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: LITTLE FALLS 1 N, MN **COOP ID: 214793**

Climate Division: MN 5 **NWS Call Sign:** **Elevation: 1,120 Feet** **Lat: 46˚00N** **Lon: 94˚21W**

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	20.3	-.8	9.8	59	1942	23	23.0	1990	-41	1977	9	-1.4	1979	1714	0	.0	.0	.1	26.1	31.0	16.4
Feb	27.9	6.1	17.0	59	1932	27	31.1	1998	-46	1936	16	5.8	1989	1344	0	.0	.0	.6	16.7	27.7	10.3
Mar	40.0	18.8	29.4	79	1946	27	38.8	2000	-39	1962	1	19.1	1975	1104	0	.0	.0	6.0	7.0	27.3	3.6
Apr	57.3	32.0	44.7	95	1980	21	52.9	1987	-5	1975	1	34.7	1975	613	3	.0	.1	21.5	.3	16.1	.2
May	71.9	44.9	58.4	103	1934	31	67.2	1977	18	1966	1	51.9	1979	257	52	.0	.5	30.6	.0	2.8	.0
Jun	79.8	54.2	67.0	99+	1988	25	73.4	1988	31	2001	12	61.5	1982	58	119	.0	2.4	30.0	.0	.0	.0
Jul	84.2	59.2	71.7	106+	1936	11	77.6	1988	39	1969	1	63.8	1992	18	226	.2	5.6	31.0	.0	.0	.0
Aug	82.0	57.0	69.5	104	1947	10	74.4	1983	36+	1999	8	65.2	1992	31	170	.1	4.0	31.0	.0	.0	.0
Sep	72.6	47.3	60.0	99	1978	7	65.8	1998	17	1974	22	54.6	1993	185	32	.0	.7	29.7	.0	1.6	.0
Oct	59.3	36.0	47.7	91+	1953	2	53.0	1973	5+	1976	27	41.9	1976	539	0	.0	.0	24.9	.1	11.5	.0
Nov	38.9	21.4	30.2	75+	1999	8	39.4	1999	-24	1964	30	21.8	1985	1045	0	.0	.0	5.7	9.6	26.5	1.6
Dec	24.6	6.1	15.4	64	1939	6	26.1	1997	-42	1983	19	.8	1983	1539	0	.0	.0	.4	22.7	30.8	10.7
Ann	54.9	31.9	43.4	106+	Jul 1936	11	77.6	Jul 1988	-46	Feb 1936	16	-1.4	Jan 1979	8447	602	.3	13.3	211.5	82.5	175.3	42.8

\+ 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: 1932-2001

(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	.75	1.20	1975	11	2.93	1975	.00	1974
Feb	.59	.49	1.20	1944	26	1.96	1971	.00+	1987
Mar	1.44	1.33	2.50	1940	27	4.22	1990	.45	1986
Apr	1.86	1.60	2.14	1937	24	5.65	1986	.00	1987
May	3.04	2.89	2.30	1962	22	6.33	1999	.85	1976
Jun	4.30	4.28	3.28	1949	2	7.92	1998	.73	1987
Jul	3.52	3.38	4.55	1972	22	9.61	1972	.65	1976
Aug	3.45	3.40	4.70	1953	1	8.38	1995	.20	1976
Sep	2.78	2.99	2.53	1995	30	6.11	1986	.36	1976
Oct	2.41	1.79	3.30	1946	5	9.52	1971	.15	1986
Nov	1.47	1.32	2.50	1977	9	4.27	2000	.04	1984
Dec	.62	.60	1.10	1963	8	1.50	1972	.07	1975
Ann	26.28	27.69	4.70	Aug 1953	1	9.61	Jul 1972	.00+	Apr 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.4	2.4	.1	.1
Feb	4.4	2.1	.2	@
Mar	6.5	3.8	.8	.1
Apr	7.1	4.8	1.2	.3
May	9.8	7.0	2.0	.5
Jun	10.9	8.0	2.9	1.0
Jul	9.0	6.7	2.5	.8
Aug	8.7	5.9	2.3	1.0
Sep	8.2	5.2	2.0	.6
Oct	7.4	4.2	1.4	.6
Nov	6.0	3.6	.8	.2
Dec	5.1	2.4	.1	.0
Ann	88.5	56.1	16.3	5.2

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	.04	.11	.24	.35	.48	.62	.78	.98	1.26	1.72	2.16
Feb	.00	.03	.12	.21	.31	.42	.56	.73	.96	1.36	1.75
Mar	.36	.49	.70	.89	1.07	1.27	1.49	1.75	2.09	2.62	3.12
Apr	.18	.39	.70	.97	1.25	1.55	1.89	2.30	2.85	3.73	4.58
May	1.28	1.56	1.94	2.26	2.56	2.86	3.19	3.56	4.04	4.76	5.42
Jun	1.49	1.90	2.49	2.99	3.46	3.95	4.49	5.11	5.91	7.14	8.28
Jul	1.24	1.58	2.06	2.46	2.85	3.25	3.68	4.18	4.83	5.83	6.74
Aug	.90	1.23	1.73	2.17	2.60	3.06	3.57	4.17	4.95	6.19	7.35
Sep	.77	1.03	1.43	1.78	2.13	2.48	2.88	3.35	3.96	4.91	5.81
Oct	.23	.40	.72	1.06	1.42	1.84	2.33	2.94	3.79	5.19	6.57
Nov	.14	.25	.44	.65	.87	1.12	1.42	1.79	2.30	3.15	3.99
Dec	.10	.15	.24	.32	.41	.51	.62	.75	.93	1.22	1.50
Ann	18.19	19.74	21.74	23.26	24.62	25.93	27.29	28.80	30.63	33.30	35.61

\+ 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: 1932-2001
(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	11.6	10.5	14	13
Feb	8.8	7.0	14	11
Mar	9.2	8.0	7	5
Apr	2.3	2.0	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	.6	.0	#	0
Nov	7.9	7.0	2	1
Dec	9.0	9.5	7	6
Ann	49.5	44.0	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	14.0	1975	11	36.5	1975	48	1997	24	40	1997
Feb	12.0	1991	23	33.5	1979	57	1979	23	48	1975
Mar	8.0	1985	3	22.0	1985	52	1979	1	33	1975
Apr	6.0	1992	10	8.0	1994	36	1975	1	9	1975
May	2.0	1971	19	2.0	1971	2	1994	1	#+	1997
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	#	1985	24	#+	1985	0	0	0	0	0
Oct	3.0	1987	22	6.0	1987	3	1992	16	#+	1997
Nov	12.0	1975	20	22.5	1991	18	1983	30	7	1991
Dec	9.0	2000	28	23.0	2000	31	1983	21	22	1983
Ann	14.0	Jan 1975	11	36.5	Jan 1975	57	Feb 1979	23	48	Feb 1975

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.1	4.6	1.8	.6	.1
Feb	3.2	2.8	1.0	.5	.1
Mar	3.5	3.3	1.4	.4	.0
Apr	1.0	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	.3	.3	.1	.0	.0
Nov	3.2	3.0	1.3	.4	.1
Dec	4.5	3.9	1.1	.3	.0
Ann	20.8	18.9	7.0	2.3	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	11.6	9.6	7.9	4.8
Apr	2.4	1.5	1.0	.4
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	.3	.1	.0	.0
Nov	5.4	2.8	1.6	.6
Dec	-9.9	-9.9	-9.9	-9.9
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

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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	6/05	5/31	5/27	5/24	5/21	5/18	5/15	5/12	5/07
32	5/22	5/18	5/15	5/12	5/09	5/07	5/04	5/01	4/27
28	5/15	5/09	5/05	5/02	4/28	4/25	4/21	4/17	4/12
24	5/03	4/28	4/24	4/22	4/19	4/16	4/13	4/10	4/05
20	4/17	4/13	4/11	4/09	4/07	4/05	4/03	3/31	3/28
16	4/11	4/07	4/04	4/01	3/30	3/27	3/25	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	9/03	9/08	9/12	9/15	9/18	9/21	9/24	9/28	10/03
32	9/15	9/19	9/22	9/24	9/26	9/29	10/01	10/04	10/08
28	9/20	9/25	9/29	10/02	10/04	10/07	10/10	10/14	10/19
24	10/04	10/09	10/12	10/15	10/18	10/21	10/24	10/28	11/02
20	10/14	10/19	10/23	10/26	10/29	11/01	11/04	11/08	11/13
16	10/21	10/26	10/30	11/02	11/05	11/08	11/12	11/15	11/21

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	141	133	128	123	119	115	110	105	97
32	157	151	147	143	139	136	132	128	122
28	183	174	168	163	158	153	148	142	134
24	203	196	190	186	182	178	173	168	161
20	223	216	212	208	204	201	197	192	186
16	243	235	229	224	220	215	211	205	197

***** 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	1714	1344	1104	613	257	58	18	31	185	539	1045	1539	8447
60	1559	1204	949	470	160	17	4	6	90	388	895	1384	7126
57	1466	1120	856	391	114	7	0	1	52	303	805	1291	6406
55	1404	1064	796	341	88	3	0	0	33	251	745	1229	5954
50	1249	924	650	229	41	0	0	0	8	141	598	1074	4914
32	711	464	219	20	0	0	0	0	0	3	173	552	2142

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	19	44	138	401	818	1051	1231	1162	838	488	118	36	6344
55	0	0	1	31	193	365	518	449	181	22	0	0	1760
57	0	0	0	21	157	308	456	388	140	12	0	0	1482
60	0	0	0	11	110	228	366	300	88	4	0	0	1107
65	0	0	0	3	52	119	226	170	32	0	0	0	602
70	0	0	0	0	20	46	118	77	8	0	0	0	269

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	24	209	576	811	983	910	595	268	29	0	0	1	25	234	810	1621	2604	3514	4109	4377	4406	4406
45	0	0	10	119	427	661	828	755	448	159	12	0	0	0	10	129	556	1217	2045	2800	3248	3407	3419	3419
50	0	0	1	60	287	511	673	600	312	81	1	0	0	0	1	61	348	859	1532	2132	2444	2525	2526	2526
55	0	0	0	28	170	363	518	447	186	34	0	0	0	0	0	28	198	561	1079	1526	1712	1746	1746	1746
60	0	0	0	11	90	226	363	294	97	8	0	0	0	0	0	11	101	327	690	984	1081	1089	1089	1089
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	21	149	367	523	654	597	375	164	18	0	0	0	21	170	537	1060	1714	2311	2686	2850	2868	2868

(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