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: BEAVER DAM, WI **COOP ID: 470645**

Climate Division: WI 8 **NWS Call Sign:** **Elevation: 840 Feet** **Lat: 43˚27N** **Lon: 88˚51W**

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	24.3	8.0	16.2	55	1996	18	27.0	1990	-36	1963	15	3.3	1977	1515	0	.0	.0	.2	21.0	30.5	9.2
Feb	29.4	12.6	21.0	61	1981	19	32.6	1998	-30	1959	2	10.0	1979	1232	0	.0	.0	1.0	15.0	26.8	5.3
Mar	41.3	24.3	32.8	80+	1986	30	40.3	2000	-22	1962	1	26.1	1975	998	0	.0	.0	8.0	5.1	24.3	.8
Apr	55.5	35.7	45.6	90	1980	22	51.9	1985	6	1979	5	39.6	1975	583	1	.0	@	22.0	.2	10.8	.0
May	68.0	46.5	57.3	92	1978	27	63.7	1977	23	1966	10	51.9	1997	272	31	.0	.3	30.6	.0	1.3	.0
Jun	77.3	56.0	66.7	98	1988	21	70.5	1987	34	1956	2	61.4	1982	52	102	.0	2.4	30.0	.0	.0	.0
Jul	80.8	60.5	70.7	98+	1995	14	74.8	1999	35	1965	6	66.6	1971	11	187	.0	4.1	31.0	.0	.0	.0
Aug	78.4	58.8	68.6	100+	1988	17	75.0	1995	37	1965	29	64.5	1992	41	152	.1	2.0	31.0	.0	.0	.0
Sep	70.9	50.2	60.6	97+	1955	9	65.0	1998	26+	1976	24	55.4	1993	159	25	.0	.5	30.0	.0	.4	.0
Oct	59.8	39.2	49.5	89	1963	6	57.8	1971	14	2001	7	43.9	1988	483	2	.0	.0	26.5	.0	7.0	.0
Nov	43.0	27.1	35.1	75	1964	3	41.9	1999	-12	1958	30	27.2	1976	899	0	.0	.0	9.0	4.2	21.0	.2
Dec	29.6	14.7	22.2	65	2001	6	30.9	1982	-24+	1983	23	11.2	1983	1330	0	.0	.0	1.1	16.3	28.9	4.7
Ann	54.9	36.1	45.5	100+	Aug 1988	17	75.0	Aug 1995	-36	Jan 1963	15	3.3	Jan 1977	7575	500	.1	9.3	220.4	61.8	151.0	20.2

\+ 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

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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	1.34	1.34	1.35	1988	20	3.28	1999	.10	1981
Feb	1.23	1.06	1.64	1981	22	3.18	1971	.01	1995
Mar	2.23	2.00	3.46	1998	31	6.59	1998	.17	1981
Apr	3.39	3.12	2.35	1999	23	7.57	1999	.84	1997
May	3.19	3.02	3.82	1978	13	7.02	1978	.50	1981
Jun	4.03	4.19	3.27	1996	17	8.24	1990	.62	1987
Jul	4.30	4.06	3.95	1985	25	8.45+	1999	.83	1975
Aug	3.79	3.21	3.14	1980	7	9.76	1995	.63	1991
Sep	3.65	2.72	4.41	1986	22	15.05	1986	.23	1979
Oct	2.52	2.14	3.00	1995	6	6.11	1995	.66	1975
Nov	2.30	1.88	2.00	1985	1	6.11	1985	.11	1976
Dec	1.65	1.59	1.46	1971	15	3.95	1971	.35	1993
Ann	33.62	34.54	4.41	Sep 1986	22	15.05	Sep 1986	.01	Feb 1995

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.9	4.4	.6	@
Feb	6.8	3.6	.6	.1
Mar	9.7	5.4	1.4	.2
Apr	11.1	6.7	2.4	.7
May	10.8	6.7	2.1	.5
Jun	10.0	6.8	2.7	1.2
Jul	10.8	7.1	3.0	1.2
Aug	9.7	6.9	2.6	1.1
Sep	9.5	5.8	2.3	.9
Oct	9.4	5.8	1.6	.2
Nov	9.5	5.4	1.5	.3
Dec	10.0	4.5	.8	.2
Ann	116.2	69.1	21.6	6.6

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	.27	.39	.58	.76	.95	1.14	1.36	1.63	1.98	2.54	3.08
Feb	.10	.18	.34	.51	.70	.92	1.17	1.50	1.94	2.69	3.43
Mar	.33	.52	.84	1.15	1.47	1.82	2.23	2.72	3.39	4.48	5.52
Apr	1.24	1.56	2.02	2.40	2.76	3.14	3.55	4.02	4.62	5.55	6.41
May	.93	1.23	1.69	2.08	2.47	2.87	3.31	3.84	4.51	5.57	6.56
Jun	1.03	1.41	2.00	2.51	3.02	3.56	4.16	4.87	5.79	7.25	8.62
Jul	1.56	1.96	2.54	3.03	3.50	3.98	4.50	5.10	5.87	7.06	8.15
Aug	1.10	1.46	2.01	2.48	2.93	3.41	3.94	4.56	5.36	6.62	7.80
Sep	.41	.69	1.20	1.71	2.25	2.86	3.57	4.45	5.66	7.64	9.58
Oct	.61	.85	1.21	1.54	1.86	2.21	2.59	3.05	3.65	4.59	5.48
Nov	.42	.63	.96	1.28	1.59	1.94	2.33	2.80	3.43	4.44	5.40
Dec	.32	.47	.71	.93	1.16	1.40	1.67	2.00	2.44	3.14	3.80
Ann	25.56	27.16	29.18	30.71	32.05	33.34	34.66	36.12	37.87	40.39	42.56

\+ 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

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

Snow Fall >= Thresholds

Snow Depth >= Thresholds

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	11.1	11.0	7	6	12.0	1999	3	26.0	1999	36	1979	30	25	1979	5.4	4.1	1.3	.6	.1	22.4	17.8	14.6	7.0
Feb	7.6	6.5	6	4	10.0	1994	23	30.0	1994	32	1979	12	27	1979	3.2	2.7	1.0	.3	@	20.3	16.2	12.4	7.3
Mar	5.9	4.5	2	1	9.0	1971	19	16.5	1972	21	1994	1	8	1979	2.9	2.5	.8	.3	.0	8.6	5.6	4.2	1.2
Apr	1.7	.0	#	#	6.0	1982	5	9.0	1973	7	1973	10	1	1982	.7	.7	.2	.1	.0	1.1	.6	.3	.0
May	.1	.0	0	0	2.0	1994	1	2.0	1994	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.2	.0	#	0	4.0	1997	27	4.0	1997	3	1997	27	#+	1997	.1	.1	@	.0	.0	.1	@	.0	.0
Nov	2.2	.6	#	#	5.5	1986	20	9.0	1977	8	1995	29	2	1977	1.7	1.0	.3	.1	.0	2.8	1.2	.5	.0
Dec	9.7	10.0	3	3	13.0	1990	3	24.1	1977	24	2000	31	11	1985	4.8	4.2	1.3	.3	.1	17.0	11.2	7.0	2.5
Ann	38.5	32.6	N/A	N/A	13.0	Dec 1990	3	30.0	Feb 1994	36	Jan 1979	30	27	Feb 1979	18.8	15.3	4.9	1.7	.2	72.3	52.6	39.0	18.0

+ 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	6/01	5/26	5/22	5/18	5/15	5/12	5/08	5/04	4/28
32	5/18	5/13	5/09	5/06	5/03	4/30	4/27	4/23	4/18
28	5/04	4/29	4/25	4/22	4/19	4/16	4/13	4/09	4/04
24	4/19	4/15	4/12	4/10	4/07	4/05	4/02	3/30	3/26
20	4/12	4/08	4/05	4/02	3/31	3/28	3/25	3/22	3/18
16	4/06	3/31	3/27	3/24	3/21	3/18	3/15	3/11	3/05

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	9/18	9/21	9/23	9/25	9/27	9/28	9/30	10/02	10/05
32	9/25	9/28	10/01	10/03	10/05	10/08	10/10	10/12	10/16
28	10/02	10/07	10/11	10/15	10/18	10/21	10/25	10/29	11/04
24	10/14	10/19	10/23	10/26	10/29	11/01	11/04	11/08	11/13
20	10/23	10/29	11/02	11/05	11/08	11/11	11/15	11/19	11/24
16	11/06	11/12	11/16	11/19	11/22	11/25	11/28	12/02	12/08

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	151	145	141	137	134	130	127	123	117
32	174	168	163	159	155	151	147	142	136
28	206	197	191	186	181	177	172	166	157
24	222	216	212	208	204	200	196	192	186
20	244	236	231	226	222	218	213	207	200
16	270	262	256	250	245	240	235	229	220

***** 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	1515	1232	998	583	272	52	11	41	159	483	899	1330	7575
60	1360	1092	843	438	165	14	0	10	67	338	749	1175	6251
57	1267	1008	750	355	114	5	0	3	33	260	660	1082	5537
55	1205	952	688	303	87	3	0	0	19	214	600	1020	5091
50	1050	812	540	189	37	0	0	0	3	119	456	865	4071
32	526	358	132	7	0	0	0	0	0	2	89	371	1485

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	34	50	157	414	782	1040	1199	1135	856	544	180	64	6455
55	0	0	0	21	156	353	486	422	185	43	1	0	1667
57	0	0	0	12	121	295	424	363	139	27	0	0	1381
60	0	0	0	5	79	214	332	277	82	12	0	0	1001
65	0	0	0	1	31	102	187	152	25	2	0	0	500
70	0	0	0	0	9	32	80	67	4	0	0	0	192

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	0	2	59	239	577	833	981	921	651	330	65	4	0	2	61	300	877	1710	2691	3612	4263	4593	4658	4662
45	0	0	28	139	424	683	826	766	501	206	29	1	0	0	28	167	591	1274	2100	2866	3367	3573	3602	3603
50	0	0	12	70	289	533	671	611	355	111	10	0	0	0	12	82	371	904	1575	2186	2541	2652	2662	2662
55	0	0	4	35	169	383	516	456	225	54	2	0	0	0	4	39	208	591	1107	1563	1788	1842	1844	1844
60	0	0	0	13	84	244	362	303	122	18	0	0	0	0	0	13	97	341	703	1006	1128	1146	1146	1146
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	36	152	354	535	657	609	401	191	36	1	0	1	37	189	543	1078	1735	2344	2745	2936	2972	2973

(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