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: FAIRMONT, MN **COOP ID: 212698**

Climate Division: MN 8 **NWS Call Sign:** **Elevation: 1,187 Feet** **Lat: 43˚39N** **Lon: 94˚28W**

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	22.0	4.8	13.4	64	1981	24	27.8	1990	-33	1970	21	.0	1979	1599	0	.0	.0	.2	23.0	30.8	12.3
Feb	28.7	11.9	20.3	64	1954	14	32.4	1987	-28	1996	2	6.3	1979	1252	0	.0	.0	1.3	15.8	27.3	6.7
Mar	40.7	23.8	32.3	81	1968	30	41.1	2000	-24	1962	1	23.7	1984	1016	0	.0	.0	7.3	7.2	25.3	1.5
Apr	56.3	36.4	46.4	90	1970	28	54.3	1977	9+	1997	8	39.8	1975	563	4	.0	.0	20.9	.6	9.9	.0
May	70.4	48.9	59.7	97	1967	25	68.0	1977	24	1967	3	53.4	1997	227	61	.0	.6	30.3	.0	.8	.0
Jun	79.9	58.3	69.1	100	1985	8	74.9	1988	39+	1985	3	63.5	1982	34	157	@	3.2	30.0	.0	.0	.0
Jul	83.1	62.3	72.7	101	1955	28	76.5	1983	42	1971	30	66.5	1992	12	249	.1	5.2	31.0	.0	.0	.0
Aug	80.6	60.0	70.3	100+	1988	15	75.5	1983	41+	1996	24	65.3	1985	27	193	@	2.9	31.0	.0	.0	.0
Sep	72.5	50.7	61.6	97	1976	6	68.3	1998	27+	1984	26	56.8	1993	154	51	.0	.8	29.6	.0	.6	.0
Oct	59.3	38.9	49.1	91+	1997	2	55.2	1973	14	1972	19	43.4	1980	494	1	.0	@	25.3	.2	7.1	.0
Nov	39.9	24.4	32.2	79	1999	13	43.3	1999	-13	1985	24	21.3	1985	986	0	.0	.0	7.2	8.3	24.0	.9
Dec	25.7	10.3	18.0	65	1998	1	26.5	1998	-24+	1989	21	2.7	1983	1456	0	.0	.0	.5	21.0	30.7	7.9
Ann	54.9	35.9	45.4	101	Jul 1955	28	76.5	Jul 1983	-33	Jan 1970	21	.0	Jan 1979	7820	716	.1	12.7	214.6	76.1	156.5	29.3

\+ 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: 1948-2001

(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	.80	.69	1.25	1996	18	2.02	1996	.05	1995
Feb	.72	.58	1.48	1971	19	2.90	1971	.00	1987
Mar	1.94	1.60	1.87	1966	23	4.51	1977	.23	1994
Apr	3.15	2.99	2.54	1967	2	6.10	1999	.32	1996
May	3.88	4.07	3.73	2000	18	7.70	2000	1.26	1994
Jun	4.49	4.24	4.68	1993	24	14.52	1993	1.35	1988
Jul	4.20	4.14	4.79	1963	19	8.21	1990	.73	1975
Aug	4.22	3.54	4.52	1979	21	13.90	1979	.72	1999
Sep	2.60	2.69	2.79	1964	8	6.15	1973	.85	2000
Oct	2.33	1.79	2.79	1998	15	7.96	1998	.06	1988
Nov	2.01	1.74	2.09	1975	10	5.25	1991	.07	1976
Dec	1.02	.95	2.11	1982	28	3.93	1982	.13	1999
Ann	31.36	30.09	4.79	Jul 1963	19	14.52	Jun 1993	.00	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.4	2.3	.2	.1
Feb	5.4	2.0	.3	@
Mar	7.8	4.3	1.4	.3
Apr	10.1	6.3	2.2	.7
May	11.4	7.5	2.8	.9
Jun	11.0	7.3	3.2	1.4
Jul	10.0	6.4	2.9	1.4
Aug	9.4	6.5	2.3	1.3
Sep	8.7	5.4	1.7	.6
Oct	7.2	4.2	1.6	.6
Nov	6.8	3.9	1.4	.5
Dec	6.6	2.7	.5	.1
Ann	100.8	58.8	20.5	7.9

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	.07	.13	.24	.35	.47	.60	.77	.97	1.25	1.72	2.18
Feb	.04	.11	.23	.33	.45	.57	.71	.89	1.13	1.53	1.91
Mar	.42	.60	.89	1.14	1.40	1.68	1.99	2.36	2.84	3.62	4.35
Apr	.75	1.05	1.51	1.92	2.33	2.76	3.24	3.82	4.57	5.77	6.89
May	1.47	1.84	2.35	2.78	3.19	3.61	4.06	4.58	5.25	6.28	7.21
Jun	1.40	1.83	2.46	3.00	3.53	4.08	4.67	5.38	6.29	7.70	9.01
Jul	1.10	1.50	2.11	2.64	3.17	3.72	4.34	5.07	6.02	7.52	8.92
Aug	.85	1.23	1.85	2.42	2.99	3.61	4.30	5.14	6.25	8.02	9.71
Sep	.82	1.06	1.43	1.74	2.05	2.36	2.71	3.11	3.64	4.45	5.21
Oct	.19	.35	.66	.98	1.33	1.74	2.22	2.83	3.67	5.08	6.46
Nov	.23	.39	.67	.95	1.25	1.58	1.98	2.46	3.12	4.20	5.26
Dec	.16	.24	.39	.53	.68	.84	1.02	1.25	1.55	2.04	2.51
Ann	20.78	22.77	25.36	27.34	29.12	30.84	32.64	34.63	37.07	40.63	43.73

\+ 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: 1948-2001
(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	7.5	6	5
Feb	6.4	6.4	6	4
Mar	9.2	7.5	3	1
Apr	3.7	2.5	#	#
May	#	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.6	.0	#	0
Nov	5.4	3.5	1	1
Dec	10.3	11.1	4	3
Ann	45.1	38.5	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	12.0	1975	11	28.1	1982	33	1979	31	22	1979
Feb	8.0	1983	3	12.1	1971	32	1979	5	25	1979
Mar	11.0	1977	3	23.0	1983	29	1979	4	16	1979
Apr	8.0	1984	30	13.5	1983	7	1985	1	2	1975
May	#	1984	1	#+	1984	#+	1984	1	#+	1984
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	6.0	1976	24	6.0	1976	6	1976	24	1	1976
Nov	14.0	1991	1	27.5	1991	14	1991	1	4	1991
Dec	12.0	1982	28	22.0	1985	24	2000	31	16	1985
Ann	14.0	Nov 1991	1	28.1	Jan 1982	33	Jan 1979	31	25	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.9	3.3	1.1	.5	.1
Feb	3.8	2.3	.8	.3	.0
Mar	3.2	2.3	1.1	.6	.1
Apr	1.5	1.3	.6	.1	.0
May	.0	.0	.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	.2	.2	.1	@	.0
Nov	3.0	2.1	.6	.2	.1
Dec	5.0	3.5	1.0	.4	.1
Ann	21.6	15.0	5.3	2.1	.4

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	23.2	17.4	13.6	6.1
Feb	17.5	12.5	7.9	2.7
Mar	8.3	5.7	3.2	1.4
Apr	2.0	.7	.2	.0
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	.3	.1	.1	.0
Nov	6.4	3.7	.9	@
Dec	20.7	11.5	7.2	3.2
Ann	78.4	51.6	33.1	13.4

+ 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	5/17	5/12	5/08	5/05	5/02	4/29	4/26	4/23	4/18
32	5/11	5/06	5/02	4/29	4/26	4/23	4/20	4/16	4/11
28	4/22	4/19	4/16	4/14	4/12	4/09	4/07	4/04	4/01
24	4/14	4/10	4/08	4/06	4/04	4/01	3/30	3/28	3/24
20	4/10	4/05	4/02	3/31	3/28	3/25	3/23	3/20	3/15
16	4/04	3/30	3/26	3/23	3/20	3/17	3/14	3/10	3/05

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	9/17	9/22	9/25	9/28	9/30	10/03	10/06	10/09	10/13
32	9/23	9/28	10/01	10/04	10/07	10/09	10/12	10/16	10/21
28	10/02	10/07	10/11	10/14	10/18	10/21	10/24	10/28	11/02
24	10/10	10/17	10/21	10/25	10/29	11/02	11/05	11/10	11/16
20	10/27	10/31	11/03	11/06	11/08	11/11	11/13	11/17	11/21
16	10/30	11/05	11/09	11/12	11/15	11/18	11/22	11/26	12/01

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	171	164	159	154	150	146	142	137	130
32	182	176	171	167	163	159	155	150	144
28	207	201	196	192	188	185	181	176	169
24	230	222	217	212	208	203	199	193	186
20	245	238	233	229	225	220	216	211	204
16	263	255	249	244	240	235	230	224	216

***** 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	1599	1252	1016	563	227	34	12	27	154	494	986	1456	7820
60	1444	1112	861	422	136	8	0	6	72	347	836	1301	6545
57	1351	1028	768	344	94	3	0	1	40	267	746	1208	5850
55	1289	972	706	296	71	1	0	0	25	219	688	1146	5413
50	1134	837	561	190	31	0	0	0	5	120	548	991	4417
32	616	396	153	11	0	0	0	0	0	3	160	486	1825

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	40	68	161	441	858	1113	1260	1188	888	533	164	53	6767
55	0	0	1	36	215	424	547	476	222	36	2	0	1959
57	0	0	0	25	176	366	485	415	177	22	0	0	1666
60	0	0	0	13	125	281	392	326	119	9	0	0	1265
65	0	0	0	4	61	157	249	193	51	1	0	0	716
70	0	0	0	0	24	69	131	94	15	0	0	0	333

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	50	246	622	880	1018	942	655	315	52	2	0	3	53	299	921	1801	2819	3761	4416	4731	4783	4785
45	0	0	21	146	471	730	863	787	510	195	20	0	0	0	21	167	638	1368	2231	3018	3528	3723	3743	3743
50	0	0	6	78	326	581	708	632	367	107	6	0	0	0	6	84	410	991	1699	2331	2698	2805	2811	2811
55	0	0	1	37	204	432	553	477	234	49	0	0	0	0	1	38	242	674	1227	1704	1938	1987	1987	1987
60	0	0	0	14	108	291	398	330	133	16	0	0	0	0	0	14	122	413	811	1141	1274	1290	1290	1290
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	32	148	368	570	685	624	398	183	29	0	0	1	33	181	549	1119	1804	2428	2826	3009	3038	3038

(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