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: CHARMANY FARM, WI **COOP ID: 471416**

Climate Division: WI 8 **NWS Call Sign:** **Elevation: 910 Feet** **Lat: 43˚04N** **Lon: 89˚29W**

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	23.5	6.2	14.9	54	1967	25	25.8	1990	-34	1994	19	1.6	1979	1554	0	.0	.0	.3	21.9	30.6	10.0
Feb	28.9	11.6	20.3	64+	2000	27	33.7	1998	-27	1996	3	5.8	1979	1254	0	.0	.0	1.1	15.4	27.3	6.0
Mar	40.8	23.0	31.9	80	1986	30	41.5	2000	-6	1984	10	23.4	1984	1027	0	.0	.0	7.8	5.9	25.4	.9
Apr	54.3	34.8	44.6	93	1980	23	50.9	1977	4	1979	6	39.4	1979	615	1	.0	@	21.4	.3	11.6	.0
May	66.6	46.4	56.5	90+	1991	29	64.4	1977	23	1966	9	50.4	1983	298	34	.0	.1	30.5	.0	1.5	.0
Jun	76.7	55.7	66.2	101	1988	21	71.7	1971	33	1988	10	59.6	1982	62	97	.1	1.7	30.0	.0	.0	.0
Jul	80.6	60.2	70.4	100+	1988	16	75.5	1999	42+	1988	1	66.4	1984	12	178	@	3.9	31.0	.0	.0	.0
Aug	78.0	58.2	68.1	102	1988	18	75.7	1995	37	1984	24	63.6	1986	57	153	.1	1.6	31.0	.0	.0	.0
Sep	69.7	49.6	59.7	95	1978	9	66.7	1998	24	1984	26	55.6	1993	193	31	.0	.4	29.9	.0	.9	.0
Oct	58.5	37.8	48.2	88	1976	2	58.1	1971	17+	1987	25	39.6	1987	528	5	.0	.0	26.0	.0	9.0	.0
Nov	42.4	25.2	33.8	75	1964	3	43.8	1999	-9	1976	30	26.1	1995	937	0	.0	.0	9.5	4.4	22.6	.3
Dec	29.1	12.6	20.9	65	1970	1	30.8	1998	-30	1983	24	7.7	1983	1368	0	.0	.0	1.3	16.6	29.8	5.7
Ann	54.1	35.1	44.6	102	Aug 1988	18	75.7	Aug 1995	-34	Jan 1994	19	1.6	Jan 1979	7905	499	.2	7.7	219.8	64.5	158.7	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: 1959-2001

(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	1.14	1.04	1.10	1988	20	3.13	1999	.03	1981
Feb	1.14	1.01	1.40	2001	9	2.97	1976	.02+	1995
Mar	2.18	1.83	2.95	1998	31	5.82	1998	.23	1978
Apr	3.61	3.26	2.56	1999	23	8.04	1999	.90	1989
May	3.47	3.43	3.12	2000	18	7.33	2000	.68	1992
Jun	4.50	3.59	3.60+	1996	17	11.47	1996	1.18	1987
Jul	4.03	3.58	4.40	1977	18	9.56	1993	1.00	1976
Aug	4.05	3.82	5.85	2001	2	7.57	1980	1.75	1978
Sep	3.25	2.85	3.00	1978	18	7.92	1980	.09	1979
Oct	2.42	2.12	3.01	1984	19	6.00	1984	.54	1975
Nov	2.37	2.01	1.77	1985	1	5.43	1992	.07	1976
Dec	1.32	1.18	1.73	1971	15	3.36	1987	.22	1975
Ann	33.48	32.93	5.85	Aug 2001	2	11.47	Jun 1996	.02+	Feb 1995

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.4	4.0	.3	@
Feb	5.7	3.1	.6	.1
Mar	7.8	5.1	1.2	.3
Apr	10.9	7.1	2.4	.8
May	10.6	7.1	2.3	.8
Jun	9.6	7.0	2.8	1.4
Jul	9.6	6.5	2.7	1.0
Aug	9.8	6.9	3.0	1.1
Sep	9.0	5.7	2.2	1.0
Oct	8.4	5.4	1.4	.4
Nov	8.1	5.2	1.5	.5
Dec	7.1	3.6	.7	.1
Ann	104.0	66.7	21.1	7.5

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	.14	.24	.40	.56	.72	.91	1.13	1.40	1.76	2.36	2.94
Feb	.06	.12	.26	.41	.59	.80	1.05	1.37	1.83	2.61	3.39
Mar	.38	.57	.89	1.19	1.50	1.83	2.20	2.66	3.27	4.26	5.19
Apr	1.20	1.54	2.04	2.47	2.88	3.30	3.77	4.31	5.00	6.08	7.07
May	.93	1.26	1.76	2.20	2.63	3.08	3.59	4.18	4.95	6.17	7.30
Jun	1.02	1.44	2.10	2.69	3.28	3.91	4.61	5.45	6.56	8.31	9.97
Jul	1.34	1.73	2.29	2.76	3.21	3.68	4.20	4.80	5.57	6.77	7.87
Aug	1.83	2.19	2.69	3.09	3.47	3.85	4.25	4.71	5.30	6.18	6.98
Sep	.39	.64	1.10	1.55	2.03	2.57	3.20	3.97	5.03	6.77	8.45
Oct	.52	.75	1.10	1.42	1.74	2.09	2.47	2.94	3.55	4.52	5.44
Nov	.50	.71	1.06	1.38	1.69	2.03	2.42	2.87	3.48	4.45	5.37
Dec	.26	.38	.57	.75	.93	1.12	1.34	1.61	1.96	2.52	3.06
Ann	25.04	26.70	28.82	30.41	31.82	33.17	34.57	36.10	37.95	40.61	42.90

+ 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: 1959-2001
(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	7.4	5.1	7	5
Feb	5.9	4.6	4	2
Mar	5.8	4.8	1	#
Apr	2.0	.0	#	#
May	#	.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	2.1	1.0	#	#
Dec	6.9	6.0	3	2
Ann	30.2	21.5	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	13.0	1996	27	17.3	1971	41	1979	28	28	1979
Feb	8.0	1993	21	16.0	1975	26	1979	12	20	1979
Mar	12.0	1972	29	16.5	1972	16	1979	1	8	1986
Apr	8.2	2000	8	10.6	1973	8+	2000	8	1	1994
May	#	1997	15	#+	1997	8	1994	1	#+	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	.0	0	0	.0	0	0	0	0	0	0
Oct	2.0	1992	20	2.0	1992	4	1997	27	#+	1997
Nov	8.0	1995	28	8.0	1995	11	1985	11	1+	2000
Dec	11.0	1985	1	20.5	1985	18	1985	31	15	1985
Ann	13.0	Jan 1996	27	20.5	Dec 1985	41	Jan 1979	28	28	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.6	3.0	1.3	.4	.1
Feb	3.5	2.3	.9	.2	.0
Mar	2.4	1.4	.6	.3	.1
Apr	.4	.3	.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	@	.0	.0	.0
Nov	1.4	.9	.2	@	.0
Dec	3.5	2.3	.9	.3	.1
Ann	15.9	10.2	4.1	1.3	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	-9.9	-9.9	-9.9	-9.9
May	-9.9	-9.9	-9.9	-9.9
Jun	-9.9	-9.9	-9.9	-9.9
Jul	-9.9	-9.9	-9.9	-9.9
Aug	-9.9	-9.9	-9.9	-9.9
Sep	-9.9	-9.9	-9.9	-9.9
Oct	-9.9	-9.9	-9.9	-9.9
Nov	-9.9	-9.9	-9.9	-9.9
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-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	5/27	5/21	5/17	5/14	5/10	5/07	5/03	4/29	4/23
32	5/20	5/13	5/09	5/05	5/02	4/28	4/24	4/20	4/14
28	5/05	4/30	4/26	4/23	4/20	4/17	4/13	4/10	4/04
24	4/21	4/17	4/15	4/12	4/10	4/08	4/06	4/03	3/30
20	4/16	4/11	4/07	4/04	4/01	3/29	3/25	3/22	3/16
16	4/11	4/04	3/31	3/27	3/24	3/20	3/16	3/12	3/06

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	9/13	9/18	9/21	9/24	9/27	9/29	10/02	10/06	10/10
32	9/21	9/26	9/30	10/03	10/06	10/09	10/13	10/16	10/22
28	9/29	10/05	10/09	10/13	10/17	10/20	10/24	10/28	11/03
24	10/11	10/18	10/22	10/26	10/30	11/02	11/06	11/11	11/17
20	10/19	10/26	10/31	11/04	11/08	11/11	11/15	11/20	11/27
16	11/02	11/08	11/12	11/15	11/19	11/22	11/25	11/29	12/05

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	154	148	143	139	134	129	123	114
32	184	174	168	162	157	152	146	139	130
28	207	198	191	185	179	174	168	161	151
24	225	217	211	207	202	197	192	187	179
20	249	239	232	226	220	215	209	201	192
16	269	259	251	245	239	233	227	219	209

***** 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	1554	1254	1027	615	298	62	12	57	193	528	937	1368	7905
60	1399	1114	872	469	189	19	0	17	98	386	787	1213	6563
57	1306	1030	779	385	137	8	0	7	59	309	698	1120	5838
55	1244	974	717	332	107	4	0	4	39	263	639	1058	5381
50	1089	834	572	213	51	1	0	0	11	164	497	903	4335
32	564	384	160	10	0	0	0	0	0	9	119	408	1654

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	34	55	156	386	759	1026	1190	1119	828	509	172	64	6298
55	0	0	0	17	154	340	477	410	177	50	2	0	1627
57	0	0	0	10	121	284	415	352	137	35	1	0	1355
60	0	0	0	4	81	205	322	269	86	19	0	0	986
65	0	0	0	1	34	97	178	153	31	5	0	0	499
70	0	0	0	0	12	30	73	72	7	0	0	0	194

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	56	229	562	817	971	900	626	306	63	5	0	3	59	288	850	1667	2638	3538	4164	4470	4533	4538
45	0	0	29	131	414	667	816	745	480	187	28	1	0	0	29	160	574	1241	2057	2802	3282	3469	3497	3498
50	0	0	13	69	274	517	661	590	337	102	8	0	0	0	13	82	356	873	1534	2124	2461	2563	2571	2571
55	0	0	3	32	160	368	506	435	212	47	1	0	0	0	3	35	195	563	1069	1504	1716	1763	1764	1764
60	0	0	0	12	82	231	352	288	116	16	0	0	0	0	0	12	94	325	677	965	1081	1097	1097	1097
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	34	138	334	523	648	586	377	180	38	1	0	1	35	173	507	1030	1678	2264	2641	2821	2859	2860

(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