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: GEORGETOWN 1 E, MN **COOP ID: 213104**

Climate Division: MN 1 **NWS Call Sign:** **Elevation: 885 Feet** **Lat: 47˚05N** **Lon: 96˚47W**

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	16.0	-3.4	6.3	52	1981	24	21.9	1990	-40	1977	16	-8.1	1982	1822	0	.0	.0	@	26.7	31.0	18.7
Feb	23.3	4.5	13.9	54	1981	16	27.5	1998	-42	1996	1	-2.3	1979	1430	0	.0	.0	.2	19.6	27.9	11.6
Mar	35.9	18.6	27.3	78+	1967	30	37.6	1973	-24+	1980	1	16.8	1996	1170	0	.0	.0	4.0	10.5	27.3	4.3
Apr	55.5	32.5	44.0	100	1980	21	51.4	1987	-7	1979	6	35.7	1979	633	2	@	.2	20.5	.9	16.3	.2
May	70.7	45.3	58.0	97	1964	21	66.3	1977	19	1981	10	51.2	1979	259	40	.0	1.2	30.2	.0	3.1	.0
Jun	78.0	54.5	66.3	100	1995	17	74.4	1988	31	1982	2	60.2	1982	76	114	@	2.3	30.0	.0	@	.0
Jul	82.2	58.8	70.5	107	1988	5	76.0	1988	39	2001	1	63.7	1992	27	198	.3	4.6	31.0	.0	.0	.0
Aug	81.2	56.9	69.1	102+	1984	13	75.4	1983	30	1982	27	63.4	1977	47	172	.3	4.2	31.0	.0	@	.0
Sep	70.6	46.8	58.7	100	1983	2	64.3	1990	22+	1984	26	54.8	1985	217	27	@	1.1	29.4	.0	1.8	.0
Oct	57.0	35.4	46.2	90	1992	1	51.7	1973	6	1976	27	41.3	1976	583	0	.0	@	23.1	.4	12.3	.0
Nov	35.2	18.9	27.1	73+	1978	2	37.2	1999	-27	1964	30	15.3	1985	1139	0	.0	.0	4.3	12.5	27.1	2.5
Dec	20.9	3.7	12.3	57	1962	1	24.1	1997	-35	1967	31	-1.9	1983	1634	0	.0	.0	.2	24.5	30.9	13.2
Ann	52.2	31.0	41.6	107	Jul 1988	5	76.0	Jul 1988	-42	Feb 1996	1	-8.1	Jan 1982	9037	553	.6	13.6	203.9	95.1	177.7	50.5

\+ 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: 1962-2001

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

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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	.70	.72	1.17	1997	5	2.07	1997	.00	1973
Feb	.52	.38	.67	1979	23	1.47	1998	.04	1985
Mar	1.15	1.05	1.18	1970	3	2.98	1995	.00	1986
Apr	1.50	1.05	2.09	1964	21	5.60	1986	.00+	1987
May	2.63	2.29	3.95	1985	11	8.44	1985	.39	1980
Jun	3.50	3.03	5.93	2000	20	9.74	2000	.85	1987
Jul	3.11	3.05	3.94	1992	1	6.87	1993	.53	1988
Aug	2.99	2.70	5.57	1989	31	9.68	1989	.43	1984
Sep	2.27	1.81	2.32	1999	3	5.95	1973	.15	1974
Oct	2.11	1.57	4.02	1971	17	7.67	1982	.05+	1989
Nov	1.03	.80	1.88	1977	9	4.59	1977	.00+	1999
Dec	.59	.44	.82	1988	24	1.77	1972	.05	1976
Ann	22.10	22.18	5.93	Jun 2000	20	9.74	Jun 2000	.00+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.9	2.4	.2	@
Feb	4.3	1.8	.1	.0
Mar	4.9	2.9	.7	@
Apr	5.9	3.5	.9	.3
May	7.7	5.2	1.7	.5
Jun	9.3	6.7	2.1	.8
Jul	8.5	5.8	1.8	.8
Aug	7.6	5.3	1.9	.6
Sep	6.2	4.8	1.5	.6
Oct	5.1	3.6	1.6	.6
Nov	4.5	2.8	.4	.2
Dec	4.7	2.1	.1	.0
Ann	73.6	46.9	13.0	4.4

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	.04	.11	.21	.32	.43	.55	.69	.86	1.10	1.49	1.86
Feb	.05	.09	.17	.24	.32	.41	.51	.64	.82	1.11	1.40
Mar	.16	.31	.50	.67	.83	1.00	1.18	1.41	1.71	2.18	2.62
Apr	.00	.13	.38	.62	.86	1.14	1.47	1.87	2.42	3.33	4.21
May	.60	.84	1.23	1.57	1.92	2.28	2.69	3.19	3.83	4.86	5.83
Jun	.99	1.32	1.83	2.26	2.69	3.14	3.63	4.22	4.97	6.16	7.27
Jul	.68	.97	1.42	1.84	2.25	2.69	3.18	3.78	4.56	5.80	6.97
Aug	.88	1.17	1.59	1.96	2.32	2.69	3.10	3.59	4.21	5.19	6.10
Sep	.39	.59	.92	1.23	1.55	1.90	2.29	2.77	3.40	4.43	5.42
Oct	.06	.15	.36	.63	.95	1.34	1.84	2.50	3.44	5.10	6.78
Nov	.00	.15	.34	.51	.67	.85	1.05	1.29	1.61	2.13	2.62
Dec	.06	.11	.19	.27	.36	.45	.57	.71	.91	1.24	1.55
Ann	14.87	16.24	18.01	19.36	20.57	21.75	22.97	24.32	25.98	28.39	30.48

\+ 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: 1962-2001
(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	9.5	8.0	10	7
Feb	5.6	5.0	9	6
Mar	6.0	5.7	5	1
Apr	1.6	.3	1	#
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	.7	.0	#	0
Nov	3.7	2.5	1	#
Dec	6.9	6.4	4	3
Ann	34.1	27.9	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	18.4	1989	7	30.0	1989	63	1997	24	56	1997
Feb	7.0	1979	23	16.4	1979	51	1997	5	46	1997
Mar	12.0	1997	4	20.0	1975	38	1997	6	30	1997
Apr	7.0	1997	6	9.6	1994	24	1996	4	9	1996
May	1.0	1979	5	1.5	1979	0	0	0	0	0
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	4.0	1972	30	4.0+	1972	3	1990	17	#+	1992
Nov	13.0	1977	20	13.0	1977	26	1996	30	7	1977
Dec	7.1	1988	27	15.5	1972	37	1996	31	30	1996
Ann	18.4	Jan 1989	7	30.0	Jan 1989	63	Jan 1997	24	56	Jan 1997

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.7	3.0	1.0	.5	.1
Feb	3.5	2.4	.6	.2	.0
Mar	2.5	2.0	.8	.2	.1
Apr	.7	.6	.3	.1	.0
May	.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	.0
Oct	.4	.3	.1	.0	.0
Nov	2.7	2.1	.8	.2	@
Dec	4.3	2.8	.6	.2	.0
Ann	18.9	13.2	4.2	1.4	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	23.0	21.0	16.9	3.1
Feb	18.4	14.2	11.4	1.9
Mar	9.4	6.3	3.7	.8
Apr	1.0	.6	.4	.1
May	.0	.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
Nov	2.3	.2	.0	.0
Dec	15.6	9.6	5.4	2.3
Ann	69.9	51.9	37.8	8.2

+ 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	5/31	5/27	5/24	5/22	5/19	5/17	5/14	5/12	5/08
32	5/25	5/20	5/16	5/13	5/10	5/07	5/04	5/01	4/26
28	5/14	5/09	5/05	5/02	4/29	4/26	4/23	4/20	4/15
24	5/08	5/02	4/27	4/23	4/20	4/16	4/12	4/08	4/02
20	4/28	4/22	4/17	4/13	4/10	4/06	4/02	3/28	3/22
16	4/15	4/10	4/06	4/03	3/31	3/29	3/26	3/22	3/17

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	9/04	9/08	9/10	9/13	9/15	9/17	9/19	9/22	9/26
32	9/10	9/15	9/19	9/21	9/24	9/27	9/30	10/03	10/08
28	9/19	9/24	9/28	10/01	10/04	10/07	10/10	10/14	10/19
24	9/27	10/03	10/07	10/10	10/14	10/17	10/21	10/25	10/31
20	10/07	10/13	10/17	10/20	10/23	10/27	10/30	11/03	11/09
16	10/21	10/26	10/29	11/01	11/04	11/06	11/09	11/12	11/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	137	130	126	122	118	114	110	106	99
32	160	152	146	141	136	131	126	121	112
28	180	172	166	162	157	152	147	142	134
24	203	194	187	182	176	171	165	159	149
20	220	212	206	201	196	192	186	181	172
16	237	230	225	220	216	212	208	203	196

***** 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	1822	1430	1170	633	259	76	27	47	217	583	1139	1634	9037
60	1667	1290	1015	490	157	26	7	14	114	429	989	1479	7677
57	1574	1206	922	409	110	12	0	5	68	340	899	1386	6931
55	1512	1150	861	359	83	6	0	2	45	284	839	1324	6465
50	1357	1010	715	245	37	1	0	0	11	163	693	1169	5401
32	822	554	268	26	0	0	0	0	0	6	253	653	2582

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	23	47	120	386	805	1028	1194	1148	800	446	104	42	6143
55	0	0	0	28	175	345	481	438	156	10	0	0	1633
57	0	0	0	19	139	290	419	378	118	5	0	0	1368
60	0	0	0	10	94	214	332	294	74	1	0	0	1019
65	0	0	0	2	40	114	198	172	27	0	0	0	553
70	0	0	0	0	14	46	101	85	7	0	0	0	253

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	192	565	791	949	902	567	239	20	0	0	0	18	210	775	1566	2515	3417	3984	4223	4243	4243
45	0	0	2	111	418	641	794	747	418	135	10	0	0	0	2	113	531	1172	1966	2713	3131	3266	3276	3276
50	0	0	0	56	282	491	639	592	282	66	1	0	0	0	0	56	338	829	1468	2060	2342	2408	2409	2409
55	0	0	0	25	173	346	484	438	171	28	0	0	0	0	0	25	198	544	1028	1466	1637	1665	1665	1665
60	0	0	0	10	86	213	331	286	87	8	0	0	0	0	0	10	96	309	640	926	1013	1021	1021	1021
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	10	136	360	503	627	586	349	147	15	0	0	0	10	146	506	1009	1636	2222	2571	2718	2733	2733

(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:
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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