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: CLOQUET, MN **COOP ID: 211630**

Climate Division: MN 6 **NWS Call Sign:** **Elevation: 1,265 Feet** **Lat: 46˚42N** **Lon: 92˚32W**

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	19.6	-1.4	9.1	52	1942	23	20.8	1990	-45+	1912	12	-2.2	1982	1735	0	.0	.0	@	27.1	31.0	16.6
Feb	27.2	4.5	15.9	60	1950	21	29.7	1998	-41+	1996	2	5.0	1989	1377	0	.0	.0	.4	18.9	28.1	11.3
Mar	37.9	15.7	26.8	80	1947	26	35.0	2000	-35	1962	1	20.3	1996	1185	0	.0	.0	3.7	9.4	29.2	4.6
Apr	53.7	27.6	40.7	88+	1952	30	48.3	1987	-7	1954	3	33.6	1975	731	0	.0	.0	17.5	.9	21.8	.3
May	68.9	38.4	53.7	94	1939	30	59.8	1977	3	1941	8	47.3	1997	363	12	.0	.2	29.7	.0	6.9	.0
Jun	76.6	47.3	62.0	98	1931	29	67.2	1988	24	1945	4	56.8	1985	133	40	.0	1.0	30.0	.0	.8	.0
Jul	80.8	53.7	67.3	105+	1936	13	72.4	1988	30	1915	25	61.3	1992	50	120	.1	2.5	31.0	.0	.0	.0
Aug	77.8	52.5	65.2	98+	1947	10	70.3	1983	26	1915	27	60.2	1977	85	90	.0	.9	31.0	.0	@	.0
Sep	67.8	44.2	56.0	96+	1976	7	61.1	1998	19+	1974	22	50.7	1993	277	7	.0	.2	29.2	.0	2.9	.0
Oct	54.9	33.8	44.4	86+	1992	2	49.5	1971	0	1936	23	38.6	1976	640	0	.0	.0	20.5	.4	13.7	.0
Nov	36.4	20.4	28.4	70	1975	4	37.3	1999	-24	1921	20	21.1	1995	1099	0	.0	.0	3.1	11.6	26.5	1.9
Dec	23.5	5.2	14.4	57	1962	1	24.2	1997	-37	1917	28	2.1	1983	1570	0	.0	.0	.1	24.9	30.8	12.0
Ann	52.1	28.5	40.3	105+	Jul 1936	13	72.4	Jul 1988	-45+	Jan 1912	12	-2.2	Jan 1982	9245	269	.1	4.8	196.2	93.2	191.7	46.7

\+ 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: 1900-2001

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

Issue Date: February 2004

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: CLOQUET, MN **COOP ID: 211630**

Climate Division: MN 6 **NWS Call Sign:** **Elevation: 1,265 Feet** **Lat: 46˚42N** **Lon: 92˚32W**

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	1.18	.93	2.00	1917	19	3.71	1975	.11	1981
Feb	.81	.62	1.24	1965	10	2.02	1979	.18+	1988
Mar	1.72	1.65	1.86	1977	12	4.30	1977	.52	1993
Apr	2.02	1.96	2.40	1960	23	5.10	1986	.15	1988
May	3.27	3.18	3.36	1979	10	8.02	1991	.40	1976
Jun	4.25	4.25	3.90	1944	13	8.45	1986	1.10	1995
Jul	4.23	4.10	3.58	1951	26	7.33	1996	1.45	1988
Aug	4.45	4.27	5.62	1978	23	9.13	1972	1.60	1998
Sep	4.08	3.54	8.44	1990	6	10.61	1990	.88	1974
Oct	2.62	2.30	3.03	1984	30	7.90	1984	.31	1976
Nov	2.13	1.83	3.08	1983	9	7.69	1983	.21	1976
Dec	1.02	.99	1.54	1984	16	1.98	1982	.17	1999
Ann	31.78	31.62	8.44	Sep 1990	6	10.61	Sep 1990	.11	Jan 1981

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.8	3.4	.4	.1
Feb	8.0	2.6	.2	.0
Mar	9.0	4.8	.8	.2
Apr	8.9	4.9	1.2	.3
May	11.4	6.9	1.9	.5
Jun	13.3	7.9	3.0	.9
Jul	11.7	7.5	3.0	1.1
Aug	11.7	7.4	2.6	1.1
Sep	12.1	6.6	2.6	1.0
Oct	10.3	5.2	1.6	.6
Nov	9.3	4.6	1.2	.4
Dec	10.9	3.3	.3	@
Ann	127.4	65.1	18.8	6.2

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	.27	.38	.55	.71	.86	1.03	1.22	1.44	1.73	2.19	2.62
Feb	.16	.24	.35	.46	.57	.69	.82	.98	1.19	1.53	1.85
Mar	.52	.68	.92	1.13	1.34	1.55	1.79	2.06	2.42	2.97	3.49
Apr	.37	.55	.84	1.12	1.40	1.70	2.04	2.46	3.01	3.90	4.75
May	1.02	1.34	1.80	2.19	2.57	2.97	3.40	3.91	4.57	5.59	6.54
Jun	1.51	1.91	2.49	2.98	3.44	3.92	4.44	5.05	5.83	7.02	8.13
Jul	1.75	2.14	2.68	3.13	3.55	3.97	4.43	4.96	5.63	6.65	7.57
Aug	1.49	1.92	2.53	3.06	3.56	4.08	4.65	5.31	6.16	7.48	8.70
Sep	1.09	1.47	2.06	2.58	3.09	3.63	4.22	4.92	5.84	7.28	8.62
Oct	.41	.63	1.01	1.37	1.75	2.16	2.63	3.20	3.97	5.22	6.42
Nov	.36	.54	.85	1.15	1.45	1.77	2.14	2.60	3.20	4.18	5.12
Dec	.25	.35	.50	.63	.76	.90	1.05	1.23	1.47	1.85	2.20
Ann	22.62	24.40	26.67	28.39	29.92	31.40	32.93	34.62	36.66	39.63	42.20

\+ 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: 1900-2001
(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: CLOQUET, MN **COOP ID: 211630**

Climate Division: MN 6 **NWS Call Sign:** **Elevation: 1,265 Feet** **Lat: 46°42N** **Lon: 92°32W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	16.1	13.2	16	17
Feb	10.1	8.4	19	21
Mar	10.9	9.1	15	14
Apr	3.3	2.7	3	1
May	.1	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	#	0
Oct	.8	.0	#	0
Nov	11.3	8.5	3	2
Dec	13.6	13.2	9	8
Ann	66.2	55.1	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	15.1	1972	12	34.0	1982	35	1982	23	28	1997
Feb	9.5	1995	15	22.3	1979	32+	1996	27	27+	1997
Mar	21.4	1985	4	30.4	1985	34+	1997	14	29	1997
Apr	8.0	1983	14	14.8	1983	30	1975	1	14	1975
May	1.5	1979	5	1.5	1979	1	1979	5	#+	1989
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	.2	1985	30	.2	1985	#	1985	30	#	1985
Oct	3.0	1984	30	5.3	1995	4+	1995	22	#+	1995
Nov	14.0	1991	1	33.7	1991	20	1991	2	14	1991
Dec	8.5	1982	28	23.9	1996	28	1983	15	23	1983
Ann	21.4	Mar 1985	4	34.0	Jan 1982	35	Jan 1982	23	29	Mar 1997

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	12.9	4.7	1.5	.6	.1
Feb	8.5	3.4	.8	.2	.0
Mar	6.2	3.2	1.1	.3	.1
Apr	2.3	1.1	.3	.1	.0
May	.2	.1	.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
Oct	.8	.3	@	.0	.0
Nov	6.8	3.2	1.1	.5	.1
Dec	12.5	4.6	1.0	.3	.0
Ann	50.2	20.6	5.8	2.0	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	30.9	30.9	30.0	24.7
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	3.7	2.7	2.3	1.9
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.2	.0	.0	.0
Nov	14.2	9.6	5.2	.9
Dec	28.1	24.7	20.6	11.6
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

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: CLOQUET, MN **COOP ID: 211630**

Climate Division: MN 6 **NWS Call Sign:** **Elevation: 1,265 Feet** **Lat: 46˚42N** **Lon: 92˚32W**

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	6/23	6/19	6/15	6/12	6/10	6/07	6/04	6/01	5/27
32	6/13	6/08	6/05	6/02	5/30	5/27	5/24	5/20	5/15
28	5/28	5/23	5/19	5/16	5/13	5/10	5/07	5/04	4/29
24	5/10	5/06	5/03	4/30	4/27	4/25	4/22	4/19	4/14
20	4/27	4/23	4/20	4/17	4/15	4/12	4/10	4/07	4/02
16	4/17	4/13	4/10	4/08	4/06	4/04	4/01	3/30	3/26

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	8/23	8/28	8/31	9/03	9/06	9/09	9/12	9/15	9/20
32	9/06	9/10	9/13	9/15	9/18	9/20	9/22	9/25	9/29
28	9/17	9/21	9/24	9/26	9/29	10/01	10/03	10/06	10/10
24	9/27	10/03	10/07	10/10	10/13	10/16	10/19	10/23	10/29
20	10/10	10/16	10/20	10/24	10/27	10/30	11/03	11/07	11/13
16	10/23	10/27	10/31	11/02	11/05	11/07	11/10	11/13	11/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	108	101	96	92	88	84	79	74	67
32	130	123	118	114	110	106	102	97	91
28	158	151	146	142	138	134	129	124	117
24	191	183	177	172	168	163	158	153	145
20	217	210	204	199	195	190	185	180	172
16	230	224	220	216	212	209	205	200	194

***** 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: CLOQUET, MN **COOP ID: 211630**

Climate Division: MN 6 **NWS Call Sign:** **Elevation: 1,265 Feet** **Lat: 46˚42N** **Lon: 92˚32W**

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	1735	1377	1185	731	363	133	50	85	277	640	1099	1570	9245
60	1580	1237	1030	583	235	54	11	27	154	486	949	1415	7761
57	1487	1153	937	496	172	26	4	11	96	396	859	1322	6959
55	1425	1097	875	439	136	15	0	5	66	338	799	1260	6455
50	1270	957	720	308	66	2	0	0	20	210	650	1105	5308
32	725	483	240	32	0	0	0	0	0	9	200	574	2263

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	14	31	78	291	672	897	1093	1028	720	392	91	27	5334
55	0	0	0	8	94	222	380	320	96	8	0	0	1128
57	0	0	0	5	68	173	322	264	66	4	0	0	902
60	0	0	0	2	38	111	236	187	34	1	0	0	609
65	0	0	0	0	12	40	120	90	7	0	0	0	269
70	0	0	0	0	2	9	44	30	1	0	0	0	86

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	10	121	429	662	851	789	490	191	15	0	0	0	10	131	560	1222	2073	2862	3352	3543	3558	3558
45	0	0	1	52	288	512	696	634	343	97	6	0	0	0	1	53	341	853	1549	2183	2526	2623	2629	2629
50	0	0	0	20	168	366	541	479	217	41	0	0	0	0	0	20	188	554	1095	1574	1791	1832	1832	1832
55	0	0	0	5	82	228	387	325	115	13	0	0	0	0	0	5	87	315	702	1027	1142	1155	1155	1155
60	0	0	0	0	37	116	240	187	53	1	0	0	0	0	0	0	37	153	393	580	633	634	634	634
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	8	100	297	418	547	500	290	108	9	0	0	0	8	108	405	823	1370	1870	2160	2268	2277	2277

(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