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: COLLEGEVILLE ST JOHN, MN **COOP ID: 211691**

Climate Division: MN 5 **NWS Call Sign:** **Elevation: 1,225 Feet** **Lat: 45˚35N** **Lon: 94˚24W**

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	20.7	1.2	11.0	54	1981	24	24.1	1990	-36	1977	9	-1.3+	1982	1676	0	.0	.0	.1	25.1	30.9	14.8
Feb	28.1	8.7	18.4	60	1951	23	31.1	1998	-37	1996	2	6.8	1979	1305	0	.0	.0	.6	17.0	27.3	8.8
Mar	40.0	20.7	30.4	77	1968	30	39.8	2000	-30	1962	1	22.0	1975	1074	0	.0	.0	5.4	7.9	26.0	2.7
Apr	56.9	34.4	45.7	95	1980	21	54.3	1987	2+	1979	6	37.5	1975	584	4	.0	.1	21.1	.4	12.8	.0
May	70.7	47.5	59.1	96+	2001	15	66.7	1977	19	1967	3	52.4	1979	232	49	.0	.3	30.5	.0	1.2	.0
Jun	78.6	56.4	67.5	101	1988	24	74.4	1988	35+	1969	2	62.3	1982	54	130	.1	1.9	30.0	.0	.0	.0
Jul	83.0	61.4	72.2	103	1988	31	77.4	1988	41	1969	1	65.9	1992	16	239	.2	4.3	31.0	.0	.0	.0
Aug	80.5	59.6	70.1	100+	1988	16	76.0	1983	39	1965	28	65.7	1985	24	180	.1	2.3	31.0	.0	.0	.0
Sep	71.4	50.3	60.9	97+	1978	7	66.1	1998	23	1965	26	54.9	1993	159	33	.0	.5	29.6	.0	.4	.0
Oct	58.7	38.6	48.7	89+	1992	2	55.1	1973	13+	1976	27	44.1	1976	507	0	.0	.0	24.5	.2	7.7	.0
Nov	38.9	23.3	31.1	78	1999	8	41.0	1999	-19	1964	30	22.5	1985	1017	0	.0	.0	5.7	9.9	24.7	1.2
Dec	24.8	8.1	16.5	61	1998	3	26.4	1997	-35	1983	19	2.1	1983	1506	0	.0	.0	.4	22.7	30.7	9.5
Ann	54.4	34.2	44.3	103	Jul 1988	31	77.4	Jul 1988	-37	Feb 1996	2	-1.3+	Jan 1982	8154	635	.4	9.4	209.9	83.2	161.7	37.0

\+ 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: 1941-2001

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

Issue Date: February 2004

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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	.91	.75	1.40	1997	4	2.99	1975	.02	1990
Feb	.73	.67	1.61	1971	26	3.21	1971	.06	1987
Mar	1.80	1.62	1.80	1965	1	4.20	1977	.64	1971
Apr	2.15	2.09	2.83	1954	26	6.30	1986	.04	1987
May	3.50	3.40	5.84	1962	22	7.12	1993	.58	1976
Jun	4.68	4.52	3.54	1957	17	9.06	1983	.16	1988
Jul	3.63	3.49	2.93	1986	18	7.85	1972	.86	1975
Aug	3.81	3.40	4.18	1977	31	7.49	1977	.99	1996
Sep	3.18	2.62	3.10	1991	8	7.82	1986	.79+	2000
Oct	2.48	1.42	1.97	1968	16	7.84	1971	.18	1978
Nov	1.72	1.48	2.68	1977	9	4.62	2000	.06	1980
Dec	.74	.61	1.30	1963	8	2.16	1972	.06	1980
Ann	29.33	29.66	5.84	May 1962	22	9.06	Jun 1983	.02	Jan 1990

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.3	2.9	.2	@
Feb	6.1	2.2	.1	@
Mar	8.0	4.1	1.3	.2
Apr	8.9	5.0	1.5	.4
May	11.1	6.7	2.4	.7
Jun	11.7	7.6	2.9	1.3
Jul	10.6	6.4	2.7	1.0
Aug	9.6	6.6	2.5	.9
Sep	9.7	5.6	2.3	.6
Oct	8.7	4.6	1.7	.5
Nov	7.7	3.7	.9	.4
Dec	7.1	2.2	.3	.0
Ann	106.5	57.6	18.8	6.0

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	.08	.14	.27	.39	.53	.69	.87	1.11	1.43	1.96	2.49
Feb	.06	.11	.21	.31	.42	.55	.70	.89	1.15	1.58	2.01
Mar	.63	.80	1.05	1.25	1.45	1.66	1.88	2.14	2.47	2.99	3.46
Apr	.30	.48	.79	1.09	1.40	1.74	2.14	2.62	3.28	4.34	5.37
May	1.21	1.54	2.02	2.43	2.82	3.22	3.66	4.17	4.82	5.84	6.77
Jun	1.28	1.73	2.40	2.99	3.57	4.18	4.85	5.64	6.68	8.30	9.81
Jul	1.26	1.61	2.10	2.52	2.92	3.34	3.79	4.31	4.98	6.02	6.97
Aug	1.35	1.71	2.23	2.67	3.09	3.52	3.99	4.53	5.23	6.30	7.29
Sep	.92	1.22	1.67	2.07	2.45	2.86	3.30	3.82	4.50	5.56	6.55
Oct	.32	.52	.87	1.21	1.58	1.98	2.45	3.02	3.81	5.09	6.33
Nov	.11	.22	.43	.67	.93	1.24	1.61	2.08	2.74	3.85	4.96
Dec	.11	.17	.28	.38	.48	.60	.74	.90	1.13	1.49	1.84
Ann	18.46	20.47	23.09	25.11	26.94	28.72	30.58	32.66	35.21	38.95	42.23

\+ 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: 1941-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	11.3	9.9	10	9
Feb	7.3	5.5	10	9
Mar	9.1	9.4	6	4
Apr	3.2	1.8	#	#
May	.1	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	0	0
Oct	.4	.0	#	0
Nov	8.5	6.2	2	2
Dec	8.5	7.6	5	4
Ann	48.4	40.4	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	10.0	1996	18	32.9	1975	28	1997	23	24	1997
Feb	12.4	1971	26	26.5	1971	26	1971	26	22+	1997
Mar	10.8	1985	4	21.6	1985	31	1979	4	20	1979
Apr	9.2	1994	28	13.7	1991	15	1975	2	7	1975
May	2.3	1971	19	2.3	1971	2	1971	19	#	1971
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	#	1974	29	#	1974	0	0	0	0	0
Oct	3.4	1991	31	3.4	1991	3	1991	31	#+	1995
Nov	11.7	1983	28	26.6	1983	15+	1991	2	6	1991
Dec	10.2	1985	1	21.2	1982	18	1996	23	13	1983
Ann	12.4	Feb 1971	26	32.9	Jan 1975	31	Mar 1979	4	24	Jan 1997

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	8.9	3.6	1.4	.4	@
Feb	6.3	2.4	.7	.2	@
Mar	5.3	2.6	1.2	.5	@
Apr	1.9	1.0	.3	.1	.0
May	@	@	.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	.1	@	.0	.0
Nov	5.3	2.4	1.0	.4	.1
Dec	9.0	2.7	.7	.3	.1
Ann	37.1	14.8	5.3	1.9	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	28.4	26.6	24.8	11.8
Feb	25.4	24.0	22.1	13.4
Mar	16.8	13.2	11.5	7.2
Apr	2.4	1.3	.9	.4
May	@	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.1	@	.0	.0
Nov	9.3	5.6	3.5	.7
Dec	22.8	16.5	12.7	4.0
Ann	105.2	87.2	75.5	37.5

+ 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	5/22	5/18	5/15	5/13	5/10	5/08	5/06	5/03	4/29
32	5/14	5/09	5/06	5/03	4/30	4/27	4/24	4/21	4/16
28	5/04	4/29	4/26	4/23	4/21	4/18	4/15	4/12	4/07
24	4/19	4/15	4/13	4/10	4/08	4/06	4/04	4/01	3/28
20	4/12	4/09	4/06	4/04	4/03	4/01	3/30	3/27	3/24
16	4/10	4/05	4/02	3/30	3/27	3/24	3/21	3/17	3/12

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	9/14	9/18	9/21	9/24	9/26	9/28	10/01	10/03	10/07
32	9/20	9/25	9/29	10/01	10/04	10/07	10/10	10/13	10/18
28	10/03	10/07	10/11	10/14	10/17	10/19	10/22	10/26	10/31
24	10/16	10/20	10/23	10/26	10/28	10/31	11/02	11/06	11/10
20	10/24	10/29	11/01	11/04	11/06	11/09	11/11	11/15	11/19
16	10/28	11/02	11/05	11/08	11/11	11/13	11/16	11/19	11/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	154	148	144	141	138	135	131	127	122
32	178	171	165	161	156	152	148	142	135
28	201	193	188	183	178	174	169	164	156
24	221	214	210	206	202	199	195	190	184
20	236	229	225	221	217	213	209	204	198
16	249	242	237	232	228	224	219	214	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	1676	1305	1074	584	232	54	16	24	159	507	1017	1506	8154
60	1521	1165	919	444	137	15	2	4	70	357	867	1351	6852
57	1428	1081	826	366	94	6	0	1	36	274	777	1258	6147
55	1366	1025	765	317	70	3	0	0	21	225	717	1196	5705
50	1211	885	620	210	29	0	0	0	4	122	573	1041	4695
32	679	435	196	17	0	0	0	0	0	3	166	526	2022

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	26	54	145	427	840	1066	1246	1179	865	519	139	43	6549
55	0	0	1	37	197	379	533	466	196	28	0	0	1837
57	0	0	0	26	159	322	471	404	151	16	0	0	1549
60	0	0	0	13	109	241	380	315	94	5	0	0	1157
65	0	0	0	4	49	130	239	180	33	0	0	0	635
70	0	0	0	0	17	54	127	83	7	0	0	0	288

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	1	30	218	592	828	996	925	619	291	36	1	0	1	31	249	841	1669	2665	3590	4209	4500	4536	4537
45	0	0	10	131	443	678	841	770	471	173	14	0	0	0	10	141	584	1262	2103	2873	3344	3517	3531	3531
50	0	0	3	65	302	528	686	615	330	93	4	0	0	0	3	68	370	898	1584	2199	2529	2622	2626	2626
55	0	0	0	29	184	381	531	461	205	40	0	0	0	0	0	29	213	594	1125	1586	1791	1831	1831	1831
60	0	0	0	13	98	243	377	311	107	10	0	0	0	0	0	13	111	354	731	1042	1149	1159	1159	1159
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	17	139	362	528	668	607	369	160	17	0	0	0	17	156	518	1046	1714	2321	2690	2850	2867	2867

(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