

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU  
 IN COOPERATION WITH Plymouth Chamber of Commerce  
 CLIMATOGRAPHY OF THE UNITED STATES NO. 20 - 19

LATITUDE 41° 59'  
 LONGITUDE 70° 42'  
 ELEV. (GROUND) 25 feet

CLIMATOLOGICAL SUMMARY

STATION Plymouth, Mass.

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 90° and above 32° and below 32° and below 0° and below	Temperatures							
	Daily maximum	Daily minimum	Monthly	Record highest	Year	Record lowest	Year					Mean	Maximum monthly	Year	Greatest daily		Year	Max.	Min.					
																				Year		Year		
(a)	30	30	30	30		30		30	30	30														
Jan	39.0	22.5	30.8	66	1932	-8	1957	1050	4.17	2.76	1958	9.4	33.0	1948	11.0	1943	7	0	8	25	1	Jan		
Feb	39.9	22.5	31.2	71	1957	-14	1943	940	3.46	2.55	1952	9.3	24.0	1934	15.0	1940	7	0	5	24	1	Feb		
Mar	46.5	29.0	37.8	87	1945	0	1950+	835	4.49	3.01	1932	7.0	30.0	1956	14.0	1956	8	0	1	20	*	Mar		
Apr	56.6	37.9	47.3	90	1957	15	1954	520	4.15	3.85	1935	0.3	6.0	1953	6.0	1953	7	*	0	6	0	Apr		
May	67.8	47.4	57.6	94	1944	29	1956+	225	3.49	3.28	1940	0	0	0	0	0	7	*	0	*	0	May		
Jun	76.4	56.6	66.5	102	1952	33	1945	45	3.28	5.68	1931	0	0	0	0	0	6	2	0	0	0	Jun		
Jul	81.6	62.7	72.2	102	1949	44	1946	0	2.92	1.86	1941	0	0	0	0	0	6	4	0	0	0	Jul		
Aug	79.7	61.7	70.7	102	1949	41	1940	10	4.20	5.15	1955	0	0	0	0	0	6	3	0	0	0	Aug		
Sep	73.0	55.2	64.1	100	1953	32	1951+	75	3.96	6.88	1936	0	0	0	0	0	5	1	0	*	0	Sep		
Oct	63.8	45.7	54.8	88	1935	23	1940	320	3.65	3.62	1939	T	T	1960+	T	1960+	6	0	0	2	0	Oct		
Nov	53.6	36.4	45.0	82	1950	11	1938	595	4.46	4.63	1935	0.6	3.5	1955+	3.5	1938	7	0	*	11	0	Nov		
Dec	42.0	25.5	33.8	66	1946+	-14	1942	960	4.02	2.45	1946	5.3	19.0	1933	11.0	1933	7	0	5	22	*	Dec		
Year	60.0	41.9	51.0	102	1952+	-14	1943+	5575	46.25	6.88	Sep. 1936	31.9	33.0	Jan. 1948	15.0	Feb. 1940	79	10	19	110	2	Year		

(a) Average length of record, years.

+ Also on earlier dates, months, or years.

T Trace, an amount too small to measure.

\* Less than one half.

\*\* Base 65°F

THE CLIMATE OF PLYMOUTH

Moderately warm summers, moderately cold winters, and ample but not too frequent rainfall characterize the climate of Plymouth. The adjacent Plymouth Bay and the Atlantic to the east and the nearby Buzzards Bay and the open Atlantic beyond to the south all affect Plymouth's weather. In summer cooling sea breezes most markedly affect the immediate coastline. But the entire area may be enjoyably moderated by the Ocean's cooling power while heat waves, borne by southerly winds, prevail farther inland. In winter, temperatures are less affected since winds are then more predominantly from westerly or northerly, landward, directions. Also, the many ponds and lakes in and to the west of Plymouth moderate slightly both summer and winter temperatures. The generally prevailing westerly winds limit ocean effects sufficiently that the climate has many continental features. Temperatures range widely from winter to summer and from day to night. Much day to day variation also is caused by the passage of weather systems which bring alternately warm and cold air from southerly and northerly directions. Precipitation usually accompanies these weather changes. Though Plymouth's terrain is mostly rolling to somewhat hilly, most elevations are less than 200 feet above sea level. This range in elevation is too small to be an important controlling weather factor. Such terrain differences do affect the minimum temperatures on clear nights, however, as air cooled by radiation of heat into space settles in low spots.

Summer temperatures are usually in a range ideal for enjoying outdoor activities. Very hot weather is not common and even the 90° mark is not reached every year. The frequency of 90° days varies considerably from summer to summer. The maximum frequency, 29 days, came in the unusually warm summer of 1949. The 95° mark is reached in only about one summer in two, though the average frequency is 2 days per year. A 100° reading comes only one year in five. Only about one winter in two has zero weather, and one in eight has more than five days with a minimum of zero or lower. The most was 8 occurrences in the winter of 1942-43. 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 26.3° for 1933-34 to as mild as 38.6° for 1936-37. Normal is 31.9°. Summer (June-August) averages, however, have varied only from 66.9° in 1940 to 73.3° in 1949. Normal is 69.8°.

The growing season for tender crops averages 174 days, from the average date of the last 32° freeze in spring, April 26, to the first in fall, October 17. Of interest to crops able to withstand some freezing, there is a 209 day season, April 9 to November 4, between 28° freezes. For 24°, the season is 236 days, March 29 to November 20. For 16°, there are 274 days, from March 10 to December 9. Though dates of the first and last seasonal freezes vary from year to year, two-thirds of the cases fall within 12 days, either way, of the average. The extreme dates of the last spring freeze are March 27 (1951) and May 25 (1956). The fall extremes are September 25 (1950) and November 15 (1938). These data should be applicable near the coastline but should be used with caution farther inland, especially in low areas, where the freeze-free season is somewhat shorter.

There is no dry season, though 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 12.12 inches. The driest, summer, has 10.20 inches. Seldom does a month receive less than 1.0 inch of precipitation, though June of 1949 had but 0.02 inch.

Months with 10 inches or more are very rare, though 15.08 inches fell in September 1933. Though there is no regular dry season, shorter periods of droughty weather may occur at any time of year and, when 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 ten will still have about 36 inches. This is as much as or more than the normal for many U. S. agricultural areas. The abundant and regular supply of rainfall as a source of fresh water is a valuable asset. Cranberry growing, for which Plymouth County is foremost in the United States, is especially dependent upon this supply of fresh water.

An average of one day per month has 1.0 inch or more of precipitation. The annual frequency has varied from as few as 4 to as many as 23. The average frequency of days on which measurable amounts have been noted is 106 per year, with extremes of 78 and 130 days. Month to month variation in average frequencies is not great. Days with 1.0 inch or more are somewhat more common in early spring, late summer, and fall. Days with measurable amounts are most common in winter and spring. They are least common in summer and early fall, a factor favoring outdoor vacation activities then so popular in the area. Showers and thunderstorm activity provide the heavier rains of the warm season. Heavy rain, but not every year, may also result from a passing hurricane. Only once in five years, on the average, however, do these storms reach any damaging proportions. 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. Seasonal totals vary from less than one-half to nearly double the seasonal normal. The 1936-37 season had but 10.0 inches, while the 1933-34 season received 58.5 inches. Days with 1 inch or more have varied from as few as 3 to as many as 19. Days with 4 inches or more have varied from none to 5 in a season, averaging nearly 3. Days with 8 inches or more average less than once a season, but occurred three times in the 1960-61 season. Twelve inches in a day has fallen only 5 times in 30 years. Snow cover does not remain on the ground all winter. The average length of the longest continuous snow cover of 1 inch or more is only 15 days. This has varied from as short as 3 days (1949-50) to a maximum of 46 days (1944-45). The average seasonal maximum snow depth is 11 inches, occurring at an average date of February 11. The ground is bare of snow much of the time in an average winter.

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

In summary, Plymouth enjoys 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 E. Lautzenheiser, State Climatologist  
 Weather Bureau Office, Boston, Massachusetts

PLYMOUTH, MASS.

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	30.4	33.5	37.6	49.2	59.0	64.7	71.2	69.6	64.7	56.3	49.2	37.2	51.9
1932	39.4	31.2	35.9	46.5	58.2	64.2	70.4	70.6	62.3	56.0	43.4	38.8	51.8
1933	37.8	33.7	35.8	47.4	59.7	69.4	70.2	70.4	65.4	55.0	38.4	29.0	51.0
1934	30.5	19.5	47.8	47.8	59.2	66.0	72.7	68.9	67.4	51.6	48.4	32.4	50.0
1935	26.0	28.5	40.4	45.8	57.4	66.7	73.6	70.6	63.0	54.8	49.2	29.9	50.5
1936	29.2	25.1	46.0	47.6	61.5	66.0	69.1	69.1	61.5	55.7	40.6	38.5	50.8
1937	41.1	36.3	37.4	47.2	60.8	66.2	72.8	73.9	63.6	52.6	44.0	33.3	52.4
1938	27.7	29.0	39.9	48.6	54.6	66.7	72.0	72.6	62.6	56.6	46.6	34.8	50.9
1939	28.8	33.4	34.0	43.9	55.2	64.4	70.3	72.6	62.8	53.7	40.2	32.2	49.3
1940	22.2	29.0	32.4	42.4	54.7	64.1	70.2	66.4	61.5	49.1	42.4	34.8	47.4
1941	27.0	29.2	33.2	49.4	57.8	66.6	70.8	69.1	65.0	55.0	47.4	36.2	50.6
1942	28.7	27.3	39.7	48.8	60.0	66.0	70.0	69.3	63.2	53.7	42.8	28.0	49.8
1943	26.4	29.2	35.9	40.8	55.2	69.4	71.6	69.0	61.6	54.2	42.4	29.1	48.7
1944	30.6	29.0	34.2	44.2	61.0	65.5	72.5	72.5	64.0	52.8	42.7	30.4	50.0
1945	25.9	30.2	46.2	52.5	55.7	65.4	71.0	69.6	66.8	52.1	45.8	27.8	50.8
1946	30.4	30.2	46.4	45.2	57.4	67.2	73.4	68.0	65.6	57.4	48.0	36.1	51.9
1947	33.8	30.4	37.2	47.0	57.5	64.6	74.2	72.6	65.0	60.0	40.8	30.8	51.2
1948	24.4	28.1	39.0	46.5	54.4	63.4	73.1	72.0	64.5	53.8	49.7	36.2	50.4
1949	36.6	35.7	39.9	50.1	59.2	70.5	75.8	73.5	63.2	58.3	44.1	37.5	53.7
1950	38.0	30.0	34.6	45.7	53.3	67.2	73.3	69.8	60.9	55.5	48.1	35.3	51.1
1951	35.3	35.4	39.2	49.5	58.1	64.7	73.4	69.7	65.7	54.7	43.2	35.9	52.1
1952	34.0	33.0	36.1	49.9	56.2	68.7	76.5	71.4	65.0	52.7	44.9	35.9	52.0
1953	35.9	36.1	39.7	48.9	58.7	68.5	72.1	70.7	65.8	55.0	48.5	40.1	53.3
1954	28.5	37.0	39.1	49.9	55.0	66.1	70.5	68.9	62.7	58.7	44.6	35.2	51.3
1955	28.6	32.9	38.8	48.5	60.2	65.8	76.4	75.1	63.5	55.3	41.8	27.3	51.2
1956	30.5	33.6	34.1	44.8	54.2	67.8	71.2	70.9	61.6	53.9	46.5	38.9	50.7
1957	25.4	36.4	39.1	49.9	59.9	71.3	73.3	68.0	65.9	54.0	47.8	41.1	52.7
1958	32.9	26.9	38.7	48.1	54.7	63.1	71.9	71.1	64.2	52.6	46.6	26.8	49.8
1959	30.4	28.7	38.2	48.4	61.3	64.4	73.4	73.5	67.7	56.2	46.0	35.9	52.0
1960	31.0	36.7	32.8	47.9	58.6	67.9	71.1	71.4	62.8	53.5	47.1	29.6	50.9
1961	26.5	32.8	37.1	45.1	56.2	68.7	71.6	71.2	68.2	57.0	45.4	33.8	51.2
1962	30.4	28.8	37.9	49.3	55.4	66.9	68.6	68.7	61.6	53.7	41.8	30.4	49.5

PLYMOUTH, MASS.

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	3.67	3.34	7.62	4.10	5.47	8.34	3.57	5.58	2.55	4.23	.88	3.47	52.82
1932	7.01	3.11	6.19	1.66	2.40	3.73	1.93	5.58	5.85	5.93	6.85	2.64	52.84
1933	2.78	3.93	6.59	9.01	1.76	1.85	4.66	4.26	15.08	4.39	2.83	4.71	61.85
1934	4.25	4.08	4.61	3.67	2.38	3.99	.75	2.09	2.64	4.01	2.57	3.60	38.64
1935	6.63	2.46	2.08	6.19	1.94	5.29	4.18	1.69	4.25	1.98	8.35	1.76	45.80
1936	8.31	2.37	7.02	3.68	1.77	5.71	2.82	5.95	7.98	2.84	1.59	10.27	60.31
1937	4.34	3.37	4.23	5.04	2.49	2.86	.95	3.63	6.37	3.97	5.50	4.10	44.85
1938	4.10	3.38	2.80	3.04	3.87	9.40	5.47	1.62	7.18	2.94	3.52	2.69	50.01
1939	4.47	3.79	8.52	5.75	1.77	4.09	1.50	2.74	1.87	5.83	1.85	2.20	44.38
1940	2.45	7.47	4.76	7.82	6.56	2.41	3.72	1.35	3.61	1.92	6.56	2.42	51.05
1941	4.87	1.90	3.61	2.87	4.01	4.88	5.44	2.00	1.87	2.96	2.31	3.24	38.96
1942	3.15	3.91	7.94	1.13	1.70	2.62	3.34	4.89	3.55	4.59	5.77	3.81	46.40
1943	3.39	1.45	2.50	3.52	6.19	1.91	3.55	3.02	2.23	3.96	2.91	1.17	35.80
1944	2.02	1.76	4.50	3.58	.23	3.78	.60	1.28	6.48	2.23	9.12	3.41	38.99
1945	5.00	3.79	2.05	1.77	4.13	4.71	2.63	3.43	1.72	4.67	8.11	9.18	51.19
1946	3.49	3.18	1.29	3.18	5.47	3.76	.99	11.75	1.81	.88	1.02	3.81	40.63
1947	2.32	1.51	3.17	3.84	5.07	3.79	3.52	1.36	2.32	3.45	3.77	4.80	38.92
1948	6.15	2.15	3.76	3.10	8.25	3.39	3.50	2.29	.50	7.63	4.66	2.41	47.79
1949	3.65	3.17	3.07	4.47	3.56	.02	1.71	.85	2.48	1.25	3.65	2.35	30.23
1950	3.39	3.87	3.99	2.52	2.31	2.39	.79	3.95	2.36	.69	6.67	4.19	37.32
1951	4.00	3.91	4.14	2.31	3.66	1.93	3.00	4.97	1.51	2.86	6.44	4.74	43.47
1952	3.96	6.62	3.93	3.82	3.26	2.47	.08	7.23	2.56	2.06	1.83	4.25	42.07
1953	7.05	5.72	8.19	5.25	3.07	1.37	5.00	5.71	3.59	6.83	5.56	4.97	62.31
1954	2.88	3.12	3.54	4.23	6.35	2.27	1.27	8.52	6.26	2.47	5.00	.68	52.59
1955	.74	3.88	3.88	5.29	1.22	1.73	1.49	13.66	4.14	5.80	6.04	.67	48.84
1956	5.95	4.66	5.19	2.32	2.49	1.62	5.06	2.68	3.86	3.84	4.69	6.58	48.94
1957	3.33	1.28	3.76	4.79	1.85	.49	2.50	4.14	.34	2.81	4.91	5.32	35.52
1958	8.78	3.69	4.15	8.47	5.15	1.71	3.63	7.08	5.33	2.74	4.14	1.54	56.41
1959	1.98	3.88	6.22	3.43	2.43	5.41	5.12	1.06	1.00	5.57	5.53	4.77	46.38
1960	3.36	5.17	2.64	3.98	2.14	2.42	4.77	2.23	6.79	2.21	2.49	5.32	43.52
1961	2.51	2.69	3.19	5.93	5.01	1.22	2.96	3.84	5.85	5.65	3.72	3.23	45.80
1962	4.70	3.25	1.07	3.28	1.20	4.33	1.25	3.29	4.26	10.13	4.50	3.61	44.87

HISTORY OF WEATHER OBSERVATIONS AT PLYMOUTH, MASS.

Temperature and precipitation observations in cooperation with the U. S. Weather Bureau were begun January 1886 by Miss Louisa B. Knapp. Miss Knapp served to September 1937, or more than 51 years. This outstanding record is equaled by relatively few in the nation. The station was located at 225 Court Street, about 1 mile northwest of the Plymouth post office, at an elevation of 50 feet above sea level. The present observer, the Plymouth Cordage Co., began January 1938. This location is comparable to the former regarding relation to the coastline and other features of surrounding terrain. It is a little over a mile farther northwest, or about 2½ miles northwest of the post office. Precipitation data for the three interim months, October-December, 1937, are from the Plymouth Pumping Station. Temperatures for these months were estimated.

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 based upon the same period available for many other locations.