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: OSHKOSH, WI **COOP ID: 476330**

Climate Division: WI 6 **NWS Call Sign:** **Elevation: 750 Feet** **Lat: 44˚01N** **Lon: 88˚33W**

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	24.4	7.8	16.1	52+	1973	26	27.4	1990	-32	1951	30	3.9	1977	1515	0	.0	.0	.1	22.5	30.6	10.3
Feb	29.5	12.3	20.9	62	2000	27	31.4	1998	-30	1996	4	10.6	1979	1235	0	.0	.0	.7	16.3	27.3	6.2
Mar	40.2	22.8	31.5	80	1986	30	40.3	2000	-24	1962	1	25.2	1996	1040	0	.0	.0	5.5	6.5	25.9	1.1
Apr	54.1	35.0	44.6	91	1980	22	50.0	1977	6	1954	3	38.4	1975	614	1	.0	@	18.9	.4	12.1	.0
May	68.0	47.5	57.8	92+	1953	30	65.4	1977	20	1966	9	50.6	1997	272	47	.0	.1	30.1	.0	1.2	.0
Jun	77.4	57.3	67.4	98+	1988	22	72.0	1995	33	1972	10	62.9	1982	52	122	.0	2.2	30.0	.0	.0	.0
Jul	81.8	62.1	72.0	101	1995	14	75.3	1983	43+	1968	10	66.3	1992	9	224	.1	3.7	31.0	.0	.0	.0
Aug	79.1	59.8	69.5	101	1948	24	74.0	1995	38	1967	22	65.6	1997	26	164	.1	1.7	31.0	.0	.0	.0
Sep	70.9	50.9	60.9	97+	1955	9	65.5	1998	25+	1974	22	55.7	1993	156	31	.0	.5	29.9	.0	.7	.0
Oct	58.4	40.0	49.2	90	1963	6	56.7	1971	15	1952	20	43.7	1987	492	2	.0	.0	25.2	.0	6.8	.0
Nov	42.6	27.6	35.1	76	1950	1	43.2	1999	-8+	1976	29	27.5	1995	897	0	.0	.0	7.9	4.8	21.6	.2
Dec	29.4	14.8	22.1	65	2001	6	29.6	1998	-27	1983	24	10.8	1989	1331	0	.0	.0	.8	17.4	29.7	5.1
Ann	54.7	36.5	45.6	101+	Jul 1995	14	75.3	Jul 1983	-32	Jan 1951	30	3.9	Jan 1977	7639	591	.2	8.2	211.1	67.9	155.9	22.9

\+ 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	1.35	1.41	1.15	1998	9	3.12	1982	.10	1981
Feb	1.09	.99	1.82	1981	22	3.16	1981	.26	1987
Mar	2.18	2.09	2.48	1998	31	5.94	1979	.10	1999
Apr	2.87	2.84	2.28	1981	4	6.06	1981	.36	1997
May	2.96	2.94	2.88	1959	20	7.35	1973	.38	1981
Jun	3.66	3.12	3.91	1990	23	10.60	1993	.66	1988
Jul	3.58	3.33	3.23	1986	25	8.40	1986	1.10+	1998
Aug	4.15	4.09	3.83	1990	19	10.86	1995	1.00	1976
Sep	3.47	2.50	4.58	1986	11	11.51	1986	.57	1976
Oct	2.20	2.15	2.36	1984	19	5.79	1995	.26	1975
Nov	2.51	2.31	2.30	1983	28	6.28	1985	.06	1976
Dec	1.55	1.53	1.37	1959	28	4.57	1982	.25	1993
Ann	31.57	31.41	4.58	Sep 1986	11	11.51	Sep 1986	.06	Nov 1976

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.5	4.3	.6	@
Feb	7.1	3.0	.5	.1
Mar	8.6	4.9	1.4	.3
Apr	10.3	6.1	2.0	.6
May	9.6	6.2	2.0	.6
Jun	9.8	6.7	2.4	1.0
Jul	9.8	6.5	2.5	.8
Aug	9.9	6.9	2.6	1.1
Sep	10.0	6.2	2.2	.9
Oct	8.7	5.1	1.5	.3
Nov	9.5	5.5	1.5	.4
Dec	8.9	4.0	.8	.1
Ann	110.7	65.4	20.0	6.2

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	.30	.43	.63	.81	.98	1.17	1.39	1.64	1.98	2.51	3.02
Feb	.22	.32	.48	.63	.78	.93	1.11	1.33	1.61	2.07	2.50
Mar	.29	.46	.77	1.08	1.40	1.75	2.16	2.67	3.35	4.47	5.55
Apr	.96	1.23	1.63	1.97	2.29	2.63	2.99	3.42	3.97	4.82	5.61
May	.72	1.00	1.43	1.81	2.19	2.59	3.04	3.58	4.28	5.39	6.43
Jun	.84	1.18	1.72	2.20	2.68	3.19	3.76	4.44	5.33	6.75	8.09
Jul	1.26	1.60	2.09	2.50	2.89	3.30	3.74	4.26	4.91	5.93	6.87
Aug	1.06	1.45	2.05	2.59	3.11	3.66	4.28	5.01	5.96	7.47	8.88
Sep	.67	.98	1.49	1.96	2.43	2.94	3.52	4.22	5.15	6.64	8.05
Oct	.57	.77	1.09	1.38	1.66	1.95	2.27	2.66	3.17	3.96	4.71
Nov	.45	.68	1.04	1.38	1.73	2.11	2.54	3.06	3.75	4.86	5.92
Dec	.29	.42	.65	.86	1.08	1.31	1.57	1.89	2.31	3.00	3.64
Ann	23.76	25.31	27.27	28.74	30.05	31.30	32.59	34.00	35.71	38.17	40.29

\+ 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

Complete documentation available from:
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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	12.1	9.3	6	3
Feb	8.8	7.5	8	2
Mar	8.0	6.1	2	1
Apr	1.6	.3	#	0
May	.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	0
Nov	5.2	2.3	#	0
Dec	12.9	12.6	3	1
Ann	48.7	38.1	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	9.0	1978	26	26.8	1979	28+	1979	28	22	1979
Feb	7.0	1973	25	21.5	1975	30+	1971	3	24	1979
Mar	10.0	1972	29	24.7	1972	19	1979	5	11	1971
Apr	7.0	1977	4	8.6	1977	7	1977	4	1+	1977
May	.0	0	0	.0	0	0	0	0	#	2000
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	1.5	1997	27	1.5	1997	0	0	0	0	0
Nov	6.5	1986	20	14.0	1985	10+	1977	28	1+	1978
Dec	12.0	1990	4	25.3	1978	19	1977	8	9	1977
Ann	12.0	Dec 1990	4	26.8	Jan 1979	30+	Feb 1971	3	24	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	7.5	4.3	1.1	.6	.0
Feb	6.7	3.5	.6	.2	.0
Mar	4.2	2.7	.9	.4	.1
Apr	1.2	.5	.2	.1	.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	.0
Nov	3.2	1.7	.4	.1	.0
Dec	7.3	3.9	1.1	.5	.1
Ann	30.2	16.7	4.3	1.9	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	23.0	21.3	17.5	7.9
Feb	22.4	19.8	17.4	11.6
Mar	10.4	8.1	6.8	3.4
Apr	.9	.5	.2	.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	.0	.0	.0	.0
Nov	1.2	.6	.4	.1
Dec	19.3	16.1	11.9	3.0
Ann	77.2	66.4	54.2	26.0

+ 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	5/27	5/21	5/17	5/13	5/10	5/06	5/02	4/28	4/22
32	5/13	5/09	5/06	5/03	5/01	4/28	4/25	4/22	4/18
28	5/03	4/28	4/24	4/21	4/18	4/15	4/11	4/08	4/02
24	4/21	4/17	4/13	4/10	4/07	4/05	4/02	3/29	3/24
20	4/14	4/09	4/06	4/04	4/01	3/30	3/27	3/24	3/20
16	4/08	4/02	3/29	3/26	3/23	3/19	3/16	3/12	3/07

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	9/17	9/21	9/23	9/26	9/28	9/30	10/02	10/05	10/09
32	9/20	9/26	10/01	10/04	10/08	10/11	10/15	10/20	10/26
28	10/02	10/08	10/13	10/17	10/21	10/24	10/28	11/02	11/08
24	10/20	10/25	10/28	10/31	11/03	11/06	11/09	11/13	11/17
20	10/25	10/31	11/04	11/08	11/11	11/15	11/19	11/23	11/29
16	11/02	11/08	11/12	11/16	11/19	11/23	11/26	11/30	12/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	163	155	150	145	141	136	132	126	119
32	182	175	169	164	160	155	150	145	137
28	213	204	197	191	185	180	174	167	157
24	230	223	218	213	209	205	200	195	188
20	246	238	232	228	223	219	214	209	201
16	267	258	252	246	241	236	230	223	214

***** 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	1515	1235	1040	614	272	52	9	26	156	492	897	1331	7639
60	1360	1095	885	469	172	15	0	4	68	347	747	1176	6338
57	1267	1011	792	386	123	6	0	1	36	268	657	1083	5630
55	1205	955	730	333	96	3	0	0	21	221	598	1021	5183
50	1050	815	577	215	45	0	0	0	4	124	455	866	4151
32	521	356	144	10	0	0	0	0	0	3	90	374	1498

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	28	45	128	387	797	1060	1238	1161	866	536	183	66	6495
55	0	0	0	20	180	373	525	448	197	42	1	0	1786
57	0	0	0	12	145	316	463	387	152	27	0	0	1502
60	0	0	0	6	101	235	370	297	94	12	0	0	1115
65	0	0	0	1	47	122	224	164	31	2	0	0	591
70	0	0	0	0	17	46	107	70	6	0	0	0	246

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	39	198	552	820	989	916	634	307	59	3	0	0	39	237	789	1609	2598	3514	4148	4455	4514	4517
45	0	0	17	112	403	670	834	761	487	190	24	1	0	0	17	129	532	1202	2036	2797	3284	3474	3498	3499
50	0	0	9	57	271	521	679	606	345	102	6	0	0	0	9	66	337	858	1537	2143	2488	2590	2596	2596
55	0	0	2	25	161	376	524	452	218	45	1	0	0	0	2	27	188	564	1088	1540	1758	1803	1804	1804
60	0	0	0	9	84	239	370	299	118	14	0	0	0	0	0	9	93	332	702	1001	1119	1133	1133	1133
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	23	117	329	527	665	601	381	164	28	1	0	0	23	140	469	996	1661	2262	2643	2807	2835	2836

(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