

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: GANN VALLEY 4 NW, SD

1971-2000

COOP ID: 393217

Climate Division: SD 7

NWS Call Sign:

Elevation: 1,720 Feet Lat: 44°03N

Lon: 99°04W

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	24.8	1.7	13.3	65	1931	29	27.8	1990	-35+	1972	15	-1.6	1978	1603	0	.0	.0	1.1	19.6	30.8	12.0
Feb	31.6	8.3	20.0	75	1930	18	32.1	1987	-44	1994	9	4.7	1979	1262	0	.0	.0	4.5	13.4	27.8	7.0
Mar	43.6	19.6	31.6	90	1943	30	39.2	2000	-27	1960	4	21.8	1996	1035	0	.0	.0	12.1	6.1	26.8	2.2
Apr	58.1	31.7	44.9	98+	1980	21	52.3	1981	-1+	1975	1	37.0	1995	605	2	.0	.3	22.8	.7	14.9	@
May	70.0	44.5	57.3	109+	1934	30	64.3	1977	11	1967	4	51.7	1995	265	25	.0	.6	30.2	.0	2.4	.0
Jun	80.0	54.1	67.1	111+	1933	26	74.8	1988	29	1964	2	61.4	1993	72	133	.6	4.8	30.0	.0	.0	.0
Jul	86.9	59.3	73.1	120	1936	5	78.3	1974	37	1971	30	63.5	1992	22	272	2.4	13.0	31.0	.0	.0	.0
Aug	85.5	57.0	71.3	116	1936	24	76.7	1983	32	1950	20	64.2	1992	33	227	1.8	11.7	31.0	.0	.0	.0
Sep	76.0	46.0	61.0	112	1931	9	67.6	1978	16	1995	22	53.7	1993	183	62	.5	4.8	29.6	.0	2.0	.0
Oct	61.5	33.1	47.3	99	1963	5	51.7	1973	-7	1925	29	43.4	1976	549	0	.0	.2	26.3	.3	11.8	.0
Nov	41.3	18.7	30.0	84	1999	9	41.5	1999	-22	1959	14	17.1	1985	1049	0	.0	.0	9.5	7.2	26.7	1.5
Dec	29.0	6.6	17.8	73	1998	2	28.1	1979	-36+	1990	31	-9	1983	1463	0	.0	.0	2.2	16.2	30.9	8.2
Ann	57.4	31.7	44.6	120	Jul 1936	5	78.3	Jul 1974	-44	Feb 1994	9	-1.6	Jan 1978	8141	721	5.3	35.4	230.3	63.5	174.1	30.9

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1920-2001

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

033-A

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: GANN VALLEY 4 NW, SD

COOP ID: 393217

Climate Division: SD 7

NWS Call Sign:

Elevation: 1,720 Feet Lat: 44°03N

Lon: 99°04W

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	.27	.20	1.96	1939	9	.90	1997	.00+	1983	3.3	.9	.1	.0	.00	.01	.05	.09	.13	.18	.25	.33	.44	.64	.83
Feb	.41	.23	1.65	1991	18	1.65	1991	.00	1983	3.6	1.2	.1	@	.01	.03	.08	.14	.21	.28	.38	.50	.67	.96	1.25
Mar	1.17	1.06	2.10	1942	25	3.87	1977	.02	1978	5.9	3.0	.6	.3	.09	.16	.31	.47	.65	.86	1.11	1.42	1.86	2.60	3.33
Apr	2.00	1.83	2.60	1935	25	4.43	1986	.23	1980	7.8	5.1	1.3	.2	.40	.58	.87	1.14	1.41	1.71	2.03	2.43	2.95	3.79	4.59
May	3.03	2.30	2.26	1939	27	6.67	1972	.21	1994	9.3	5.9	2.0	.9	.58	.85	1.30	1.71	2.12	2.57	3.08	3.69	4.51	5.81	7.06
Jun	3.20	2.65	3.60	1990	16	7.36	1990	.86	1978	9.3	6.2	2.2	.8	.90	1.20	1.66	2.06	2.45	2.86	3.32	3.85	4.55	5.64	6.66
Jul	2.58	2.27	3.65	1968	26	5.12	1982	.28	1991	8.2	5.7	1.6	.7	.57	.81	1.19	1.53	1.87	2.23	2.64	3.14	3.78	4.81	5.78
Aug	2.21	2.42	3.63	1930	18	4.47	1998	.28	1974	6.6	4.2	1.3	.6	.44	.64	.96	1.26	1.56	1.88	2.25	2.69	3.27	4.21	5.10
Sep	1.82	1.54	3.25	1996	19	7.14	1996	.03	1979	5.7	3.5	1.1	.4	.11	.22	.45	.69	.97	1.30	1.70	2.21	2.91	4.12	5.31
Oct	1.67	1.14	2.81	1980	16	6.51	1998	.00	1992	5.2	3.4	1.2	.4	.06	.18	.41	.65	.92	1.22	1.59	2.04	2.68	3.74	4.78
Nov	.70	.71	1.48	1972	2	1.89	1993	.00	1990	4.3	1.9	.2	.2	.01	.04	.12	.21	.32	.46	.62	.84	1.14	1.67	2.20
Dec	.40	.27	.90	1996	15	3.86	1996	.00+	1986	3.6	1.1	.2	.0	.00	.01	.05	.10	.17	.25	.34	.47	.66	.98	1.31
Ann	19.46	18.91	3.65	Jul 1968	26	7.36	Jun 1990	.00+	Oct 1992	72.8	42.1	11.9	4.5	11.97	13.34	15.14	16.54	17.79	19.03	20.32	21.76	23.53	26.14	28.43

+ 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: 1920-2001

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

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

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: GANN VALLEY 4 NW, SD

COOP ID: 393217

Climate Division: SD 7

NWS Call Sign:

Elevation: 1,720 Feet

Lat: 44°03N

Lon: 99°04W

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	4.3	3.2	3	2	7.0	1985	16	12.3	1975	21	1988	12	12	1986	2.7	1.4	.4	.1	.0	20.3	15.4	9.7	2.3
Feb	4.5	3.5	3	1	11.0	1991	19	16.0	1994	17	1978	21	13	1978	3.0	1.7	.6	.2	.1	17.4	12.8	9.1	3.0
Mar	6.8	6.5	1	1	7.0	1987	24	18.0	1989	20	1974	23	5	1989	2.9	1.8	.7	.2	.0	7.3	4.3	2.7	.6
Apr	3.8	1.0	#	0	8.0	1995	19	30.0	1995	8	1975	2	1	1986	1.1	.9	.4	.3	.0	1.0	.5	.2	.0
May	.0	.0	0	0	.6	1979	10	.9	1979	0	0	0	0	0	.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	#	1985	30	#	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.6	.0	#	0	4.0	1971	28	4.5	1976	3	1980	27	#+	1999	.3	.3	.1	.0	.0	.3	.1	.0	.0
Nov	4.1	2.5	1	#	7.0	1987	16	17.5	1985	16	1985	30	5	1985	2.9	1.5	.5	.1	.0	6.6	2.5	1.3	.1
Dec	5.0	3.5	2	1	10.0	1987	28	17.0	1987	24	1985	21	20	1985	3.0	1.9	.4	.2	@	13.6	7.1	4.4	2.5
Ann	29.1	20.2	N/A	N/A	11.0	Feb 1991	19	30.0	Apr 1995	24	Dec 1985	21	20	Dec 1985	16.0	9.5	3.1	1.1	.1	66.5	42.7	27.4	8.5

+ 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/normal/usnormals.html

Climatography of the United States

No. 20 1971-2000

Station: GANN VALLEY 4 NW, SD

COOP ID: 393217

Climate Division: SD 7

NWS Call Sign:

Elevation: 1,720 Feet

Lat: 44°03N

Lon: 99°04W

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	5/31	5/26	5/23	5/19	5/17	5/14	5/10	5/07	5/02
32	5/20	5/16	5/13	5/10	5/08	5/05	5/03	4/30	4/26
28	5/14	5/09	5/06	5/03	4/30	4/27	4/24	4/20	4/15
24	5/04	4/29	4/26	4/23	4/20	4/17	4/14	4/10	4/05
20	4/21	4/16	4/13	4/10	4/07	4/05	4/02	3/30	3/25
16	4/14	4/09	4/05	4/02	3/31	3/28	3/25	3/22	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	9/19	9/21	9/23	9/25	9/28
32	9/15	9/19	9/22	9/24	9/27	9/29	10/01	10/04	10/08
28	9/21	9/26	9/29	10/02	10/05	10/08	10/11	10/14	10/19
24	9/26	10/01	10/05	10/09	10/12	10/15	10/19	10/23	10/29
20	10/02	10/08	10/13	10/17	10/20	10/24	10/28	11/01	11/08
16	10/12	10/18	10/23	10/26	10/30	11/02	11/06	11/10	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	146	139	133	129	125	120	116	110	103
32	159	153	148	145	141	137	134	129	123
28	175	169	165	161	158	154	150	146	140
24	196	189	183	179	175	171	166	161	154
20	217	210	204	200	195	191	186	181	173
16	235	227	222	217	212	208	203	197	190

* 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/normal/usnormals.html

**Climatography
of the United States
No. 20
1971-2000**

Station: GANN VALLEY 4 NW, SD

COOP ID: 393217

Climate Division: SD 7

NWS Call Sign:

Elevation: 1,720 Feet Lat: 44°03N

Lon: 99°04W

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	1603	1262	1035	605	265	72	22	33	183	549	1049	1463	8141
60	1448	1122	880	462	156	25	7	10	96	396	899	1308	6809
57	1355	1038	787	381	105	12	1	3	59	308	809	1215	6073
55	1293	989	725	330	78	6	0	2	40	253	749	1153	5618
50	1141	858	574	217	32	0	0	0	12	136	609	1001	4580
32	631	434	151	14	0	0	0	0	0	3	197	505	1935

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	51	96	139	401	783	1051	1273	1216	869	477	138	65	6559
55	0	7	0	26	148	367	560	505	219	14	0	0	1846
57	0	0	0	17	113	313	499	445	178	7	0	0	1572
60	0	0	0	9	70	236	412	359	125	2	0	0	1213
65	0	0	0	2	25	133	272	227	62	0	0	0	721
70	0	0	0	0	6	61	160	126	24	0	0	0	377

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	10	63	241	572	842	1057	1012	676	313	48	1	0	10	73	314	886	1728	2785	3797	4473	4786	4834	4835
45	0	0	26	146	422	692	902	857	532	194	17	0	0	0	26	172	594	1286	2188	3045	3577	3771	3788	3788
50	0	0	6	84	287	544	747	702	390	104	5	0	0	0	6	90	377	921	1668	2370	2760	2864	2869	2869
55	0	0	0	42	169	397	592	547	264	46	0	0	0	0	0	42	211	608	1200	1747	2011	2057	2057	2057
60	0	0	0	13	84	260	437	397	160	12	0	0	0	0	0	13	97	357	794	1191	1351	1363	1363	1363
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	16	62	181	360	538	683	651	432	221	43	2	0	16	78	259	619	1157	1840	2491	2923	3144	3187	3189

(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.
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