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: LAONA 6 SW, WI **COOP ID: 474582**

Climate Division: WI 3 **NWS Call Sign:** **Elevation: 1,525 Feet** **Lat: 45˚30N** **Lon: 88˚46W**

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	19.5	.7	10.1	50+	1973	26	21.2	1990	-39	1982	17	.1	1977	1702	0	.0	.0	.1	27.1	30.9	13.5
Feb	25.9	4.6	15.3	57	1976	24	29.1	1998	-39	1967	12	6.2	1979	1394	0	.0	.0	.5	19.5	27.9	9.8
Mar	36.6	15.5	26.1	74	2000	9	34.5	2000	-33	1962	1	18.3	1996	1208	0	.0	.0	3.9	9.8	28.6	4.2
Apr	51.5	28.3	39.9	90	1980	22	46.9	1987	-9	1950	6	33.7	1996	754	0	.0	@	17.2	1.2	20.2	.2
May	65.3	40.2	52.8	90	1959	2	60.1	1977	15	1967	3	44.8	1997	395	14	.0	.0	29.1	@	7.4	.0
Jun	71.6	49.4	60.5	94	1963	30	64.7	1995	25+	1964	2	53.8	1982	166	30	.0	.1	30.0	.0	.7	.0
Jul	74.9	54.4	64.7	100	1955	26	68.9	1983	29	1972	4	59.0	1992	83	73	.0	.4	31.0	.0	@	.0
Aug	72.1	52.7	62.4	93	1965	14	66.9	1995	27	1967	22	58.3	1977	128	47	.0	.1	31.0	.0	.1	.0
Sep	63.2	43.8	53.5	92	1953	1	59.5	1998	18	1949	29	48.0	1993	346	2	.0	@	28.9	.0	2.5	.0
Oct	53.3	33.6	43.5	85	1963	6	51.2	1971	0	1969	23	38.1	1988	668	0	.0	.0	20.5	.3	13.4	.0
Nov	36.3	20.7	28.5	70+	1999	9	37.4	1999	-17	1976	30	19.6	1995	1094	0	.0	.0	4.1	11.2	26.0	1.1
Dec	23.5	7.4	15.5	58+	1998	4	24.3	1994	-29	1983	19	5.3	1989	1536	0	.0	.0	.3	24.9	30.8	8.7
Ann	49.5	29.3	39.4	100	Jul 1955	26	68.9	Jul 1983	-39+	Jan 1982	17	.1	Jan 1977	9474	166	.0	.6	196.6	94.0	188.5	37.5

+ 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

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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	1.31	1.03	1.54	1996	18	3.01	1999	.18	1981
Feb	.98	.88	.98	1998	2	2.96	1971	.09	1987
Mar	2.00	1.71	1.75	1973	7	5.43	1977	.27	1978
Apr	2.66	2.66	1.95	1984	30	4.47	1973	.70	1971
May	3.30	3.00	2.75	1954	28	6.95+	1991	.62	1986
Jun	3.83	3.26	4.32	1981	14	8.46	1981	1.15	1972
Jul	3.70	3.36	3.95	1949	4	8.92	1999	.59	1998
Aug	3.68	3.50	2.27	1962	24	6.26	1972	1.28	1981
Sep	3.84	3.97	3.12	2000	1	6.91	2000	.52	1989
Oct	2.68	2.63	2.32	1986	12	4.75	1995	.51	1976
Nov	2.26	1.98	1.50	1985	1	5.05	1991	.27	1976
Dec	1.47	1.37	1.21	1959	28	3.05	1971	.22	1994
Ann	31.71	31.17	4.32	Jun 1981	14	8.92	Jul 1999	.09	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.3	4.1	.3	.1
Feb	8.5	3.2	.3	.0
Mar	9.7	5.0	1.2	.2
Apr	11.9	6.5	1.7	.2
May	11.9	7.4	2.0	.6
Jun	12.1	8.0	2.5	.6
Jul	12.5	7.9	2.4	.7
Aug	12.7	7.9	2.4	.7
Sep	12.9	7.4	2.6	.9
Oct	12.6	6.4	1.5	.4
Nov	11.6	5.4	1.5	.3
Dec	11.5	4.7	.4	@
Ann	139.2	73.9	18.8	4.7

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	.24	.36	.55	.73	.91	1.11	1.33	1.60	1.96	2.53	3.08
Feb	.15	.24	.38	.52	.66	.81	.98	1.20	1.48	1.95	2.39
Mar	.35	.52	.81	1.09	1.37	1.67	2.02	2.43	2.99	3.90	4.76
Apr	1.00	1.25	1.61	1.90	2.18	2.47	2.78	3.14	3.60	4.31	4.95
May	1.00	1.32	1.78	2.19	2.58	2.99	3.44	3.96	4.64	5.71	6.69
Jun	1.31	1.67	2.20	2.65	3.08	3.52	4.00	4.56	5.28	6.40	7.42
Jul	1.25	1.60	2.11	2.54	2.96	3.39	3.86	4.40	5.11	6.19	7.20
Aug	1.64	1.97	2.42	2.79	3.14	3.48	3.86	4.28	4.82	5.63	6.37
Sep	1.18	1.55	2.09	2.56	3.01	3.48	4.00	4.60	5.39	6.61	7.74
Oct	1.00	1.25	1.61	1.91	2.20	2.49	2.81	3.18	3.65	4.37	5.03
Nov	.55	.76	1.09	1.38	1.68	1.98	2.33	2.74	3.28	4.13	4.93
Dec	.41	.55	.76	.94	1.12	1.31	1.52	1.77	2.09	2.59	3.06
Ann	23.95	25.49	27.44	28.91	30.21	31.45	32.73	34.14	35.83	38.28	40.37

\+ 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	16.9	17.3	14	13
Feb	10.1	8.4	17	15
Mar	12.2	10.3	13	11
Apr	5.8	5.2	3	1
May	.8	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	1.9	1.0	#	#
Nov	8.7	7.8	1	1
Dec	16.2	17.0	7	6
Ann	72.6	67.0	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	13.5	1971	4	43.9	1971	47	1971	29	34	1971
Feb	8.0	1971	5	28.0	1971	56	1971	5	47	1971
Mar	10.6	1997	14	29.8	1985	47	1972	7	32+	1972
Apr	8.4	1993	15	21.7	1993	26	1996	4	15	1996
May	6.9	1990	10	8.2	1990	6	1990	10	#+	1997
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	.1	1995	22	.1	1995	0	0	0	0	0
Oct	6.0	1992	16	7.8	1992	4	1988	26	1	1988
Nov	9.3	1991	23	21.3	1991	11	1991	27	4	1979
Dec	12.0	1985	1	36.0	1996	21	1996	31	15	1985
Ann	13.5	Jan 1971	4	43.9	Jan 1971	56	Feb 1971	5	47	Feb 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	11.9	5.5	1.5	.6	.1
Feb	8.3	3.5	.8	.4	.0
Mar	7.2	3.8	1.3	.6	@
Apr	4.2	1.9	.6	.3	.0
May	.5	.2	.1	.1	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	@	.0	.0	.0	.0
Oct	1.6	.6	.2	@	.0
Nov	7.4	3.1	.8	.2	.0
Dec	10.7	5.2	1.7	.4	@
Ann	51.8	23.8	7.0	2.6	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	30.9	30.7	29.1	21.7
Feb	28.3	28.2	28.1	21.0
Mar	26.9	25.1	22.4	13.4
Apr	8.8	6.4	4.3	1.5
May	.3	.1	.1	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	1.1	.3	.0	.0
Nov	12.2	5.4	2.6	.1
Dec	29.1	25.9	20.6	6.0
Ann	137.6	122.1	107.2	63.7

+ 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	7/01	6/25	6/20	6/16	6/12	6/09	6/05	5/31	5/25
32	6/18	6/13	6/08	6/05	6/01	5/29	5/25	5/21	5/15
28	5/31	5/26	5/21	5/18	5/15	5/11	5/08	5/03	4/28
24	5/11	5/06	5/03	4/30	4/27	4/24	4/21	4/18	4/13
20	5/02	4/27	4/24	4/20	4/18	4/15	4/11	4/08	4/03
16	4/21	4/16	4/13	4/10	4/07	4/04	4/01	3/29	3/24

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	8/19	8/25	8/30	9/03	9/07	9/11	9/15	9/20	9/26
32	9/03	9/08	9/12	9/15	9/17	9/20	9/23	9/27	10/01
28	9/17	9/22	9/25	9/28	10/01	10/04	10/07	10/11	10/16
24	9/29	10/05	10/09	10/12	10/16	10/19	10/22	10/27	11/01
20	10/15	10/20	10/24	10/27	10/30	11/02	11/05	11/08	11/13
16	10/22	10/27	10/31	11/03	11/06	11/09	11/12	11/16	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	115	105	98	92	86	80	74	67	56
32	129	122	116	112	108	103	99	93	86
28	162	154	148	144	139	135	130	124	116
24	196	188	181	176	171	166	160	154	145
20	217	209	204	199	194	190	185	180	172
16	235	227	221	216	212	207	203	197	189

***** 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	1702	1394	1208	754	395	166	83	128	346	668	1094	1536	9474
60	1547	1254	1053	606	266	78	23	49	211	516	944	1381	7928
57	1454	1170	960	520	202	42	9	22	143	427	854	1288	7091
55	1392	1114	898	464	165	26	4	12	105	371	794	1226	6571
50	1237	974	743	333	89	6	0	1	40	244	645	1071	5383
32	689	490	248	42	2	0	0	0	0	16	191	538	2216

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	10	20	64	279	644	854	1013	942	646	371	87	26	4956
55	0	0	0	10	94	190	304	240	61	12	0	0	911
57	0	0	0	6	69	146	246	189	38	7	0	0	701
60	0	0	0	3	40	92	167	123	16	2	0	0	443
65	0	0	0	0	14	30	73	47	2	0	0	0	166
70	0	0	0	0	3	7	18	11	0	0	0	0	39

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	19	136	428	636	782	719	451	195	25	1	0	0	19	155	583	1219	2001	2720	3171	3366	3391	3392
45	0	0	7	71	290	486	627	564	310	105	8	0	0	0	7	78	368	854	1481	2045	2355	2460	2468	2468
50	0	0	0	36	176	341	472	409	190	47	2	0	0	0	0	36	212	553	1025	1434	1624	1671	1673	1673
55	0	0	0	15	96	210	319	263	100	15	0	0	0	0	0	15	111	321	640	903	1003	1018	1018	1018
60	0	0	0	7	42	106	179	136	42	3	0	0	0	0	0	7	49	155	334	470	512	515	515	515
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	12	102	277	388	487	435	252	112	12	0	0	0	12	114	391	779	1266	1701	1953	2065	2077	2077

(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.
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