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: ALEXANDRIA, SD **COOP ID: 390128**

Climate Division: SD 9 **NWS Call Sign:** **Elevation: 1,353 Feet** **Lat: 43˚39N** **Lon: 97˚47W**

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	26.9	6.1	16.5	66	1981	24	30.4	1990	-31	1966	29	1.5	1978	1504	0	.0	.0	1.2	18.6	30.6	9.8
Feb	33.7	12.9	23.3	73	2000	21	35.0	1987	-35	1936	16	8.8	1979	1167	0	.0	.0	4.0	12.6	26.5	5.4
Mar	45.9	23.7	34.8	93	1943	30	43.1	2000	-22	1956	12	26.1	1984	936	0	.0	.0	12.0	5.1	22.9	1.2
Apr	60.9	35.4	48.2	96	1980	21	55.8	1981	2	1936	3	42.1+	1983	509	4	.0	.2	24.5	.4	10.0	.0
May	72.7	47.8	60.3	108	1934	30	66.6	1987	19+	1967	3	56.1	1995	196	47	.0	.3	30.8	.0	.8	.0
Jun	82.1	57.3	69.7	109	1936	25	77.3	1988	32	1946	2	64.4	1982	35	175	.4	5.0	30.0	.0	.0	.0
Jul	86.9	62.5	74.7	114+	1940	24	79.2	1974	41	1971	30	66.4	1992	10	310	1.2	11.3	31.0	.0	.0	.0
Aug	85.1	60.7	72.9	114	1934	4	78.9	1983	36	1935	30	67.0	1992	17	262	.5	8.2	31.0	.0	.0	.0
Sep	76.6	50.5	63.6	105	1976	6	70.8	1998	21	1974	30	58.4	1984	123	79	.1	3.1	29.9	.0	.7	.0
Oct	63.4	38.0	50.7	96	1947	5	54.4	1973	9	1936	26	45.7	1976	444	1	.0	.1	27.2	.2	7.9	.0
Nov	43.2	23.4	33.3	80+	1999	8	45.1	1999	-21	1959	14	21.6	1985	950	0	.0	.0	10.2	6.1	23.8	.9
Dec	30.3	10.7	20.5	67+	1998	2	29.3	1979	-31	1989	22	1.5	1983	1380	0	.0	.0	1.7	16.0	30.3	6.5
Ann	59.0	35.8	47.4	114+	Jul 1940	24	79.2	Jul 1974	-35	Feb 1936	16	1.5+	Dec 1983	7271	878	2.2	28.2	233.5	59.0	153.5	23.8

\+ 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: 1932-2001

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

Issue Date: February 2004

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: ALEXANDRIA, SD **COOP ID: 390128**

Climate Division: SD 9 **NWS Call Sign:** **Elevation: 1,353 Feet** **Lat: 43˚39N** **Lon: 97˚47W**

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	.44	.32	1.10	2001	30	1.20	1975	.01	1972
Feb	.56	.42	1.25	1997	4	2.17	1997	.01	1982
Mar	1.49	1.03	1.65	1987	17	5.38	1987	.21	1994
Apr	2.58	2.14	5.83	1942	30	6.42	1995	.31	1987
May	3.25	2.96	2.50	1972	1	8.58	1972	.49	1975
Jun	3.39	3.02	4.27	1961	14	9.18	1984	.48	1988
Jul	2.88	2.20	2.70+	2001	24	8.16	1993	.45	1975
Aug	2.62	2.08	3.58	1977	15	7.36	1978	.37	1976
Sep	2.27	1.82	4.15	1999	4	7.27	1986	.27	1980
Oct	1.73	1.41	2.33	1998	4	6.12	1998	.04	1988
Nov	1.18	.99	1.58	1971	16	4.44	2000	.01	1980
Dec	.39	.35	.90	1968	22	1.15	1996	.00+	1991
Ann	22.78	21.99	5.83	Apr 1942	30	9.18	Jun 1984	.00+	Dec 1991

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.5	1.3	.1	.0
Feb	5.0	1.7	.2	@
Mar	7.1	3.7	.9	.3
Apr	9.5	5.5	1.7	.4
May	9.9	6.5	2.1	.8
Jun	8.9	6.1	2.4	.8
Jul	8.9	5.8	1.9	.7
Aug	7.3	4.4	1.6	.7
Sep	6.9	4.1	1.6	.5
Oct	5.8	3.4	1.0	.5
Nov	5.5	2.8	.6	.3
Dec	4.0	1.4	@	.0
Ann	83.3	46.7	14.1	5.0

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	.02	.04	.09	.15	.22	.30	.40	.53	.72	1.03	1.35
Feb	.03	.06	.12	.20	.28	.39	.51	.67	.90	1.30	1.70
Mar	.24	.36	.58	.79	1.00	1.23	1.50	1.82	2.25	2.96	3.63
Apr	.49	.72	1.10	1.45	1.80	2.19	2.62	3.15	3.84	4.97	6.03
May	.66	.96	1.44	1.87	2.31	2.78	3.31	3.95	4.79	6.14	7.42
Jun	.91	1.23	1.72	2.15	2.57	3.01	3.50	4.08	4.84	6.02	7.13
Jul	.63	.89	1.32	1.70	2.08	2.49	2.95	3.49	4.22	5.37	6.46
Aug	.49	.73	1.11	1.47	1.83	2.22	2.66	3.19	3.91	5.05	6.13
Sep	.30	.48	.80	1.12	1.45	1.82	2.24	2.77	3.48	4.65	5.78
Oct	.12	.22	.44	.68	.94	1.25	1.63	2.10	2.76	3.88	4.99
Nov	.05	.11	.25	.40	.58	.80	1.07	1.42	1.91	2.76	3.61
Dec	.00	.07	.14	.21	.27	.33	.40	.49	.60	.78	.95
Ann	13.63	15.28	17.47	19.17	20.71	22.22	23.80	25.58	27.77	31.00	33.84

\+ 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: 1932-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: ALEXANDRIA, SD **COOP ID: 390128**

Climate Division: SD 9 **NWS Call Sign:** **Elevation: 1,353 Feet** **Lat: 43°39N** **Lon: 97°47W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.2	2.8	3	3
Feb	5.6	5.0	3	2
Mar	5.3	4.4	1	1
Apr	2.9	.8	#	#
May	#	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.9	.0	#	0
Nov	4.6	3.6	1	#
Dec	5.4	5.0	2	2
Ann	29.9	21.6	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	11.0	1988	19	16.0	1975	15	1988	23	9	1988
Feb	12.0	1997	4	21.8	1997	14	1979	4	12	1979
Mar	15.0	1998	31	15.8	1975	11	1984	11	7	1984
Apr	6.0	1994	28	16.3	1995	10	1995	10	1	1995
May	#	1989	5	#	1989	#	1997	7	#	1997
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	1.0	1984	25	1.0	1984	0	0	0	0	0
Oct	7.0	1995	23	13.0	1995	5	1995	31	#+	1999
Nov	5.0	1975	19	18.1	1985	12+	1998	10	6	1985
Dec	8.0	1996	14	17.5	1971	13	1985	20	11	1983
Ann	15.0	Mar 1998	31	21.8	Feb 1997	15	Jan 1988	23	12	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.2	1.9	.6	.2	@
Feb	3.0	2.0	.6	.2	@
Mar	2.8	2.2	.9	.2	@
Apr	.9	.8	.5	.2	.0
May	.0	.0	.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
Oct	.3	.3	.1	.1	.0
Nov	2.4	1.8	.6	.1	.0
Dec	3.0	2.1	.7	.2	.0
Ann	15.6	11.1	4.0	1.2	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	19.2	14.2	7.2	.7
Feb	14.7	10.0	4.8	1.1
Mar	6.1	3.8	1.9	.5
Apr	.7	.4	.2	@
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.3	.1	@	.0
Nov	5.2	3.1	1.6	.1
Dec	15.8	8.9	3.8	2.0
Ann	62.0	40.5	19.5	4.4

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: ALEXANDRIA, SD **COOP ID: 390128**

Climate Division: SD 9 **NWS Call Sign:** **Elevation: 1,353 Feet** **Lat: 43˚39N** **Lon: 97˚47W**

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	5/24	5/19	5/15	5/12	5/09	5/06	5/03	4/29	4/24
32	5/15	5/10	5/06	5/03	4/30	4/26	4/23	4/19	4/14
28	5/07	5/02	4/28	4/24	4/21	4/18	4/15	4/11	4/05
24	4/21	4/16	4/13	4/10	4/08	4/05	4/02	3/30	3/26
20	4/13	4/08	4/05	4/02	3/31	3/28	3/25	3/22	3/17
16	4/07	4/03	3/30	3/27	3/25	3/22	3/19	3/16	3/11

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	9/15	9/18	9/20	9/22	9/24	9/26	9/28	10/01	10/04
32	9/20	9/24	9/26	9/29	10/01	10/03	10/05	10/08	10/12
28	9/26	10/01	10/05	10/09	10/12	10/15	10/18	10/22	10/28
24	10/06	10/11	10/16	10/19	10/22	10/26	10/29	11/02	11/08
20	10/17	10/23	10/27	10/30	11/02	11/05	11/09	11/13	11/18
16	10/29	11/03	11/07	11/10	11/13	11/16	11/20	11/24	11/29

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	158	151	146	142	138	134	129	124	117
32	172	166	161	157	154	150	146	141	135
28	190	184	180	176	173	169	166	161	156
24	216	209	204	200	197	193	189	184	178
20	238	230	225	220	216	211	206	201	193
16	257	249	243	238	233	228	223	218	209

***** 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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: ALEXANDRIA, SD **COOP ID: 390128**

Climate Division: SD 9 **NWS Call Sign:** **Elevation: 1,353 Feet** **Lat: 43˚39N** **Lon: 97˚47W**

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	1504	1167	936	509	196	35	10	17	123	444	950	1380	7271
60	1349	1027	781	370	105	9	0	3	53	295	800	1225	6017
57	1256	948	689	294	66	3	0	1	27	214	710	1132	5340
55	1194	897	629	248	46	1	0	0	16	167	654	1070	4922
50	1045	766	485	150	15	0	0	0	3	78	515	919	3976
32	550	359	113	5	0	0	0	0	0	1	145	432	1605

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	69	116	200	491	874	1131	1324	1268	946	581	185	76	7261
55	0	10	2	43	208	441	611	555	271	34	4	0	2179
57	0	5	0	30	165	383	549	494	223	19	0	0	1868
60	0	0	0	15	111	299	456	403	159	7	0	0	1450
65	0	0	0	4	47	175	310	262	79	1	0	0	878
70	0	0	0	0	15	85	181	145	31	0	0	0	457

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	16	83	299	654	912	1098	1035	723	373	65	2	0	16	99	398	1052	1964	3062	4097	4820	5193	5258	5260
45	0	2	42	187	499	762	943	880	575	245	29	0	0	2	44	231	730	1492	2435	3315	3890	4135	4164	4164
50	0	0	11	108	354	612	788	725	429	138	11	0	0	0	11	119	473	1085	1873	2598	3027	3165	3176	3176
55	0	0	4	54	221	464	633	571	298	62	1	0	0	0	4	58	279	743	1376	1947	2245	2307	2308	2308
60	0	0	0	25	117	316	478	416	183	23	0	0	0	0	0	25	142	458	936	1352	1535	1558	1558	1558
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	16	64	198	401	598	734	691	460	234	45	2	0	16	80	278	679	1277	2011	2702	3162	3396	3441	3443

(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

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