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: TWO RIVERS, WI **COOP ID: 478672**

Climate Division: WI 6 **NWS Call Sign:** **Elevation: 599 Feet** **Lat: 44˚08N** **Lon: 87˚34W**

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	25.1	10.1	17.6	52	1973	25	27.9	1990	-28	1951	30	5.8	1977	1469	0	.0	.0	.1	20.3	29.9	7.1
Feb	28.3	14.0	21.2	57	1984	23	32.3	1998	-26	1996	3	11.5	1979	1229	0	.0	.0	.2	15.5	26.6	3.7
Mar	37.3	24.0	30.7	71+	2000	9	38.7	2000	-17	1962	1	24.7	1996	1066	0	.0	.0	3.3	6.2	24.1	.5
Apr	47.5	34.9	41.2	84	1962	26	44.2	1986	9	1954	3	37.4	1975	715	0	.0	.0	13.3	.4	10.2	.0
May	58.7	44.8	51.8	91	1952	4	56.1	1977	24	1990	2	47.5	1997	413	1	.0	.0	28.4	.0	.9	.0
Jun	68.4	53.5	61.0	97	1964	26	66.2	1987	35	1956	2	57.9	1982	151	29	.0	.4	30.0	.0	.0	.0
Jul	74.4	60.0	67.2	97	1970	1	70.9	1983	40	1965	6	63.0	1978	36	103	.0	.9	31.0	.0	.0	.0
Aug	73.6	60.2	66.9	97	2001	9	72.7	1995	42+	1986	28	62.6	1992	53	112	.0	.4	31.0	.0	.0	.0
Sep	66.4	52.7	59.6	96	1953	1	63.4	1978	29+	1984	29	54.6	1993	184	21	.0	@	29.9	.0	.3	.0
Oct	54.5	41.1	47.8	86+	1971	1	54.1	1971	19	1972	19	44.2	1988	532	0	.0	.0	24.9	.0	4.1	.0
Nov	41.4	29.0	35.2	76	1950	1	41.7	1999	-8	1950	24	28.1	1995	895	0	.0	.0	5.6	3.2	18.6	.1
Dec	30.0	16.9	23.5	62	1998	3	30.4	1994	-21	1983	24	12.5	1983	1288	0	.0	.0	.6	14.4	27.8	3.5
Ann	50.5	36.8	43.6	97+	Aug 2001	9	72.7	Aug 1995	-28	Jan 1951	30	5.8	Jan 1977	8031	266	.0	1.7	198.3	60.0	142.5	14.9

\+ 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: 1950-2001

(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	1.67	1.68	1.37	1982	4	3.21	1979	.10	1981
Feb	1.33	1.27	2.02	1966	8	2.95	1971	.14	1982
Mar	2.34	2.01	3.16	1998	30	5.97	1976	.36	1978
Apr	2.84	2.83	1.85	1993	15	5.12	1994	.83	1989
May	2.84	2.55	2.12	1973	28	6.68	1973	.35	1988
Jun	3.12	2.37	3.90	1996	17	8.61	1996	.38	1995
Jul	2.88	2.53	4.65	1952	18	6.02	1991	1.11	1973
Aug	3.62	3.39	4.37	1980	20	10.74	1975	.93	1976
Sep	3.29	3.12	4.72	1986	10	11.29	1986	.15	1979
Oct	2.33	2.05	3.20	1954	3	5.60	1991	.24	1975
Nov	2.28	2.28	1.60	1961	16	7.01	1985	.33	1976
Dec	1.78	1.48	1.87	1959	28	4.52	1971	.38	1998
Ann	30.32	31.24	4.72	Sep 1986	10	11.29	Sep 1986	.10	Jan 1981

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.7	4.3	.8	.1
Feb	8.6	3.8	.6	@
Mar	9.8	5.4	1.4	.4
Apr	11.4	6.6	1.8	.5
May	10.4	6.1	1.7	.5
Jun	10.9	6.5	2.0	.6
Jul	10.3	5.6	2.0	.7
Aug	11.1	6.4	2.5	.9
Sep	11.0	6.3	2.2	.8
Oct	10.1	5.5	1.6	.4
Nov	10.5	6.0	1.4	.3
Dec	9.8	4.8	.9	.2
Ann	124.6	67.3	18.9	5.4

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	.34	.49	.73	.95	1.18	1.42	1.70	2.03	2.46	3.16	3.82
Feb	.26	.38	.57	.75	.93	1.13	1.35	1.62	1.97	2.54	3.08
Mar	.45	.66	1.00	1.32	1.64	1.98	2.38	2.85	3.48	4.49	5.45
Apr	1.41	1.65	1.98	2.24	2.48	2.72	2.98	3.27	3.63	4.18	4.67
May	.67	.94	1.35	1.72	2.09	2.48	2.91	3.43	4.12	5.20	6.21
Jun	.70	.98	1.44	1.85	2.27	2.70	3.20	3.78	4.56	5.79	6.95
Jul	1.05	1.32	1.71	2.03	2.34	2.66	3.01	3.41	3.92	4.71	5.43
Aug	1.18	1.52	2.03	2.46	2.87	3.30	3.77	4.32	5.02	6.12	7.13
Sep	.56	.84	1.32	1.78	2.24	2.74	3.32	4.02	4.95	6.46	7.91
Oct	.72	.94	1.27	1.55	1.83	2.11	2.43	2.80	3.27	4.02	4.70
Nov	.48	.69	1.03	1.33	1.63	1.96	2.33	2.77	3.35	4.27	5.15
Dec	.43	.59	.85	1.08	1.31	1.56	1.83	2.15	2.58	3.25	3.88
Ann	23.32	24.71	26.47	27.79	28.96	30.07	31.22	32.48	33.99	36.17	38.03

\+ 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: 1950-2001
(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	10.9	7.4	8	6	14.0	1982	4	37.2	1982	46	1979	29	29	1982	5.8	3.6	1.3	.6	.1	17.9	13.7	10.3	4.4
Feb	8.1	7.4	9	5	10.0	1993	21	16.1	1983	56	1979	21	49	1979	4.3	2.4	.8	.3	@	24.5	19.6	12.7	5.8
Mar	8.7	8.0	3	2	11.2	1985	4	24.8	1989	32	1979	2	12	1979	2.7	1.7	.6	.3	.1	10.5	7.5	4.8	2.4
Apr	1.2	.0	#	#	7.5	1973	9	12.5	1973	8	1973	10	1	1973	.4	.4	.1	.1	.0	.6	.2	.1	.0
May	#	.0	0	0	#	1976	7	#+	1976	0	0	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	.1	.0	#	0	2.0	2000	7	2.0	2000	2	2000	7	#	2000	@	@	.0	.0	.0	@	.0	.0	.0
Nov	2.3	1.0	#	#	9.8	1995	27	13.3	1995	9	1995	27	1	1997	1.2	.7	.1	@	.0	1.7	.6	.2	.0
Dec	8.8	9.3	3	2	14.0	1971	30	21.7	1978	39	2000	30	19	2000	4.1	2.5	.8	.4	.2	13.2	9.1	5.2	1.6
Ann	40.1	33.1	N/A	N/A	14.0+	Jan 1982	4	37.2	Jan 1982	56	Feb 1979	21	49	Feb 1979	18.5	11.3	3.7	1.7	.4	68.4	50.7	33.3	14.2

+ 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	5/27	5/22	5/18	5/15	5/12	5/08	5/05	5/01	4/26
32	5/11	5/07	5/04	5/02	4/30	4/27	4/25	4/22	4/18
28	5/01	4/26	4/23	4/19	4/16	4/14	4/10	4/07	4/02
24	4/18	4/13	4/10	4/07	4/04	4/01	3/29	3/26	3/21
20	4/10	4/06	4/03	3/31	3/29	3/27	3/25	3/22	3/18
16	4/06	3/31	3/27	3/24	3/21	3/17	3/14	3/10	3/04

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

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	160	154	150	146	142	139	135	131	125
32	180	175	171	167	164	161	157	153	147
28	215	208	203	198	194	190	186	181	174
24	236	230	225	221	217	214	210	205	198
20	254	246	240	235	231	226	221	215	208
16	271	263	257	252	247	243	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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1469	1229	1066	715	413	151	36	53	184	532	895	1288	8031
60	1314	1089	911	565	267	64	6	13	83	379	745	1133	6569
57	1221	1005	818	475	190	32	1	4	43	290	655	1040	5774
55	1159	949	756	415	145	18	0	1	26	235	595	978	5277
50	1004	809	601	270	59	3	0	0	4	120	446	823	4139
32	477	340	141	6	0	0	0	0	0	0	71	337	1372

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	32	35	99	282	612	869	1090	1082	827	491	167	72	5658
55	0	0	0	0	43	196	377	370	162	13	0	0	1161
57	0	0	0	0	26	150	315	311	120	6	0	0	928
60	0	0	0	0	11	92	227	227	70	2	0	0	629
65	0	0	0	0	1	29	103	112	21	0	0	0	266
70	0	0	0	0	0	5	29	39	4	0	0	0	77

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	0	17	114	372	624	836	838	587	276	51	2	0	0	17	131	503	1127	1963	2801	3388	3664	3715	3717
45	0	0	7	40	226	474	681	683	441	150	13	0	0	0	7	47	273	747	1428	2111	2552	2702	2715	2715
50	0	0	0	13	109	324	526	528	295	63	2	0	0	0	0	13	122	446	972	1500	1795	1858	1860	1860
55	0	0	0	0	43	191	371	373	166	15	0	0	0	0	0	0	43	234	605	978	1144	1159	1159	1159
60	0	0	0	0	11	89	219	225	75	1	0	0	0	0	0	0	11	100	319	544	619	620	620	620
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	10	49	173	343	521	526	322	109	11	0	0	0	10	59	232	575	1096	1622	1944	2053	2064	2064

(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

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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