U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: PLYMOUTH-KINGSTON, MA **COOP ID: 196486**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 45 Feet** **Lat: 41˚59N** **Lon: 70˚42W**

Temperature (˚F)

Mean (1)				Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Heating	Cooling	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	38.3	20.3	29.3	67+	1995	14	37.1	1995	-19	1970	23	19.1	1981	1107	0	.0	.0	4.5	9.0	28.3	2.0
Feb	40.4	22.2	31.3	71	1957	26	38.5	1984	-15	1979	12	22.9	1979	943	0	.0	.0	4.6	6.8	25.0	1.6
Mar	47.6	29.0	38.3	85	1998	31	43.7	2000	-5	1967	19	33.1	1984	828	0	.0	.0	11.6	1.3	22.7	@
Apr	56.4	37.3	46.9	91	1990	29	50.7	1994	13	1969	1	41.4	1972	546	0	.0	.1	22.6	.1	10.9	.0
May	67.2	46.5	56.9	95+	1964	23	61.7	1991	25+	1966	3	53.0	1990	259	6	.0	.4	30.2	.0	1.8	.0
Jun	76.7	56.1	66.4	102	1952	26	70.9	1999	35	1971	6	61.0	1982	50	91	.0	1.9	30.0	.0	.0	.0
Jul	82.0	62.5	72.3	102	1949	4	75.9	1994	42	1974	21	68.5	1992	3	228	.1	3.7	31.0	.0	.0	.0
Aug	79.9	61.8	70.9	102	1949	10	75.4	1988	40	1965	31	67.5	1982	6	187	.0	2.3	31.0	.0	.0	.0
Sep	72.8	53.9	63.4	100	1953	2	67.2	1999	32+	1950	25	59.3	1978	91	41	.0	.5	30.0	.0	@	.0
Oct	62.8	43.7	53.3	87	1963	7	58.7	1990	17	1966	31	48.5	1974	365	2	.0	.0	29.8	.0	4.8	.0
Nov	53.1	36.1	44.6	82	1950	2	48.6	1979	3	1989	25	39.5	1976	613	0	.0	.0	18.6	.2	15.9	.0
Dec	43.1	26.1	34.6	77	1998	7	40.6	1984	-14	1987	30	20.7	1989	943	0	.0	.0	7.6	4.1	24.9	.5
Ann	60.0	41.3	50.7	102+	Jun 1952	26	75.9	Jul 1994	-19	Jan 1970	23	19.1	Jan 1981	5754	555	.1	8.9	251.5	21.5	134.3	4.1

\+ Also occurred on an earlier date(s)

@ Denotes mean number of days greater than 0 but less than .05

Complete documentation available from: www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

(3) Derived from 1971-2000 serially complete daily data

Issue Date: February 2004

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: PLYMOUTH-KINGSTON, MA **COOP ID: 196486**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 45 Feet** **Lat: 41°59N** **Lon: 70°42W**

Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	4.79	4.37	3.85	1986	27	10.86	1978	1.16	1989
Feb	4.11	3.62	3.42	1969	25	8.93	1998	1.29	1980
Mar	4.76	4.17	4.15	1968	18	12.14	1983	.91	1981
Apr	4.59	4.35	3.90	2000	22	12.32	1987	1.48	1999
May	3.76	3.51	4.97	1967	26	7.37	1990	1.19	1992
Jun	3.62	3.39	3.93	1998	13	10.83	1982	.51	1999
Jul	3.38	3.52	2.85	1996	13	8.02	1989	.92	1994
Aug	3.95	3.80	5.15	1955	19	9.47	1983	.25	1993
Sep	4.63	4.04	7.45	1972	4	13.31	1996	.88	1971
Oct	4.29	4.14	4.12	1962	7	8.46	1996	.72	1994
Nov	4.70	4.18	3.35	1969	3	8.64	1997	1.38+	1990
Dec	4.48	3.85	3.65	1969	27	10.14	1973	1.12	1988
Ann	51.06	50.03	7.45	Sep 1972	4	13.31	Sep 1996	.25	Aug 1993

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.6	7.6	3.5	1.5
Feb	10.2	6.7	2.9	1.1
Mar	11.4	7.6	3.3	1.6
Apr	12.1	7.5	3.2	1.2
May	11.8	7.6	2.6	.8
Jun	10.4	6.4	2.4	1.1
Jul	9.4	5.8	2.2	.9
Aug	9.8	6.4	2.6	1.1
Sep	9.6	6.2	2.7	1.5
Oct	9.7	6.9	3.1	1.3
Nov	11.1	7.4	3.5	1.4
Dec	11.2	7.8	2.8	1.3
Ann	128.3	83.9	34.8	14.8

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.25	1.71	2.40	3.01	3.61	4.24	4.95	5.78	6.86	8.58	10.17
Feb	1.41	1.79	2.36	2.84	3.30	3.77	4.29	4.89	5.66	6.86	7.95
Mar	1.50	1.95	2.62	3.19	3.75	4.32	4.95	5.69	6.64	8.13	9.50
Apr	1.55	1.99	2.62	3.16	3.68	4.21	4.79	5.47	6.34	7.69	8.93
May	1.41	1.76	2.26	2.68	3.08	3.49	3.93	4.45	5.10	6.11	7.03
Jun	.47	.77	1.28	1.79	2.32	2.90	3.58	4.42	5.55	7.41	9.21
Jul	1.11	1.43	1.90	2.30	2.69	3.09	3.52	4.03	4.69	5.71	6.64
Aug	.83	1.19	1.77	2.30	2.83	3.39	4.03	4.80	5.81	7.42	8.95
Sep	.93	1.35	2.03	2.65	3.28	3.95	4.72	5.64	6.86	8.81	10.66
Oct	1.46	1.87	2.46	2.96	3.44	3.94	4.48	5.11	5.92	7.17	8.33
Nov	1.34	1.78	2.46	3.04	3.61	4.21	4.87	5.65	6.66	8.24	9.72
Dec	1.27	1.70	2.34	2.90	3.45	4.02	4.65	5.39	6.36	7.88	9.29
Ann	36.45	39.28	42.90	45.65	48.10	50.46	52.89	55.58	58.85	63.58	67.67

\+ Also occurred on an earlier date(s)
\# Denotes amounts of a trace
@ Denotes mean number of days greater than 0 but less than .05
****** Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals
(2) Derived from station's available digital record: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: PLYMOUTH-KINGSTON, MA **COOP ID: 196486**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 45 Feet** **Lat: 41°59N** **Lon: 70°42W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	11.6	7.5	2	1
Feb	10.2	6.2	2	1
Mar	5.6	3.0	1	#
Apr	1.2	.0	#	0
May	#	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	#	.0	0	0
Nov	.9	.0	#	0
Dec	4.6	3.0	1	#
Ann	34.1	19.7	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	16.0	1977	8	39.6	1996	28	1996	10	10	1996
Feb	20.0	1978	7	29.0	1994	24	1978	8	12	1987
Mar	9.0	1976	10	22.0	1993	13	1978	6	5	1989
Apr	14.0	1997	1	14.0	1997	12	1997	1	1+	1997
May	#	1986	4	#+	1986	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	#	2000	30	#	2000	0	0	0	0	0
Nov	12.0	1987	12	12.0	1987	12	1987	12	2	1987
Dec	9.0	1981	6	13.1	1995	11	1981	7	4	1989
Ann	20.0	Feb 1978	7	39.6	Jan 1996	28	Jan 1996	10	12	Feb 1987

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.3	3.5	1.4	.7	.3
Feb	3.7	3.0	1.2	.7	.2
Mar	2.1	1.8	.8	.3	.0
Apr	.3	.3	.1	.1	@
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.4	.3	.1	.1	@
Dec	2.2	1.5	.4	.3	.0
Ann	13.0	10.4	4.0	2.2	.5

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	10.2	6.9	4.6	1.5
Feb	9.4	5.9	3.7	1.4
Mar	3.9	2.3	1.2	.3
Apr	.4	.3	.2	@
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.6	.3	.2	.1
Dec	3.6	1.6	1.3	.1
Ann	28.1	17.3	11.2	3.4

+ Also occurred on an earlier date(s) #Denotes trace amounts

@ Denotes mean number of days greater than 0 but less than .05

-9/-9.9 represents missing values
Annual statistics for Mean/Median snow depths are not appropriate

(1) Derived from Snow Climatology and 1971-2000 daily data

(2) Derived from 1971-2000 daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: PLYMOUTH-KINGSTON, MA **COOP ID: 196486**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 45 Feet** **Lat: 41˚59N** **Lon: 70˚42W**

Freeze Data

Spring Freeze Dates (Month/Day)

Temp (F)	Probability of later date in spring (thru Jul 31) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	5/27	5/22	5/19	5/16	5/13	5/10	5/07	5/03	4/28
32	5/23	5/17	5/12	5/08	5/04	5/01	4/27	4/22	4/15
28	5/08	5/02	4/27	4/23	4/20	4/16	4/13	4/08	4/02
24	4/23	4/17	4/12	4/08	4/05	4/02	3/29	3/25	3/19
20	4/08	4/03	3/30	3/26	3/23	3/20	3/16	3/12	3/06
16	3/29	3/24	3/20	3/17	3/14	3/11	3/08	3/04	2/27

Fall Freeze Dates (Month/Day)

Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	9/22	9/26	9/29	10/02	10/04	10/06	10/09	10/12	10/16
32	10/02	10/07	10/11	10/14	10/17	10/20	10/23	10/27	11/01
28	10/15	10/21	10/25	10/28	11/01	11/04	11/07	11/11	11/17
24	10/28	11/03	11/08	11/12	11/16	11/20	11/24	11/29	12/05
20	11/12	11/17	11/21	11/24	11/27	11/30	12/04	12/08	12/13
16	11/23	11/29	12/03	12/06	12/09	12/12	12/16	12/20	12/25

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	161	155	151	147	144	140	136	132	126
32	193	183	176	170	165	159	153	146	137
28	225	215	207	200	194	188	181	173	163
24	257	246	238	231	224	218	211	203	191
20	273	264	259	254	249	244	239	233	225
16	296	287	280	275	270	264	259	253	244

***** Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

0/00 Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: PLYMOUTH-KINGSTON, MA **COOP ID: 196486**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 45 Feet** **Lat: 41˚59N** **Lon: 70˚42W**

Degree Days to Selected Base Temperatures (˚F)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1107	943	828	546	259	50	3	6	91	365	613	943	5754
60	952	803	673	396	133	10	0	0	27	225	463	788	4470
57	859	719	580	309	76	3	0	0	10	154	374	695	3779
55	797	663	518	253	49	1	0	0	5	114	317	633	3350
50	644	523	365	133	11	0	0	0	0	44	187	490	2397
32	192	119	25	0	0	0	0	0	0	0	4	108	448

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	107	99	220	444	770	1032	1248	1204	939	660	381	188	7292
55	0	0	0	7	106	342	535	491	254	61	4	0	1800
57	0	0	0	3	71	284	473	429	199	39	1	0	1499
60	0	0	0	0	35	202	380	336	127	17	0	0	1097
65	0	0	0	0	6	91	228	187	41	2	0	0	555
70	0	0	0	0	0	27	99	71	6	0	0	0	203

Growing Degree Units (2)

Base	Growing Degree Units (Monthly)												Growing Degree Units (Accumulated Monthly)											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
40	19	19	67	202	508	773	986	940	680	388	157	41	19	38	105	307	815	1588	2574	3514	4194	4582	4739	4780
45	5	2	28	103	356	623	831	785	530	243	79	17	5	7	35	138	494	1117	1948	2733	3263	3506	3585	3602
50	0	0	9	45	217	473	676	630	382	135	36	3	0	0	9	54	271	744	1420	2050	2432	2567	2603	2606
55	0	0	3	18	116	329	521	475	245	62	10	0	0	0	3	21	137	466	987	1462	1707	1769	1779	1779
60	0	0	1	6	48	201	366	321	131	21	4	0	0	0	1	7	55	256	622	943	1074	1095	1099	1099
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	14	15	44	117	287	482	657	621	419	221	84	25	14	29	73	190	477	959	1616	2237	2656	2877	2961	2986

(1) Derived from the 1971-2000 Monthly Normals
(2) Derived from 1971-2000 serially complete daily data
Note: For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

Notes

a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.

b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.

c. Only observed validated values were used to select the extreme daily values.

d. Extreme monthly temperature/precipitation means were selected from the monthly normals data.
Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.

e. Degree Days were derived using the same techniques as the 1971-2000 normals.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set .
Documentation of the serially complete data set is available from the link below:

g. Snowfall and snow depth statistics were derived from the Snow Climatology.
Documentation for the Snow Climatology project is available from the link under references.

Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were are for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normals.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normals/usnormalsprods.html
Snow Climatology Project Description, www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. J. Appl. Meteorol., 39, 1580-1591,
www1.ncdc.noaa.gov/pub/data/special/ serialcomplete_jam_0900.pdf