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: CUMBERLAND, WI **COOP ID: 471923**

Climate Division: WI 1 **NWS Call Sign:** **Elevation: 1,240 Feet** **Lat: 45˚32N** **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	18.5	-1.4	8.6	52	1981	25	21.4	1990	-41	1950	30	-2.7	1977	1751	0	.0	.0	.1	26.0	31.0	15.4
Feb	25.8	4.4	15.1	57+	1981	18	30.3	1998	-38	1996	2	5.1	1989	1398	0	.0	.0	.3	17.3	27.6	9.6
Mar	37.7	17.4	27.6	80	1986	31	36.7	2000	-36	1962	1	19.4	1975	1161	0	.0	.0	5.5	7.4	27.6	3.5
Apr	54.0	32.1	43.1	92	1980	21	50.2	1987	1	1979	6	36.5	1975	660	1	.0	@	20.8	.5	15.2	.0
May	68.0	45.1	56.6	96	1988	31	64.2	1977	18	1989	6	50.6	1983	294	33	.0	.2	30.4	.0	1.7	.0
Jun	76.5	55.1	65.8	98	1963	30	71.2	1988	36+	1998	3	60.9	1982	76	101	.0	1.9	30.0	.0	.0	.0
Jul	80.5	60.2	70.4	103	1988	15	75.4	1988	41	1967	4	64.0	1992	20	186	.1	3.3	31.0	.0	.0	.0
Aug	77.8	57.7	67.8	101	1988	16	72.8	1983	37	1986	28	63.5	1977	46	132	@	1.7	31.0	.0	.0	.0
Sep	67.5	47.4	57.5	95	1976	7	64.5	1998	24	1989	24	52.5	1993	245	18	.0	.2	29.7	.0	.8	.0
Oct	55.3	35.6	45.5	88	1971	1	51.0	1971	8	1976	27	40.3	1987	606	0	.0	.0	23.8	.1	10.3	.0
Nov	36.7	21.2	29.0	71	1978	3	38.7	1999	-16	1985	29	20.8	1985	1081	0	.0	.0	5.3	8.9	25.6	1.2
Dec	22.3	6.0	14.2	60	1998	3	25.0	1997	-39	1983	19	1.1	1983	1576	0	.0	.0	.3	23.3	30.7	9.7
Ann	51.7	31.7	41.8	103	Jul 1988	15	75.4	Jul 1988	-41	Jan 1950	30	-2.7	Jan 1977	8914	471	.1	7.3	208.2	83.5	170.5	39.4

\+ 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	1.19	1.15	1.54	1996	18	2.82	1996	.00	1981
Feb	.93	.77	1.84	2000	26	3.10	2000	.08	1997
Mar	1.82	1.56	2.10	1956	28	4.89	1977	.31	1994
Apr	2.65	2.56	3.30	1954	26	5.59	1977	.00	1987
May	3.28	2.98	3.31	1970	31	6.13	1993	.47	1976
Jun	4.55	4.39	3.80	1991	14	9.32	1984	1.65	1973
Jul	4.38	3.40	4.34	2000	9	9.39	2000	1.07	1988
Aug	4.59	4.21	6.40	1960	28	8.76	1980	1.21	1976
Sep	4.10	3.42	3.29	1968	23	9.94	1991	1.39	1979
Oct	2.64	2.29	3.23	1950	2	6.14	1995	.53	1976
Nov	2.26	1.99	2.14	1991	30	6.05	1991	.37	1976
Dec	1.14	1.06	2.04	1965	12	2.86	1982	.28	1999
Ann	33.53	34.18	6.40	Aug 1960	28	9.94	Sep 1991	.00+	Apr 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.2	3.7	.5	.1
Feb	5.1	3.1	.4	@
Mar	6.4	4.3	1.2	.2
Apr	8.3	5.7	1.7	.5
May	9.5	6.6	2.4	.6
Jun	10.3	7.7	3.2	1.2
Jul	9.4	7.0	3.0	1.1
Aug	9.3	6.9	3.5	1.3
Sep	9.8	6.7	2.9	1.2
Oct	7.6	5.8	1.9	.6
Nov	7.4	4.9	1.7	.5
Dec	6.6	3.6	.4	.1
Ann	96.9	66.0	22.8	7.4

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	.23	.40	.60	.76	.92	1.08	1.25	1.46	1.73	2.14	2.53
Feb	.13	.21	.35	.48	.61	.76	.93	1.14	1.42	1.88	2.32
Mar	.38	.55	.82	1.06	1.31	1.57	1.86	2.22	2.68	3.43	4.13
Apr	.47	.83	1.29	1.64	2.00	2.37	2.77	3.25	3.87	4.85	5.76
May	1.10	1.41	1.87	2.25	2.62	3.00	3.42	3.91	4.53	5.50	6.39
Jun	1.71	2.14	2.75	3.25	3.73	4.23	4.76	5.38	6.16	7.37	8.48
Jul	1.22	1.64	2.27	2.82	3.35	3.91	4.53	5.27	6.22	7.71	9.11
Aug	1.90	2.32	2.91	3.40	3.85	4.32	4.81	5.39	6.11	7.22	8.23
Sep	1.31	1.69	2.27	2.76	3.24	3.73	4.27	4.90	5.72	6.98	8.16
Oct	.61	.86	1.25	1.59	1.94	2.30	2.71	3.20	3.84	4.86	5.82
Nov	.34	.53	.86	1.18	1.50	1.86	2.27	2.77	3.44	4.53	5.58
Dec	.26	.36	.53	.68	.83	.99	1.16	1.38	1.66	2.10	2.52
Ann	24.06	25.90	28.26	30.04	31.62	33.15	34.73	36.48	38.59	41.65	44.30

+ 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)

Extremes (2)

Mean Number of Days (1)

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	15.5	14.5	13	13	15.0	1982	22	35.0	1982	36+	1984	1	24	1982	6.7	4.9	1.5	.6	@	30.3	29.6	29.1	19.5
Feb	7.9	6.3	14	12	9.3	1983	3	20.0	1971	34	1971	15	29	1971	4.3	3.4	.9	.3	.0	-9.9	-9.9	-9.9	-9.9
Mar	9.8	8.0	8	6	13.0	1989	4	23.5	1976	35	1972	10	23	1972	3.2	2.8	1.2	.8	.1	15.2	13.2	11.8	9.1
Apr	3.9	1.0	1	#	10.0	1985	1	20.3	1983	16	1975	2	4	1975	1.2	1.0	.4	.3	@	3.1	2.5	2.0	.8
May	#	.0	0	0	#	1989	6	#+	1989	0	0	0	0	0	.0	.0	.0	.0	.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	#	1985	24	#	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.7	.0	#	0	3.0	1989	31	3.5	1992	3	1992	20	#+	1997	.4	.3	@	.0	.0	.3	@	.0	.0
Nov	6.3	4.0	1	#	18.0	1991	30	22.5	1983	20	1991	5	8	1991	3.4	2.6	1.1	.3	@	6.2	3.5	2.2	.2
Dec	11.4	11.5	6	4	14.3	1982	28	27.5	1996	37	1983	29	26+	1991	5.7	4.3	1.1	.4	@	23.4	20.5	14.6	5.4
Ann	55.5	45.3	N/A	N/A	18.0	Nov 1991	30	35.0	Jan 1982	37	Dec 1983	29	29	Feb 1971	24.9	19.3	6.2	2.7	.1	-9.9	-9.9	-9.9	-9.9

+ 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	5/31	5/26	5/23	5/20	5/17	5/14	5/11	5/07	5/03
32	5/19	5/14	5/11	5/09	5/06	5/04	5/01	4/28	4/24
28	5/04	4/30	4/27	4/24	4/22	4/20	4/17	4/14	4/10
24	4/25	4/21	4/18	4/15	4/13	4/11	4/08	4/05	4/01
20	4/19	4/15	4/12	4/09	4/07	4/04	4/02	3/29	3/25
16	4/14	4/09	4/06	4/03	4/01	3/29	3/26	3/23	3/19

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	9/11	9/15	9/18	9/20	9/22	9/24	9/27	9/30	10/04
32	9/19	9/23	9/26	9/29	10/01	10/03	10/06	10/09	10/13
28	9/29	10/05	10/09	10/12	10/16	10/19	10/22	10/26	11/01
24	10/10	10/16	10/20	10/24	10/27	10/31	11/03	11/08	11/14
20	10/19	10/25	10/28	11/01	11/04	11/07	11/10	11/14	11/19
16	10/27	11/01	11/05	11/08	11/11	11/14	11/18	11/21	11/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	146	140	135	131	128	124	120	115	109
32	165	159	154	151	147	143	139	135	128
28	198	191	185	180	176	171	167	161	153
24	221	212	206	201	196	191	186	180	172
20	234	226	220	215	210	205	200	194	186
16	245	238	233	228	224	220	215	210	202

***** 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	1751	1398	1161	660	294	76	20	46	245	606	1081	1576	8914
60	1596	1258	1006	514	186	26	3	12	135	454	931	1421	7542
57	1503	1174	913	431	134	11	0	4	86	367	841	1328	6792
55	1441	1118	851	378	104	6	0	2	60	311	781	1266	6318
50	1286	978	698	259	49	1	0	0	19	191	633	1111	5225
32	740	503	241	25	0	0	0	0	0	8	198	583	2298

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	13	30	103	357	762	1014	1190	1109	764	424	107	30	5903
55	0	0	0	20	153	330	477	397	134	15	0	0	1526
57	0	0	0	13	120	276	415	337	100	8	0	0	1269
60	0	0	0	6	79	200	324	252	59	3	0	0	923
65	0	0	0	1	33	101	186	132	18	0	0	0	471
70	0	0	0	0	11	36	87	52	4	0	0	0	190

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	24	199	564	797	966	890	576	249	33	1	0	0	24	223	787	1584	2550	3440	4016	4265	4298	4299
45	0	0	7	112	412	647	811	735	430	145	10	0	0	0	7	119	531	1178	1989	2724	3154	3299	3309	3309
50	0	0	2	58	274	498	656	580	290	66	2	0	0	0	2	60	334	832	1488	2068	2358	2424	2426	2426
55	0	0	0	21	159	350	501	425	171	22	0	0	0	0	0	21	180	530	1031	1456	1627	1649	1649	1649
60	0	0	0	7	83	214	347	276	85	5	0	0	0	0	0	7	90	304	651	927	1012	1017	1017	1017
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	17	136	349	505	642	579	340	145	15	0	0	0	17	153	502	1007	1649	2228	2568	2713	2728	2728

(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