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: FAITH, SD **COOP ID: 392852**

Climate Division: SD 3 **NWS Call Sign:** **Elevation: 2,592 Feet** **Lat: 45˚01N** **Lon: 102˚02W**

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	27.8	8.4	18.1	68	1941	11	31.0	1992	-34	1972	28	3.7	1979	1454	0	.0	.0	1.9	17.6	30.4	10.7
Feb	34.1	14.6	24.4	72	1992	29	35.3	1999	-33	1936	16	9.2	1979	1138	0	.0	.0	4.9	12.3	26.7	5.8
Mar	44.0	23.1	33.6	84	1943	29	44.0	1986	-28	1962	1	24.4	1996	975	0	.0	.0	11.4	6.3	26.7	1.8
Apr	58.4	34.3	46.4	98	1980	21	55.3	1987	-3	1936	6	39.4	1995	562	3	.0	.2	22.8	.9	14.2	.0
May	70.1	45.3	57.7	105	1934	28	65.1	1977	15	1943	11	51.2	1996	259	33	.0	.5	30.0	.0	2.5	.0
Jun	79.9	54.7	67.3	110	1931	28	78.3	1988	30	1969	13	61.4	1993	74	143	.4	4.3	29.9	.0	.0	.0
Jul	87.4	60.4	73.9	114	1936	10	80.4	1974	40+	1945	11	65.9	1992	17	294	2.1	12.3	31.0	.0	.0	.0
Aug	86.8	58.9	72.9	115	1947	21	79.9	1983	33	1927	18	66.5	1992	23	267	1.4	12.3	31.0	.0	.0	.0
Sep	76.0	48.6	62.3	108	1945	6	69.6	1998	13	1926	25	56.7	1984	159	77	.3	3.4	29.5	.0	1.5	.0
Oct	61.5	36.7	49.1	96	1953	1	52.3	1973	-3	1991	30	46.2	1972	493	0	.0	.3	25.5	.4	10.9	.1
Nov	42.2	22.5	32.4	87	1945	1	43.9	1999	-19+	1985	27	17.7	1985	979	0	.0	.0	9.5	7.3	25.7	1.5
Dec	31.0	12.1	21.6	70	1965	4	32.4	1999	-34	1990	30	4.3	1983	1347	0	.0	.0	2.6	15.2	30.2	7.0
Ann	58.3	35.0	46.6	115	Aug 1947	21	80.4	Jul 1974	-34+	Dec 1990	30	3.7	Jan 1979	7480	817	4.2	33.3	230.0	60.0	168.8	26.9

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1926-2001

(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	.34	1.65	1944	27	1.39	1997	.00+	1987
Feb	.59	.46	.85	1951	28	2.71	1978	.00+	1985
Mar	1.15	.86	2.91	1937	24	4.43	1982	.00	1981
Apr	1.88	1.62	3.20	1935	9	4.75	1997	.07	1981
May	3.05	2.70	3.35	1962	21	7.23	1982	.67	1994
Jun	2.81	2.73	2.94	1947	20	5.26	1976	.45	1974
Jul	2.65	2.31	2.97	1937	13	7.76	1993	.39	1973
Aug	1.32	1.21	2.60	1960	6	3.53	1987	.11	2000
Sep	1.23	.78	2.50	1951	7	5.04	1996	.05	1974
Oct	1.56	1.03	1.84	1982	9	6.45	1998	.05	1984
Nov	.59	.44	.99	1948	5	1.90	1985	.00	1979
Dec	.41	.30	.84	1996	14	2.14	1996	.00	1987
Ann	17.65	16.77	3.35	May 1962	21	7.76	Jul 1993	.00+	Dec 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.0	1.5	.1	.0
Feb	4.0	2.1	.3	.0
Mar	5.2	2.9	.6	.2
Apr	6.5	4.3	1.2	.3
May	8.9	6.0	2.1	.6
Jun	8.9	5.9	1.8	.7
Jul	7.7	5.1	1.8	.6
Aug	6.0	3.3	.6	.2
Sep	4.8	2.8	.8	.2
Oct	4.9	3.4	1.1	.4
Nov	4.2	2.0	.2	.0
Dec	3.6	1.4	.1	.0
Ann	68.7	40.7	10.7	3.2

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	.00	.02	.08	.14	.21	.29	.39	.51	.68	.96	1.24
Feb	.00	.06	.17	.27	.36	.47	.59	.74	.94	1.27	1.58
Mar	.08	.20	.38	.55	.73	.92	1.14	1.41	1.78	2.38	2.96
Apr	.22	.36	.63	.89	1.17	1.48	1.85	2.30	2.92	3.93	4.92
May	.82	1.11	1.55	1.94	2.32	2.72	3.16	3.68	4.37	5.44	6.44
Jun	.85	1.12	1.52	1.86	2.19	2.54	2.92	3.37	3.95	4.86	5.70
Jul	.66	.91	1.30	1.64	1.97	2.33	2.73	3.20	3.82	4.79	5.71
Aug	.19	.30	.49	.67	.86	1.07	1.31	1.61	2.01	2.66	3.29
Sep	.06	.13	.28	.44	.63	.86	1.13	1.49	1.99	2.84	3.70
Oct	.10	.20	.39	.61	.85	1.12	1.46	1.88	2.48	3.48	4.48
Nov	.01	.03	.10	.18	.27	.38	.52	.70	.96	1.40	1.85
Dec	.01	.04	.09	.15	.21	.29	.38	.49	.66	.93	1.21
Ann	10.84	12.09	13.72	14.99	16.13	17.25	18.42	19.73	21.33	23.70	25.79

\+ 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: 1926-2001
(3) Derived from 1971-2000 serially complete daily data

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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	7.6	7.0	3	1
Feb	7.4	6.0	3	1
Mar	10.7	6.0	2	1
Apr	4.7	3.0	1	0
May	.3	.0	#	0
Jun	.0	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	#	0
Oct	1.2	.0	#	0
Nov	6.0	4.0	1	0
Dec	7.1	5.0	3	1
Ann	45.1	31.0	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	19.5	1996	17	31.0	1996	20	1997	1	16	1997
Feb	9.2	1996	27	25.0	1978	25	1978	12	14	1978
Mar	16.5	1995	4	35.0	1982	20+	1985	5	6+	1998
Apr	10.0	1986	4	20.2	1997	20+	1997	12	6	1997
May	3.0	1979	9	4.0	1979	1+	1979	10	#	2000
Jun	.0	0	0	.0	0	0	0	0	#	1979
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	2.0	1984	24	3.0	1984	1+	1984	24	#	1984
Oct	6.0	1996	26	7.2	1999	10+	1991	30	1	1991
Nov	9.0	1977	19	32.2	1985	17+	1985	23	9	1985
Dec	15.5	1996	23	47.2	1996	24+	1996	23	17	1996
Ann	19.5	Jan 1996	17	47.2	Dec 1996	25	Feb 1978	12	17	Dec 1996

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.7	2.7	.6	.2	@
Feb	3.4	2.7	1.2	.4	.0
Mar	3.7	2.8	1.2	.7	.2
Apr	1.6	1.4	.7	.4	@
May	.2	.1	@	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.0	.0	.0
Oct	.6	.5	.1	@	.0
Nov	3.2	2.6	.6	.2	.0
Dec	3.3	2.8	.7	.3	.1
Ann	19.8	15.7	5.1	2.2	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	18.9	14.6	9.0	2.9
Feb	13.9	9.8	6.9	2.9
Mar	10.2	7.6	5.9	2.5
Apr	2.4	1.7	1.2	.5
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	.0	.0	.0
Oct	.6	.3	.2	.1
Nov	7.4	4.9	2.8	.8
Dec	16.2	10.5	6.9	1.7
Ann	69.8	49.4	32.9	11.4

+ 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	6/03	5/28	5/24	5/21	5/18	5/14	5/11	5/07	5/02
32	5/20	5/16	5/13	5/10	5/08	5/05	5/03	4/29	4/25
28	5/09	5/05	5/01	4/29	4/26	4/23	4/20	4/17	4/12
24	5/01	4/26	4/22	4/19	4/17	4/14	4/11	4/07	4/02
20	4/19	4/14	4/11	4/08	4/05	4/02	3/30	3/27	3/22
16	4/12	4/07	4/04	4/01	3/29	3/26	3/24	3/20	3/15

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	9/11	9/14	9/16	9/18	9/20	9/22	9/23	9/26	9/29
32	9/14	9/19	9/22	9/24	9/26	9/29	10/01	10/04	10/08
28	9/19	9/25	9/29	10/02	10/06	10/09	10/12	10/16	10/22
24	9/30	10/05	10/09	10/12	10/15	10/18	10/21	10/24	10/30
20	10/17	10/22	10/25	10/28	10/31	11/03	11/06	11/10	11/15
16	10/22	10/28	11/01	11/05	11/09	11/12	11/16	11/21	11/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	144	137	132	128	124	121	117	112	105
32	159	153	148	145	141	137	134	129	123
28	184	177	171	166	162	158	153	147	140
24	200	193	188	184	180	177	172	168	161
20	227	221	216	212	209	205	201	196	190
16	246	239	233	228	224	220	215	209	202

***** 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	1454	1138	975	562	259	74	17	23	159	493	979	1347	7480
60	1299	998	820	421	154	27	4	6	79	340	829	1192	6169
57	1207	924	727	342	106	13	0	2	46	252	743	1099	5461
55	1147	872	667	293	79	7	0	1	30	197	688	1040	5021
50	1004	741	524	188	32	1	0	0	8	90	548	897	4033
32	518	347	136	10	0	0	0	0	0	1	175	427	1614

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	87	133	184	442	797	1059	1299	1267	908	531	186	103	6996
55	3	14	3	34	163	376	586	555	248	14	9	3	2008
57	1	10	0	23	128	323	525	494	204	7	3	0	1718
60	0	0	0	12	84	246	435	404	147	2	0	0	1330
65	0	0	0	3	33	143	294	267	77	0	0	0	817
70	0	0	0	0	10	69	175	154	33	0	0	0	441

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	2	18	55	233	540	806	1038	1005	658	302	49	3	2	20	75	308	848	1654	2692	3697	4355	4657	4706	4709
45	0	2	20	135	391	656	883	850	513	185	18	0	0	2	22	157	548	1204	2087	2937	3450	3635	3653	3653
50	0	0	6	69	255	506	728	695	369	99	6	0	0	0	6	75	330	836	1564	2259	2628	2727	2733	2733
55	0	0	0	31	146	361	573	541	247	44	0	0	0	0	0	31	177	538	1111	1652	1899	1943	1943	1943
60	0	0	0	11	71	224	419	389	146	12	0	0	0	0	0	11	82	306	725	1114	1260	1272	1272	1272
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	22	55	163	334	508	668	642	415	203	41	3	0	22	77	240	574	1082	1750	2392	2807	3010	3051	3054

(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