

# Climatography of the United States No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: ABERDEEN RGNL AP, SD

1971-2000

COOP ID: 390020

Climate Division: SD 3

NWS Call Sign: ABR

Elevation: 1,306 Feet Lat: 45° 27N

Lon: 98° 25W

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	21.4	.6	11.0	60+	1981	24	25.3	1990	-36	1943	19	-1.9	1982	1678	0	.0	.0	.3	23.0	30.9	15.2
Feb	28.5	8.8	18.7	70	1958	25	30.5	1987	-45	1994	9	2.5	1979	1312	0	.0	.0	2.1	15.9	27.5	8.9
Mar	40.2	21.2	30.7	86	1946	31	39.5	1973	-32	1995	8	21.3	1996	1072	0	.0	.0	7.5	8.4	26.4	2.5
Apr	57.4	33.4	45.4	98	1992	30	51.9	1977	-2	1975	3	39.0+	1997	591	3	.0	.2	22.0	.6	14.5	@
May	70.2	45.6	57.9	110	1934	30	64.9	1977	17	1946	12	52.6	1979	251	29	.0	.4	30.4	.0	2.2	.0
Jun	78.7	54.8	66.8	109+	1933	26	75.0	1988	30	1946	2	61.3	1985	59	112	.1	2.7	30.0	.0	.0	.0
Jul	84.7	59.7	72.2	115+	1936	9	78.3	1975	37	1945	2	64.3	1992	11	235	1.4	8.3	31.0	.0	.0	.0
Aug	83.5	57.4	70.5	112	1965	13	76.5	1983	32	1987	31	64.3	1992	27	196	.6	6.7	31.0	.0	@	.0
Sep	73.0	46.5	59.8	103+	1970	6	65.1	1978	11	1939	29	55.4	1984	206	49	.1	2.1	29.6	.0	2.1	.0
Oct	59.2	34.4	46.8	96	1963	5	51.9	1975	5	1936	26	43.0	1976	569	2	.0	.1	24.8	.3	13.1	.0
Nov	38.8	19.7	29.3	78	1975	4	38.7	1999	-27	1964	30	16.4	1985	1066	0	.0	.0	7.1	9.7	27.4	2.1
Dec	25.7	6.3	16.0	69	1939	6	25.7	1997	-39	1967	31	-5	1983	1506	0	.0	.0	1.0	20.3	30.9	10.2
Ann	55.1	32.4	43.8	115+	Jul 1936	9	78.3	Jul 1975	-45	Feb 1994	9	-1.9	Jan 1982	8348	626	2.2	20.5	216.8	78.2	175.0	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](http://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: 1932-2001

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

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**Elevation: 1,306 Feet Lat: 45°27N**

**Lon: 98°25W**

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	.48	.42	1.12	1939	9	1.34	1997	.05	1974	6.0	1.5	@	.0	.07	.11	.18	.25	.32	.39	.48	.59	.73	.97	1.19
Feb	.48	.43	1.02	1958	27	1.12	1987	.08	1985	6.6	1.7	.1	.0	.12	.17	.24	.30	.36	.42	.49	.58	.68	.86	1.02
Mar	1.34	.97	3.05	1982	19	4.00	1977	.04	1971	7.4	3.3	.7	.2	.20	.31	.50	.69	.88	1.09	1.34	1.63	2.04	2.69	3.32
Apr	1.83	1.84	2.28	1938	27	7.88	1986	.12	1981	8.2	3.9	1.0	.2	.18	.32	.57	.82	1.10	1.41	1.78	2.23	2.86	3.90	4.92
May	2.69	2.53	3.81	1949	17	7.36	1991	.30	1994	9.9	5.6	1.8	.4	.57	.81	1.21	1.57	1.93	2.31	2.75	3.27	3.95	5.05	6.09
Jun	3.49	3.06	4.02	1939	10	7.72	1990	.37	1974	10.4	6.6	2.0	.8	.67	.98	1.50	1.97	2.45	2.96	3.55	4.26	5.19	6.70	8.13
Jul	2.92	2.47	3.09	1947	17	7.71	1972	.30	1975	9.7	5.8	1.9	.6	.59	.85	1.28	1.67	2.07	2.49	2.97	3.55	4.32	5.54	6.70
Aug	2.42	2.27	3.25	1990	17	5.93	1980	.24	1996	8.1	4.4	1.4	.5	.49	.72	1.07	1.40	1.72	2.07	2.47	2.95	3.57	4.58	5.54
Sep	1.81	1.44	2.50	1967	17	5.32	1996	.05	1979	6.4	3.2	1.3	.5	.12	.23	.46	.71	.98	1.31	1.70	2.19	2.88	4.04	5.20
Oct	1.63	1.12	3.75	2000	26	7.29	1998	.08	1978	6.0	2.9	1.2	.5	.08	.16	.35	.56	.81	1.11	1.48	1.96	2.63	3.79	4.95
Nov	.75	.70	1.30	1977	8	2.87	2000	.00+	1999	7.0	2.3	.3	@	.00	.03	.12	.22	.35	.49	.67	.90	1.23	1.80	2.36
Dec	.38	.34	.90	1935	14	1.37	1988	.00	1986	6.3	1.3	@	.0	.03	.07	.13	.18	.24	.31	.38	.47	.59	.78	.97
Ann	20.22	20.55	4.02	Jun 1939	10	7.88	Apr 1986	.00+	Nov 1999	92.0	42.5	11.7	3.7	12.09	13.56	15.49	17.00	18.37	19.71	21.12	22.69	24.64	27.50	30.03

+ 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

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**Climate Division: SD 3**

**NWS Call Sign: ABR**

**Elevation: 1,306 Feet**

**Lat: 45° 27N**

**Lon: 98° 25W**

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	7.2	5.3	4	3	10.8	1997	4	19.2	1997	30+	1997	18	26	1997	7.2	2.1	.6	.1	@	21.8	15.8	10.7	2.8
Feb	6.5	6.5	4	2	9.2	1977	23	13.0	1991	24+	1997	13	21	1997	6.5	2.0	.5	.2	.0	16.9	11.6	8.8	3.8
Mar	7.7	5.9	2	2	17.0	1982	19	27.9	1975	18+	1995	6	11	1997	5.6	2.1	.8	.3	.1	11.6	7.2	4.7	2.1
Apr	2.7	1.6	#	0	9.7	1995	11	15.6	1995	15	1975	1	3	1975	2.1	.9	.3	.1	.0	1.4	.7	.4	.2
May	.0	.0	#	0	.5	1979	10	.9	1979	#+	1990	1	#	2000	.1	.0	.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	0	0	0	0	0	0	.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	0	0	.2	1995	21	.2	1995	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.8	.2	#	0	3.2	1979	31	3.6	1992	2	1995	31	#	1995	.8	.3	@	.0	.0	.2	.0	.0	.0
Nov	7.7	5.0	1	0	12.0	1993	24	30.5	2000	23+	1993	27	6	1996	5.7	2.2	.7	.3	.1	7.6	4.2	2.5	.8
Dec	5.9	5.3	3	1	8.6	1988	26	16.4	1988	21+	1996	31	15	1996	6.8	1.8	.4	.2	.0	16.2	11.2	7.4	3.5
Ann	38.5	29.8	N/A	N/A	17.0	Mar 1982	19	30.5	Nov 2000	30+	Jan 1997	18	26	Jan 1997	34.8	11.4	3.3	1.2	.2	75.7	50.7	34.5	13.2

+ 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	5/28	5/24	5/21	5/19	5/17	5/14	5/12	5/09	5/05
32	5/20	5/16	5/13	5/10	5/08	5/06	5/03	4/30	4/26
28	5/14	5/08	5/04	4/30	4/27	4/24	4/21	4/16	4/11
24	5/01	4/26	4/22	4/19	4/16	4/13	4/09	4/05	3/31
20	4/19	4/13	4/09	4/06	4/02	3/30	3/26	3/22	3/17
16	4/11	4/06	4/02	3/29	3/26	3/23	3/19	3/15	3/10
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	9/06	9/09	9/12	9/14	9/16	9/17	9/19	9/22	9/25
32	9/11	9/15	9/17	9/19	9/21	9/23	9/25	9/28	10/02
28	9/20	9/25	9/29	10/02	10/05	10/08	10/11	10/14	10/19
24	9/28	10/03	10/07	10/11	10/14	10/17	10/21	10/25	10/30
20	10/06	10/12	10/16	10/19	10/22	10/25	10/28	11/01	11/07
16	10/18	10/24	10/28	10/31	11/04	11/07	11/10	11/14	11/20
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	139	133	129	125	121	118	114	110	104
32	152	146	142	139	135	132	129	125	119
28	176	170	166	163	160	156	153	149	143
24	201	194	189	185	181	176	172	167	160
20	226	218	212	207	202	197	192	186	178
16	245	237	231	226	222	217	212	207	199

\* 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:  
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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	1678	1312	1072	591	251	59	11	27	206	569	1066	1506	8348
60	1520	1157	909	445	150	23	6	10	91	409	922	1364	7006
57	1427	1073	816	363	101	10	0	3	51	319	832	1271	6266
55	1365	1018	754	312	75	5	0	1	31	262	772	1209	5804
50	1210	891	609	200	30	0	0	0	6	144	633	1055	4778
32	693	457	187	11	0	0	0	0	0	4	216	552	2120

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	5	29	123	412	801	1042	1246	1191	833	466	96	11	6255
55	0	0	0	26	153	355	533	479	195	27	1	0	1769
57	0	0	0	19	117	299	471	417	156	17	0	0	1496
60	0	0	0	10	74	220	380	329	107	8	0	0	1128
65	0	0	0	3	29	112	235	196	49	2	0	0	626
70	0	0	0	1	8	43	117	92	19	0	0	0	280

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	2	35	216	562	811	1008	953	603	254	28	0	0	2	37	253	815	1626	2634	3587	4190	4444	4472	4472
45	0	0	9	120	412	661	853	798	457	146	11	0	0	0	9	129	541	1202	2055	2853	3310	3456	3467	3467
50	0	0	1	62	274	511	698	643	321	72	2	0	0	0	1	63	337	848	1546	2189	2510	2582	2584	2584
55	0	0	0	27	160	363	543	488	202	28	0	0	0	0	0	27	187	550	1093	1581	1783	1811	1811	1811
60	0	0	0	9	78	227	389	336	113	9	0	0	0	0	0	9	87	314	703	1039	1152	1161	1161	1161
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	1	31	154	348	513	660	622	378	174	29	0	0	1	32	186	534	1047	1707	2329	2707	2881	2910	2910

(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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://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.

- 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/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)