

Climatography of the United States

No. 20

1971-2000

Station: WINDOM, MN

COOP ID: 219033

Climate Division: MN 7

NWS Call Sign:

Elevation: 1,375 Feet Lat: 43° 52N

Lon: 95° 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	21.7	3.8	12.8	65	1981	24	26.9	1990	-36	1988	7	-.9	1979	1620	0	.0	.0	.4	23.4	30.9	13.3
Feb	28.5	10.5	19.5	66	1954	14	32.9	1987	-31+	1996	2	4.9	1979	1274	0	.0	.0	1.7	16.0	27.7	7.9
Mar	40.1	22.5	31.3	84	1968	30	40.0	2000	-25	1962	1	22.5	1975	1045	0	.0	.0	7.4	7.4	26.5	2.0
Apr	55.7	33.8	44.8	93	1980	21	52.1	1987	6+	1997	8	37.1	1975	610	3	.0	.1	20.9	.9	13.3	.0
May	70.2	46.0	58.1	98	1967	25	65.7	1977	20	1967	3	52.4	1996	262	48	.0	.8	30.2	.0	1.6	.0
Jun	79.6	56.1	67.9	103	1988	22	75.0	1988	33	1993	1	60.6	1993	52	138	.3	4.1	29.9	.0	.0	.0
Jul	83.2	60.6	71.9	103+	1989	10	76.0	1983	42	1967	4	63.3	1992	20	234	.3	7.3	31.0	.0	.0	.0
Aug	80.5	57.9	69.2	105	1988	1	75.4	1983	32	1950	20	62.8	1992	39	169	.1	3.9	31.0	.0	.0	.0
Sep	72.1	48.2	60.2	100	1976	6	69.1	1998	22	1984	26	54.2	1993	191	45	@	1.4	29.6	.0	1.4	.0
Oct	59.4	36.2	47.8	91+	1963	5	54.8	1973	9	1976	27	42.0	1976	534	1	.0	@	25.5	.1	10.8	.0
Nov	39.7	22.5	31.1	80	1999	14	42.2	1999	-17+	1977	26	21.8	1985	1017	0	.0	.0	7.3	8.4	25.3	1.1
Dec	25.7	9.4	17.6	64	1998	2	26.4	1997	-28+	1983	24	1.8	1983	1470	0	.0	.0	.6	19.8	30.7	8.5
Ann	54.7	34.0	44.4	105	Aug 1988	1	76.0	Jul 1983	-36	Jan 1988	7	-.9	Jan 1979	8134	638	.7	17.6	215.5	76.0	168.2	32.8

+ 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/normal/usnormals.html

Issue Date: February 2004

(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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No. 20 1971-2000

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

Station: WINDOM, MN

COOP ID: 219033

Climate Division: MN 7

NWS Call Sign:

Elevation: 1,375 Feet Lat: 43°52N

Lon: 95°07W

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	.79	.55	1.28	1996	18	2.43	1996	.00	1995	6.1	2.3	.2	.1	.04	.12	.24	.35	.48	.61	.77	.97	1.24	1.68	2.11
Feb	.64	.51	1.21	1984	19	2.23	1971	.04	1987	4.9	2.0	.2	@	.08	.13	.22	.31	.40	.51	.63	.79	1.00	1.34	1.68
Mar	2.06	1.95	2.62	1985	4	4.84	1985	.11	1994	7.9	4.5	1.4	.3	.38	.56	.86	1.14	1.43	1.74	2.09	2.52	3.08	3.99	4.86
Apr	2.88	2.58	2.70	1967	2	6.01	1986	.51	1996	9.4	6.4	1.7	.5	.81	1.08	1.49	1.85	2.21	2.57	2.98	3.46	4.08	5.06	5.97
May	3.58	3.51	3.89	1980	29	7.87	1993	1.17	1975	10.1	7.7	2.3	.6	1.28	1.61	2.10	2.51	2.90	3.30	3.74	4.24	4.89	5.90	6.81
Jun	4.47	4.15	3.11	1983	20	10.16	1993	.96	1988	10.2	7.2	3.1	1.4	1.33	1.76	2.40	2.95	3.48	4.03	4.65	5.37	6.30	7.76	9.11
Jul	3.88	3.98	3.84	1970	13	8.41	1981	.39	1988	9.9	6.2	2.5	1.1	.75	1.10	1.67	2.19	2.73	3.30	3.95	4.73	5.76	7.43	9.01
Aug	3.46	2.97	5.24	1994	10	7.82	1979	.49	1999	8.5	5.5	2.4	.9	.89	1.22	1.72	2.16	2.60	3.06	3.57	4.18	4.97	6.21	7.38
Sep	2.60	2.24	3.75	1965	30	6.49	1973	.52	2000	8.6	5.1	1.6	.6	.61	.85	1.23	1.57	1.91	2.27	2.67	3.14	3.77	4.77	5.70
Oct	2.08	1.79	2.38	1968	17	5.64	1971	.11	1988	7.2	4.1	1.3	.5	.21	.37	.65	.94	1.26	1.61	2.02	2.54	3.25	4.43	5.58
Nov	1.80	1.45	2.39	1977	9	4.28+	1996	.05	1976	7.0	3.7	1.1	.4	.16	.29	.53	.78	1.05	1.36	1.73	2.20	2.84	3.90	4.95
Dec	.76	.67	1.11	1987	28	1.73+	1987	.00	1979	5.4	2.1	.3	@	.07	.15	.28	.39	.50	.63	.77	.94	1.17	1.55	1.91
Ann	29.00	29.36	5.24	Aug 1994	10	10.16	Jun 1993	.00+	Jan 1995	95.2	56.8	18.1	6.4	18.49	20.44	22.98	24.95	26.71	28.44	30.24	32.24	34.70	38.30	41.45

+ 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

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Station: WINDOM, MN

COOP ID: 219033

Climate Division: MN 7

NWS Call Sign:

Elevation: 1,375 Feet

Lat: 43°52N

Lon: 95°07W

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	8.5	6.2	6	6	13.0	1988	20	20.5	1975	23	1979	31	14	1988	4.6	3.8	1.0	.4	@	24.8	18.9	14.8	5.4
Feb	6.2	5.9	6	3	11.0	1971	26	17.8	1971	29	1979	21	25	1979	3.5	3.1	.5	.1	.1	20.3	15.4	12.2	7.0
Mar	8.9	8.0	3	2	11.0	1985	4	24.0	1985	25	1979	4	16	1979	3.4	3.0	1.1	.6	.1	12.8	7.9	4.8	1.3
Apr	3.1	1.4	#	#	7.0	1988	27	16.0	1988	7	1985	1	1	1984	1.7	1.4	.4	.1	.0	2.3	1.1	.3	.0
May	.0	.0	#	0	.0	0	0	.0	0	1	1984	1	#	1984	.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	#	1984	26	#	1984	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.8	.0	#	0	6.0	1976	24	8.5	1976	3	1982	20	#+	2000	.4	.3	.1	@	.0	.4	.1	.0	.0
Nov	7.1	5.0	1	1	12.0	1991	1	26.1	1991	15	1991	6	6	1991	3.6	3.2	.9	.3	.1	8.7	4.8	2.5	.3
Dec	8.1	8.5	4	3	11.0	1987	28	17.0	1996	17	1996	28	14	1983	4.1	3.3	.9	.3	@	21.1	13.6	8.4	1.7
Ann	42.7	35.0	N/A	N/A	13.0	Jan 1988	20	26.1	Nov 1991	29	Feb 1979	21	25	Feb 1979	21.3	18.1	4.9	1.8	.3	90.4	61.8	43.0	15.7

+ 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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Elevation: 1,375 Feet

Lat: 43° 52N

Lon: 95° 07W

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	5/22	5/18	5/15	5/12	5/09	5/06	5/03	4/28
32	5/17	5/13	5/09	5/06	5/03	5/01	4/28	4/24	4/19
28	5/05	5/01	4/28	4/25	4/23	4/21	4/18	4/15	4/11
24	4/21	4/18	4/15	4/13	4/10	4/08	4/06	4/03	3/30
20	4/15	4/11	4/08	4/06	4/03	4/01	3/30	3/27	3/23
16	4/09	4/03	3/31	3/28	3/25	3/22	3/19	3/15	3/10
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	9/14	9/17	9/19	9/21	9/23	9/25	9/27	10/01
32	9/15	9/19	9/23	9/26	9/29	10/02	10/05	10/08	10/13
28	9/23	9/28	10/02	10/05	10/08	10/11	10/14	10/18	10/23
24	10/04	10/09	10/13	10/16	10/19	10/22	10/25	10/29	11/03
20	10/14	10/18	10/22	10/25	10/28	10/31	11/03	11/06	11/11
16	10/24	10/30	11/04	11/07	11/11	11/14	11/18	11/22	11/28
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	152	144	139	135	131	127	122	117	110
32	169	161	156	152	148	144	139	134	127
28	186	179	175	171	167	164	160	155	149
24	211	204	199	195	191	187	183	178	171
20	224	218	214	210	207	203	200	195	189
16	254	246	240	235	230	225	220	215	207

* 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	1620	1274	1045	610	262	52	20	39	191	534	1017	1470	8134
60	1465	1134	890	467	163	15	5	11	101	385	867	1315	6818
57	1372	1050	797	386	116	6	0	3	62	302	777	1222	6093
55	1310	994	735	336	90	3	0	1	42	252	718	1160	5641
50	1155	862	589	223	42	0	0	0	13	145	576	1005	4610
32	636	421	168	17	0	0	0	0	0	5	174	494	1915

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	39	71	147	400	810	1077	1238	1152	844	495	146	47	6466
55	0	0	0	29	187	390	525	441	196	29	1	0	1798
57	0	0	0	19	151	332	463	381	156	17	0	0	1519
60	0	0	0	10	105	252	374	295	105	7	0	0	1148
65	0	0	0	3	48	138	234	169	45	1	0	0	638
70	0	0	0	0	18	60	127	79	14	0	0	0	298

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	230	591	863	1016	936	639	299	47	2	0	3	50	280	871	1734	2750	3686	4325	4624	4671	4673
45	0	0	18	140	441	713	861	781	493	184	16	0	0	0	18	158	599	1312	2173	2954	3447	3631	3647	3647
50	0	0	6	75	305	564	706	626	353	101	5	0	0	0	6	81	386	950	1656	2282	2635	2736	2741	2741
55	0	0	1	38	189	418	551	471	229	46	0	0	0	0	1	39	228	646	1197	1668	1897	1943	1943	1943
60	0	0	0	10	101	275	396	319	126	15	0	0	0	0	0	10	111	386	782	1101	1227	1242	1242	1242
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	36	151	367	557	675	614	394	193	31	0	0	0	36	187	554	1111	1786	2400	2794	2987	3018	3018

(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.
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.

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| <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 |
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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