

Climatography of the United States

No. 20

1971-2000

Station: SUPERIOR, WI

COOP ID: 478349

Climate Division: WI 1

NWS Call Sign:

Elevation: 630 Feet

Lat: 46° 42N

Lon: 92° 01W

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	20.8	3.4	12.1	53	1981	24	22.7	1990	-37+	1972	15	1.0	1994	1641	0	.0	.0	.1	26.6	30.9	15.7
Feb	26.5	9.7	18.1	60	1961	22	30.8	1998	-38	1967	12	5.8	1979	1314	0	.0	.0	.5	19.3	27.6	9.9
Mar	35.1	20.8	28.0	72	1987	7	35.1	2000	-38	1962	1	20.8	1972	1149	0	.0	.0	2.6	12.1	28.7	2.5
Apr	47.0	31.8	39.4	92	1952	28	46.6	1987	-2	1954	3	34.5	1995	768	0	.0	.0	10.1	1.3	17.9	@
May	58.9	41.0	50.0	94+	1986	30	54.6	1998	11	1967	3	45.6	1997	468	1	.0	.2	22.9	.0	3.2	.0
Jun	68.5	49.2	58.9	98	1995	18	64.8	1988	21	1983	6	55.6	1983	202	17	.0	.7	29.2	.0	@	.0
Jul	76.2	57.0	66.6	100+	1988	28	72.6	1975	34	1961	8	61.5	1992	65	116	.1	1.9	31.0	.0	.0	.0
Aug	73.9	57.3	65.6	99+	1983	7	72.2	1983	31	1950	20	60.7	1977	74	93	.0	1.2	31.0	.0	.0	.0
Sep	65.9	48.7	57.3	97	1976	8	62.8	1998	19	1963	13	51.4	1993	245	14	.0	.2	29.4	.0	1.2	.0
Oct	53.8	37.6	45.7	89+	1992	2	50.4	1971	10	1962	26	40.6	1976	598	0	.0	.0	20.2	@	9.4	.0
Nov	38.0	24.8	31.4	74+	1975	6	39.2	1981	-19	1976	28	23.2	1995	1009	0	.0	.0	3.9	8.7	24.4	1.1
Dec	25.1	9.9	17.5	60	1962	1	27.6	1997	-32	1983	19	3.9	1983	1473	0	.0	.0	.2	22.0	30.4	9.7
Ann	49.1	32.6	40.9	100+	Jul 1988	28	72.6	Jul 1975	-38+	Feb 1967	12	1.0	Jan 1994	9006	241	.1	4.2	181.1	90.0	173.7	38.9

+ 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/normal/usnormals.html

Issue Date: February 2004

(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

Climatology 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: SUPERIOR, WI

COOP ID: 478349

Climate Division: WI 1

NWS Call Sign:

Elevation: 630 Feet Lat: 46°42N

Lon: 92°01W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.01	.87	1.00	1960	2	3.03	1975	.11	1981	8.1	3.2	.4	.0	.19	.28	.43	.57	.71	.85	1.03	1.23	1.50	1.94	2.36
Feb	.78	.54	1.34	1977	24	2.20	1981	.09	1988	5.2	2.1	.3	@	.09	.15	.26	.37	.49	.62	.77	.95	1.21	1.62	2.03
Mar	1.88	1.69	2.85	1977	12	8.38	1977	.37	1984	7.5	4.4	1.2	.2	.30	.46	.73	.99	1.25	1.55	1.88	2.29	2.84	3.73	4.58
Apr	2.14	2.12	3.60	1961	15	5.03	1981	.25	1987	7.8	4.8	1.6	.3	.36	.55	.86	1.16	1.46	1.78	2.16	2.61	3.21	4.19	5.12
May	3.09	2.92	2.80	1950	5	6.74	1991	.29	1976	10.1	6.4	2.1	.6	.84	1.13	1.58	1.97	2.35	2.75	3.19	3.72	4.40	5.48	6.48
Jun	3.98	3.56	2.83	1986	10	7.92	1986	.98	1987	11.7	8.3	2.6	.9	1.63	2.00	2.51	2.93	3.33	3.74	4.17	4.67	5.31	6.28	7.16
Jul	4.24	4.18	5.75	1958	1	8.98	1991	.72	1988	10.9	7.4	2.8	1.1	1.14	1.54	2.15	2.69	3.21	3.77	4.38	5.11	6.06	7.54	8.94
Aug	4.11	4.07	3.68	1990	25	8.63	1972	1.07	1982	10.9	6.7	2.6	1.4	1.38	1.77	2.34	2.82	3.29	3.77	4.29	4.90	5.69	6.90	8.02
Sep	4.21	3.99	4.00	1985	2	8.46	1991	.85	1974	11.5	6.8	2.5	1.2	1.35	1.75	2.34	2.84	3.33	3.83	4.39	5.03	5.86	7.16	8.35
Oct	2.38	1.89	2.83	1982	6	6.38	1982	.32	1993	8.9	5.4	1.5	.4	.34	.54	.88	1.21	1.56	1.93	2.37	2.90	3.62	4.80	5.93
Nov	2.04	1.87	2.00	1960	28	5.67	1991	.16	1976	8.0	4.5	1.2	.5	.27	.43	.72	1.01	1.30	1.63	2.02	2.49	3.13	4.17	5.18
Dec	.92	.88	1.41	1982	28	2.82	1982	.03	1999	7.6	3.0	.2	.1	.13	.21	.34	.47	.60	.75	.92	1.13	1.41	1.87	2.31
Ann	30.78	31.36	5.75	Jul 1958	1	8.98	Jul 1991	.03	Dec 1999	108.2	63.0	19.0	6.7	20.00	22.01	24.63	26.64	28.45	30.21	32.04	34.08	36.58	40.23	43.42

+ 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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www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: SUPERIOR, WI

COOP ID: 478349

Climate Division: WI 1

NWS Call Sign:

Elevation: 630 Feet

Lat: 46°42N

Lon: 92°01W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	12.9	10.9	12	11	14.0	1982	22	28.7	1975	50+	1997	31	45	1997	7.2	4.6	1.4	.5	.1	28.5	25.0	20.6	13.9
Feb	8.1	7.8	12	10	8.0	2000	15	16.7	1972	50	1996	5	44	1997	4.2	2.9	.7	.1	.0	25.0	22.6	18.8	12.0
Mar	8.2	8.1	7	4	9.3	1985	4	15.6	1985	41	1997	16	31	1997	4.0	2.8	.9	.4	.0	18.7	13.0	10.4	6.4
Apr	2.5	1.0	1	#	7.0	1972	10	12.0	1972	23	1996	3	7	1996	1.3	.8	.3	.1	.0	2.5	1.1	.5	.0
May	.1	.0	#	0	.9	1991	5	.9	1991	1+	1991	5	#+	1991	.1	.0	.0	.0	.0	.1	.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	3.3	1984	30	4.0	1992	3	1984	30	#+	1997	.1	.1	@	.0	.0	.1	@	.0	.0
Nov	7.4	3.4	2	1	18.0	1983	23	51.1	1991	40	1991	9	24	1991	3.0	1.9	.7	.3	.1	6.1	2.5	1.2	.7
Dec	10.4	9.6	6	3	13.5	1982	28	25.5	1982	36	1983	17	31	1983	6.0	4.3	1.0	.2	.1	20.7	13.9	9.3	4.6
Ann	49.8	40.8	N/A	N/A	18.0	Nov 1983	23	51.1	Nov 1991	50+	Jan 1997	31	45	Jan 1997	25.9	17.4	5.0	1.6	.3	101.7	78.1	60.8	37.6

+ 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

Complete documentation available from:

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Climate Division: WI 1

NWS Call Sign:

Elevation: 630 Feet

Lat: 46° 42N

Lon: 92° 01W

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	6/16	6/10	6/06	6/03	5/31	5/28	5/24	5/20	5/15
32	5/27	5/21	5/18	5/14	5/11	5/08	5/05	5/01	4/26
28	5/14	5/09	5/06	5/03	4/30	4/28	4/25	4/21	4/17
24	5/07	5/01	4/27	4/24	4/20	4/17	4/13	4/09	4/03
20	4/18	4/14	4/11	4/08	4/05	4/03	3/31	3/28	3/23
16	4/18	4/12	4/08	4/04	4/01	3/29	3/25	3/21	3/15
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	8/31	9/06	9/10	9/14	9/17	9/20	9/24	9/28	10/04
32	9/17	9/22	9/25	9/28	9/30	10/03	10/06	10/09	10/13
28	9/24	9/29	10/04	10/07	10/10	10/14	10/17	10/21	10/27
24	10/06	10/12	10/16	10/20	10/23	10/27	10/30	11/04	11/10
20	10/17	10/23	10/26	10/29	11/01	11/04	11/08	11/11	11/16
16	10/25	10/31	11/04	11/08	11/11	11/14	11/18	11/22	11/28
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	130	123	117	113	109	104	100	94	87
32	161	154	149	145	141	137	133	128	121
28	185	177	172	167	162	158	153	148	140
24	210	202	196	190	186	181	175	169	161
20	231	224	218	214	209	205	201	195	188
16	249	240	234	228	223	218	213	206	197

* 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

Complete documentation available from:
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Climate Division: WI 1 NWS Call Sign: Elevation: 630 Feet Lat: 46° 42N Lon: 92° 01W

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	1641	1314	1149	768	468	202	65	74	245	598	1009	1473	9006
60	1486	1174	994	618	322	97	18	21	132	444	859	1318	7483
57	1393	1090	901	529	242	53	8	8	81	355	769	1225	6654
55	1331	1034	839	470	195	33	3	3	55	298	709	1163	6133
50	1176	894	684	328	100	7	0	0	15	174	561	1008	4947
32	635	429	205	24	0	0	0	0	0	4	148	496	1941

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	17	39	80	246	556	805	1073	1042	759	428	129	46	5220
55	0	0	0	1	37	148	363	332	124	9	0	0	1014
57	0	0	0	0	23	108	306	275	90	5	0	0	807
60	0	0	0	0	10	61	223	195	51	1	0	0	541
65	0	0	0	0	1	17	116	93	14	0	0	0	241
70	0	0	0	0	0	2	44	30	2	0	0	0	78

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	1	6	75	302	554	821	787	504	198	21	0	0	1	7	82	384	938	1759	2546	3050	3248	3269	3269
45	0	0	0	29	177	404	666	632	361	99	7	0	0	0	0	29	206	610	1276	1908	2269	2368	2375	2375
50	0	0	0	11	92	266	511	477	226	38	0	0	0	0	0	11	103	369	880	1357	1583	1621	1621	1621
55	0	0	0	0	42	151	357	326	118	7	0	0	0	0	0	0	42	193	550	876	994	1001	1001	1001
60	0	0	0	0	13	71	219	189	53	0	0	0	0	0	0	0	13	84	303	492	545	545	545	545
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	1	5	55	161	306	511	484	280	98	10	0	0	1	6	61	222	528	1039	1523	1803	1901	1911	1911

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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