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: STURGEON BAY EXP FARM, WI **COOP ID: 478267**

Climate Division: WI 6 **NWS Call Sign:** **Elevation: 656 Feet** **Lat: 44˚52N** **Lon: 87˚20W**

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	7.8	16.1	55	1944	26	26.1	1990	-29	1982	17	4.9	1977	1519	0	.0	.0	.0	22.8	30.5	8.3
Feb	27.9	10.9	19.4	58+	1964	29	31.5	1998	-29+	1933	10	8.9	1979	1276	0	.0	.0	.1	17.2	27.4	5.3
Mar	37.8	21.4	29.6	76+	2000	8	39.4	2000	-23	1962	2	22.4	1972	1097	0	.0	.0	3.8	7.1	26.2	1.2
Apr	50.4	32.4	41.4	85+	1990	25	46.1	1987	2	1923	4	35.4	1975	709	0	.0	.0	17.3	.5	13.6	.0
May	63.9	42.8	53.4	91+	1944	29	60.3	1998	20+	1925	8	47.6	1997	375	14	.0	@	29.7	.0	2.5	.0
Jun	73.5	52.6	63.1	100+	1934	1	68.7	1988	29+	1949	8	56.8	1982	123	64	.0	.9	30.0	.0	@	.0
Jul	78.5	58.6	68.6	105	1936	13	72.7	1983	36	1912	18	63.1	1992	27	137	.0	1.3	31.0	.0	.0	.0
Aug	76.5	57.4	67.0	102	1955	21	72.5	1995	32	1934	30	62.9+	1977	59	119	.0	.8	31.0	.0	.0	.0
Sep	68.6	49.9	59.3	96+	1931	10	65.3	1998	26	1947	25	54.1	1974	197	23	.0	.1	29.9	.0	.4	.0
Oct	56.0	38.8	47.4	86	1963	6	52.3	1971	12	1925	30	42.6	1981	546	0	.0	.0	25.1	.0	4.9	.0
Nov	41.7	27.8	34.8	74	1999	10	42.4	1999	-6	1950	24	28.4	1976	907	0	.0	.0	6.6	3.7	19.0	@
Dec	29.5	16.0	22.8	60	2001	6	30.7	1998	-22	1933	27	11.7	1976	1310	0	.0	.0	.6	16.2	28.9	3.0
Ann	52.4	34.7	43.6	105	Jul 1936	13	72.7	Jul 1983	-29+	Jan 1982	17	4.9	Jan 1977	8145	357	.0	3.1	205.1	67.5	153.4	17.8

\+ 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: 1905-2001

(3) Derived from 1971-2000 serially complete daily data

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: STURGEON BAY EXP FARM, WI **COOP ID: 478267**

Climate Division: WI 6 **NWS Call Sign:** **Elevation: 656 Feet** **Lat: 44˚52N** **Lon: 87˚20W**

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	1.79	1.61	1.32	1980	16	4.26	1999	.25	1981
Feb	1.11	1.05	1.57	1937	21	2.97	1985	.23	1982
Mar	2.12	2.13	2.17	1906	2	5.75	1979	.27	1978
Apr	2.67	2.62	1.97	1909	29	4.85	1993	.39	1997
May	2.92	2.93	3.85	1973	28	8.93	1973	.15	1988
Jun	3.49	2.73	3.07	1913	19	8.26	1990	.61	1988
Jul	3.41	3.03	3.96	1993	6	7.49	1982	.74	1973
Aug	3.61	3.16	4.57	1910	25	8.68	1985	.81	1989
Sep	3.43	2.97	3.71	1979	1	7.66	1972	.68	1976
Oct	2.69	2.69	2.61	1984	19	6.10	1995	.38	1975
Nov	2.53	2.39	1.98	1934	22	6.06	1985	.22	1976
Dec	1.76	1.76	3.60	1959	28	3.83	1971	.20	1994
Ann	31.53	31.02	4.57	Aug 1910	25	8.93	May 1973	.15	May 1988

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.1	5.2	.8	.1
Feb	8.3	4.3	.3	.0
Mar	9.5	5.2	1.5	.3
Apr	10.3	6.8	1.6	.4
May	10.4	6.4	1.9	.6
Jun	10.5	6.7	2.3	.9
Jul	11.2	6.8	2.1	.8
Aug	11.0	7.1	2.5	.7
Sep	10.9	6.9	2.1	.8
Oct	10.2	6.1	1.7	.4
Nov	10.4	6.2	1.3	.4
Dec	10.2	5.3	.8	.1
Ann	124.0	73.0	18.9	5.5

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	.46	.63	.89	1.12	1.34	1.58	1.84	2.16	2.57	3.21	3.82
Feb	.31	.42	.58	.71	.85	.99	1.15	1.34	1.58	1.96	2.31
Mar	.43	.63	.94	1.22	1.51	1.82	2.16	2.58	3.13	4.01	4.85
Apr	.82	1.07	1.45	1.78	2.09	2.42	2.78	3.20	3.74	4.59	5.38
May	.66	.93	1.36	1.74	2.13	2.54	3.00	3.54	4.27	5.41	6.49
Jun	.74	1.06	1.57	2.04	2.51	3.00	3.57	4.24	5.13	6.56	7.91
Jul	1.11	1.43	1.91	2.31	2.71	3.11	3.55	4.07	4.74	5.78	6.74
Aug	1.34	1.68	2.17	2.57	2.95	3.35	3.77	4.27	4.90	5.87	6.76
Sep	1.10	1.42	1.91	2.32	2.71	3.12	3.57	4.10	4.78	5.84	6.82
Oct	.75	1.01	1.39	1.73	2.06	2.41	2.79	3.24	3.83	4.75	5.60
Nov	.60	.84	1.21	1.54	1.87	2.21	2.60	3.06	3.67	4.62	5.52
Dec	.42	.58	.84	1.07	1.30	1.54	1.81	2.13	2.55	3.22	3.85
Ann	23.76	25.29	27.24	28.71	30.01	31.26	32.54	33.94	35.64	38.09	40.19

\+ 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: 1905-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: STURGEON BAY EXP FARM, WI **COOP ID: 478267**

Climate Division: WI 6 **NWS Call Sign:** **Elevation: 656 Feet** **Lat: 44°52N** **Lon: 87°20W**

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	15.2	11.0	11	9	12.0	1996	27	40.5	1982	42	1982	29	30	1982	7.9	5.7	1.9	.7	.1	25.9	21.8	17.7	10.2
Feb	8.3	7.8	13	9	7.0	1994	24	23.5	1985	49	1979	16	43	1979	5.5	3.7	.8	.2	.0	24.8	18.5	16.0	9.0
Mar	7.9	7.5	5	3	9.0	1985	4	20.5	1989	32	1979	1	20	1972	3.8	3.0	1.1	.3	.0	16.9	11.5	7.9	4.6
Apr	2.2	1.3	#	#	6.0	1973	10	8.5	1973	11	1977	5	3	1996	1.2	.8	.3	.1	.0	3.2	.7	.2	.0
May	.1	.0	#	0	1.5	1990	10	1.5	1990	1	1990	10	#+	1996	.1	.1	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.1	.0	#	0	1.0	1981	25	1.0+	1993	1	1993	31	#+	1993	.1	.1	.0	.0	.0	@	.0	.0	.0
Nov	3.3	2.3	#	#	4.0	1995	27	14.5	1995	6	1995	30	1+	2000	2.4	1.5	.3	.0	.0	4.0	1.4	.3	.0
Dec	10.7	10.3	4	3	13.0	1985	1	29.0	1985	29	1985	31	23	1985	6.4	4.2	1.3	.5	.1	16.7	11.0	7.7	3.8
Ann	47.8	40.2	N/A	N/A	13.0	Dec 1985	1	40.5	Jan 1982	49	Feb 1979	16	43	Feb 1979	27.4	19.1	5.7	1.8	.2	91.5	64.9	49.8	27.6

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: STURGEON BAY EXP FARM, WI **COOP ID: 478267**

Climate Division: WI 6 **NWS Call Sign:** **Elevation: 656 Feet** **Lat: 44˚52N** **Lon: 87˚20W**

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	6/10	6/04	5/31	5/27	5/23	5/20	5/16	5/12	5/06
32	5/24	5/20	5/16	5/14	5/11	5/08	5/05	5/02	4/27
28	5/08	5/03	4/30	4/27	4/25	4/22	4/19	4/16	4/12
24	4/22	4/18	4/15	4/13	4/10	4/08	4/06	4/03	3/30
20	4/12	4/08	4/05	4/02	3/31	3/28	3/26	3/23	3/18
16	4/09	4/05	4/02	3/30	3/28	3/25	3/22	3/19	3/15

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	9/19	9/22	9/25	9/27	9/29	10/02	10/05	10/09
32	9/22	9/28	10/02	10/06	10/09	10/13	10/17	10/21	10/27
28	10/03	10/10	10/15	10/19	10/23	10/26	10/30	11/04	11/11
24	10/22	10/27	10/31	11/03	11/06	11/09	11/12	11/16	11/21
20	11/01	11/07	11/11	11/15	11/18	11/21	11/25	11/29	12/04
16	11/11	11/17	11/21	11/24	11/27	11/30	12/03	12/07	12/13

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	144	138	133	129	126	122	119	114	108
32	169	163	158	154	151	147	143	139	132
28	207	198	191	185	180	175	169	162	153
24	227	221	216	212	209	205	201	197	190
20	254	246	241	236	231	227	222	217	209
16	265	258	253	248	244	240	235	230	222

***** 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/normals/usnormals.html

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: STURGEON BAY EXP FARM, WI **COOP ID: 478267**

Climate Division: WI 6 **NWS Call Sign:** **Elevation: 656 Feet** **Lat: 44˚52N** **Lon: 87˚20W**

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	1519	1276	1097	709	375	123	27	59	197	546	907	1310	8145
60	1364	1136	942	559	248	54	5	16	96	395	757	1155	6727
57	1271	1052	849	471	184	28	0	6	55	309	667	1062	5954
55	1209	996	787	413	147	17	0	2	35	256	607	1000	5469
50	1054	856	633	278	74	4	0	0	8	144	459	845	4355
32	520	384	181	16	0	0	0	0	0	2	76	353	1532

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	24	32	106	297	662	931	1133	1084	817	479	158	66	5789
55	0	0	0	4	96	258	420	373	162	20	0	0	1333
57	0	0	0	2	71	209	358	314	122	11	0	0	1087
60	0	0	0	1	42	145	269	231	73	4	0	0	765
65	0	0	0	0	14	64	137	119	23	0	0	0	357
70	0	0	0	0	4	19	51	45	4	0	0	0	123

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	21	136	446	713	902	862	601	278	53	2	0	0	21	157	603	1316	2218	3080	3681	3959	4012	4014
45	0	0	7	61	297	563	747	707	451	156	18	0	0	0	7	68	365	928	1675	2382	2833	2989	3007	3007
50	0	0	0	26	174	413	592	552	309	74	5	0	0	0	0	26	200	613	1205	1757	2066	2140	2145	2145
55	0	0	0	5	86	271	437	397	183	24	0	0	0	0	0	5	91	362	799	1196	1379	1403	1403	1403
60	0	0	0	0	37	151	285	249	92	4	0	0	0	0	0	0	37	188	473	722	814	818	818	818
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	10	77	252	434	588	557	346	134	15	0	0	0	10	87	339	773	1361	1918	2264	2398	2413	2413

(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