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: SELBY, SD **COOP ID: 397545**

Climate Division: SD 2 **NWS Call Sign:** **Elevation: 1,870 Feet** **Lat: 45˚30N** **Lon: 100˚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	21.7	.7	11.2	63	1981	24	24.6	1990	-35	1996	19	-4.2	1978	1668	0	.0	.0	.5	22.4	31.0	14.4
Feb	28.4	7.8	18.1	65+	1987	8	30.6	1998	-36	1994	9	1.1	1979	1312	0	.0	.0	2.5	16.1	28.0	9.1
Mar	39.3	18.5	28.9	79+	1963	29	36.5	2000	-29	1998	11	19.6	1996	1118	0	.0	.0	7.9	9.0	28.2	3.0
Apr	55.0	31.2	43.1	97	1980	22	50.6	1987	-3+	1975	2	35.3	1975	657	1	.0	.1	20.3	1.3	17.4	.2
May	68.2	43.9	56.1	100+	1969	28	63.4	1977	19	1967	2	50.4	1979	300	23	.0	.7	29.6	.0	2.9	.0
Jun	77.3	53.5	65.4	109	1988	25	76.0	1988	30	1969	2	60.6	1993	93	105	.1	2.7	30.0	.0	.0	.0
Jul	83.8	58.5	71.2	110	1973	12	76.9	1974	38	1972	4	62.7	1992	35	225	1.3	8.2	31.0	.0	.0	.0
Aug	82.7	56.5	69.6	108	1988	16	74.9	1983	33	1964	12	63.8	1992	45	187	1.0	7.7	31.0	.0	.0	.0
Sep	72.0	45.2	58.6	104	1976	7	65.8	1998	17	1974	30	52.2	1984	230	38	.2	2.3	29.3	.0	2.5	.0
Oct	58.3	33.0	45.7	95	1963	4	49.7	1973	-2	1991	30	41.0	1976	601	0	.0	.1	23.6	.6	14.5	.1
Nov	38.5	18.6	28.6	77	1965	2	40.5	1999	-20+	1996	26	13.2	1985	1094	0	.0	.0	7.0	10.1	27.7	2.1
Dec	26.2	6.4	16.3	63+	1998	2	27.2	1997	-36+	1983	22	-1.0	1983	1510	0	.0	.0	1.1	19.6	30.9	10.0
Ann	54.3	31.2	42.7	110	Jul 1973	12	76.9	Jul 1974	-36+	Feb 1994	9	-4.2	Jan 1978	8663	579	2.6	21.8	213.8	79.1	183.1	38.9

\+ 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: 1953-2001

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

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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	.37	.33	.91	1997	4	1.47	1997	.01	1981
Feb	.47	.40	.75	2000	26	2.03	1987	.00	1985
Mar	1.09	.72	1.40	1982	20	3.56	1977	.10	1971
Apr	1.85	1.57	2.41	1989	28	5.63	1989	.05	1987
May	2.55	2.28	2.98	1986	9	5.67	1991	.54	1980
Jun	3.03	2.97	4.10	1976	15	5.82	1993	.44	1974
Jul	2.54	2.23	2.37	1956	7	5.98	1993	.20	1973
Aug	2.14	2.07	3.47	1990	18	4.54	1998	.48	1982
Sep	1.30	1.03	1.92	1996	20	4.49	1999	.11+	1974
Oct	1.48	.95	2.33	1980	16	4.59	1982	.13	1976
Nov	.71	.54	1.58	1956	3	2.30	1977	.00	1999
Dec	.37	.27	.66	1965	11	1.40	1996	.00	1991
Ann	17.90	18.21	4.10	Jun 1976	15	5.98	Jul 1993	.00+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.8	1.0	.1	.0
Feb	5.4	1.5	.1	.0
Mar	6.7	3.0	.5	.2
Apr	8.2	4.3	1.1	.3
May	9.9	5.3	1.5	.5
Jun	10.3	6.2	2.2	.5
Jul	8.4	5.1	1.8	.6
Aug	7.5	4.0	1.4	.4
Sep	6.2	3.1	.8	.2
Oct	6.3	3.1	.8	.3
Nov	5.9	2.0	.3	@
Dec	5.8	1.1	.0	.0
Ann	86.4	39.7	10.6	3.0

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	.11	.16	.22	.28	.35	.45	.58	.79	1.00
Feb	.05	.11	.19	.26	.33	.40	.48	.58	.71	.92	1.12
Mar	.13	.21	.37	.52	.68	.86	1.07	1.33	1.68	2.26	2.82
Apr	.26	.41	.67	.93	1.20	1.49	1.83	2.26	2.82	3.75	4.64
May	.67	.91	1.28	1.61	1.93	2.26	2.64	3.08	3.66	4.58	5.43
Jun	.86	1.14	1.58	1.96	2.33	2.72	3.14	3.65	4.31	5.33	6.29
Jul	.47	.69	1.06	1.41	1.76	2.14	2.57	3.09	3.78	4.90	5.96
Aug	.61	.81	1.12	1.38	1.64	1.91	2.21	2.57	3.03	3.75	4.42
Sep	.11	.20	.37	.55	.75	.97	1.24	1.58	2.04	2.82	3.59
Oct	.11	.20	.39	.59	.82	1.08	1.40	1.79	2.35	3.28	4.21
Nov	.02	.07	.17	.27	.38	.51	.67	.86	1.14	1.60	2.06
Dec	.01	.04	.09	.14	.20	.27	.35	.45	.60	.84	1.09
Ann	12.07	13.17	14.60	15.69	16.66	17.61	18.59	19.67	21.00	22.93	24.62

\+ 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: 1953-2001
(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	3.8	3.4	7	6
Feb	5.5	4.8	6	4
Mar	8.8	5.8	4	3
Apr	4.2	2.0	1	#
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	#	0
Oct	.6	.0	#	0
Nov	5.7	4.1	2	1
Dec	5.2	3.9	5	2
Ann	33.8	24.0	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	10.0	1996	18	10.2	1976	46	1997	19	44	1997
Feb	7.0	1987	27	25.0	1987	50	1997	13	35	1997
Mar	14.0	1982	20	30.8	1975	27	1975	28	13	1997
Apr	21.0	1995	12	38.0	1995	30	1995	12	7	1975
May	1.0	1979	11	1.0	1979	2	1991	4	#+	1994
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	#	1984	24	#	1984	#	1984	22	#	1984
Oct	4.0	1971	31	6.5	1971	6	1971	31	1	1991
Nov	9.0	1993	24	20.2	2000	22	1985	30	9	2000
Dec	8.0	1971	7	15.2	1971	39	1996	31	29	1996
Ann	21.0	Apr 1995	12	38.0	Apr 1995	50	Feb 1997	13	44	Jan 1997

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.8	1.7	.4	.1	@
Feb	4.1	2.3	.6	.2	.0
Mar	3.7	2.2	.9	.3	.1
Apr	1.5	1.2	.5	.2	.1
May	@	@	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.4	.3	.1	.0	.0
Nov	3.4	2.3	.8	.2	.0
Dec	4.2	1.7	.5	.1	.0
Ann	21.1	11.7	3.8	1.1	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	22.6	15.1	9.6	3.1
Feb	22.2	14.6	9.1	4.6
Mar	15.6	9.5	6.0	1.8
Apr	3.5	1.8	1.0	.4
May	@	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.2	@	@	.0
Nov	10.9	5.3	3.5	2.0
Dec	19.8	11.7	8.3	4.9
Ann	94.8	58.0	37.5	16.8

+ 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	5/29	5/25	5/22	5/19	5/16	5/13	5/09	5/04
32	5/24	5/20	5/17	5/14	5/12	5/09	5/06	5/03	4/29
28	5/13	5/09	5/06	5/04	5/02	4/30	4/28	4/25	4/21
24	5/05	5/01	4/28	4/25	4/22	4/19	4/17	4/13	4/09
20	4/25	4/20	4/16	4/13	4/10	4/08	4/05	4/01	3/27
16	4/15	4/10	4/06	4/03	3/31	3/28	3/25	3/21	3/16

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	9/06	9/09	9/12	9/15	9/18	9/21	9/24	9/29
32	9/12	9/16	9/19	9/22	9/24	9/26	9/29	10/02	10/06
28	9/18	9/22	9/25	9/27	9/30	10/02	10/05	10/08	10/12
24	9/24	9/30	10/04	10/08	10/11	10/14	10/18	10/22	10/28
20	10/02	10/07	10/11	10/15	10/18	10/21	10/25	10/29	11/04
16	10/13	10/19	10/24	10/27	10/31	11/04	11/08	11/12	11/19

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	133	127	123	118	114	109	104	96
32	154	148	143	139	135	131	127	122	115
28	167	161	157	153	150	147	143	139	133
24	191	184	179	175	171	167	163	158	151
20	210	203	198	194	190	186	182	177	170
16	239	230	224	218	213	208	203	196	187

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1668	1312	1118	657	300	93	35	45	230	601	1094	1510	8663
60	1513	1172	963	512	185	36	11	14	129	447	944	1355	7281
57	1420	1088	870	428	131	17	4	5	83	356	854	1262	6518
55	1358	1032	808	375	100	10	0	3	59	297	794	1200	6036
50	1204	906	662	255	45	1	0	0	19	168	655	1048	4963
32	690	470	219	23	0	0	0	0	0	5	234	548	2189

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	45	82	124	357	745	1001	1214	1165	799	427	130	62	6151
55	0	0	0	18	132	322	501	455	167	6	0	0	1601
57	0	0	0	12	101	269	443	395	132	3	0	0	1355
60	0	0	0	5	63	197	357	311	88	1	0	0	1022
65	0	0	0	1	23	105	225	187	38	0	0	0	579
70	0	0	0	0	6	43	128	97	13	0	0	0	287

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	35	192	522	781	981	936	578	241	28	0	0	3	38	230	752	1533	2514	3450	4028	4269	4297	4297
45	0	0	8	111	374	631	826	781	435	141	11	0	0	0	8	119	493	1124	1950	2731	3166	3307	3318	3318
50	0	0	2	58	247	481	671	626	299	74	1	0	0	0	2	60	307	788	1459	2085	2384	2458	2459	2459
55	0	0	0	27	142	337	517	472	196	32	0	0	0	0	0	27	169	506	1023	1495	1691	1723	1723	1723
60	0	0	0	10	68	206	367	327	105	8	0	0	0	0	0	10	78	284	651	978	1083	1091	1091	1091
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	4	32	139	320	487	639	602	366	169	29	0	0	4	36	175	495	982	1621	2223	2589	2758	2787	2787

(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