

# Climatology of the United States

## No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: MIDLAND, SD

1971-2000

COOP ID: 395506

Climate Division: SD 6

NWS Call Sign:

Elevation: 1,870 Feet Lat: 44°04N

Lon: 101°09W

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	31.4	6.5	19.0	74	1987	12	31.9	1990	-37	1949	21	4.0	1978	1427	0	.0	.0	4.3	13.8	30.6	9.8
Feb	37.7	13.0	25.4	76+	1982	21	36.7	1999	-45	1994	9	10.3	1979	1110	0	.0	.0	8.1	9.7	27.4	5.5
Mar	47.3	21.9	34.6	86+	1993	26	42.0	1986	-28	1960	4	25.6	1996	942	0	.0	.0	15.3	4.3	26.6	1.3
Apr	60.1	33.0	46.6	99	1980	21	53.9	1981	5+	1997	8	40.3	1995	554	0	.0	.4	24.4	.4	14.9	.0
May	71.7	44.9	58.3	105	1969	27	64.3	1977	18+	1976	3	53.0	1983	235	27	@	1.7	30.4	.0	3.0	.0
Jun	80.9	54.5	67.7	111	1974	20	77.2	1988	26	2000	5	62.2	1998	67	148	.9	7.2	30.0	.0	.1	.0
Jul	88.1	59.8	74.0	112+	1974	6	79.8	1974	34	1971	30	63.0	1992	22	300	5.2	15.9	31.0	.0	.0	.0
Aug	87.5	57.9	72.7	114	1980	6	80.5	1983	31	2000	29	63.6	1992	27	267	3.6	15.7	31.0	.0	@	.0
Sep	77.5	46.0	61.8	108+	2001	4	68.1	1998	16	1951	28	55.9	1993	165	68	1.1	6.3	29.7	.0	3.0	.0
Oct	64.1	33.7	48.9	99+	1963	5	52.0	1973	-6	1991	31	45.3	1992	499	0	.0	.4	26.8	.2	13.6	.1
Nov	45.7	19.9	32.8	86+	1999	8	41.5	1999	-28	1959	14	18.5	1985	965	0	.0	.0	12.5	5.2	27.4	1.6
Dec	34.7	9.8	22.3	74	1998	1	32.2	1999	-36	1967	31	4.2	1983	1326	0	.0	.0	5.0	11.6	30.6	6.9
Ann	60.6	33.4	47.0	114	Aug 1980	6	80.5	Aug 1983	-45	Feb 1994	9	4.0	Jan 1978	7339	810	10.8	47.6	248.5	45.2	177.2	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/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

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**COOP ID: 395506**

**Climate Division: SD 6**

**NWS Call Sign:**

**Elevation: 1,870 Feet Lat: 44°04N**

**Lon: 101°09W**

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	.31	.27	1.05	1997	4	1.47	1975	.00+	2000	4.1	1.1	.1	@	.00	.00	.00	.09	.15	.22	.30	.40	.54	.76	.97
Feb	.45	.29	1.23	1986	7	1.70	1991	.00+	1999	3.3	1.2	.2	.1	.00	.00	.05	.12	.20	.29	.41	.56	.76	1.11	1.46
Mar	1.27	1.00	1.90	1986	17	5.15	1977	.00	1994	4.8	2.9	.7	.3	.08	.21	.41	.60	.79	1.01	1.26	1.57	1.98	2.66	3.32
Apr	1.86	1.47	1.70	2000	19	5.30	1986	.00+	1996	6.8	4.5	1.2	.3	.00	.21	.54	.84	1.15	1.48	1.86	2.32	2.95	3.98	4.97
May	2.77	2.64	2.81	1965	14	6.27	1982	.43	1980	7.7	5.9	1.7	.6	.74	1.01	1.41	1.76	2.10	2.47	2.87	3.34	3.96	4.94	5.84
Jun	3.17	3.04	3.60	1988	29	6.46	1979	.32	1989	8.1	6.0	2.1	.9	.79	1.08	1.55	1.96	2.36	2.79	3.27	3.84	4.58	5.76	6.86
Jul	2.36	1.80	2.00	1995	14	5.45	1992	.44	1971	6.8	5.1	1.5	.4	.56	.78	1.12	1.43	1.74	2.06	2.43	2.86	3.43	4.34	5.19
Aug	1.71	1.63	1.95	1978	15	3.92	1989	.00	1995	5.9	4.0	1.3	.2	.18	.38	.67	.92	1.17	1.44	1.74	2.11	2.60	3.38	4.13
Sep	1.26	.64	2.82	1959	1	5.13	1986	.04	1979	4.3	2.6	.9	.2	.06	.12	.26	.42	.62	.85	1.13	1.50	2.03	2.93	3.84
Oct	1.27	.98	2.48	1977	1	4.45	1998	.00	1990	4.1	2.7	.7	.3	.05	.16	.35	.54	.74	.96	1.23	1.56	2.02	2.78	3.53
Nov	.54	.38	1.28	1956	2	1.65	1977	.00+	1988	4.0	1.5	.3	@	.00	.05	.14	.23	.32	.41	.53	.67	.86	1.17	1.47
Dec	.28	.28	.67	1965	11	.92	1980	.00+	1998	3.8	1.1	@	.0	.00	.00	.05	.10	.15	.21	.28	.36	.46	.64	.81
Ann	17.25	16.34	3.60	Jun 1988	29	6.46	Jun 1979	.00+	Jan 2000	63.7	38.6	10.7	3.3	10.68	11.88	13.46	14.69	15.79	16.87	18.00	19.26	20.82	23.10	25.10

+ 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:  
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Station: MIDLAND, SD

COOP ID: 395506

Climate Division: SD 6

NWS Call Sign:

Elevation: 1,870 Feet

Lat: 44°04N

Lon: 101°09W

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	2.9	1.3	1	#	9.0	1975	7	14.0	1975	10	1984	1	7	1976	1.2	.8	.2	.1	.0	-9.9	-9.9	-9.9	-9.9
Feb	4.3	1.9	1	#	12.0	1991	17	19.5	1978	9	1979	15	6	1979	1.6	1.1	.6	.3	@	-9.9	-9.9	-9.9	-9.9
Mar	5.3	3.3	1	0	14.0	1985	3	18.0	1985	8+	1999	11	7	1984	1.2	1.2	.6	.3	.1	-9.9	-9.9	-9.9	-9.9
Apr	.5	.0	#	0	3.0	2000	7	6.0	2000	2	1982	7	#+	1982	.1	.1	.1	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	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	#	1985	28	#	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.3	.0	0	0	6.0	1991	28	6.0	1991	6	1971	29	1	1971	.1	.1	.1	@	.0	.1	.1	.0	.0
Nov	3.2	1.5	#	#	8.0	1985	8	12.0	1985	7	1972	13	1	1983	1.1	.9	.3	.2	.0	1.3	.8	.4	.0
Dec	2.3	.7	1	#	6.5	1987	27	8.7	1971	8	1980	6	3	1971	1.5	1.0	.3	.2	.0	-9.9	-9.9	-9.9	-9.9
Ann	18.8	8.7	N/A	N/A	14.0	Mar 1985	3	19.5	Feb 1978	10	Jan 1984	1	7+	Mar 1984	6.8	5.2	2.2	1.1	.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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**Climate Division: SD 6**

**NWS Call Sign:**

**Elevation: 1,870 Feet**

**Lat: 44° 04N**

**Lon: 101° 09W**

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	6/20	6/12	6/06	6/01	5/27	5/23	5/18	5/12	5/04
32	5/30	5/25	5/21	5/17	5/14	5/11	5/07	5/03	4/27
28	5/19	5/14	5/10	5/07	5/04	5/01	4/27	4/23	4/18
24	5/08	5/03	4/30	4/27	4/24	4/22	4/19	4/16	4/11
20	4/30	4/24	4/19	4/15	4/12	4/08	4/04	3/30	3/24
16	4/15	4/10	4/06	4/03	4/01	3/29	3/26	3/23	3/18
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	9/01	9/05	9/08	9/10	9/12	9/15	9/17	9/20	9/24
32	9/08	9/12	9/15	9/17	9/20	9/22	9/25	9/27	10/01
28	9/17	9/21	9/24	9/27	9/30	10/02	10/05	10/08	10/12
24	9/23	9/28	10/02	10/06	10/09	10/13	10/16	10/20	10/26
20	9/29	10/05	10/09	10/13	10/17	10/20	10/24	10/28	11/03
16	10/14	10/18	10/21	10/24	10/27	10/30	11/01	11/05	11/09
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	135	125	118	113	107	102	96	89	80
32	149	142	137	132	128	124	119	114	107
28	170	163	157	152	148	144	139	134	126
24	188	181	176	171	167	163	159	153	146
20	213	204	198	192	187	182	177	170	161
16	227	221	216	212	209	205	201	196	190

\* 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	1427	1110	942	554	235	67	22	27	165	499	965	1326	7339
60	1272	972	787	409	128	23	7	8	82	346	815	1171	6020
57	1180	896	694	326	81	11	1	3	47	257	725	1078	5299
55	1120	844	632	275	57	6	0	1	30	202	668	1016	4851
50	974	713	486	165	18	0	0	0	8	92	529	868	3853
32	491	325	102	4	0	0	0	0	0	1	151	389	1463

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	86	139	184	441	815	1071	1301	1262	894	525	176	87	6981
55	3	14	1	22	159	386	588	550	234	13	2	0	1972
57	1	10	0	13	121	332	527	490	191	6	0	0	1691
60	0	2	0	5	75	254	440	402	135	2	0	0	1315
65	0	0	0	0	27	148	300	267	68	0	0	0	810
70	0	0	0	0	6	72	184	157	28	0	0	0	447

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	3	18	76	261	599	861	1084	1038	682	319	50	4	3	21	97	358	957	1818	2902	3940	4622	4941	4991	4995
45	0	2	31	156	444	711	929	883	535	197	18	0	0	2	33	189	633	1344	2273	3156	3691	3888	3906	3906
50	0	0	8	86	304	562	774	728	395	100	5	0	0	0	8	94	398	960	1734	2462	2857	2957	2962	2962
55	0	0	2	40	180	415	620	574	268	44	0	0	0	0	2	42	222	637	1257	1831	2099	2143	2143	2143
60	0	0	0	14	94	278	466	420	163	11	0	0	0	0	0	14	108	386	852	1272	1435	1446	1446	1446
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	12	35	85	202	382	552	689	660	444	249	67	14	12	47	132	334	716	1268	1957	2617	3061	3310	3377	3391

(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)