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: FORT MEADE, SD **COOP ID: 393069**

Climate Division: SD 5 **NWS Call Sign:** **Elevation: 3,300 Feet** **Lat: 44˚25N** **Lon: 103˚29W**

Temperature (˚F)

Month	Mean (1) Daily Max	Mean (1) Daily Min	Mean (1) Mean	Extremes Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Degree Days (1) Base Temp 65 Heating	Cooling	Mean Number of Days (3) Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	35.6	12.7	24.2	72	1987	12	35.4	1992	-27	1963	19	11.4	1979	1268	0	.0	.0	6.8	11.4	28.6	7.4
Feb	40.4	17.0	28.7	75	1982	21	37.3	1991	-26+	1996	2	15.0	1989	1016	0	.0	.0	9.2	7.7	25.4	3.9
Mar	47.6	23.4	35.5	82	1993	26	44.2	1986	-20	1998	11	26.9	1996	914	0	.0	.0	15.0	4.5	24.9	1.4
Apr	58.4	33.1	45.8	90	1980	21	53.8	1981	0	1975	2	39.4+	1999	579	2	.0	@	22.9	.8	13.5	@
May	68.8	43.3	56.1	100	1969	27	61.9	1985	16	1954	3	49.9	1999	296	17	.0	.4	29.8	.0	2.1	.0
Jun	78.8	52.2	65.5	105+	1970	28	75.8	1988	31+	1951	2	59.8	1999	100	115	.3	3.8	29.9	.0	.0	.0
Jul	86.2	58.2	72.2	107+	1981	7	76.0	1974	39	1950	13	65.1	1993	21	244	1.3	11.4	31.0	.0	.0	.0
Aug	85.8	56.7	71.3	107+	1969	12	78.4	1983	39+	1993	31	66.0	1974	31	225	.4	10.7	31.0	.0	.0	.0
Sep	75.6	46.9	61.3	104+	1978	6	70.5	1998	20	1972	26	54.0	1999	187	75	.3	3.6	29.3	.0	1.6	.0
Oct	62.4	35.6	49.0	93	1963	4	52.4	1979	-1	1991	31	44.9	1976	496	0	.0	.1	26.3	.4	10.0	@
Nov	45.4	23.2	34.3	83	1999	7	45.4	1999	-20	1959	14	18.1	1985	921	0	.0	.0	12.6	5.9	24.1	1.1
Dec	38.1	14.8	26.5	74	1973	1	35.7	1999	-30+	1990	30	9.0	1983	1195	0	.0	.0	7.2	9.2	28.9	4.6
Ann	60.3	34.8	47.5	107+	Jul 1981	7	78.4	Aug 1983	-30+	Dec 1990	30	9.0	Dec 1983	7024	678	2.3	30.0	251.0	39.9	159.1	18.4

\+ 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: 1949-2001

(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	.56	.43	.68	1996	3	1.95	1975	.08+	1995
Feb	.67	.70	.74	1991	17	1.40	1998	.04	1985
Mar	1.50	1.27	3.56	1973	14	4.36	1973	.05	1981
Apr	2.70	2.53	2.17	1984	26	7.23	1984	.30	1981
May	3.79	2.70	3.83	1995	8	9.09	1996	.92	1998
Jun	3.71	2.80	6.24	1976	14	11.45	1976	.52	1994
Jul	2.20	1.81	2.46	1998	23	6.17	1981	.16	1971
Aug	1.50	1.42	3.01	1951	31	3.67	1987	.23	1981
Sep	1.31	1.06	2.29	1986	24	5.98	1986	.02	1975
Oct	1.88	1.12	3.21	1982	9	8.44	1998	.25	1987
Nov	1.01	.77	3.26	2000	1	4.08	2000	.23	1972
Dec	.60	.46	.79	1955	28	1.85	1989	.00	1991
Ann	21.43	20.88	6.24	Jun 1976	14	11.45	Jun 1976	.00	Dec 1991

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.1	2.0	.1	.0
Feb	6.3	2.2	.2	.0
Mar	7.7	3.7	.7	.1
Apr	9.8	5.4	1.6	.5
May	11.2	6.8	2.6	.9
Jun	11.9	6.5	2.1	.8
Jul	9.0	4.8	1.4	.3
Aug	6.4	3.7	.9	.2
Sep	6.1	3.1	.8	.2
Oct	6.8	3.8	1.0	.4
Nov	6.4	2.7	.3	.1
Dec	6.8	2.0	.1	.0
Ann	94.5	46.7	11.8	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	.05	.09	.17	.24	.33	.42	.54	.68	.87	1.20	1.52
Feb	.09	.14	.24	.33	.43	.54	.67	.82	1.04	1.38	1.72
Mar	.22	.34	.56	.77	.99	1.23	1.50	1.84	2.29	3.03	3.74
Apr	.50	.73	1.13	1.50	1.87	2.27	2.73	3.29	4.02	5.21	6.34
May	.85	1.20	1.76	2.26	2.76	3.29	3.89	4.60	5.54	7.03	8.44
Jun	.67	1.00	1.54	2.04	2.56	3.12	3.75	4.52	5.55	7.20	8.77
Jul	.50	.70	1.03	1.32	1.60	1.91	2.26	2.67	3.21	4.07	4.88
Aug	.37	.51	.73	.93	1.12	1.32	1.55	1.81	2.17	2.72	3.24
Sep	.11	.20	.37	.55	.75	.98	1.25	1.59	2.06	2.85	3.62
Oct	.15	.28	.53	.78	1.07	1.40	1.79	2.28	2.96	4.10	5.22
Nov	.22	.31	.46	.59	.73	.87	1.03	1.23	1.49	1.90	2.29
Dec	.05	.12	.22	.31	.40	.49	.61	.74	.92	1.22	1.50
Ann	13.73	15.16	17.03	18.46	19.75	21.01	22.33	23.79	25.58	28.21	30.51

\+ 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: 1949-2001
(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	7.1	5.6	2	1
Feb	7.8	7.9	2	1
Mar	10.5	6.5	2	1
Apr	5.5	2.0	1	#
May	.6	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	#	0
Oct	.7	.0	#	0
Nov	5.6	3.3	1	#
Dec	5.5	7.2	2	1
Ann	43.3	32.5	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	8.0	1994	14	16.8	1975	20	1975	7	8	1979
Feb	7.0	1982	23	17.5	1978	15	1978	20	8	1978
Mar	28.0	1973	14	29.8	1977	29	1977	30	7	1988
Apr	12.0	1994	26	23.0	1999	48	1984	27	6	1984
May	6.0	1991	3	6.0+	1991	7	1984	1	1	1984
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	.5	1985	23	1.0	1985	2	1984	23	#	1984
Oct	6.0	1971	28	11.0	1971	12	1996	28	1+	1998
Nov	10.0	1978	10	22.0	1978	19	1978	12	10	1985
Dec	8.0	1980	1	10.7	1972	18	1985	2	11	1983
Ann	28.0	Mar 1973	14	29.8	Mar 1977	48	Apr 1984	27	11	Dec 1983

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.2	2.5	.6	.2	.0
Feb	2.9	2.2	.9	.3	.0
Mar	2.1	1.8	.8	.5	.1
Apr	1.1	1.0	.7	.5	.1
May	.1	.1	.1	@	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.0	.0	.0	.0
Oct	.3	.2	.1	.1	.0
Nov	2.1	1.5	.4	.2	.1
Dec	2.5	1.5	.4	.1	.0
Ann	14.4	10.8	4.0	1.9	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	14.2	4.7	2.4	.2
Feb	8.4	5.6	3.0	.9
Mar	5.9	3.6	2.1	.7
Apr	1.8	1.2	.7	.1
May	.1	.1	@	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.2	.1	.1	@
Nov	3.7	2.2	1.2	.2
Dec	7.4	2.4	1.2	.0
Ann	41.7	19.9	10.7	2.1

+ 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	5/24	5/21	5/18	5/15	5/11	5/06
32	5/17	5/13	5/11	5/09	5/07	5/05	5/03	4/30	4/27
28	5/10	5/06	5/03	4/30	4/27	4/25	4/22	4/19	4/15
24	4/29	4/25	4/22	4/20	4/18	4/15	4/13	4/10	4/06
20	4/21	4/15	4/11	4/07	4/04	4/01	3/28	3/24	3/19
16	4/11	4/06	4/02	3/30	3/27	3/24	3/21	3/18	3/12

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	9/08	9/12	9/15	9/17	9/19	9/21	9/23	9/26	9/30
32	9/13	9/17	9/21	9/24	9/27	9/29	10/02	10/06	10/11
28	9/21	9/27	10/01	10/04	10/07	10/10	10/14	10/18	10/23
24	10/02	10/08	10/12	10/15	10/18	10/21	10/25	10/29	11/03
20	10/12	10/18	10/21	10/25	10/28	10/31	11/03	11/07	11/12
16	10/22	10/27	10/31	11/04	11/07	11/10	11/13	11/17	11/23

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	161	155	150	146	142	138	134	130	123
28	183	176	171	166	162	158	153	148	141
24	202	196	191	187	183	179	175	170	163
20	229	221	215	210	206	201	196	191	183
16	244	237	232	228	224	220	215	210	203

***** 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	1268	1016	914	579	296	100	21	31	187	496	921	1195	7024
60	1113	876	759	437	177	42	5	9	103	343	771	1040	5675
57	1021	798	666	357	121	22	1	4	65	256	686	947	4944
55	962	746	605	306	91	13	0	2	46	203	630	887	4491
50	818	616	459	197	37	2	0	0	16	95	492	743	3475
32	361	240	85	11	0	0	0	0	0	1	137	295	1130

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	117	148	194	424	744	1004	1246	1217	878	529	206	123	6830
55	4	10	1	29	122	328	533	506	234	17	10	1	1795
57	1	6	0	19	90	276	472	445	194	9	5	0	1517
60	0	0	0	10	53	206	383	358	141	3	0	0	1154
65	0	0	0	2	17	115	244	225	75	0	0	0	678
70	0	0	0	0	3	51	135	122	33	0	0	0	344

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	22	35	86	241	521	785	1019	992	663	329	75	25	22	57	143	384	905	1690	2709	3701	4364	4693	4768	4793
45	5	11	39	140	369	635	864	837	521	205	32	7	5	16	55	195	564	1199	2063	2900	3421	3626	3658	3665
50	0	1	12	74	240	486	709	682	379	113	11	0	0	1	13	87	327	813	1522	2204	2583	2696	2707	2707
55	0	0	0	34	131	342	554	528	255	51	1	0	0	0	0	34	165	507	1061	1589	1844	1895	1896	1896
60	0	0	0	14	61	214	400	374	147	15	0	0	0	0	0	14	75	289	689	1063	1210	1225	1225	1225
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	23	37	76	171	316	490	658	639	420	223	63	26	23	60	136	307	623	1113	1771	2410	2830	3053	3116	3142

(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