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: WEST MEDWAY, MA **COOP ID: 199316**

Climate Division: MA 2 **NWS Call Sign:** **Elevation: 210 Feet** **Lat: 42˚08N** **Lon: 71˚26W**

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	37.5	13.3	25.4	67+	1995	15	33.4	1990	-25	1957	18	16.3	1977	1228	0	.0	.0	3.9	10.2	29.6	4.9
Feb	40.2	15.8	28.0	70	1985	25	34.8	1998	-20+	1967	13	19.0	1978	1036	0	.0	.0	4.7	7.4	26.5	3.1
Mar	48.7	24.9	36.8	87	1998	29	42.6	2000	-13	1967	19	31.0	1984	875	0	.0	.0	12.8	1.4	25.2	.2
Apr	59.1	34.6	46.9	94+	1976	20	51.0	1976	11	1964	1	42.3	1972	544	0	.0	.2	24.0	.1	13.0	.0
May	70.3	44.8	57.6	97	1992	23	62.1	1991	25+	1964	2	54.2+	1997	238	8	.0	.7	30.5	.0	2.3	.0
Jun	79.0	54.5	66.8	100	1957	17	70.5	1976	31	1964	6	63.1	1982	40	92	.0	2.6	30.0	.0	.0	.0
Jul	84.3	60.3	72.3	102+	1991	20	76.3	1994	38	1988	1	68.5	1992	2	228	.2	5.8	31.0	.0	.0	.0
Aug	82.5	58.5	70.5	104	1975	3	73.9	1973	30	1965	31	67.7	1992	6	176	.1	4.1	31.0	.0	.0	.0
Sep	74.8	49.1	62.0	96	1999	4	65.8	1971	23+	1957	27	58.8	1984	122	29	.0	.9	30.0	.0	1.9	.0
Oct	64.1	37.0	50.6	90	1963	7	56.4	1971	15+	1966	31	46.2	1974	448	1	.0	.0	29.9	.0	12.7	.0
Nov	53.0	29.9	41.5	82	1982	3	46.8	1999	-2	1989	24	36.8	1996	708	0	.0	.0	18.0	.4	20.5	.1
Dec	41.9	20.1	31.0	76	1998	8	37.4	1998	-16+	1963	31	17.2	1989	1055	0	.0	.0	6.3	5.7	28.1	1.2
Ann	61.3	36.9	49.1	104	Aug 1975	3	76.3	Jul 1994	-25	Jan 1957	18	16.3	Jan 1977	6302	534	.3	14.3	252.1	25.2	159.8	9.5

\+ 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: 1957-2001

(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	4.52	4.08	2.88	1979	25	13.22	1979	.71	1981
Feb	3.40	3.25	2.43	1969	25	7.09	1981	.36	1987
Mar	4.11	3.63	3.88	1968	18	7.83	1983	.28	1981
Apr	4.42	4.16	3.14	1991	22	12.86	1987	1.38	1986
May	3.59	3.75	3.55	1977	10	7.40	1990	.87	1993
Jun	3.83	2.88	4.61	2001	18	12.17	1982	.21	1999
Jul	3.65	3.39	3.95	1980	30	9.51	1988	.66	1983
Aug	4.20	3.67	5.09	1990	12	9.11	1990	.21	1981
Sep	4.12	3.90	5.81	1999	11	12.79	1999	.73	1986
Oct	4.26	3.59	6.39	1990	14	11.23	1990	.84	1994
Nov	4.60	4.12	3.87	1985	6	9.96	1983	.75	1976
Dec	4.05	3.59	3.67	1992	12	7.91	1992	.73	1988
Ann	48.75	47.95	6.39	Oct 1990	14	13.22	Jan 1979	.21+	Jun 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.1	6.8	3.2	1.4
Feb	7.8	5.9	2.3	1.0
Mar	9.4	7.0	2.7	1.3
Apr	9.7	6.7	3.1	1.2
May	10.3	7.4	2.3	.7
Jun	9.4	6.4	2.2	1.0
Jul	8.7	6.4	2.3	.9
Aug	8.7	6.4	2.4	1.3
Sep	8.6	6.4	2.6	1.2
Oct	8.6	6.2	2.7	1.2
Nov	9.5	7.2	3.0	1.3
Dec	9.1	6.7	2.6	1.2
Ann	108.9	79.5	31.4	13.7

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	.96	1.37	2.04	2.64	3.24	3.89	4.62	5.50	6.65	8.50	10.24
Feb	1.03	1.36	1.84	2.26	2.66	3.08	3.54	4.08	4.78	5.87	6.89
Mar	1.18	1.57	2.16	2.67	3.17	3.69	4.27	4.95	5.83	7.21	8.49
Apr	1.41	1.83	2.45	2.98	3.49	4.02	4.60	5.29	6.16	7.53	8.79
May	1.12	1.46	1.96	2.40	2.82	3.25	3.73	4.29	5.02	6.15	7.19
Jun	.34	.60	1.11	1.64	2.23	2.89	3.68	4.67	6.03	8.30	10.54
Jul	1.22	1.57	2.07	2.50	2.91	3.34	3.81	4.35	5.05	6.13	7.12
Aug	.85	1.23	1.85	2.41	2.98	3.59	4.28	5.11	6.21	7.97	9.64
Sep	.93	1.32	1.92	2.46	3.00	3.58	4.23	5.00	6.01	7.63	9.15
Oct	1.41	1.81	2.40	2.91	3.39	3.89	4.44	5.08	5.91	7.18	8.36
Nov	1.48	1.92	2.56	3.11	3.64	4.19	4.79	5.49	6.40	7.81	9.11
Dec	.87	1.25	1.84	2.38	2.92	3.50	4.15	4.92	5.95	7.58	9.13
Ann	36.36	38.81	41.91	44.26	46.33	48.32	50.37	52.62	55.34	59.27	62.65

\+ 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: 1957-2001
(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	12.0	9.6	3	2
Feb	10.3	7.8	3	2
Mar	6.5	4.3	1	#
Apr	2.3	.0	#	#
May	.2	.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
Nov	1.8	.7	#	#
Dec	7.5	6.3	1	1
Ann	40.6	28.7	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	14.0	1978	21	36.6	1996	31	1996	11	15	1996
Feb	25.0	1978	7	29.0	1978	32	1978	8	18	1978
Mar	12.0	1993	14	28.0	1993	23	1978	6	13	1978
Apr	22.0	1997	1	25.0	1997	22	1997	1	2	1997
May	5.0	1977	10	5.0	1977	5	1977	10	#+	1986
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	31	#+	2000	#	2000	30	#	2000
Nov	7.0	1986	19	8.0	1986	7	1986	19	1+	1997
Dec	18.0	1992	13	24.0	1992	22	1992	13	7	1981
Ann	25.0	Feb 1978	7	36.6	Jan 1996	32	Feb 1978	8	18	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.8	3.5	1.5	.9	.2
Feb	3.7	2.7	1.4	.5	.2
Mar	2.6	1.9	1.1	.5	@
Apr	.6	.4	.2	.1	.1
May	@	@	@	@	.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	1.0	.7	.2	.1	.0
Dec	3.4	2.3	1.0	.4	.1
Ann	16.1	11.5	5.4	2.5	.6

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	15.6	10.4	6.7	2.2
Feb	12.8	8.8	5.5	2.0
Mar	6.2	3.2	1.9	.8
Apr	.8	.4	.3	.1
May	.1	.1	@	.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	1.7	.6	.2	.0
Dec	8.1	4.2	2.3	.7
Ann	45.3	27.7	16.9	5.8

+ 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	6/11	6/05	6/01	5/28	5/25	5/22	5/18	5/14	5/09
32	5/22	5/18	5/15	5/12	5/10	5/07	5/05	5/02	4/28
28	5/11	5/06	5/03	4/30	4/27	4/24	4/21	4/18	4/13
24	4/22	4/17	4/14	4/11	4/09	4/06	4/03	3/31	3/27
20	4/10	4/06	4/03	4/01	3/29	3/27	3/25	3/22	3/18
16	3/30	3/26	3/23	3/21	3/19	3/16	3/14	3/11	3/07

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	8/29	9/04	9/08	9/11	9/14	9/17	9/21	9/24	9/30
32	9/15	9/18	9/21	9/23	9/25	9/27	9/30	10/02	10/06
28	9/26	10/01	10/05	10/08	10/11	10/14	10/18	10/22	10/27
24	10/10	10/15	10/19	10/22	10/26	10/29	11/01	11/05	11/11
20	10/18	10/25	10/31	11/04	11/09	11/13	11/17	11/23	11/30
16	11/03	11/10	11/15	11/19	11/23	11/27	12/01	12/06	12/12

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	133	126	120	116	111	107	102	97	89
32	153	148	144	141	138	135	131	128	122
28	189	182	176	171	167	162	157	152	144
24	221	214	208	204	199	195	190	185	177
20	249	240	234	228	224	219	213	207	198
16	273	265	259	253	249	244	238	232	224

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1228	1036	875	544	238	40	2	6	122	448	708	1055	6302
60	1073	896	720	394	118	7	0	0	43	300	558	900	5009
57	980	812	627	307	67	1	0	0	19	220	468	807	4308
55	918	756	565	251	42	0	0	0	10	173	408	745	3868
50	763	616	412	133	9	0	0	0	1	80	269	596	2879
32	277	182	45	0	0	0	0	0	0	0	12	167	683

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	72	70	193	447	793	1042	1250	1194	897	576	295	135	6964
55	0	0	0	8	122	353	537	481	217	35	1	0	1754
57	0	0	0	3	85	294	475	419	167	21	0	0	1464
60	0	0	0	1	43	209	382	326	101	7	0	0	1069
65	0	0	0	0	8	92	228	176	29	1	0	0	534
70	0	0	0	0	1	25	97	62	3	0	0	0	188

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	12	13	69	223	533	784	978	922	638	322	124	31	12	25	94	317	850	1634	2612	3534	4172	4494	4618	4649
45	2	3	28	119	383	634	823	767	488	194	60	9	2	5	33	152	535	1169	1992	2759	3247	3441	3501	3510
50	0	0	9	55	246	484	668	612	345	101	24	1	0	0	9	64	310	794	1462	2074	2419	2520	2544	2545
55	0	0	3	22	134	341	513	458	214	45	8	0	0	0	3	25	159	500	1013	1471	1685	1730	1738	1738
60	0	0	2	8	64	209	361	306	115	12	1	0	0	0	2	10	74	283	644	950	1065	1077	1078	1078
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	11	13	56	154	328	502	647	606	417	230	86	25	11	24	80	234	562	1064	1711	2317	2734	2964	3050	3075

(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