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: ST CROIX FALLS, WI **COOP ID: 477464**

Climate Division: WI 1 **NWS Call Sign:** **Elevation: 770 Feet** **Lat: 45˚25N** **Lon: 92˚39W**

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	23.0	.3	11.7	56	1981	24	25.8	1990	-42+	1994	19	-1.0	1977	1653	0	.0	.0	.1	23.2	31.0	16.5
Feb	30.0	7.5	18.8	63	2000	29	32.2	1998	-43+	1996	3	7.7	1989	1295	0	.0	.0	1.1	16.0	27.3	10.3
Mar	41.8	20.3	31.1	83	1986	29	40.1	1973	-34	1962	1	22.0	1996	1053	0	.0	.0	7.0	6.5	26.9	3.2
Apr	58.0	33.7	45.9	93	1980	21	54.5	1987	-1+	1995	5	39.0	1996	577	3	.0	@	21.6	.4	14.8	.1
May	72.0	46.2	59.1	96	1998	18	67.3	1977	18	1967	3	53.3	1979	238	55	.0	.7	30.5	.0	2.5	.0
Jun	79.6	54.9	67.3	99+	1988	24	73.4	1988	30	1985	2	62.7	1982	59	127	.0	2.7	30.0	.0	@	.0
Jul	84.1	60.0	72.1	105	1988	31	77.2	1988	38	1992	29	64.8	1992	19	237	.3	5.5	31.0	.0	.0	.0
Aug	81.2	58.7	70.0	102+	1988	16	75.1	1983	35	1950	20	65.6+	1992	26	179	.1	2.9	31.0	.0	.0	.0
Sep	72.2	49.2	60.7	98	1976	7	66.7	1998	24	1965	26	55.2	1993	165	36	.0	.7	29.7	.0	1.2	.0
Oct	59.5	37.6	48.6	90	1997	3	54.9	1973	11	1996	31	43.1	1988	511	2	.0	@	25.4	.1	11.2	.0
Nov	41.0	23.8	32.4	76	1999	8	40.7	1999	-18	1964	30	25.2	1991	978	0	.0	.0	6.6	7.0	25.1	1.3
Dec	27.4	8.3	17.9	66	1998	1	26.2	1997	-39	1983	19	3.8	1983	1462	0	.0	.0	.5	20.7	30.7	10.2
Ann	55.8	33.4	44.6	105	Jul 1988	31	77.2	Jul 1988	-43+	Feb 1996	3	-1.0	Jan 1977	8036	639	.4	12.5	214.5	73.9	170.7	41.6

\+ 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	.82	.72	1.55	1967	24	2.55	1975	.13	1981
Feb	.65	.54	.88	1981	27	2.41	1981	.00+	1997
Mar	1.54	1.12	1.58	1965	1	4.20	1977	.14	1987
Apr	2.54	2.26	3.66	1975	27	6.61	1975	.08	1987
May	3.37	3.19	2.70	1978	27	8.77	1991	.96	1976
Jun	4.48	3.96	3.13	1953	19	11.93	1975	1.29	1988
Jul	4.04	3.45	4.70	1991	18	8.43	1991	1.35	1976
Aug	4.69	4.69	4.16	1990	18	9.43	1980	1.76	1984
Sep	3.58	2.67	5.75	1957	1	9.47	1991	1.32	1998
Oct	2.45	2.12	2.72	1971	27	6.72	1971	.45	1976
Nov	1.69	1.43	1.82	1996	17	5.14	1975	.24	1976
Dec	.76	.67	1.35	1968	12	2.00	1982	.15	1999
Ann	30.61	30.77	5.75	Sep 1957	1	11.93	Jun 1975	.00+	Feb 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.0	2.6	.2	.1
Feb	5.1	2.3	.2	.0
Mar	7.2	4.3	.8	.1
Apr	9.3	5.9	1.6	.3
May	11.0	7.2	2.3	.6
Jun	12.1	7.8	2.8	1.2
Jul	10.9	7.3	2.6	.8
Aug	10.2	6.8	3.2	1.3
Sep	10.7	6.5	2.5	.8
Oct	9.8	5.2	1.4	.4
Nov	7.8	4.1	1.1	.3
Dec	6.8	2.6	.2	@
Ann	107.9	62.6	18.9	5.9

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	.16	.24	.36	.47	.58	.70	.83	1.00	1.21	1.56	1.89
Feb	.00	.07	.18	.29	.39	.51	.64	.80	1.03	1.39	1.74
Mar	.30	.44	.66	.87	1.08	1.31	1.57	1.88	2.29	2.94	3.57
Apr	.37	.59	.95	1.31	1.67	2.07	2.54	3.11	3.87	5.11	6.31
May	1.32	1.63	2.07	2.44	2.79	3.14	3.53	3.97	4.54	5.40	6.19
Jun	1.61	2.03	2.64	3.15	3.64	4.14	4.68	5.31	6.11	7.36	8.50
Jul	1.47	1.85	2.39	2.85	3.29	3.74	4.22	4.79	5.51	6.63	7.65
Aug	1.85	2.28	2.90	3.41	3.89	4.38	4.91	5.53	6.31	7.50	8.59
Sep	.98	1.32	1.83	2.28	2.73	3.19	3.70	4.31	5.10	6.34	7.49
Oct	.52	.75	1.10	1.43	1.76	2.11	2.51	2.98	3.60	4.60	5.55
Nov	.24	.37	.62	.85	1.10	1.37	1.68	2.06	2.58	3.42	4.24
Dec	.15	.22	.33	.43	.54	.65	.78	.93	1.13	1.46	1.77
Ann	20.14	22.11	24.66	26.61	28.37	30.08	31.85	33.83	36.24	39.77	42.85

\+ 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	11.0	10.3	10	9	11.0	1982	22	19.5+	1994	39	1982	26	22+	1984	5.8	4.3	1.2	.3	@	27.1	23.9	20.9	9.9
Feb	7.0	6.5	10	9	9.0	1991	23	15.0	1971	38	1982	1	27	1979	3.4	2.4	.8	.1	.0	24.1	22.5	19.6	11.8
Mar	7.5	6.0	4	3	15.0	1971	15	30.5	1985	26	1979	1	14	1979	2.9	2.5	1.0	.4	.1	13.9	9.5	7.1	4.1
Apr	1.6	.0	#	#	10.0	1983	14	14.5	1983	12	1975	4	4	1975	.5	.5	.2	.1	@	1.4	.7	.6	.2
May	.0	.0	0	0	.0	0	0	.0	0	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	.4	.0	#	0	7.0	1991	31	7.0	1991	1	1976	18	#+	1982	.2	.1	@	@	.0	@	.0	.0	.0
Nov	7.6	4.4	1	#	22.0	1991	1	50.8	1991	31	1991	7	16	1991	2.9	2.0	.7	.3	.1	6.1	2.4	1.5	.2
Dec	7.2	4.7	5	3	11.0	1996	15	14.0	1971	30	1991	6	21	1983	4.9	3.2	.9	.2	@	22.2	12.1	8.1	3.2
Ann	42.3	31.9	N/A	N/A	22.0	Nov 1991	1	50.8	Nov 1991	39	Jan 1982	26	27	Feb 1979	20.6	15.0	4.8	1.4	.2	94.8	71.1	57.8	29.4

+ 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	6/06	6/02	5/29	5/26	5/23	5/20	5/17	5/14	5/09
32	5/22	5/17	5/14	5/11	5/09	5/06	5/03	4/30	4/26
28	5/12	5/08	5/04	5/01	4/28	4/25	4/22	4/19	4/14
24	4/27	4/23	4/19	4/17	4/14	4/11	4/09	4/05	4/01
20	4/20	4/16	4/13	4/10	4/08	4/05	4/03	3/30	3/26
16	4/12	4/09	4/06	4/03	4/01	3/30	3/27	3/24	3/20

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	9/10	9/14	9/17	9/19	9/21	9/23	9/26	9/28	10/02
32	9/18	9/22	9/25	9/27	9/30	10/02	10/04	10/07	10/11
28	9/25	10/01	10/05	10/08	10/11	10/14	10/18	10/22	10/27
24	10/09	10/13	10/17	10/20	10/23	10/25	10/28	11/01	11/06
20	10/15	10/20	10/24	10/27	10/30	11/02	11/05	11/09	11/14
16	10/27	10/31	11/03	11/06	11/09	11/11	11/14	11/17	11/21

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	140	133	128	124	120	116	112	107	101
32	160	154	150	146	143	140	136	132	126
28	187	179	174	170	166	161	157	152	144
24	211	204	199	195	191	187	183	178	171
20	225	218	213	209	205	200	196	191	184
16	240	233	229	225	221	217	213	208	202

***** 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	1653	1295	1053	577	238	59	19	26	165	511	978	1462	8036
60	1498	1155	898	435	144	18	4	4	77	364	828	1307	6732
57	1405	1071	805	357	99	7	0	1	43	285	738	1214	6025
55	1343	1015	744	308	75	4	0	0	27	236	679	1152	5583
50	1188	877	599	200	33	0	0	0	6	135	534	997	4569
32	658	427	182	13	0	0	0	0	0	4	139	489	1912

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	28	56	153	430	840	1058	1241	1176	861	517	151	50	6561
55	0	0	1	34	202	371	528	463	198	37	1	0	1835
57	0	0	0	23	165	315	466	402	154	23	0	0	1548
60	0	0	0	12	116	236	377	313	98	10	0	0	1162
65	0	0	0	3	55	127	237	179	36	2	0	0	639
70	0	0	0	0	21	52	128	83	8	0	0	0	292

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	38	218	571	811	983	918	600	273	34	1	0	2	40	258	829	1640	2623	3541	4141	4414	4448	4449
45	0	1	16	127	421	661	828	763	453	164	14	0	0	1	17	144	565	1226	2054	2817	3270	3434	3448	3448
50	0	0	4	65	285	512	673	608	313	84	3	0	0	0	4	69	354	866	1539	2147	2460	2544	2547	2547
55	0	0	1	27	167	365	518	453	194	34	0	0	0	0	1	28	195	560	1078	1531	1725	1759	1759	1759
60	0	0	0	12	86	229	366	299	104	10	0	0	0	0	0	12	98	327	693	992	1096	1106	1106	1106
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	26	151	363	522	653	600	367	169	23	0	0	1	27	178	541	1063	1716	2316	2683	2852	2875	2875

(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