

Climatology of the United States

No. 20

1971-2000

Station: MELROSE, MN

COOP ID: 215325

Climate Division: MN 5

NWS Call Sign:

Elevation: 1,210 Feet Lat: 45° 41N

Lon: 94° 50W

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	20.0	.2	10.1	59	1981	24	24.6	1990	-39	1977	9	-2.5	1977	1702	0	.0	.0	.1	25.3	31.0	16.2
Feb	27.3	7.5	17.4	57	1981	17	30.5	1998	-38	1996	2	5.5	1979	1333	0	.0	.0	.7	17.0	27.8	9.8
Mar	39.2	20.0	29.6	76	1968	30	39.1	2000	-31	1962	1	20.4	1975	1097	0	.0	.0	5.3	7.8	27.7	3.0
Apr	56.9	33.1	45.0	95	1980	21	53.8	1987	-3	1975	1	36.2	1975	603	2	.0	@	21.7	.4	15.5	.1
May	71.2	46.0	58.6	97	2001	15	65.9	1977	19+	1967	4	52.2	1979	247	48	.0	.4	30.5	.0	2.5	.0
Jun	79.2	55.5	67.4	102	1988	24	74.5	1988	33	1964	2	62.0	1982	58	128	.1	2.8	30.0	.0	.0	.0
Jul	83.6	60.2	71.9	103+	1988	31	77.5	1988	38+	1971	30	64.8	1992	18	231	.3	5.3	31.0	.0	.0	.0
Aug	80.9	58.3	69.6	101+	1988	16	74.9	1983	36	1965	28	64.3	1985	31	172	.1	3.0	31.0	.0	.0	.0
Sep	71.5	48.6	60.1	98	1978	7	65.4	1998	20	1974	22	54.7	1993	182	33	.0	.7	29.8	.0	1.7	.0
Oct	58.6	36.8	47.7	90	1992	2	53.3	1973	8	1976	27	42.7	1976	536	0	.0	@	24.6	.2	11.5	.0
Nov	38.2	22.1	30.2	77	1978	3	38.9	1999	-22	1964	30	19.6	1985	1045	0	.0	.0	5.6	9.8	26.3	1.6
Dec	24.3	7.5	15.9	59	1962	1	27.8	1997	-36	1983	19	.6	1983	1522	0	.0	.0	.3	22.8	30.9	10.8
Ann	54.2	33.0	43.6	103+	Jul 1988	31	77.5	Jul 1988	-39	Jan 1977	9	-2.5	Jan 1977	8374	614	.5	12.2	210.6	83.3	174.9	41.5

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1954-2001

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

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**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: MELROSE, MN

COOP ID: 215325

Climate Division: MN 5

NWS Call Sign:

Elevation: 1,210 Feet Lat: 45°41N

Lon: 94°50W

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	.88	.69	1.55	1996	18	3.36	1975	.02+	1990	5.8	2.8	.2	.1	.05	.10	.20	.32	.46	.62	.81	1.06	1.41	2.01	2.61
Feb	.65	.51	1.38	1971	27	2.06	1971	.00	1999	4.8	2.2	.2	@	.02	.08	.17	.26	.36	.48	.62	.79	1.03	1.44	1.83
Mar	1.60	1.31	1.50	1977	12	3.58	1977	.26	1974	6.5	4.2	1.0	.2	.41	.57	.80	1.00	1.20	1.41	1.65	1.93	2.29	2.87	3.41
Apr	2.17	2.14	3.00	2001	23	6.06	1986	.04	1987	8.1	5.2	1.3	.3	.30	.47	.78	1.09	1.40	1.75	2.15	2.65	3.32	4.41	5.47
May	3.26	3.09	2.80	1987	21	7.52	1993	.47	1976	9.9	6.6	2.4	.7	1.18	1.48	1.93	2.30	2.65	3.01	3.41	3.87	4.45	5.35	6.18
Jun	4.29	4.25	5.13	1992	17	8.51	1984	.62	1987	10.4	7.5	2.7	.9	1.18	1.58	2.20	2.74	3.27	3.83	4.44	5.17	6.11	7.59	8.98
Jul	3.67	3.39	3.81	1963	27	9.49	1972	.75	1975	9.2	6.6	2.5	.9	1.13	1.48	2.00	2.44	2.87	3.32	3.81	4.39	5.13	6.30	7.37
Aug	3.49	3.34	3.55	1975	20	6.80	1975	.37	1976	9.0	6.2	2.4	.8	.99	1.33	1.83	2.26	2.68	3.13	3.62	4.19	4.94	6.12	7.21
Sep	2.78	2.64	3.26	1980	12	6.25	1986	.50	2000	8.1	5.4	1.5	.6	.68	.94	1.35	1.71	2.07	2.44	2.86	3.36	4.02	5.05	6.03
Oct	2.44	1.69	3.10	1995	1	8.36	1971	.07	1978	6.9	4.6	1.4	.6	.18	.33	.65	.98	1.35	1.79	2.30	2.96	3.87	5.41	6.93
Nov	1.50	1.36	1.80	1970	9	4.47	2000	.07	1984	6.1	3.5	1.0	.3	.13	.23	.43	.64	.87	1.13	1.44	1.83	2.36	3.26	4.14
Dec	.64	.53	.80	1968	19	1.55	1996	.02	1988	5.5	2.3	.1	.0	.05	.10	.18	.27	.37	.48	.61	.78	1.01	1.40	1.78
Ann	27.37	26.61	5.13	Jun 1992	17	9.49	Jul 1972	.00	Feb 1999	90.3	57.1	16.7	5.4	18.58	20.25	22.40	24.05	25.52	26.94	28.42	30.07	32.06	34.98	37.51

+ 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: 1954-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: MELROSE, MN

COOP ID: 215325

Climate Division: MN 5

NWS Call Sign:

Elevation: 1,210 Feet

Lat: 45° 41N

Lon: 94° 50W

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	10.2	6.7	10	8	13.0	1996	18	36.8	1975	32	1975	31	26	1996	5.3	3.8	1.4	.6	.1	-9.9	-9.9	-9.9	-9.9
Feb	8.2	6.2	8	8	12.0	1971	27	22.1	1971	21+	1994	15	19	1979	4.2	2.7	.8	.2	@	-9.9	-9.9	-9.9	-9.9
Mar	8.4	7.0	5	3	12.0	1985	4	22.6	1975	26	1979	5	19	1979	3.1	2.4	1.0	.5	@	-9.9	-9.9	-9.9	-9.9
Apr	1.8	1.0	1	0	7.0	1996	13	7.0	1996	17	1975	1	12	1975	.9	.8	.3	.1	.0	.6	.1	.0	.0
May	#	.0	0	0	#	1989	6	#	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.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	.4	.0	#	0	4.0	1992	16	4.0	1992	1	1976	19	#+	1996	.2	.1	@	.0	.0	.1	.0	.0	.0
Nov	6.4	3.9	#	0	9.0	1993	25	19.0	1983	14	1975	21	4	1992	2.9	2.1	.8	.4	.0	-9.9	-9.9	-9.9	-9.9
Dec	6.4	5.8	2	1	8.0	1985	1	13.3	1977	10	1977	11	7	1993	4.1	2.7	.7	.1	.0	-9.9	-9.9	-9.9	-9.9
Ann	41.8	30.6	N/A	N/A	13.0	Jan 1996	18	36.8	Jan 1975	32	Jan 1975	31	26	Jan 1996	20.7	14.6	5.0	1.9	.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:

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NWS Call Sign:

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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	6/07	6/01	5/28	5/24	5/21	5/18	5/14	5/10	5/04
32	5/23	5/18	5/15	5/12	5/09	5/06	5/03	4/29	4/24
28	5/09	5/04	5/01	4/28	4/26	4/23	4/20	4/17	4/13
24	4/25	4/21	4/18	4/15	4/13	4/11	4/08	4/05	4/01
20	4/16	4/13	4/10	4/07	4/05	4/03	4/01	3/29	3/25
16	4/12	4/08	4/04	4/01	3/30	3/27	3/24	3/21	3/16
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	9/10	9/13	9/15	9/17	9/19	9/21	9/23	9/25	9/28
32	9/14	9/18	9/21	9/23	9/25	9/28	9/30	10/03	10/07
28	9/22	9/26	9/30	10/02	10/05	10/08	10/11	10/14	10/18
24	10/03	10/08	10/11	10/15	10/18	10/21	10/24	10/27	11/02
20	10/10	10/16	10/20	10/23	10/27	10/30	11/02	11/06	11/12
16	10/24	10/29	11/01	11/04	11/07	11/09	11/12	11/16	11/20
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	134	129	124	120	116	112	107	100
32	159	152	147	143	139	135	131	126	119
28	179	173	169	165	162	158	154	150	144
24	208	200	195	191	187	183	178	173	166
20	224	217	212	208	204	200	195	190	183
16	244	236	230	226	221	217	212	207	199

* 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:

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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	1702	1333	1097	603	247	58	18	31	182	536	1045	1522	8374
60	1547	1193	942	461	150	18	3	6	88	385	895	1367	7055
57	1454	1109	849	380	104	7	0	2	50	300	805	1274	6334
55	1392	1053	787	330	79	4	0	0	32	248	745	1212	5882
50	1237	913	641	219	35	0	0	0	7	139	600	1057	4848
32	704	458	207	17	0	0	0	0	0	4	183	545	2118

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	25	49	133	406	824	1060	1237	1164	842	491	128	45	6404
55	0	0	0	29	190	374	524	452	183	22	0	0	1774
57	0	0	0	19	153	317	462	391	142	12	0	0	1496
60	0	0	0	10	106	238	372	303	90	4	0	0	1123
65	0	0	0	2	48	128	231	172	33	0	0	0	614
70	0	0	0	0	17	53	122	79	8	0	0	0	279

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	25	204	579	820	988	914	598	264	26	1	0	1	26	230	809	1629	2617	3531	4129	4393	4419	4420
45	0	0	8	118	427	670	833	759	451	153	10	0	0	0	8	126	553	1223	2056	2815	3266	3419	3429	3429
50	0	0	1	56	291	520	678	604	311	80	3	0	0	0	1	57	348	868	1546	2150	2461	2541	2544	2544
55	0	0	0	24	173	373	523	449	192	33	0	0	0	0	0	24	197	570	1093	1542	1734	1767	1767	1767
60	0	0	0	8	90	235	369	296	101	9	0	0	0	0	0	8	98	333	702	998	1099	1108	1108	1108
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	18	144	364	530	659	600	370	164	18	0	0	0	18	162	526	1056	1715	2315	2685	2849	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:
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
- 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.

- 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/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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