

# 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: SPRINGFIELD 1 NW, MN

1971-2000

COOP ID: 217907

Climate Division: MN 8

NWS Call Sign:

Elevation: 1,066 Feet Lat: 44° 15N

Lon: 94° 59W

## 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	21.3	1.8	11.6	67	1981	25	26.3	1990	-32	1970	21	-1.9	1979	1657	0	.0	.0	.5	23.2	31.0	14.7
Feb	27.6	9.0	18.3	63+	2000	23	31.6	1987	-29+	1996	2	2.8	1979	1307	0	.0	.0	1.5	16.5	27.7	8.8
Mar	39.3	21.5	30.4	83	1968	30	39.4	2000	-24	1962	1	21.6	1984	1074	0	.0	.0	6.5	8.6	26.2	2.3
Apr	55.8	33.4	44.6	95+	1985	19	52.0	1987	-1	1975	4	37.0	1975	616	3	.0	.1	20.5	.8	13.9	@
May	70.6	46.0	58.3	100	1998	19	67.2	1977	21	1967	3	52.7	1997	262	55	@	1.4	30.0	.0	1.8	.0
Jun	79.7	56.1	67.9	104+	1988	22	74.4	1988	35+	1993	1	62.5	1982	47	134	.4	4.6	30.0	.0	.0	.0
Jul	82.5	59.9	71.2	103+	1989	10	76.7	1983	40+	1971	30	63.2	1992	20	212	.2	5.6	31.0	.0	.0	.0
Aug	79.7	57.3	68.5	105	1988	1	74.5	1983	37	1965	28	63.5	1992	40	148	.2	2.6	31.0	.0	.0	.0
Sep	72.5	47.3	59.9	101	1976	7	66.3	1998	20+	1974	22	54.4	1993	184	31	@	1.4	29.7	.0	2.1	.0
Oct	59.7	35.6	47.7	92+	1963	5	53.4	1973	11	1972	19	42.5	1976	539	0	.0	.1	25.1	.2	12.2	.0
Nov	39.7	22.0	30.9	83	1999	9	41.7	1999	-16	1996	26	21.1	1985	1024	0	.0	.0	7.5	8.5	25.7	1.5
Dec	25.7	7.9	16.8	67+	1998	3	26.1	1997	-32	1983	23	-1.1	1983	1496	0	.0	.0	.7	20.2	30.8	9.6
Ann	54.5	33.2	43.8	105	Aug 1988	1	76.7	Jul 1983	-32+	Dec 1983	23	-1.9	Jan 1979	8266	583	.8	15.8	214.0	78.0	171.4	36.9

+ 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: 1948-2001

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

093-A

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## No. 20

### 1971-2000

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Station: SPRINGFIELD 1 NW, MN

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NWS Call Sign:

Elevation: 1,066 Feet Lat: 44°15N

Lon: 94°59W

#### Precipitation (inches)

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	.65	.55	1.48	2001	30	2.45	1996	.00+	1995	5.7	1.9	.2	@	.00	.04	.13	.23	.33	.46	.61	.80	1.06	1.50	1.94
Feb	.64	.47	1.70	1971	26	3.27	1971	.01	1987	4.7	1.9	.2	@	.03	.07	.15	.23	.33	.45	.59	.78	1.03	1.47	1.91
Mar	1.94	1.75	1.75	1987	23	4.29	1979	.24	1994	7.7	4.4	1.5	.3	.35	.52	.81	1.07	1.34	1.63	1.97	2.37	2.90	3.76	4.59
Apr	2.80	2.73	2.73	2001	23	6.87	1986	.49	1996	10.0	5.9	1.9	.5	.67	.93	1.34	1.71	2.07	2.45	2.88	3.40	4.07	5.13	6.13
May	3.26	2.69	3.51	2000	18	8.05	2000	.85+	1976	10.4	6.5	2.1	.8	.79	1.10	1.57	2.00	2.42	2.86	3.36	3.95	4.73	5.95	7.11
Jun	3.92	3.71	4.33	1962	7	9.35	1984	.59	1988	10.5	7.1	2.6	1.0	1.19	1.56	2.12	2.60	3.06	3.55	4.08	4.70	5.51	6.77	7.94
Jul	3.55	3.53	3.52	2001	22	8.30	1986	.63	1980	9.8	6.2	2.1	1.0	.79	1.12	1.64	2.11	2.58	3.07	3.64	4.31	5.19	6.60	7.92
Aug	3.36	3.25	3.71	1994	10	6.54	1980	1.21	1983	9.1	5.7	2.2	1.0	1.28	1.59	2.04	2.41	2.76	3.12	3.51	3.96	4.54	5.42	6.23
Sep	2.42	2.01	2.82	1963	19	5.96	1986	.41	2000	8.5	5.0	1.7	.5	.74	.97	1.31	1.61	1.89	2.19	2.52	2.90	3.39	4.16	4.88
Oct	1.99	1.35	2.34	1968	17	4.96	1979	.10	1989	7.0	3.8	1.5	.5	.17	.30	.56	.84	1.14	1.49	1.91	2.43	3.15	4.35	5.54
Nov	1.69	1.51	1.85	1977	9	3.90	1983	.05+	1984	6.0	3.3	1.1	.5	.13	.24	.46	.70	.95	1.25	1.61	2.06	2.68	3.72	4.76
Dec	.61	.54	1.13	1968	22	1.54	1982	.00	1979	4.8	1.5	.3	@	.02	.06	.15	.23	.33	.44	.58	.75	.98	1.38	1.77
Ann	26.83	28.06	4.33	Jun 1962	7	9.35	Jun 1984	.00+	Jan 1995	94.2	53.2	17.4	6.1	16.32	18.24	20.76	22.72	24.48	26.22	28.03	30.07	32.57	36.25	39.49

+ 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

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: SPRINGFIELD 1 NW, MN

COOP ID: 217907

Climate Division: MN 8

NWS Call Sign:

Elevation: 1,066 Feet

Lat: 44° 15N

Lon: 94° 59W

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	9.4	6.9	5	5	18.0	1975	11	31.6	1975	20	1975	11	12+	1997	5.6	3.0	.8	.4	.1	22.3	18.2	12.3	3.6
Feb	6.0	5.4	5	4	10.0	1971	26	21.2	1971	19	1979	22	16	1979	4.4	2.2	.6	.1	@	17.0	13.1	10.1	4.5
Mar	8.2	7.3	3	2	13.0	1985	4	25.7	1983	20	1979	5	10	1979	4.4	2.5	1.1	.6	.1	10.7	7.4	4.8	2.0
Apr	3.0	1.1	#	#	8.0	1974	4	12.5	1994	6	1994	29	2	1975	1.5	1.0	.5	.1	.0	1.2	.5	.2	.0
May	#	.0	#	0	#	1979	12	#+	1979	#+	1997	5	#+	1997	.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	#	1995	22	#	1995	#+	1995	22	#+	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.6	.0	#	0	4.5	1999	2	5.5	1976	4	1999	2	#+	2000	.3	.2	.1	.0	.0	.1	.1	.0	.0
Nov	7.6	6.3	1	1	14.0	1991	30	31.0	1991	12	1991	2	7	1991	3.6	2.3	.8	.4	.1	7.0	3.9	2.0	.5
Dec	7.9	8.4	4	3	15.0	1982	28	18.4	1973	15	1982	28	12	1983	4.9	2.5	.8	.4	.1	16.9	11.1	8.1	1.9
Ann	42.7	35.4	N/A	N/A	18.0	Jan 1975	11	31.6	Jan 1975	20+	Mar 1979	5	16	Feb 1979	24.7	13.7	4.7	2.0	.4	75.2	54.3	37.5	12.5

+ 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

Complete documentation available from:

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## No. 20 1971-2000

**Station: SPRINGFIELD 1 NW, MN**

**COOP ID: 217907**

**Climate Division: MN 8**

**NWS Call Sign:**

**Elevation: 1,066 Feet**

**Lat: 44° 15N**

**Lon: 94° 59W**

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	5/27	5/22	5/19	5/16	5/13	5/10	5/07	5/03	4/29
32	5/17	5/12	5/08	5/05	5/02	4/29	4/26	4/23	4/17
28	5/07	5/02	4/29	4/26	4/24	4/21	4/18	4/15	4/10
24	4/24	4/19	4/15	4/12	4/09	4/06	4/03	3/30	3/25
20	4/14	4/10	4/06	4/03	3/31	3/28	3/25	3/22	3/17
16	4/07	4/02	3/29	3/26	3/24	3/21	3/18	3/14	3/09
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	9/14	9/16	9/18	9/20	9/22	9/24	9/26	9/29
32	9/13	9/18	9/21	9/24	9/26	9/29	10/01	10/05	10/09
28	9/22	9/28	10/02	10/06	10/09	10/12	10/16	10/20	10/26
24	10/02	10/07	10/11	10/14	10/17	10/20	10/23	10/26	10/31
20	10/12	10/18	10/22	10/25	10/29	11/01	11/05	11/09	11/14
16	10/23	10/28	11/01	11/05	11/08	11/11	11/15	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	149	142	137	133	129	126	122	117	110
32	168	160	155	150	146	142	137	132	125
28	188	181	176	171	167	163	159	154	147
24	210	203	198	194	190	186	182	177	170
20	234	226	220	215	211	206	201	196	188
16	251	243	238	233	229	224	220	214	206

\* 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: 1,066 Feet    Lat: 44°15N    Lon: 94°59W**

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	1657	1307	1074	616	262	47	20	40	184	539	1024	1496	8266
60	1502	1167	919	473	166	13	4	9	89	387	874	1341	6944
57	1409	1083	826	392	119	5	0	2	51	302	784	1248	6221
55	1347	1027	764	341	93	2	0	1	32	251	724	1186	5768
50	1192	893	617	228	45	0	0	0	7	141	582	1031	4736
32	672	448	186	17	0	0	0	0	0	4	176	524	2027

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	38	65	135	394	815	1077	1215	1132	837	489	142	52	6391
55	0	0	0	28	195	390	502	420	179	23	0	0	1737
57	0	0	0	19	159	332	440	359	138	12	0	0	1459
60	0	0	0	10	113	251	352	273	86	4	0	0	1089
65	0	0	0	3	55	134	212	148	31	0	0	0	583
70	0	0	0	0	22	55	108	64	7	0	0	0	256

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	39	218	596	862	988	901	613	290	46	1	0	3	42	260	856	1718	2706	3607	4220	4510	4556	4557
45	0	1	16	126	447	712	833	746	467	181	20	0	0	1	17	143	590	1302	2135	2881	3348	3529	3549	3549
50	0	0	4	72	310	563	678	591	329	97	6	0	0	0	4	76	386	949	1627	2218	2547	2644	2650	2650
55	0	0	1	36	196	416	523	436	205	47	0	0	0	0	1	37	233	649	1172	1608	1813	1860	1860	1860
60	0	0	0	14	111	278	370	288	115	16	0	0	0	0	0	14	125	403	773	1061	1176	1192	1192	1192
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	1	30	145	363	554	656	591	389	189	33	1	0	1	31	176	539	1093	1749	2340	2729	2918	2951	2952

(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)