

# Climatography of the United States No. 20

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

Station: ISLE 12 N, MN

1971-2000

COOP ID: 214103

Climate Division: MN 6

NWS Call Sign:

Elevation: 1,285 Feet Lat: 46° 19N

Lon: 93° 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	16.9	-3.5	6.7	56	1973	26	20.3	1990	-45+	1972	15	-5.5	1977	1810	0	.0	.0	.1	27.8	31.0	18.9
Feb	24.4	2.3	13.4	56	1981	18	28.2	1998	-44+	1996	3	.7	1989	1446	0	.0	.0	.4	19.5	27.9	12.7
Mar	36.1	15.7	25.9	75	1968	30	35.2	1973	-32	1965	24	16.9	1996	1213	0	.0	.0	3.3	10.2	28.8	5.3
Apr	51.3	29.6	40.5	93	1980	22	48.4	1987	-6	1970	1	33.6	1975	736	0	.0	@	16.4	1.1	19.2	.2
May	65.9	42.5	54.2	90+	1969	28	61.7	1977	17+	1966	9	47.4	1979	357	22	.0	.0	28.8	.0	4.4	.0
Jun	74.0	52.0	63.0	96	1994	15	67.5	1988	28+	1984	9	57.5	1982	112	53	.0	.5	30.0	.0	.1	.0
Jul	78.4	57.6	68.0	99	1988	6	72.8	1988	34	1978	3	60.6	1992	51	143	.0	1.7	31.0	.0	.0	.0
Aug	76.1	56.0	66.1	99	1976	19	71.7	1983	31	1976	29	61.6	1977	67	100	.0	.8	31.0	.0	@	.0
Sep	66.5	47.1	56.8	96	1976	8	61.6	1998	18	1974	22	51.4	1984	257	11	.0	.1	29.2	.0	2.2	.0
Oct	54.1	35.8	45.0	85+	1976	1	52.1	1973	4	1976	27	39.1	1976	622	0	.0	.0	21.0	.4	13.0	.0
Nov	36.0	22.1	29.1	72+	1978	3	37.5	1999	-25+	1976	30	20.2	1985	1080	0	.0	.0	4.3	11.6	27.0	1.5
Dec	21.6	4.9	13.3	51	1998	2	24.0	1997	-46	1983	18	-2.4	1983	1604	0	.0	.0	.1	25.1	31.0	13.3
Ann	50.1	30.2	40.2	99+	Jul 1988	6	72.8	Jul 1988	-46	Dec 1983	18	-5.5	Jan 1977	9355	329	.0	3.1	195.6	95.7	184.6	51.9

+ 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](http://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: 1959-2001

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

050-A

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**Climate Division: MN 6**

**NWS Call Sign:**

**Elevation: 1,285 Feet Lat: 46°19N**

**Lon: 93°32W**

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	.66	.61	.80	1976	2	1.82	1999	.00+	1996	5.8	2.6	.3	@	.00	.00	.19	.30	.41	.53	.67	.84	1.05	1.40	1.74
Feb	.47	.42	.83	1965	10	1.76	1971	.00+	1998	4.6	1.7	.1	.0	.00	.00	.08	.19	.28	.38	.49	.61	.79	1.05	1.33
Mar	1.22	.92	1.43	1977	12	3.45	1979	.00+	1997	6.5	4.5	.7	.1	.00	.27	.52	.71	.89	1.08	1.29	1.52	1.84	2.34	2.81
Apr	1.90	1.80	2.00	1985	23	5.24	1985	.16	1980	6.9	5.3	1.3	.3	.25	.40	.67	.93	1.21	1.52	1.87	2.32	2.91	3.89	4.83
May	2.95	2.72	2.75	1979	10	5.36	1991	.92	1992	8.7	6.5	1.8	.5	1.10	1.38	1.77	2.10	2.42	2.74	3.08	3.49	4.00	4.79	5.52
Jun	4.31	3.82	4.05	1990	3	9.58	1976	.79	1995	10.4	7.7	2.9	.9	1.28	1.69	2.30	2.83	3.35	3.88	4.47	5.17	6.07	7.48	8.78
Jul	4.96	4.13	9.80	1972	22	22.70	1972	.41	1989	9.8	7.9	3.0	1.3	1.19	1.66	2.38	3.03	3.67	4.35	5.10	6.01	7.19	9.06	10.82
Aug	3.75	3.77	3.85	1995	25	7.08	1995	1.00	1984	8.7	6.5	2.6	.9	1.17	1.53	2.06	2.51	2.95	3.40	3.90	4.49	5.25	6.43	7.52
Sep	2.85	2.69	3.70	1994	15	5.78	1985	.64	1976	8.3	5.8	1.7	.6	.80	1.07	1.48	1.83	2.18	2.55	2.95	3.43	4.05	5.02	5.92
Oct	2.27	1.72	2.34	1971	27	8.03	1971	.10	1978	6.8	4.5	1.4	.6	.23	.39	.70	1.01	1.36	1.74	2.20	2.76	3.54	4.83	6.09
Nov	1.53	1.39	2.00	1996	17	4.13	1983	.00+	1995	6.1	4.1	.9	.2	.00	.00	.46	.73	.99	1.27	1.58	1.95	2.43	3.22	3.98
Dec	.74	.59	3.10	1984	15	3.58	1984	.00+	1995	5.7	2.6	.3	.1	.00	.08	.21	.32	.45	.58	.74	.92	1.18	1.60	2.01
Ann	27.61	26.65	9.80	Jul 1972	22	22.70	Jul 1972	.00+	Feb 1998	88.3	59.7	17.0	5.5	17.18	19.09	21.60	23.54	25.29	27.01	28.80	30.80	33.25	36.86	40.03

+ 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: 1959-2001

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

Complete documentation available from:  
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Station: ISLE 12 N, MN

COOP ID: 214103

Climate Division: MN 6

NWS Call Sign:

Elevation: 1,285 Feet

Lat: 46° 19N

Lon: 93° 32W

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	12.7	12.2	11	12	10.0	1975	11	41.5	1975	43	1975	30	26	1975	4.3	3.2	1.3	.4	.1	-9.9	-9.9	-9.9	-9.9
Feb	7.9	5.9	13	11	7.0	1971	27	23.5	1974	41	1975	1	32	1979	2.8	2.2	.7	.2	.0	-9.9	-9.9	-9.9	-9.9
Mar	9.8	7.7	8	4	8.0	1975	24	34.0	1975	38	1979	5	26	1979	2.6	2.3	.7	.3	.0	18.8	17.7	16.7	13.3
Apr	1.9	.5	1	0	8.0	1974	1	11.0	1974	34	1975	1	12	1975	.8	.6	.2	@	.0	3.6	2.6	2.0	.9
May	.1	.0	#	0	1.0	1976	2	1.0+	1979	1	1979	5	#+	1997	.1	.1	.0	.0	.0	.1	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.3	.0	#	0	3.0	1984	29	3.0	1987	3	1987	21	#+	1989	.2	.1	.1	.0	.0	.1	.1	.0	.0
Nov	5.4	4.2	1	#	6.0	1975	20	18.0	1975	13	1985	30	4	1975	2.3	2.0	.6	.2	.0	5.1	2.7	1.7	.6
Dec	7.9	5.6	4	4	10.0	1978	3	22.4	1978	21	1983	27	16	1983	4.0	3.0	.5	.1	@	-9.9	-9.9	-9.9	-9.9
Ann	46.0	36.1	N/A	N/A	10.0+	Dec 1978	3	41.5	Jan 1975	43	Jan 1975	30	32	Feb 1979	17.1	13.5	4.1	1.2	.1	-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](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

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## No. 20 1971-2000

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**COOP ID: 214103**

**Climate Division: MN 6**

**NWS Call Sign:**

**Elevation: 1,285 Feet**

**Lat: 46° 19N**

**Lon: 93° 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	6/25	6/17	6/12	6/07	6/02	5/28	5/23	5/17	5/09
32	6/01	5/27	5/23	5/20	5/17	5/14	5/11	5/08	5/03
28	5/22	5/16	5/12	5/09	5/06	5/03	4/29	4/26	4/20
24	5/07	5/02	4/28	4/25	4/22	4/19	4/16	4/12	4/07
20	4/27	4/23	4/19	4/16	4/14	4/11	4/08	4/05	3/31
16	4/14	4/11	4/09	4/07	4/05	4/03	4/01	3/30	3/27
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	8/27	9/01	9/06	9/09	9/12	9/16	9/19	9/23	9/29
32	9/08	9/13	9/17	9/20	9/22	9/25	9/28	10/01	10/06
28	9/17	9/23	9/27	10/01	10/04	10/07	10/11	10/15	10/21
24	9/28	10/05	10/10	10/14	10/18	10/22	10/27	11/01	11/07
20	10/10	10/17	10/21	10/25	10/29	11/01	11/05	11/10	11/16
16	10/16	10/23	10/28	11/01	11/04	11/08	11/12	11/17	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	129	119	113	107	102	96	91	84	75
32	148	141	136	132	127	123	119	114	106
28	176	167	161	155	150	145	140	133	124
24	207	197	190	184	179	173	167	160	150
20	220	212	206	202	197	193	188	182	174
16	237	228	223	218	213	208	203	197	189

\* 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](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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**Elevation: 1,285 Feet    Lat: 46°19N    Lon: 93°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	1810	1446	1213	736	357	112	51	67	257	622	1080	1604	9355
60	1655	1306	1058	589	238	43	14	18	142	469	930	1449	7911
57	1562	1222	965	503	179	20	6	7	89	380	840	1356	7129
55	1500	1166	903	447	145	11	0	2	62	325	780	1294	6635
50	1345	1026	748	317	77	2	0	0	19	202	632	1139	5507
32	801	555	272	37	1	0	0	0	0	9	198	612	2485

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	14	33	82	291	689	931	1116	1056	744	410	108	31	5505
55	0	0	0	11	120	251	403	345	116	13	0	0	1259
57	0	0	0	6	92	200	346	288	83	7	0	0	1022
60	0	0	0	3	58	133	261	206	46	2	0	0	709
65	0	0	0	0	22	53	143	100	11	0	0	0	329
70	0	0	0	0	7	13	64	35	1	0	0	0	120

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	12	130	458	699	872	803	495	196	21	0	0	0	12	142	600	1299	2171	2974	3469	3665	3686	3686
45	0	0	1	67	318	549	717	648	354	107	6	0	0	0	1	68	386	935	1652	2300	2654	2761	2767	2767
50	0	0	0	30	199	401	562	493	222	48	1	0	0	0	0	30	229	630	1192	1685	1907	1955	1956	1956
55	0	0	0	13	105	260	407	339	121	18	0	0	0	0	0	13	118	378	785	1124	1245	1263	1263	1263
60	0	0	0	0	48	140	257	200	58	1	0	0	0	0	0	0	48	188	445	645	703	704	704	704
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	7	94	281	429	563	507	291	113	12	0	0	0	7	101	382	811	1374	1881	2172	2285	2297	2297

(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](http://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](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
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## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)