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: PORTAGE, WI **COOP ID: 476718**

Climate Division: WI 8 **NWS Call Sign:** **Elevation: 775 Feet** **Lat: 43˚32N** **Lon: 89˚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	24.9	5.5	15.2	55	1973	26	27.9	1990	-35	1963	15	2.4	1977	1545	0	.0	.0	.4	21.3	30.7	10.5
Feb	30.5	10.6	20.6	63	1984	22	33.0	1998	-30+	1996	3	8.6	1979	1245	0	.0	.0	1.7	14.3	26.7	6.4
Mar	42.0	22.0	32.0	83	1986	30	41.2	2000	-25	1962	1	23.9	1975	1022	0	.0	.0	8.1	5.0	24.8	1.2
Apr	56.4	34.0	45.2	94	1952	28	52.8	1985	5	1982	7	38.1	1975	595	1	.0	.1	22.1	.3	11.7	.0
May	69.1	45.0	57.1	95	1952	1	63.1	1998	20	1966	10	50.2	1983	283	35	.0	.2	30.4	.0	2.6	.0
Jun	78.5	54.6	66.6	101+	1988	22	72.1	1987	29	1972	10	60.4	1982	67	113	.1	2.9	30.0	.0	.1	.0
Jul	82.2	59.0	70.6	102+	1995	14	75.8	1987	37	1971	31	66.2	1992	17	191	.1	5.4	31.0	.0	.0	.0
Aug	79.7	56.6	68.2	103	1988	2	75.3	1995	33+	1967	31	64.4	1977	54	152	.1	2.6	31.0	.0	.0	.0
Sep	71.5	47.1	59.3	98+	1953	2	65.0	1998	17	1974	22	53.6	1974	200	29	.0	.6	29.9	.0	1.5	.0
Oct	59.8	36.3	48.1	93	1963	6	54.6	1971	11	1976	27	42.6	1988	527	1	.0	.0	26.3	.0	9.4	.0
Nov	43.4	25.2	34.3	76+	1999	9	43.2	1999	-10	1976	29	26.5	1976	922	0	.0	.0	10.0	4.3	21.9	.3
Dec	30.0	12.9	21.5	65	1962	2	29.7	1998	-24	1983	24	8.8	1985	1350	0	.0	.0	1.2	15.9	29.5	5.5
Ann	55.7	34.1	44.9	103	Aug 1988	2	75.8	Jul 1987	-35	Jan 1963	15	2.4	Jan 1977	7827	522	.3	11.8	222.1	61.1	158.9	23.9

\+ 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: 1948-2001

(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	1.26	1.04	1.32	1967	24	3.21	1999	.08	1981
Feb	1.22	1.12	1.67	1971	19	3.74	1971	.04	1987
Mar	2.25	2.17	3.55	1998	31	5.87	1998	.23	1978
Apr	3.50	3.40	3.00	1999	4	7.88	1999	.38	1989
May	3.55	3.38	3.71	2000	18	7.99	2000	.58	1981
Jun	4.17	3.81	3.33	1996	17	8.71	1996	.83	1988
Jul	4.45	4.00	5.28	1993	18	13.43	1993	1.56	1998
Aug	4.33	3.64	6.29	1980	7	16.09	1980	1.22	1996
Sep	3.54	2.76	4.02	1961	13	10.05	1986	.62	1979
Oct	2.40	2.00	2.64	1984	19	6.30	1984	.30	1975
Nov	2.45	2.28	2.25	1956	15	6.07	1985	.04	1976
Dec	1.41	1.35	1.42	1967	7	2.80	1992	.26	1976
Ann	34.53	34.99	6.29	Aug 1980	7	16.09	Aug 1980	.04+	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.0	4.3	.4	@
Feb	7.1	3.3	.6	.1
Mar	9.0	5.1	1.4	.3
Apr	11.4	6.9	2.2	.6
May	11.3	6.7	2.3	.8
Jun	10.4	7.1	2.7	1.3
Jul	10.5	6.6	3.3	1.1
Aug	11.0	7.0	2.9	1.1
Sep	10.4	6.5	2.3	.7
Oct	9.8	5.3	1.7	.3
Nov	9.8	5.5	1.6	.4
Dec	9.6	4.1	.6	@
Ann	119.3	68.4	22.0	6.7

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	.25	.37	.55	.72	.89	1.08	1.29	1.54	1.87	2.40	2.90
Feb	.13	.22	.39	.56	.74	.94	1.19	1.49	1.90	2.58	3.25
Mar	.40	.60	.93	1.24	1.55	1.89	2.28	2.74	3.37	4.37	5.33
Apr	1.18	1.51	1.99	2.40	2.80	3.20	3.65	4.16	4.83	5.86	6.81
May	1.02	1.36	1.87	2.31	2.74	3.19	3.69	4.27	5.03	6.22	7.33
Jun	1.11	1.51	2.11	2.64	3.16	3.71	4.31	5.03	5.97	7.44	8.82
Jul	1.36	1.78	2.41	2.95	3.48	4.03	4.63	5.33	6.25	7.67	8.99
Aug	1.11	1.52	2.15	2.70	3.25	3.83	4.47	5.23	6.23	7.80	9.28
Sep	.52	.82	1.33	1.82	2.33	2.89	3.54	4.33	5.39	7.12	8.78
Oct	.68	.90	1.25	1.55	1.84	2.15	2.49	2.89	3.41	4.22	4.98
Nov	.38	.59	.95	1.29	1.64	2.02	2.45	2.99	3.71	4.87	5.98
Dec	.34	.48	.68	.86	1.04	1.23	1.45	1.70	2.03	2.56	3.05
Ann	25.76	27.49	29.69	31.35	32.81	34.22	35.67	37.26	39.18	41.96	44.35

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	10.3	8.7	6	5
Feb	8.7	8.7	6	4
Mar	5.4	4.2	2	1
Apr	2.2	.0	#	#
May	#	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.3	.0	#	0
Nov	2.9	2.0	#	#
Dec	9.3	6.0	3	2
Ann	39.1	29.6	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	12.5	1999	3	28.0	1979	27	1979	24	20	1979
Feb	8.0	1983	3	19.3	1994	25	1979	12	22	1979
Mar	10.0	1971	18	17.9	1997	16	1986	2	9	1979
Apr	6.0	1982	6	9.0	1973	9	1973	10	1	1993
May	#	1994	1	#+	1994	#	1994	1	#	1994
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	4.0	1997	27	4.0	1997	4	1997	27	#+	1997
Nov	7.5	1995	28	9.2	1971	10	1985	11	2	1995
Dec	12.0	1985	2	34.0	2000	19	2000	24	13	1985
Ann	12.5	Jan 1999	3	34.0	Dec 2000	27	Jan 1979	24	22	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	6.0	4.4	1.3	.4	.1
Feb	4.3	3.5	.7	.3	.0
Mar	3.0	2.1	.8	.3	.1
Apr	.8	.6	.4	.2	.0
May	.0	.0	.0	.0	.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	.1	.1	@	.0	.0
Nov	2.1	1.6	.3	.1	.0
Dec	5.1	3.4	1.1	.3	@
Ann	21.4	15.7	4.6	1.6	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	18.5	12.8	7.7	.3
Feb	18.1	11.0	4.6	.6
Mar	6.9	3.9	2.6	.2
Apr	.9	.6	.4	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.1	@	.0	.0
Nov	3.1	.9	.3	.0
Dec	12.6	6.0	2.7	.8
Ann	60.2	35.2	18.3	1.9

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

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	9/03	9/09	9/13	9/17	9/20	9/24	9/27	10/01	10/07
32	9/15	9/21	9/24	9/27	9/30	10/03	10/06	10/10	10/15
28	9/21	9/28	10/03	10/07	10/11	10/15	10/19	10/24	10/31
24	10/05	10/12	10/17	10/21	10/24	10/28	11/01	11/06	11/13
20	10/15	10/22	10/27	10/31	11/04	11/08	11/12	11/18	11/25
16	10/24	10/30	11/04	11/08	11/12	11/16	11/20	11/25	12/02

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	153	142	134	127	120	114	107	99	88
32	173	164	157	151	146	141	135	129	119
28	206	194	185	178	171	164	156	148	136
24	223	212	204	198	192	185	179	171	160
20	245	235	227	221	215	209	203	195	185
16	261	251	244	237	231	225	219	212	201

***** 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	1545	1245	1022	595	283	67	17	54	200	527	922	1350	7827
60	1390	1105	867	451	177	22	2	16	102	379	772	1195	6478
57	1297	1021	774	369	126	9	0	7	61	297	682	1102	5745
55	1235	965	713	318	97	5	0	3	40	248	623	1040	5287
50	1080	825	566	205	44	1	0	0	10	143	480	886	4240
32	554	375	152	11	0	0	0	0	0	4	105	396	1597

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	32	54	153	407	775	1037	1197	1121	818	501	173	69	6337
55	0	0	0	24	159	352	484	411	168	32	1	0	1631
57	0	0	0	15	126	296	422	352	129	20	0	0	1360
60	0	0	0	7	84	219	330	269	80	8	0	0	997
65	0	0	0	1	35	113	191	152	29	1	0	0	522
70	0	0	0	0	12	43	89	70	6	0	0	0	220

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	4	59	243	569	824	977	908	631	311	69	6	0	4	63	306	875	1699	2676	3584	4215	4526	4595	4601
45	0	0	30	149	419	674	822	753	485	191	28	2	0	0	30	179	598	1272	2094	2847	3332	3523	3551	3553
50	0	0	14	81	282	525	667	598	339	102	8	0	0	0	14	95	377	902	1569	2167	2506	2608	2616	2616
55	0	0	4	38	170	377	512	443	216	46	2	0	0	0	4	42	212	589	1101	1544	1760	1806	1808	1808
60	0	0	1	17	88	243	357	293	119	16	0	0	0	0	1	18	106	349	706	999	1118	1134	1134	1134
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	41	160	355	538	651	598	394	193	41	2	0	0	41	201	556	1094	1745	2343	2737	2930	2971	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