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: HYANNIS, MA **COOP ID: 193821**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 50 Feet** **Lat: 41˚40N** **Lon: 70˚18W**

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	37.2	21.2	29.2	65	1932	14	36.1	1990	-8	1961	31	20.3	1981	1110	0	.0	.0	3.7	7.7	26.9	.9
Feb	37.8	22.1	30.0	64+	1976	28	36.7	1998	-12	1934	9	20.8	1979	982	0	.0	.0	3.1	6.8	23.2	.3
Mar	43.8	29.3	36.6	78	1990	14	41.8	2000	-3	1967	19	31.5	1984	882	0	.0	.0	8.7	1.6	19.7	.0
Apr	52.0	37.9	45.0	87	1990	29	49.4	1976	9	1954	5	40.1	1975	601	0	.0	.0	20.7	.1	6.5	.0
May	62.0	47.8	54.9	91	1964	23	58.7	1991	24+	1961	6	52.8	1997	314	0	.0	@	29.9	.0	.3	.0
Jun	71.5	57.1	64.3	94	1949	26	66.8	1999	31	1957	4	60.5	1982	69	48	.0	.2	30.0	.0	.0	.0
Jul	77.8	63.2	70.5	98	1999	6	74.0	1994	42	1965	7	67.6	2000	4	176	.0	.8	31.0	.0	.0	.0
Aug	76.8	62.6	69.7	100	1948	28	73.0	1988	34	1965	31	67.0	1982	8	155	.0	.2	31.0	.0	.0	.0
Sep	70.5	55.3	62.9	95	1953	2	67.0	1971	26	1957	29	59.9	1986	97	33	.0	.1	30.0	.0	.0	.0
Oct	60.5	44.4	52.5	83+	1946	6	57.7	1990	9	1966	31	47.8	1974	391	1	.0	.0	29.8	.0	2.4	.0
Nov	51.4	36.7	44.1	74	1990	4	48.8	1994	7	1967	17	39.2	1976	628	0	.0	.0	19.0	.3	11.4	.0
Dec	42.4	27.0	34.7	66	2001	5	40.2	1996	-10	1983	25	22.1	1989	940	0	.0	.0	7.5	3.4	22.9	.2
Ann	57.0	42.1	49.5	100	Aug 1948	28	74.0	Jul 1994	-12	Feb 1934	9	20.3	Jan 1981	6026	413	.0	1.3	244.4	19.9	113.3	1.4

\+ 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: 1926-2001

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

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: HYANNIS, MA **COOP ID: 193821**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 50 Feet** **Lat: 41˚40N** **Lon: 70˚18W**

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	4.06	3.67	3.12	1962	7	7.62	1979	1.20	1973
Feb	3.29	2.74	3.75	1969	25	5.88	1998	1.13	1980
Mar	3.94	3.28	2.80	1968	13	9.53	1983	1.05	1981
Apr	3.76	3.67	2.75	1997	1	7.81	1983	1.03+	1999
May	3.23	2.80	3.63	1966	28	7.51	1979	.90	1992
Jun	3.21	2.74	4.14	1981	21	7.68	1977	.00	1999
Jul	2.81	2.43	4.60	1943	8	10.02	1984	.65	1974
Aug	3.50	3.03	5.25	1929	23	10.16	1985	.22	1993
Sep	3.33	2.22	5.50	1933	17	13.67	1996	.24	1971
Oct	3.91	3.99	3.80	1996	21	9.39	1996	.97	1994
Nov	3.87	4.03	3.14	1970	3	8.70	1988	.61	1984
Dec	4.12	3.88	3.30	1969	27	8.28	1992	.59	1989
Ann	43.03	41.71	5.50	Sep 1933	17	13.67	Sep 1996	.00	Jun 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.3	7.6	2.9	.9
Feb	7.8	5.6	2.3	.7
Mar	9.3	7.3	2.8	.9
Apr	8.5	6.4	2.7	1.2
May	8.7	6.0	2.3	.7
Jun	7.1	5.0	1.7	.8
Jul	6.5	4.3	2.0	.6
Aug	7.2	5.4	2.1	.9
Sep	7.0	5.0	2.4	.9
Oct	7.7	6.4	2.8	1.1
Nov	8.6	6.9	2.5	1.0
Dec	9.5	7.3	2.9	1.0
Ann	98.2	73.2	29.4	10.7

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	1.38	1.76	2.32	2.80	3.25	3.72	4.24	4.84	5.60	6.80	7.89
Feb	1.15	1.46	1.91	2.29	2.65	3.02	3.43	3.91	4.51	5.45	6.31
Mar	1.56	1.92	2.44	2.87	3.27	3.68	4.13	4.64	5.29	6.29	7.20
Apr	1.20	1.55	2.08	2.53	2.97	3.42	3.91	4.49	5.24	6.40	7.48
May	1.12	1.43	1.87	2.24	2.60	2.97	3.37	3.84	4.44	5.37	6.22
Jun	.32	.70	1.23	1.69	2.17	2.68	3.26	3.97	4.90	6.41	7.85
Jul	.53	.78	1.19	1.57	1.96	2.37	2.85	3.42	4.18	5.40	6.57
Aug	.53	.83	1.33	1.82	2.32	2.87	3.50	4.28	5.32	7.00	8.62
Sep	.49	.76	1.24	1.70	2.18	2.71	3.32	4.06	5.06	6.69	8.26
Oct	1.41	1.78	2.31	2.75	3.18	3.61	4.09	4.64	5.34	6.42	7.41
Nov	1.07	1.44	2.00	2.48	2.96	3.46	4.01	4.66	5.51	6.84	8.08
Dec	1.09	1.48	2.08	2.60	3.12	3.66	4.26	4.97	5.90	7.36	8.72
Ann	31.50	33.76	36.63	38.80	40.73	42.58	44.49	46.60	49.15	52.83	56.00

\+ 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: 1926-2001
(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: HYANNIS, MA **COOP ID: 193821**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 50 Feet** **Lat: 41°40N** **Lon: 70°18W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	6.9	4.7	1	1
Feb	5.5	5.4	2	1
Mar	1.7	1.3	#	#
Apr	.5	.0	#	0
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	.2	.0	#	0
Dec	3.6	.5	#	#
Ann	18.4	11.9	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	7.5	1976	22	20.3	1976	23	1996	11	5	1996
Feb	12.0	1978	7	19.0	1983	18	1994	12	6	1987
Mar	6.0	1976	10	7.5	1992	10	1978	18	4	1978
Apr	4.0	1982	7	4.0	1982	8	1997	2	1	1997
May	.0	0	0	.0	0	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	.0	0	0	.0	0	0	0	0	0	0
Nov	1.5	1987	12	1.5	1987	11	1989	24	1	1989
Dec	5.0	1982	12	12.0	1982	12	1982	14	2	1995
Ann	12.0	Feb 1978	7	20.3	Jan 1976	23	Jan 1996	11	6	Feb 1987

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.0	2.0	.6	.4	.0
Feb	1.9	1.5	.7	.3	.1
Mar	.8	.6	.2	@	.0
Apr	.3	.2	@	.0	.0
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	.1	.1	.0	.0	.0
Dec	1.3	1.0	.4	.1	.0
Ann	7.4	5.4	1.9	.8	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	7.2	4.4	2.4	.2
Feb	4.8	3.3	1.7	.3
Mar	1.0	.4	.2	.0
Apr	.2	.1	.0	.0
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	.1	.0	.0	.0
Dec	2.1	.9	.4	.1
Ann	15.4	9.1	4.7	.6

+ 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: HYANNIS, MA **COOP ID: 193821**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 50 Feet** **Lat: 41˚40N** **Lon: 70˚18W**

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	5/25	5/19	5/15	5/11	5/08	5/04	4/30	4/26	4/20
32	5/07	5/02	4/29	4/26	4/24	4/21	4/18	4/15	4/10
28	4/23	4/17	4/13	4/10	4/07	4/04	3/31	3/27	3/22
24	4/06	4/02	3/30	3/28	3/26	3/24	3/21	3/19	3/15
20	4/01	3/26	3/23	3/19	3/16	3/13	3/10	3/06	3/01
16	3/26	3/20	3/15	3/11	3/07	3/03	2/27	2/23	2/16

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	10/02	10/05	10/07	10/09	10/11	10/13	10/15	10/18	10/21
32	10/09	10/14	10/17	10/20	10/23	10/26	10/29	11/01	11/06
28	10/25	10/29	11/02	11/05	11/07	11/10	11/13	11/16	11/20
24	11/08	11/13	11/16	11/19	11/22	11/25	11/28	12/01	12/06
20	11/18	11/23	11/28	12/01	12/04	12/08	12/11	12/15	12/21
16	11/29	12/05	12/08	12/12	12/15	12/18	12/21	12/25	12/30

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	176	169	164	160	156	152	148	143	136
32	202	195	190	186	182	178	173	168	162
28	236	228	223	218	214	209	204	199	191
24	260	254	249	244	241	237	232	227	221
20	286	278	272	267	262	258	253	247	239
16	308	299	292	287	282	276	271	264	255

***** 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: HYANNIS, MA **COOP ID: 193821**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 50 Feet** **Lat: 41˚40N** **Lon: 70˚18W**

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	1110	982	882	601	314	69	4	8	97	391	628	940	6026
60	955	842	727	451	168	14	0	0	29	246	478	785	4695
57	862	758	634	361	97	3	0	0	11	171	388	692	3977
55	800	702	572	303	61	1	0	0	5	128	330	630	3532
50	646	562	417	170	13	0	0	0	0	51	197	484	2540
32	187	135	33	1	0	0	0	0	0	0	4	98	458

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	100	77	174	390	710	969	1195	1170	926	634	366	182	6893
55	0	0	0	2	57	280	482	457	241	49	2	0	1570
57	0	0	0	0	31	222	420	395	186	30	1	0	1285
60	0	0	0	0	9	143	327	302	115	12	0	0	908
65	0	0	0	0	0	48	176	155	33	1	0	0	413
70	0	0	0	0	0	8	58	49	4	0	0	0	119

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	20	16	54	191	478	740	957	928	698	403	168	41	20	36	90	281	759	1499	2456	3384	4082	4485	4653	4694
45	0	0	13	85	325	590	802	773	548	256	82	10	0	0	13	98	423	1013	1815	2588	3136	3392	3474	3484
50	0	0	2	26	184	440	647	618	400	139	33	0	0	0	2	28	212	652	1299	1917	2317	2456	2489	2489
55	0	0	0	6	82	298	492	463	258	55	5	0	0	0	0	6	88	386	878	1341	1599	1654	1659	1659
60	0	0	0	0	28	165	337	311	132	16	0	0	0	0	0	0	28	193	530	841	973	989	989	989
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	4	21	78	232	451	645	619	419	205	76	18	0	4	25	103	335	786	1431	2050	2469	2674	2750	2768

(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