.11	53.37
1946	4.32	2.80	2.02	3.27	4.73	3.61	3.00	12.61	1.10	1.24	.88	4.34	43.92
1947	2.95	1.04	2.67	5.40	5.22	3.52	2.59	1.11	1.99	3.46	3.41	4.16	37.52
1948	6.67	3.61	4.71	4.63	9.18	4.18	2.79	.74	1.13	7.04	5.36	2.54	52.58
1949	3.64	5.33	3.88	4.92	3.02	0	1.97	2.34	3.37	.84	3.47	2.83	35.61
1950	3.64	4.54	4.32	3.46	5.24	2.34	1.22	3.44	2.21	.98	6.91	4.23	42.35
1951	3.46	4.60	4.50	2.73	3.17	1.38	1.49	4.45	1.03	2.80	5.86	5.56	41.03
1952	5.16	5.88	4.51	3.07	3.12	.26	.40	6.64	1.93	1.95	2.07	4.99	42.08
1953	7.44	5.23	7.71	5.23	3.12	.26	5.28	5.58	3.36	5.73	6.79	5.98	62.68
1954	3.43	3.43	3.77	3.88	6.67	2.93	1.58	6.36	7.54	2.41	5.44	6.80	54.24
1955	.90	3.50	4.12	4.72	1.31	2.15	3.06	11.69	3.56	6.03	5.39	1.33	47.76
1956	5.85	5.43	9.64	3.13	3.18	2.41	5.63	3.12	2.72	2.45	3.65	6.32	53.53
1957	2.89	4.17	5.18	4.17	1.41	.13	2.51	6.03	.92	2.14	4.88	6.26	38.14
1958	8.29	4.24	4.50	11.06	6.58	2.88	2.17	9.02	4.78	2.26	3.38	1.98	61.14
1959	2.13	4.16	3.87	4.09	2.47	6.71	5.04	2.35	.86	5.32	5.08	3.82	47.90
1960	2.85	5.30	2.40	4.95	2.80	4.95	4.65	.81	6.75	2.32	3.07	5.55	43.42
1961	2.01	3.38	3.96	5.54	6.07	1.06	4.61	3.82	5.58	6.06	3.70	3.45	49.24
1962	5.20	4.13	1.12	3.69	2.28	4.98	1.20	3.91	4.65	6.42	5.33	3.65	46.56

History of Weather Observations at East Wareham, Mass.

Temperature and rainfall observations in cooperation with the U. S. Weather Bureau were begun April 26, 1912, at the Cranberry Experiment Station, University of Massachusetts, East Wareham. The station is in a rural setting on gently sloping land near the edge of a cranberry bog. The open water of Buzzards Bay is about three miles to the south.

Data in this summary are based primarily upon the 30 years record, 1931-1960. This conforms to the standard normal period adopted by the World Meteorological Organization. Averages may therefore be directly compared with those readily available for many other locations.