

Climatology of the United States

No. 20

1971-2000

Station: ROSCOE, SD

COOP ID: 397277

Climate Division: SD 2

NWS Call Sign:

Elevation: 1,830 Feet Lat: 45° 27N

Lon: 99° 20W

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	19.9	.0	10.0	56	1964	20	24.7	1990	-37	1972	15	-4.5	1982	1707	0	.0	.0	.4	23.9	31.0	15.1
Feb	27.2	7.2	17.2	69	1958	25	29.3	1987	-34+	1994	10	1.7	1979	1338	0	.0	.0	2.0	17.0	28.0	8.6
Mar	38.4	17.7	28.1	80	1963	31	36.2	2000	-24+	1962	1	18.8	1996	1146	0	.0	.0	6.9	9.6	28.9	3.0
Apr	55.3	30.5	42.9	94	1962	25	50.5	1987	3	1954	3	35.6	1975	662	1	.0	.1	20.3	1.1	18.8	.1
May	68.3	44.3	56.3	102	1969	27	63.5	1977	19	1967	2	50.5	1996	291	20	.0	.4	29.8	.0	2.5	.0
Jun	77.2	53.7	65.5	105	1956	12	73.8	1988	29	1951	3	60.2	1993	85	98	.1	1.8	30.0	.0	.0	.0
Jul	84.0	58.4	71.2	109+	1973	12	76.5	1974	38+	1971	31	62.3	1992	35	227	.6	6.8	31.0	.0	.0	.0
Aug	82.8	55.5	69.2	108	1959	18	74.7	1983	36	1958	31	63.3	1992	43	172	.9	6.8	31.0	.0	.0	.0
Sep	72.2	45.1	58.7	102	1948	15	64.9	1998	21	1951	28	52.9	1993	223	32	.1	1.6	29.3	.0	2.7	.0
Oct	58.3	32.9	45.6	93	1970	5	49.8	1973	-2	1991	30	41.7	1976	602	0	.0	.1	24.5	.4	14.6	.1
Nov	37.5	18.5	28.0	77	1990	1	40.0	1999	-19+	1959	16	16.2	1985	1109	0	.0	.0	6.4	10.6	28.2	1.8
Dec	24.2	5.2	14.7	62+	1998	2	26.1	1997	-35	1967	31	-2.4	1983	1560	0	.0	.0	.8	20.3	31.0	9.8
Ann	53.8	30.8	42.3	109+	Jul 1973	12	76.5	Jul 1974	-37	Jan 1972	15	-4.5	Jan 1982	8801	550	1.7	17.6	212.4	82.9	185.7	38.5

+ 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

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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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: ROSCOE, SD

COOP ID: 397277

Climate Division: SD 2

NWS Call Sign:

Elevation: 1,830 Feet Lat: 45°27N

Lon: 99°20W

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	.47	.40	.98	1992	8	1.70	1997	.06	1991	6.5	1.2	.1	.0	.06	.10	.17	.23	.30	.37	.46	.57	.72	.96	1.19
Feb	.60	.55	1.09	1969	27	1.52	1987	.00	1973	5.9	1.9	.2	.0	.09	.16	.27	.35	.44	.52	.62	.74	.90	1.14	1.38
Mar	1.04	.94	2.03	1966	3	2.46	1973	.10	1971	7.4	3.1	.7	.1	.21	.31	.46	.60	.74	.89	1.06	1.26	1.53	1.96	2.37
Apr	2.06	1.95	1.81	1957	19	6.19	1986	.13	1992	8.4	4.5	1.2	.2	.36	.54	.84	1.12	1.41	1.72	2.08	2.51	3.09	4.02	4.92
May	3.06	2.86	2.93	1995	9	6.12	1991	.43	1994	10.9	6.1	1.4	.3	1.01	1.30	1.72	2.09	2.43	2.79	3.19	3.65	4.24	5.15	6.00
Jun	3.38	3.39	4.28	1964	18	6.58	1990	.56	1973	12.1	6.9	2.2	.6	1.05	1.37	1.85	2.25	2.65	3.06	3.51	4.04	4.73	5.79	6.78
Jul	2.80	2.53	3.10	1993	25	9.55	1993	.82	1991	11.2	5.8	1.5	.4	.67	.93	1.34	1.71	2.07	2.45	2.88	3.39	4.07	5.13	6.13
Aug	2.42	2.52	3.83	2000	5	5.51	2000	.29	1996	9.1	4.6	1.4	.7	.70	.93	1.27	1.57	1.87	2.17	2.51	2.91	3.43	4.24	4.99
Sep	1.59	.93	2.58	1996	20	5.65	1996	.07	1998	7.3	3.1	.9	.2	.13	.24	.45	.67	.91	1.19	1.51	1.93	2.50	3.46	4.40
Oct	1.55	1.15	2.94	1998	17	6.49	1998	.11	1993	6.7	2.9	.8	.3	.09	.18	.37	.58	.82	1.10	1.44	1.87	2.48	3.52	4.55
Nov	.87	.75	1.10	1956	2	2.42	1992	.02	1999	6.2	2.4	.4	.1	.07	.12	.24	.36	.49	.64	.83	1.06	1.39	1.93	2.47
Dec	.42	.35	.65	1951	6	1.51	1996	.00	1986	5.5	1.3	.0	.0	.03	.08	.14	.20	.27	.34	.41	.51	.64	.86	1.06
Ann	20.26	20.67	4.28	Jun 1964	18	9.55	Jul 1993	.00+	Dec 1986	97.2	43.8	10.8	2.9	13.19	14.51	16.23	17.55	18.73	19.89	21.09	22.43	24.06	26.46	28.55

+ 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

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Station: ROSCOE, SD

COOP ID: 397277

Climate Division: SD 2

NWS Call Sign:

Elevation: 1,830 Feet

Lat: 45° 27N

Lon: 99° 20W

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	7.9	7.2	7	4	8.3	1997	5	21.2	1997	37	1997	8	31	1997	7.0	2.4	.5	.3	.0	-9.9	-9.9	-9.9	-9.9
Feb	8.2	9.4	8	5	8.0	1997	4	15.4	1994	33	1997	9	29	1997	5.5	2.4	.9	.5	.0	-9.9	-9.9	-9.9	-9.9
Mar	7.4	6.4	4	3	12.4	1995	5	13.7	1998	24	1997	7	16	1997	4.0	2.2	.8	.2	.1	11.3	8.6	6.4	1.5
Apr	6.6	2.9	1	#	10.6	1997	6	28.6	1995	15	1995	12	2	1997	2.0	1.5	.6	.4	.2	3.0	2.1	1.1	.2
May	.1	.0	#	0	1.5	1991	4	1.5	1991	#+	2000	13	#+	2000	.1	.1	.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	#	1994	19	#	1994	.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	#	1995	22	#	1995	#	1995	21	#	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	1.3	.0	#	#	8.0	1991	29	8.0	1991	8	1991	29	#+	1999	.7	.4	.3	.1	.0	.4	.1	.1	.0
Nov	6.0	5.6	2	1	9.0	1993	24	16.5	2000	17+	1996	23	7	1996	5.4	2.9	1.2	.6	.0	12.2	7.0	4.8	1.4
Dec	7.5	8.0	5	3	5.7	1996	15	13.7	1971	28	1996	31	20	1996	7.2	2.8	.5	.3	.0	20.6	16.2	11.0	7.2
Ann	45.0	39.5	N/A	N/A	12.4	Mar 1995	5	28.6	Apr 1995	37	Jan 1997	8	31	Jan 1997	31.9	14.7	4.8	2.4	.3	-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

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Climate Division: SD 2

NWS Call Sign:

Elevation: 1,830 Feet

Lat: 45° 27N

Lon: 99° 20W

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	6/01	5/27	5/24	5/21	5/18	5/15	5/12	5/09	5/04
32	5/20	5/15	5/12	5/10	5/07	5/05	5/02	4/29	4/25
28	5/12	5/08	5/05	5/03	5/01	4/28	4/26	4/23	4/20
24	5/07	5/02	4/28	4/25	4/22	4/19	4/15	4/11	4/06
20	4/23	4/18	4/15	4/11	4/09	4/06	4/03	3/30	3/25
16	4/14	4/09	4/05	4/02	3/31	3/28	3/25	3/21	3/17
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	9/09	9/12	9/15	9/17	9/18	9/20	9/22	9/24	9/28
32	9/12	9/16	9/18	9/21	9/23	9/25	9/27	9/30	10/04
28	9/20	9/24	9/27	9/30	10/03	10/05	10/08	10/11	10/16
24	9/26	10/02	10/06	10/10	10/13	10/17	10/20	10/24	10/30
20	10/07	10/13	10/18	10/22	10/25	10/29	11/01	11/06	11/12
16	10/13	10/19	10/24	10/27	10/31	11/03	11/07	11/11	11/17
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	143	136	131	127	123	119	114	109	102
32	157	150	146	142	138	134	130	125	119
28	172	166	161	158	154	151	147	143	137
24	200	191	185	179	174	169	163	157	148
20	224	215	209	204	199	194	189	182	174
16	238	230	224	218	214	209	203	197	189

* 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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Elevation: 1,830 Feet Lat: 45° 27N Lon: 99° 20W

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	1707	1338	1146	662	291	85	35	43	223	602	1109	1560	8801
60	1552	1198	991	518	176	29	11	12	121	447	959	1405	7419
57	1459	1114	898	434	121	13	4	4	75	356	869	1312	6659
55	1397	1058	836	381	92	7	0	2	52	297	809	1250	6181
50	1242	928	684	262	40	0	0	0	15	166	665	1095	5097
32	726	484	233	26	0	0	0	0	0	4	230	593	2296

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	42	69	111	355	753	1004	1215	1152	799	425	111	56	6092
55	0	0	0	19	132	320	502	440	161	5	0	0	1579
57	0	0	0	12	99	266	444	380	125	2	0	0	1328
60	0	0	0	6	60	193	358	296	81	0	0	0	994
65	0	0	0	1	20	98	227	172	32	0	0	0	550
70	0	0	0	0	4	37	129	83	9	0	0	0	262

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	1	24	171	518	760	965	914	559	240	22	0	0	1	25	196	714	1474	2439	3353	3912	4152	4174	4174
45	0	0	3	97	371	610	810	759	416	136	9	0	0	0	3	100	471	1081	1891	2650	3066	3202	3211	3211
50	0	0	0	46	238	461	655	604	284	63	1	0	0	0	0	46	284	745	1400	2004	2288	2351	2352	2352
55	0	0	0	18	133	318	500	450	174	22	0	0	0	0	0	18	151	469	969	1419	1593	1615	1615	1615
60	0	0	0	5	64	189	346	300	89	6	0	0	0	0	0	5	69	258	604	904	993	999	999	999
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	1	24	135	317	471	629	585	357	176	20	0	0	1	25	160	477	948	1577	2162	2519	2695	2715	2715

(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/normal/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
- 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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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