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: HINGHAM, MA **COOP ID: 193624**

Climate Division: MA 3 **NWS Call Sign:** **Elevation: 30 Feet** **Lat: 42˚14N** **Lon: 70˚55W**

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	36.8	19.8	28.3	67+	1995	14	35.2	1995	-13+	1961	22	19.1	1981	1137	0	.0	.0	3.9	10.5	27.0	1.6
Feb	38.9	22.0	30.5	69	1985	24	37.1	1984	-9	1961	2	21.4	1979	968	0	.0	.0	4.3	7.2	23.9	.7
Mar	46.6	29.3	38.0	89	1998	31	43.3	2000	0	1996	10	32.2	1984	837	0	.0	.0	11.0	1.7	20.0	@
Apr	56.7	37.6	47.2	92+	1976	18	51.5	1976	15	1964	1	42.0	1972	535	0	.0	.1	22.8	@	8.0	.0
May	67.4	47.1	57.3	94+	1964	23	62.0	1991	27	1964	2	53.9	1974	246	6	.0	.4	29.9	.0	.6	.0
Jun	75.9	56.3	66.1	96+	1964	20	70.2	1994	35	1964	6	61.7	1982	51	85	.0	1.4	30.0	.0	.0	.0
Jul	81.4	62.1	71.8	100+	1964	1	76.2	1994	42	1965	7	68.0	1992	4	213	@	3.4	31.0	.0	.0	.0
Aug	79.1	60.9	70.0	100	1975	2	73.3	1988	34	1965	31	67.4	1986	6	162	@	1.9	31.0	.0	.0	.0
Sep	71.8	53.2	62.5	94+	1969	1	66.6	1999	29	1962	22	59.3	1978	105	29	.0	.4	30.0	.0	.0	.0
Oct	62.0	42.4	52.2	87+	1963	7	57.1	1990	18	1966	31	48.3	1972	399	1	.0	.0	29.2	.0	4.1	.0
Nov	51.8	34.6	43.2	78+	1987	4	48.2	1999	2	1989	24	38.7	1996	654	0	.0	.0	16.7	.3	13.9	.0
Dec	41.5	25.4	33.5	77	1998	7	39.2	1990	-8+	1963	31	20.5	1989	978	0	.0	.0	6.4	5.1	24.1	.2
Ann	59.2	40.9	50.1	100+	Aug 1975	2	76.2	Jul 1994	-13+	Jan 1961	22	19.1	Jan 1981	5920	496	.0	7.6	246.2	24.8	121.6	2.5

+ 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: 1960-2001

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

Issue Date: February 2004

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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	4.80	4.47	2.60	1979	25	11.69	1979	.88	1989
Feb	4.01	3.59	3.55	1998	24	8.43	1998	.64	1987
Mar	4.69	4.14	5.81	1968	18	13.18	1983	.64	1981
Apr	4.26	3.96	4.23	1991	21	10.85	1987	.91	1999
May	3.76	3.46	4.72	1984	31	8.46	1984	1.10	1993
Jun	3.47	2.58	3.95	1982	6	13.43	1982	.05	1999
Jul	3.51	2.87	3.47	1996	13	10.38	1988	1.01	1987
Aug	4.17	3.91	3.88	1990	11	8.36	1976	.99	1984
Sep	3.75	3.43	4.70	1972	3	8.71	1972	.51	1980
Oct	4.41	3.95	5.50	1996	20	11.94	1996	.70	1994
Nov	4.66	4.75	3.61	1983	25	10.03	1983	.80	1976
Dec	4.39	3.77	3.46	1992	12	8.95	1973	1.00	1989
Ann	49.88	50.00	5.81	Mar 1968	18	13.43	Jun 1982	.05	Jun 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.7	7.6	3.1	1.5
Feb	10.4	6.4	2.7	1.0
Mar	12.2	7.5	3.2	1.5
Apr	11.4	6.7	3.0	1.4
May	12.1	6.9	2.4	.8
Jun	10.4	6.1	2.2	.8
Jul	9.5	5.9	2.3	.9
Aug	9.6	6.3	2.7	1.1
Sep	9.4	5.8	2.6	.9
Oct	9.9	6.3	2.7	1.3
Nov	10.9	7.1	3.2	1.4
Dec	12.5	7.7	2.8	1.2
Ann	131.0	80.3	32.9	13.8

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	1.18	1.63	2.33	2.95	3.57	4.22	4.94	5.81	6.94	8.73	10.40
Feb	1.26	1.64	2.21	2.69	3.16	3.64	4.17	4.80	5.60	6.85	8.01
Mar	1.47	1.91	2.58	3.14	3.69	4.26	4.88	5.62	6.56	8.03	9.39
Apr	1.29	1.69	2.30	2.82	3.33	3.85	4.43	5.11	6.00	7.37	8.65
May	1.15	1.51	2.04	2.50	2.95	3.41	3.91	4.51	5.28	6.48	7.59
Jun	.33	.58	1.05	1.53	2.06	2.65	3.36	4.24	5.44	7.45	9.42
Jul	.94	1.27	1.78	2.22	2.66	3.12	3.63	4.24	5.03	6.26	7.42
Aug	1.17	1.56	2.16	2.68	3.20	3.73	4.32	5.02	5.92	7.35	8.67
Sep	.67	1.00	1.55	2.06	2.58	3.15	3.79	4.57	5.60	7.27	8.86
Oct	1.41	1.83	2.45	2.98	3.49	4.01	4.59	5.27	6.14	7.50	8.75
Nov	1.21	1.65	2.33	2.92	3.51	4.12	4.81	5.62	6.68	8.35	9.92
Dec	1.05	1.46	2.10	2.67	3.24	3.84	4.52	5.32	6.37	8.04	9.61
Ann	37.07	39.60	42.80	45.22	47.36	49.42	51.54	53.87	56.69	60.75	64.25

\+ 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: 1960-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	13.8	11.6	4	2
Feb	12.0	10.8	4	2
Mar	7.6	4.8	1	#
Apr	1.9	.0	#	0
May	#	.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	1.8	.5	#	0
Dec	7.0	5.3	1	#
Ann	44.1	33.0	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	16.7	1978	20	41.4	1996	32	1996	10	14	1977
Feb	24.0	1978	7	34.0	1994	31	1978	7	18	1978
Mar	9.0	1993	13	34.3	1993	25	1978	4	15	1978
Apr	22.2	1997	1	22.2	1997	20	1997	1	2	1997
May	#	1977	10	#	1977	#	1975	14	#	1975
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	11.5	1987	12	11.7	1987	11	1987	12	1	1989
Dec	13.7	1976	29	20.1	1976	15	1976	29	5	1995
Ann	24.0	Feb 1978	7	41.4	Jan 1996	32	Jan 1996	10	18	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	7.1	3.4	1.6	.9	.2
Feb	6.1	2.8	1.4	.7	.1
Mar	4.3	1.9	1.1	.5	.0
Apr	.9	.4	.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	1.1	.5	.2	.1	@
Dec	5.2	2.1	.8	.3	.1
Ann	24.7	11.1	5.2	2.6	.4

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	15.7	11.9	8.8	3.4
Feb	14.5	10.8	7.4	2.5
Mar	7.1	4.2	2.7	1.2
Apr	.6	.4	.3	.1
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	1.2	.6	.2	@
Dec	6.9	2.9	1.7	.4
Ann	46.0	30.8	21.1	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

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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	5/21	5/18	5/15	5/13	5/10	5/08	5/05	5/01
32	5/15	5/10	5/07	5/03	4/30	4/28	4/24	4/21	4/16
28	4/27	4/23	4/20	4/18	4/15	4/13	4/11	4/08	4/04
24	4/12	4/07	4/04	4/01	3/30	3/27	3/25	3/22	3/17
20	3/31	3/27	3/24	3/21	3/19	3/17	3/14	3/12	3/08
16	3/25	3/20	3/16	3/13	3/10	3/07	3/04	3/01	2/24

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	9/20	9/24	9/26	9/29	10/01	10/03	10/05	10/08	10/11
32	10/02	10/06	10/09	10/12	10/15	10/17	10/20	10/23	10/28
28	10/13	10/18	10/21	10/24	10/27	10/30	11/02	11/05	11/10
24	10/27	11/02	11/06	11/09	11/13	11/16	11/19	11/23	11/29
20	11/13	11/18	11/22	11/25	11/28	12/01	12/04	12/08	12/13
16	11/24	11/29	12/03	12/06	12/09	12/12	12/15	12/19	12/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	154	149	146	143	140	137	135	131	127
32	187	180	175	171	167	162	158	153	146
28	211	205	201	197	194	190	187	182	176
24	249	242	236	231	227	222	218	212	204
20	275	267	262	257	253	249	244	238	231
16	294	287	281	277	273	268	264	258	251

***** 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

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Degree Days to Selected Base Temperatures (˚F)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1137	968	837	535	246	51	4	6	105	399	654	978	5920
60	982	828	682	386	121	10	0	0	32	253	504	823	4621
57	889	744	589	299	67	3	0	0	12	177	415	730	3925
55	827	688	527	244	41	1	0	0	6	133	357	668	3492
50	672	548	376	127	8	0	0	0	0	54	223	522	2530
32	202	137	32	0	0	0	0	0	0	0	7	120	498

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	88	93	218	455	782	1024	1232	1179	914	625	343	165	7118
55	0	0	0	8	111	335	519	466	229	45	3	0	1716
57	0	0	0	4	74	277	457	404	176	27	1	0	1420
60	0	0	0	0	36	194	364	311	106	10	0	0	1021
65	0	0	0	0	6	85	213	162	29	1	0	0	496
70	0	0	0	0	0	24	88	51	3	0	0	0	166

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	21	25	83	235	543	794	995	938	682	386	159	43	21	46	129	364	907	1701	2696	3634	4316	4702	4861	4904
45	6	7	39	129	390	644	840	783	532	245	83	17	6	13	52	181	571	1215	2055	2838	3370	3615	3698	3715
50	0	0	12	64	250	494	685	628	383	133	38	3	0	0	12	76	326	820	1505	2133	2516	2649	2687	2690
55	0	0	4	23	134	346	530	473	245	63	14	0	0	0	4	27	161	507	1037	1510	1755	1818	1832	1832
60	0	0	2	10	63	213	375	322	130	20	2	0	0	0	2	12	75	288	663	985	1115	1135	1137	1137
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	13	14	51	130	308	502	668	625	412	210	81	24	13	27	78	208	516	1018	1686	2311	2723	2933	3014	3038

(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:
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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