

Climatography of the United States

No. 20

1971-2000

Station: WAUPACA, WI

COOP ID: 478951

Climate Division: WI 5

NWS Call Sign:

Elevation: 871 Feet

Lat: 44° 21N

Lon: 89° 04W

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	24.3	6.0	15.2	58	1998	3	27.4	1990	-35	1951	30	3.7	1977	1546	0	.0	.0	.2	22.4	30.7	10.4
Feb	29.9	10.7	20.3	61	2000	27	31.4	1998	-30	1996	3	10.2	1979	1252	0	.0	.0	1.0	15.4	27.2	6.3
Mar	40.7	21.8	31.3	84	1986	30	39.9	2000	-23	1962	1	24.4	1972	1046	0	.0	.0	6.5	6.1	25.9	1.5
Apr	55.1	33.5	44.3	92	1980	23	49.5	1977	6	1954	3	37.6	1975	622	1	.0	.1	20.4	.4	12.6	.0
May	68.4	44.8	56.6	95	1959	2	64.0	1977	20	1989	6	50.5	1983	294	34	.0	.2	30.3	.0	1.9	.0
Jun	77.2	54.0	65.6	99	1988	22	70.4	1995	33+	1972	10	59.6	1982	73	91	.0	2.6	30.0	.0	.0	.0
Jul	81.3	59.2	70.3	105	1995	14	74.4	1999	40	1968	3	65.3	1992	15	177	.2	4.1	31.0	.0	.0	.0
Aug	78.6	57.2	67.9	105	1955	21	72.5	1995	35	1967	22	64.7	1986	38	127	@	2.0	31.0	.0	.0	.0
Sep	70.0	48.6	59.3	98	1953	2	65.6	1998	24	1974	23	54.1	1975	196	26	.0	.4	29.9	.0	.8	.0
Oct	58.0	37.8	47.9	90	1963	6	55.1	1971	15	1988	30	42.8	1987	532	1	.0	.0	25.1	.0	8.5	.0
Nov	41.8	26.1	34.0	75+	1999	10	42.2	1999	-9+	1950	25	26.6	1995	931	0	.0	.0	7.9	4.7	22.2	.3
Dec	28.5	12.8	20.7	64	1998	4	28.8	1997	-28	1983	24	8.9	2000	1374	0	.0	.0	1.0	17.8	30.0	5.6
Ann	54.5	34.4	44.5	105+	Jul 1995	14	74.4	Jul 1999	-35	Jan 1951	30	3.7	Jan 1977	7919	457	.2	9.4	214.3	66.8	159.8	24.1

+ 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

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: WAUPACA, WI

COOP ID: 478951

Climate Division: WI 5

NWS Call Sign:

Elevation: 871 Feet Lat: 44°21N

Lon: 89°04W

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	1.36	1.19	1.42	1997	30	3.49	1998	.11	1981	9.0	4.2	.5	.1	.27	.39	.59	.77	.96	1.16	1.39	1.66	2.02	2.60	3.16
Feb	1.05	1.09	1.43	1966	8	3.28	1981	.17	1982	6.4	3.1	.5	.1	.20	.30	.45	.59	.74	.89	1.07	1.28	1.56	2.01	2.44
Mar	2.24	1.88	2.40	1973	7	5.06	1973	.17	1978	7.8	5.1	1.5	.4	.42	.62	.95	1.26	1.56	1.89	2.27	2.72	3.33	4.29	5.21
Apr	3.05	2.84	2.98	1949	26	5.87	1994	.65	1997	10.0	6.4	2.1	.4	.98	1.27	1.70	2.06	2.41	2.78	3.18	3.64	4.24	5.17	6.04
May	3.74	3.42	3.82	1954	31	9.18	1973	.99	1981	9.9	6.9	2.7	.9	1.22	1.57	2.10	2.54	2.97	3.42	3.90	4.47	5.20	6.34	7.39
Jun	3.91	3.14	3.66	1996	19	9.31	1996	.72	1988	10.4	7.5	2.2	1.1	.93	1.29	1.87	2.38	2.88	3.42	4.02	4.74	5.68	7.17	8.57
Jul	4.37	3.75	4.36	1979	25	12.18	1994	1.02	1998	10.0	7.1	3.0	1.1	1.34	1.76	2.38	2.91	3.42	3.96	4.55	5.24	6.13	7.52	8.80
Aug	4.11	3.68	3.57	1995	9	10.59	1995	1.64	1989	11.0	7.3	2.8	1.2	1.31	1.70	2.28	2.77	3.25	3.74	4.28	4.91	5.72	6.99	8.16
Sep	3.62	3.13	2.61	1958	6	9.86	1986	.41	1976	10.3	6.4	2.7	1.0	.76	1.09	1.62	2.10	2.59	3.11	3.70	4.41	5.34	6.83	8.24
Oct	2.40	2.44	2.87	1954	3	5.24	1995	.26	1975	8.3	5.0	1.7	.4	.67	.89	1.24	1.54	1.84	2.15	2.49	2.89	3.41	4.24	5.01
Nov	2.39	1.97	2.13	1985	1	5.15	1991	.00	1976	9.0	5.0	1.4	.5	.30	.61	1.01	1.35	1.69	2.06	2.46	2.95	3.59	4.62	5.58
Dec	1.37	1.43	1.33	1959	28	3.07	1982	.23	1989	8.5	4.4	.6	@	.31	.44	.64	.82	1.00	1.19	1.41	1.66	2.00	2.54	3.05
Ann	33.61	34.46	4.36	Jul 1979	25	12.18	Jul 1994	.00	Nov 1976	110.6	68.4	21.7	7.2	25.89	27.43	29.38	30.85	32.14	33.38	34.65	36.04	37.72	40.12	42.19

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

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: WAUPACA, WI

COOP ID: 478951

Climate Division: WI 5

NWS Call Sign:

Elevation: 871 Feet

Lat: 44°21N

Lon: 89°04W

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	9.8	8.8	7	7	12.0	1988	20	23.6	1971	35	1982	25	20	1971	6.4	5.2	1.4	.4	.1	26.1	19.8	15.6	6.5
Feb	7.4	7.5	8	7	8.0	1983	3	16.1	1974	33	1979	22	28	1979	4.0	3.2	.7	.2	.0	25.1	21.0	16.8	9.1
Mar	8.9	8.0	4	3	15.8	1997	14	21.0	1989	25	1979	1	14	1971	3.5	3.0	1.3	.5	.1	14.7	10.2	7.2	3.2
Apr	2.4	.5	#	#	5.9	1977	5	14.0	1993	10	1977	5	1	1996	1.1	.9	.4	.1	.0	2.5	1.0	.4	@
May	.1	.0	#	0	3.0	1990	10	3.0	1990	2	1990	10	#	1990	.1	.1	@	.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	.3	.0	#	0	4.5	1990	11	4.5	1990	5	1990	11	#+	1997	.2	.1	@	.0	.0	.1	@	@	.0
Nov	4.1	3.3	1	#	7.0	1986	20	12.0	1985	8	1971	29	2	1995	2.4	1.6	.4	.3	.0	3.5	1.7	.7	.0
Dec	11.4	11.1	4	2	15.0	1985	2	28.5	1985	19	1985	31	16	1985	5.5	4.1	1.2	.4	@	21.1	13.7	8.0	2.4
Ann	44.4	39.2	N/A	N/A	15.8	Mar 1997	14	28.5	Dec 1985	35	Jan 1982	25	28	Feb 1979	23.2	18.2	5.4	1.9	.2	93.1	67.4	48.7	21.2

+ 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

Complete documentation available from:

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

Climatography of the United States

No. 20 1971-2000

Station: WAUPACA, WI

COOP ID: 478951

Climate Division: WI 5

NWS Call Sign:

Elevation: 871 Feet

Lat: 44°21N

Lon: 89°04W

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	6/05	5/30	5/26	5/22	5/19	5/15	5/11	5/07	5/01
32	5/19	5/15	5/11	5/08	5/06	5/03	4/30	4/27	4/22
28	5/03	4/28	4/25	4/22	4/19	4/17	4/14	4/11	4/06
24	4/26	4/21	4/18	4/15	4/12	4/09	4/06	4/03	3/29
20	4/17	4/12	4/08	4/05	4/02	3/30	3/27	3/24	3/19
16	4/08	4/03	3/31	3/28	3/25	3/23	3/20	3/17	3/12
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	9/15	9/18	9/21	9/23	9/25	9/27	9/29	10/02	10/05
32	9/22	9/26	9/29	10/01	10/03	10/06	10/08	10/11	10/15
28	9/27	10/02	10/06	10/10	10/13	10/16	10/20	10/24	10/30
24	10/11	10/17	10/21	10/25	10/29	11/01	11/05	11/09	11/15
20	10/26	10/31	11/03	11/06	11/08	11/11	11/13	11/17	11/21
16	11/03	11/08	11/12	11/15	11/18	11/21	11/24	11/27	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	148	141	137	132	129	125	121	116	110
32	166	161	157	153	150	147	143	139	134
28	198	191	185	180	176	172	167	161	154
24	223	214	208	203	199	194	189	183	175
20	241	234	228	224	219	215	210	205	197
16	258	250	245	241	237	233	228	223	216

* 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:
www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

**Climatography
of the United States
No. 20
1971-2000**

Station: WAUPACA, WI

COOP ID: 478951

Climate Division: WI 5 NWS Call Sign: Elevation: 871 Feet Lat: 44°21N Lon: 89°04W

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	1546	1252	1046	622	294	73	15	38	196	532	931	1374	7919
60	1391	1112	891	476	186	24	1	7	98	384	781	1219	6570
57	1298	1028	798	391	134	10	0	2	58	302	691	1126	5838
55	1236	972	736	338	104	5	0	1	39	252	631	1064	5378
50	1081	832	586	219	49	1	0	0	10	146	485	909	4318
32	551	368	160	11	0	0	0	0	0	3	99	407	1599

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	28	40	137	380	763	1008	1186	1113	820	495	158	55	6183
55	0	0	0	17	154	323	473	400	169	31	0	0	1567
57	0	0	0	10	122	268	411	340	128	19	0	0	1298
60	0	0	0	4	81	192	318	252	79	8	0	0	934
65	0	0	0	1	34	91	177	127	26	1	0	0	457
70	0	0	0	0	11	29	75	46	5	0	0	0	166

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	42	218	555	799	974	896	614	292	55	3	0	0	42	260	815	1614	2588	3484	4098	4390	4445	4448
45	0	0	16	126	404	649	819	741	466	177	24	1	0	0	16	142	546	1195	2014	2755	3221	3398	3422	3423
50	0	0	7	68	269	499	664	586	325	95	5	0	0	0	7	75	344	843	1507	2093	2418	2513	2518	2518
55	0	0	2	31	161	354	509	431	201	40	0	0	0	0	2	33	194	548	1057	1488	1689	1729	1729	1729
60	0	0	0	13	83	222	354	286	107	13	0	0	0	0	0	13	96	318	672	958	1065	1078	1078	1078
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	29	136	335	509	647	587	371	174	27	0	0	0	29	165	500	1009	1656	2243	2614	2788	2815	2815

(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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. 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