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: GERMANTOWN, WI **COOP ID: 473058**

Climate Division: WI 9 **NWS Call Sign:** **Elevation: 850 Feet** **Lat: 43˚13N** **Lon: 88˚07W**

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	8.1	16.5	57	1950	25	27.8	1990	-40+	1982	11	2.6	1977	1504	0	.0	.0	.5	21.2	30.4	10.0
Feb	29.8	12.9	21.4	64+	2000	27	32.7	1998	-28+	1996	4	11.1	1979	1223	0	.0	.0	1.2	15.7	27.1	6.0
Mar	40.3	23.3	31.8	83	1986	30	40.6	2000	-20	1962	1	25.1	1984	1030	0	.0	.0	6.4	6.9	25.7	1.1
Apr	53.3	33.7	43.5	89	1980	23	49.4	1985	7	1979	9	37.2	1975	645	0	.0	.0	18.7	.6	13.5	.0
May	66.1	43.8	55.0	92	1975	20	61.5	1977	20	1966	10	49.3	1997	333	21	.0	.1	29.9	.0	3.6	.0
Jun	75.9	53.0	64.5	99	1988	22	69.4	1987	27	1990	4	59.2	1982	87	70	.0	1.8	30.0	.0	.1	.0
Jul	80.2	58.4	69.3	102	1995	14	74.1	1999	38+	1990	31	63.9	1992	23	157	.1	3.8	31.0	.0	.0	.0
Aug	78.0	56.6	67.3	102+	1988	17	74.1	1995	36+	1992	20	60.3	1992	64	136	.1	1.7	31.0	.0	.0	.0
Sep	70.5	48.7	59.6	99	1953	1	64.5	1998	22	1993	30	54.9	1993	184	22	.0	.6	29.9	.0	1.3	.0
Oct	58.4	37.6	48.0	89	1963	6	55.5	1971	14+	1993	29	42.5	1987	527	1	.0	.0	25.4	.0	9.7	.0
Nov	43.5	26.9	35.2	77	1950	1	42.3	1999	-15	1976	29	27.4	1995	894	0	.0	.0	9.5	4.2	21.5	.3
Dec	30.3	14.7	22.5	67	2001	6	30.3	1982	-25	1983	24	10.3	1983	1318	0	.0	.0	1.3	15.4	29.5	5.0
Ann	54.3	34.8	44.6	102+	Jul 1995	14	74.1+	Jul 1999	-40+	Jan 1982	11	2.6	Jan 1977	7832	407	.2	8.0	214.8	64.0	162.4	22.4

\+ 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

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Climate Division: WI 9 **NWS Call Sign:** **Elevation: 850 Feet** **Lat: 43˚13N** **Lon: 88˚07W**

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	1.10	1.58	1988	20	4.62	1999	.03	1981
Feb	1.20	1.09	1.56	1997	21	3.19	1971	.00	1987
Mar	2.04	1.98	2.18	1998	31	4.64	1976	.36	1978
Apr	3.30	3.23	2.50	1982	3	8.47	1993	1.16	1989
May	3.03	2.74	3.55	2000	18	8.28	2000	.53	1988
Jun	3.82	3.39	5.25	1997	21	9.61	1997	.97	1995
Jul	4.05	4.24	7.05	1964	18	8.75	1994	.69	1973
Aug	4.28	3.78	3.78	1983	17	9.03	1995	1.11	1976
Sep	3.53	3.41	4.07	1986	11	10.43	1986	.00	1979
Oct	2.47	2.01	3.09	1954	3	5.47	1991	.27	1975
Nov	2.59	2.49	2.57	1984	1	6.70	1985	.50	1976
Dec	1.79	1.58	1.80	1971	15	5.01	2000	.27+	1989
Ann	33.45	33.51	7.05	Jul 1964	18	10.43	Sep 1986	.00+	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.5	4.3	.5	.1
Feb	7.2	3.2	.6	.1
Mar	8.8	5.0	1.2	.3
Apr	11.4	6.4	2.1	.7
May	10.9	6.1	2.0	.5
Jun	10.5	6.4	2.7	.9
Jul	10.6	6.6	2.6	1.1
Aug	10.5	6.8	3.0	1.3
Sep	9.8	6.4	2.4	.8
Oct	9.9	5.1	1.6	.4
Nov	9.9	5.6	1.8	.4
Dec	9.1	4.6	.9	.2
Ann	117.1	66.5	21.4	6.8

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	.21	.32	.52	.71	.90	1.11	1.35	1.65	2.05	2.70	3.32
Feb	.08	.20	.39	.57	.75	.95	1.19	1.48	1.87	2.51	3.13
Mar	.51	.70	1.00	1.26	1.52	1.80	2.11	2.47	2.95	3.70	4.41
Apr	1.22	1.53	1.97	2.34	2.70	3.06	3.45	3.90	4.48	5.38	6.20
May	.72	1.00	1.45	1.84	2.23	2.65	3.12	3.67	4.40	5.56	6.64
Jun	1.08	1.45	2.00	2.47	2.94	3.42	3.96	4.59	5.42	6.71	7.91
Jul	1.25	1.63	2.20	2.70	3.17	3.67	4.21	4.85	5.67	6.96	8.15
Aug	1.50	1.91	2.49	2.98	3.46	3.94	4.47	5.08	5.87	7.08	8.20
Sep	.48	.93	1.53	2.03	2.53	3.06	3.65	4.35	5.28	6.75	8.14
Oct	.54	.76	1.13	1.45	1.78	2.13	2.53	3.00	3.62	4.62	5.56
Nov	.61	.85	1.23	1.57	1.90	2.26	2.66	3.13	3.76	4.75	5.68
Dec	.32	.48	.74	.99	1.24	1.50	1.81	2.18	2.67	3.46	4.21
Ann	25.46	27.05	29.06	30.57	31.90	33.18	34.49	35.93	37.67	40.17	42.32

\+ 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	13.3	13.1	6	3
Feb	8.2	7.6	6	3
Mar	6.7	5.0	2	1
Apr	1.5	.1	#	#
May	.3	.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	3.4	1.6	#	#
Dec	7.8	6.2	3	2
Ann	41.3	33.6	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	11.0	1971	4	37.1	1979	47	1979	28	33	1979
Feb	8.0	1974	6	31.0	1994	43	1979	1	36	1979
Mar	12.0	1971	19	21.0+	1972	25	1978	6	11	1978
Apr	15.0	1973	10	15.0	1973	15	1973	11	2	1973
May	5.5	1994	1	5.5	1994	6	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	3.0	1992	20	3.0	1992	#+	1997	27	#+	1997
Nov	10.2	1995	28	18.8	1977	16	1977	30	3	1995
Dec	8.5	1984	27	22.0	1972	27	2000	31	13	2000
Ann	15.0	Apr 1973	10	37.1	Jan 1979	47	Jan 1979	28	36	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.4	4.1	1.7	.7	.1
Feb	3.8	2.8	1.0	.4	.0
Mar	3.0	2.3	.6	.3	@
Apr	1.0	.8	.3	.1	@
May	.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	.0
Oct	.1	@	@	.0	.0
Nov	1.8	1.2	.5	.2	@
Dec	4.9	3.3	1.3	.5	.0
Ann	20.1	14.6	5.4	2.2	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	20.6	16.6	10.9	7.7
Feb	18.4	14.1	10.6	5.1
Mar	12.4	7.5	5.7	2.7
Apr	1.4	.6	.4	.2
May	.1	@	@	.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	2.6	1.1	.6	.2
Dec	18.3	10.1	5.8	.7
Ann	73.8	50.0	34.0	16.6

+ 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	6/16	6/10	6/05	6/02	5/29	5/25	5/22	5/17	5/11
32	5/31	5/26	5/22	5/19	5/15	5/12	5/09	5/05	4/30
28	5/18	5/13	5/09	5/05	5/02	4/29	4/26	4/22	4/16
24	5/01	4/26	4/22	4/19	4/16	4/13	4/10	4/07	4/02
20	4/20	4/15	4/11	4/08	4/06	4/03	3/31	3/27	3/22
16	4/11	4/05	4/01	3/29	3/25	3/22	3/19	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	8/29	9/05	9/09	9/13	9/17	9/20	9/24	9/28	10/05
32	9/16	9/20	9/24	9/26	9/29	10/01	10/04	10/07	10/12
28	9/23	9/28	10/02	10/05	10/09	10/12	10/15	10/19	10/24
24	10/11	10/16	10/20	10/24	10/27	10/30	11/02	11/06	11/12
20	10/17	10/23	10/27	10/31	11/03	11/06	11/10	11/14	11/20
16	10/29	11/05	11/10	11/14	11/17	11/21	11/25	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	141	130	122	116	110	104	97	89	79
32	154	147	143	139	136	132	128	124	118
28	181	174	168	163	159	154	149	144	136
24	215	207	202	197	193	189	184	178	171
20	233	226	220	215	211	206	201	196	188
16	261	252	246	241	236	231	226	220	212

***** 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	1504	1223	1030	645	333	87	23	64	184	527	894	1318	7832
60	1349	1083	875	497	214	30	4	19	84	380	744	1163	6442
57	1256	999	782	410	156	13	0	8	45	298	654	1070	5691
55	1194	943	720	354	123	7	0	4	28	248	594	1008	5223
50	1039	803	568	228	60	1	0	0	5	143	450	853	4150
32	521	345	144	9	0	0	0	0	0	4	84	367	1474

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	40	46	137	354	711	973	1157	1095	828	500	180	72	6093
55	0	0	0	10	122	290	444	386	166	31	1	0	1450
57	0	0	0	5	93	236	382	329	123	19	0	0	1187
60	0	0	0	2	58	163	293	246	72	8	0	0	842
65	0	0	0	0	21	70	157	136	22	1	0	0	407
70	0	0	0	0	6	18	65	60	4	0	0	0	153

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	3	47	186	480	749	922	864	604	287	69	5	0	3	50	236	716	1465	2387	3251	3855	4142	4211	4216
45	0	0	22	103	337	599	767	709	457	173	31	1	0	0	22	125	462	1061	1828	2537	2994	3167	3198	3199
50	0	0	9	55	213	449	612	554	316	93	11	0	0	0	9	64	277	726	1338	1892	2208	2301	2312	2312
55	0	0	2	28	122	308	457	400	196	40	4	0	0	0	2	30	152	460	917	1317	1513	1553	1557	1557
60	0	0	0	9	62	187	307	258	107	13	0	0	0	0	0	9	71	258	565	823	930	943	943	943
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	29	117	289	469	608	563	372	169	40	2	0	0	29	146	435	904	1512	2075	2447	2616	2656	2658

(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