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: MILESVILLE 5 NE, SD **COOP ID: 395544**

Climate Division: SD 3 **NWS Call Sign:** **Elevation: 2,237 Feet** **Lat: 44˚31N** **Lon: 101˚37W**

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	29.4	8.5	19.0	69	1987	12	30.9	1990	-33	1966	29	3.7	1978	1428	0	.0	.0	2.3	15.9	30.4	9.9
Feb	35.9	14.7	25.3	73+	1992	29	39.6	1999	-37	1994	9	10.0	1979	1111	0	.0	.0	6.0	11.2	27.2	5.4
Mar	45.9	23.6	34.8	83	1967	29	43.2	1986	-29	1998	11	25.3	1996	937	0	.0	.0	12.5	5.4	26.5	1.6
Apr	59.6	34.7	47.2	96+	1992	30	53.9	1981	2	1975	2	40.3	1995	537	1	.0	.2	23.4	.6	13.2	.0
May	70.8	45.4	58.1	103+	1992	19	66.0	1977	12	1950	1	53.4	1996	241	27	@	.9	30.1	.0	1.8	.0
Jun	80.7	54.8	67.8	107+	1988	21	76.6	1988	30	1969	2	62.2	1998	60	142	.5	4.8	30.0	.0	.0	.0
Jul	88.1	60.2	74.2	115	1952	24	80.1	1974	38	1959	1	65.1	1992	17	301	3.2	13.7	31.0	.0	.0	.0
Aug	87.6	58.7	73.2	110+	1988	15	80.1	1983	38+	1988	28	65.5	1992	26	279	2.6	13.6	31.0	.0	.0	.0
Sep	77.1	47.9	62.5	107+	2001	4	69.7	1998	20+	1951	29	56.3	1986	148	73	.8	4.7	29.7	.0	1.2	.0
Oct	62.9	36.3	49.6	98	1963	4	52.8	1974	-5	1991	30	46.0	1987	479	0	.0	.4	26.0	.4	10.0	.1
Nov	43.7	22.3	33.0	85	1999	8	43.3	1999	-25	1959	14	17.9	1985	960	0	.0	.0	10.8	6.7	26.0	1.5
Dec	32.3	11.7	22.0	70	1998	1	33.9	1999	-33	1990	30	4.1	1983	1333	0	.0	.0	3.4	14.2	30.1	6.7
Ann	59.5	34.9	47.2	115	Jul 1952	24	80.1+	Aug 1983	-37	Feb 1994	9	3.7	Jan 1978	7277	823	7.1	38.3	236.2	54.4	166.4	25.2

\+ 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	.41	.36	.52	1997	4	1.39	1997	.01	1984
Feb	.56	.26	1.12	1987	27	2.68	1987	.02	1999
Mar	1.23	.89	2.20	2000	8	3.67	1987	.21	1994
Apr	1.95	1.49	3.71	2000	19	6.09	2000	.13	1981
May	3.43	3.22	3.19	1971	23	9.87	1982	.67	1994
Jun	3.09	2.77	3.94	1994	8	6.39	1994	.64	1974
Jul	2.92	2.19	6.49	1987	18	8.36	1993	.09	1971
Aug	1.97	1.75	2.92	1981	13	4.70	1982	.07	2000
Sep	1.32	.83	2.65	1950	20	4.79	1996	.07	1976
Oct	1.71	1.28	3.04	1951	4	6.44	1998	.09	1978
Nov	.60	.55	.84	1977	8	1.90	1977	.02	1979
Dec	.44	.36	1.03	1965	11	1.33	1996	.02	1991
Ann	19.63	18.84	6.49	Jul 1987	18	9.87	May 1982	.01	Jan 1984

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.0	1.2	@	.0
Feb	5.5	1.5	.2	@
Mar	6.9	3.3	.7	.1
Apr	8.5	4.8	1.2	.3
May	10.2	6.4	2.3	.9
Jun	10.5	6.5	1.9	.5
Jul	8.6	5.0	2.1	.7
Aug	7.1	4.1	1.2	.3
Sep	5.7	3.2	.6	.3
Oct	5.9	3.5	.9	.4
Nov	5.8	2.0	.1	.0
Dec	5.7	1.4	@	.0
Ann	86.4	42.9	11.2	3.5

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	.03	.06	.12	.17	.24	.31	.39	.50	.65	.89	1.14
Feb	.04	.08	.15	.22	.31	.41	.53	.68	.89	1.24	1.59
Mar	.16	.25	.43	.60	.78	.98	1.21	1.50	1.89	2.53	3.15
Apr	.23	.38	.65	.92	1.21	1.54	1.92	2.39	3.02	4.08	5.10
May	.73	1.04	1.54	2.00	2.46	2.95	3.51	4.17	5.05	6.45	7.77
Jun	.94	1.23	1.67	2.05	2.42	2.80	3.22	3.71	4.34	5.33	6.25
Jul	.33	.56	.96	1.37	1.81	2.29	2.86	3.57	4.53	6.11	7.65
Aug	.22	.37	.64	.91	1.21	1.54	1.92	2.40	3.05	4.13	5.18
Sep	.07	.14	.30	.48	.68	.92	1.21	1.59	2.13	3.04	3.95
Oct	.16	.29	.52	.76	1.02	1.31	1.65	2.09	2.68	3.67	4.63
Nov	.06	.11	.19	.27	.36	.47	.59	.74	.94	1.28	1.61
Dec	.04	.07	.13	.20	.26	.34	.43	.54	.70	.95	1.20
Ann	12.17	13.54	15.34	16.73	17.99	19.21	20.50	21.93	23.69	26.29	28.56

\+ 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)

Extremes (2)

Mean Number of Days (1)

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	7.6	6.2	3	2	8.0	1975	7	26.0	1975	18+	1997	17	14	1997	5.6	3.0	.8	.3	.0	16.6	10.6	7.4	2.9
Feb	9.0	6.3	3	1	16.0	1987	27	33.0	1987	30	1978	13	16	1978	4.5	2.4	1.1	.4	@	12.2	7.8	6.0	2.3
Mar	10.0	5.5	2	1	15.0	1975	27	45.7	1975	35	1975	28	12	1987	4.3	3.0	1.1	.6	.1	9.6	5.9	4.2	1.7
Apr	5.6	5.5	#	#	11.0	1995	11	27.0	1995	23	1975	1	3	1975	1.8	1.5	.8	.3	@	2.0	1.1	.7	.2
May	.2	.0	#	0	4.0	1991	3	5.5	1979	#	1979	10	#	1979	.1	.1	.1	.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	#	1985	29	#+	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	1.9	.0	#	0	8.0	1971	28	15.2	1971	8	1971	30	1	1991	.7	.5	.3	.1	.0	.6	.3	.2	.0
Nov	7.0	5.8	1	1	10.5	1977	19	33.7	1985	22	1985	30	8	1985	4.1	2.6	.9	.3	@	7.4	4.5	2.1	.6
Dec	7.1	5.0	3	1	10.0	1971	7	17.5	1975	27	1985	20	21	1985	4.7	2.7	.8	.4	@	15.3	8.2	5.2	1.4
Ann	48.4	34.3	N/A	N/A	16.0	Feb 1987	27	45.7	Mar 1975	35	Mar 1975	28	21	Dec 1985	25.8	15.8	5.9	2.4	.1	63.7	38.4	25.8	9.1

+ 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	5/23	5/20	5/17	5/14	5/10	5/05
32	5/20	5/16	5/13	5/10	5/08	5/05	5/03	4/30	4/25
28	5/12	5/08	5/04	5/02	4/29	4/26	4/23	4/20	4/15
24	5/02	4/27	4/23	4/20	4/17	4/14	4/11	4/07	4/02
20	4/21	4/16	4/12	4/09	4/06	4/03	3/31	3/28	3/23
16	4/12	4/07	4/03	3/30	3/27	3/24	3/20	3/16	3/11

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	9/18	9/20	9/22	9/24	9/27
32	9/14	9/19	9/23	9/26	9/29	10/02	10/05	10/08	10/13
28	9/21	9/26	9/30	10/04	10/07	10/11	10/14	10/18	10/24
24	9/27	10/03	10/07	10/11	10/14	10/17	10/21	10/25	10/31
20	10/11	10/16	10/20	10/24	10/27	10/30	11/03	11/07	11/12
16	10/19	10/25	10/30	11/03	11/06	11/10	11/14	11/18	11/25

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	137	131	127	123	120	117	113	109	104
32	162	156	151	147	143	140	136	131	124
28	182	175	170	165	161	156	152	147	139
24	201	193	188	184	179	175	171	166	158
20	226	218	212	208	203	199	194	188	180
16	250	241	234	229	224	219	213	207	198

***** 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	1428	1111	937	537	241	60	17	26	148	479	960	1333	7277
60	1273	977	782	395	134	19	4	8	69	326	810	1178	5975
57	1182	900	692	315	87	8	0	2	38	240	720	1085	5269
55	1123	847	636	265	62	4	0	1	23	187	668	1024	4840
50	980	717	491	161	21	0	0	0	5	86	527	882	3870
32	500	333	125	6	0	0	0	0	0	1	156	413	1534

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	95	146	211	459	809	1072	1306	1275	915	545	185	103	7121
55	4	16	8	29	157	386	593	563	248	19	7	1	2031
57	2	13	2	19	120	330	531	503	203	9	0	0	1732
60	0	6	0	8	75	251	442	415	144	3	0	0	1344
65	0	0	0	1	27	142	301	279	73	0	0	0	823
70	0	0	0	0	6	66	182	168	30	0	0	0	452

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	4	18	67	251	565	838	1064	1034	680	328	54	2	4	22	89	340	905	1743	2807	3841	4521	4849	4903	4905
45	0	2	26	155	413	688	909	879	534	206	23	0	0	2	28	183	596	1284	2193	3072	3606	3812	3835	3835
50	0	0	5	80	276	539	754	724	394	111	6	0	0	0	5	85	361	900	1654	2378	2772	2883	2889	2889
55	0	0	0	35	160	391	599	571	260	50	1	0	0	0	0	35	195	586	1185	1756	2016	2066	2067	2067
60	0	0	0	15	77	252	445	417	160	15	0	0	0	0	0	15	92	344	789	1206	1366	1381	1381	1381
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	27	71	178	344	531	685	659	431	225	54	8	3	30	101	279	623	1154	1839	2498	2929	3154	3208	3216

(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