

Climatology of the United States

No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: GRANTSBURG, WI

1971-2000

COOP ID: 473244

Climate Division: WI 1

NWS Call Sign:

Elevation: 990 Feet

Lat: 45°46N

Lon: 92°41W

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	-3.2	8.2	51	1981	25	21.4	1990	-44	1965	14	-3.9	1982	1765	0	.0	.0	@	26.2	31.0	17.6
Feb	26.9	3.6	15.3	57	1958	23	30.8	1998	-42+	1996	3	3.0	1989	1392	0	.0	.0	.5	17.7	27.8	11.7
Mar	38.8	16.9	27.9	78	2000	8	38.5	2000	-39	1962	1	20.2	1975	1152	0	.0	.0	4.9	8.1	28.4	3.9
Apr	55.2	30.5	42.9	95	1980	22	50.5	1987	-2	1975	1	36.9	1975	664	1	.0	@	19.6	.8	17.1	@
May	68.9	43.0	56.0	95	1959	2	64.4	1977	15	1967	3	49.7	1997	314	34	.0	.2	29.7	.0	3.0	.0
Jun	76.1	51.9	64.0	98	1963	30	68.9	1995	29+	1969	13	58.6	1982	99	70	.0	1.2	30.0	.0	@	.0
Jul	80.3	56.9	68.6	100+	1988	16	72.8	1999	36+	1975	14	62.7	1992	31	143	.1	2.1	31.0	.0	.0	.0
Aug	77.9	54.8	66.4	98+	1964	1	70.3	1983	32	1970	31	61.6	1985	67	108	.0	1.1	31.0	.0	.0	.0
Sep	68.0	45.0	56.5	95	1961	2	62.8	1998	21+	1967	29	51.4	1974	271	16	.0	.1	29.4	.0	2.0	.0
Oct	56.2	33.7	45.0	87	1953	2	50.4	2000	7	1952	20	39.9	1988	622	0	.0	.0	22.5	.2	13.6	.0
Nov	38.3	20.0	29.2	72+	2000	1	40.2	1975	-24	1964	30	21.5	1985	1071	0	.0	.0	5.5	9.5	26.5	1.7
Dec	24.2	3.6	13.9	60	1982	3	25.4	1997	-40	1968	25	-1.0	1983	1584	0	.0	.0	.2	22.8	30.9	11.9
Ann	52.5	29.7	41.2	100+	Jul 1988	16	72.8	Jul 1999	-44	Jan 1965	14	-3.9	Jan 1982	9032	372	.1	4.7	204.3	85.3	180.3	46.8

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1950-2001

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

040-A

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Station: GRANTSBURG, WI

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Climate Division: WI 1

NWS Call Sign:

Elevation: 990 Feet Lat: 45°46N

Lon: 92°41W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.14	1.08	1.14	1996	18	3.20	1975	.04	1981	9.0	3.8	.5	.1	.22	.32	.49	.65	.80	.97	1.16	1.39	1.70	2.19	2.66
Feb	.84	.67	1.01	1976	15	2.60	1981	.05	1997	6.1	2.7	.3	@	.11	.18	.30	.42	.54	.68	.84	1.03	1.29	1.72	2.14
Mar	1.75	1.54	1.41	1977	12	3.94	1977	.37	1974	7.6	4.5	1.0	.2	.47	.63	.89	1.11	1.33	1.55	1.81	2.11	2.50	3.11	3.69
Apr	2.19	2.19	2.45	2001	23	5.30	1986	.11	1987	9.4	5.7	1.4	.1	.43	.63	.95	1.24	1.54	1.86	2.22	2.66	3.24	4.17	5.05
May	3.48	3.29	3.49	1953	20	6.76	1991	.64	1976	11.3	7.0	2.3	.8	1.21	1.54	2.01	2.42	2.80	3.20	3.63	4.14	4.78	5.78	6.70
Jun	4.46	3.94	5.28	1984	12	10.92	1984	.86	1988	12.7	7.9	2.8	1.0	1.41	1.84	2.46	3.00	3.52	4.06	4.65	5.34	6.23	7.61	8.90
Jul	4.28	3.90	3.45	1993	2	9.21	1978	1.38	1989	11.1	7.2	3.0	1.1	1.56	1.96	2.54	3.03	3.49	3.96	4.48	5.08	5.84	7.02	8.10
Aug	4.51	3.88	5.58	1973	31	14.11	1995	1.61	1996	11.2	7.1	2.9	1.2	1.53	1.96	2.58	3.11	3.62	4.14	4.71	5.37	6.22	7.54	8.76
Sep	3.45	3.05	2.91	1968	22	7.57	1986	.46	2000	11.3	6.7	2.2	.8	1.07	1.39	1.88	2.30	2.71	3.13	3.59	4.14	4.84	5.93	6.95
Oct	2.47	2.27	2.43	1954	10	6.59	1971	.48	1978	10.2	5.2	1.5	.5	.59	.82	1.18	1.50	1.82	2.16	2.54	2.99	3.58	4.52	5.40
Nov	2.10	1.81	2.04	1996	17	4.89	2000	.17	1981	9.5	4.8	1.3	.4	.34	.52	.83	1.11	1.41	1.74	2.11	2.56	3.16	4.14	5.08
Dec	1.10	.91	1.67	1968	13	3.48	1982	.24	1979	8.8	3.2	.3	.1	.24	.35	.51	.65	.80	.95	1.12	1.33	1.60	2.03	2.44
Ann	31.77	32.69	5.58	Aug 1973	31	14.11	Aug 1995	.04	Jan 1981	118.2	65.8	19.5	6.3	22.47	24.27	26.57	28.32	29.87	31.38	32.93	34.65	36.74	39.76	42.38

+ 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: 1950-2001

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

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Station: GRANTSBURG, WI

COOP ID: 473244

Climate Division: WI 1

NWS Call Sign:

Elevation: 990 Feet

Lat: 45°46N

Lon: 92°41W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	14.1	11.8	12	11	13.0	1982	23	28.0	1971	28	1971	31	23	1982	8.9	4.7	1.5	.6	@	-9.9	-9.9	-9.9	-9.9
Feb	6.9	4.8	14	15	8.0	1990	16	17.0	1972	34	1971	8	26	1979	5.0	2.6	.9	.2	.0	-9.9	-9.9	-9.9	-9.9
Mar	8.2	8.1	8	6	11.0	1999	9	18.5	1975	35	1979	9	26	1979	4.3	2.6	1.1	.5	.1	-9.9	-9.9	-9.9	-9.9
Apr	2.5	1.0	1	0	7.0	1983	15	12.2	1983	21	1975	2	4	1996	1.0	.8	.3	.2	.0	.9	.3	.2	.0
May	#	.0	0	0	#	1976	2	#	1976	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	#	1991	26	#	1991	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.3	.0	#	0	3.0	1982	20	3.6	1987	1	1987	20	#	1987	.2	.1	@	.0	.0	@	.0	.0	.0
Nov	11.9	7.8	2	1	14.0	1983	24	41.3	1991	28	1991	6	15	1991	4.9	3.1	1.1	.4	.2	10.0	6.4	3.9	1.9
Dec	9.3	8.0	6	5	17.0	1982	28	22.8	1983	22	1985	1	20	1985	7.2	3.8	1.0	.4	.1	-9.9	-9.9	-9.9	-9.9
Ann	53.2	41.5	N/A	N/A	17.0	Dec 1982	28	41.3	Nov 1991	35	Mar 1979	9	26+	Mar 1979	31.5	17.7	5.9	2.3	.4	-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

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

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No. 20 1971-2000

Station: GRANTSBURG, WI

COOP ID: 473244

Climate Division: WI 1

NWS Call Sign:

Elevation: 990 Feet

Lat: 45° 46N

Lon: 92° 41W

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	6/15	6/09	6/05	6/01	5/28	5/25	5/21	5/17	5/11
32	5/21	5/17	5/14	5/11	5/09	5/06	5/04	4/30	4/26
28	5/11	5/06	5/03	4/30	4/27	4/24	4/21	4/18	4/13
24	4/29	4/24	4/21	4/18	4/15	4/12	4/09	4/05	4/01
20	4/17	4/13	4/11	4/09	4/07	4/05	4/03	4/01	3/29
16	4/13	4/08	4/05	4/02	3/31	3/28	3/25	3/22	3/18
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	9/06	9/10	9/13	9/15	9/18	9/20	9/22	9/25	9/29
32	9/16	9/20	9/22	9/25	9/27	9/29	10/01	10/04	10/07
28	9/24	9/28	10/01	10/04	10/06	10/09	10/11	10/14	10/18
24	10/04	10/10	10/14	10/18	10/21	10/24	10/28	11/01	11/07
20	10/19	10/24	10/27	10/30	11/02	11/04	11/07	11/11	11/15
16	10/28	11/01	11/04	11/07	11/09	11/12	11/14	11/17	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	135	127	121	116	111	107	102	96	88
32	156	151	147	143	140	137	134	130	124
28	179	173	169	165	161	158	154	150	144
24	213	204	198	193	188	183	178	172	164
20	225	219	215	211	208	204	201	196	190
16	241	234	230	226	223	219	216	211	205

* 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/normal/usnormals.html

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No. 20
1971-2000**

Station: GRANTSBURG, WI

COOP ID: 473244

Climate Division: WI 1 NWS Call Sign: Elevation: 990 Feet Lat: 45° 46N Lon: 92° 41W

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	1765	1392	1152	664	314	99	31	67	271	622	1071	1584	9032
60	1610	1252	997	518	205	37	6	20	157	469	921	1429	7621
57	1517	1168	904	434	152	17	0	8	103	380	831	1336	6850
55	1455	1112	842	381	121	10	0	4	75	324	771	1274	6369
50	1300	972	691	259	61	2	0	0	27	200	626	1119	5257
32	758	507	240	23	0	0	0	0	0	9	202	596	2335

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	16	39	110	350	743	961	1135	1064	735	410	121	35	5719
55	0	0	0	17	150	280	422	355	120	12	0	0	1356
57	0	0	0	11	119	228	360	297	88	6	0	0	1109
60	0	0	0	5	80	158	273	216	52	2	0	0	786
65	0	0	0	1	34	70	143	108	16	0	0	0	372
70	0	0	0	0	12	19	57	39	3	0	0	0	130

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	18	181	521	742	909	839	516	220	28	0	0	0	18	199	720	1462	2371	3210	3726	3946	3974	3974
45	0	0	6	101	374	592	754	684	373	121	9	0	0	0	6	107	481	1073	1827	2511	2884	3005	3014	3014
50	0	0	1	50	244	445	599	529	239	56	2	0	0	0	1	51	295	740	1339	1868	2107	2163	2165	2165
55	0	0	0	22	139	300	445	374	136	23	0	0	0	0	0	22	161	461	906	1280	1416	1439	1439	1439
60	0	0	0	6	71	174	291	229	64	2	0	0	0	0	0	6	77	251	542	771	835	837	837	837
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	14	134	325	465	595	536	307	133	15	0	0	0	14	148	473	938	1533	2069	2376	2509	2524	2524

(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/normal/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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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