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: HARRINGTON, SD **COOP ID: 393574**

Climate Division: SD 8 **NWS Call Sign:** **Elevation: 2,980 Feet** **Lat: 43˚10N** **Lon: 101˚15W**

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	32.9	8.1	20.5	71	1987	12	31.7	1990	-30	1979	14	3.8	1979	1380	0	.0	.0	3.7	13.5	30.5	9.0
Feb	38.6	14.1	26.4	73+	1995	21	36.9	1999	-35	1996	2	12.5	1978	1083	0	.0	.0	7.4	9.4	27.4	5.2
Mar	47.6	22.2	34.9	83	1988	27	41.1	1986	-28	1998	11	27.0	1998	933	0	.0	.0	14.5	4.6	26.8	1.5
Apr	59.6	31.9	45.8	96	1992	30	52.2	1981	-1	1975	1	39.7	1995	579	0	.0	.2	23.1	.7	15.8	@
May	70.6	43.0	56.8	98	1969	27	62.2	1977	19+	1979	11	51.5	1983	272	17	.0	.7	30.1	.0	3.7	.0
Jun	80.5	52.6	66.6	106	1988	24	74.5	1988	27	1969	2	61.4	1998	72	117	.6	4.6	29.9	.0	@	.0
Jul	86.7	58.2	72.5	109+	1990	2	77.8	1974	36	1972	3	65.5	1994	19	249	2.2	12.2	31.0	.0	.0	.0
Aug	85.7	56.5	71.1	108	1965	13	76.2	1983	34	1964	12	66.0	1992	26	216	1.1	11.5	31.0	.0	.0	.0
Sep	76.7	46.0	61.4	102+	1998	5	68.9	1998	20+	1974	30	56.9	1973	165	56	.4	4.6	29.6	.0	2.6	.0
Oct	63.1	33.8	48.5	99	1963	4	51.8	1974	-2	1991	31	43.8	1976	513	0	.0	.3	26.4	.3	13.2	.1
Nov	45.1	20.3	32.7	84	1999	7	43.5	1999	-19+	1985	28	17.9	1985	970	0	.0	.0	11.5	6.2	26.9	1.7
Dec	35.6	11.0	23.3	71	1998	1	31.8	1999	-38	1983	21	3.8	1983	1293	0	.0	.0	5.2	11.6	30.5	6.3
Ann	60.2	33.1	46.7	109+	Jul 1990	2	77.8	Jul 1974	-38	Dec 1983	21	3.8+	Dec 1983	7305	655	4.3	34.1	243.4	46.3	177.4	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: 1960-2001

(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	.49	.44	.84	1992	7	1.39	1997	.00	1989
Feb	.58	.57	.87	1971	19	1.94	1987	.01	1983
Mar	1.37	1.11	1.78	1973	14	4.70	1977	.24	1978
Apr	2.31	2.51	1.97	1971	20	4.88+	1995	.48	1992
May	3.43	2.83	3.07	1962	17	8.00	1991	.48	1985
Jun	3.21	3.26	3.00	1988	30	5.91	1993	.84	1989
Jul	2.83	2.93	2.25	1976	2	5.55	1972	.82	1996
Aug	1.79	1.48	2.98	1993	16	4.61	1993	.27	1984
Sep	1.47	1.21	1.87	1993	19	4.21	1973	.02	1975
Oct	1.51	1.33	2.20	1995	5	4.30	1995	.19	1978
Nov	.79	.70	1.22	1993	12	2.45	1985	.18+	1994
Dec	.45	.36	.80	1987	27	1.56	1987	.00+	1991
Ann	20.23	20.09	3.07	May 1962	17	8.00	May 1991	.00+	Dec 1991

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.9	1.5	.1	.0
Feb	4.2	1.8	.2	.0
Mar	6.9	3.7	.7	.1
Apr	8.5	5.1	1.6	.3
May	9.4	6.4	2.3	.9
Jun	8.9	6.1	2.3	.6
Jul	9.0	6.2	1.9	.6
Aug	6.5	4.1	1.1	.2
Sep	5.1	3.6	1.0	.1
Oct	5.2	3.4	1.0	.3
Nov	5.1	2.5	.2	@
Dec	4.0	1.8	@	.0
Ann	77.7	46.2	12.4	3.1

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	.05	.11	.19	.26	.33	.41	.49	.60	.74	.97	1.18
Feb	.04	.07	.14	.22	.31	.42	.55	.71	.93	1.32	1.70
Mar	.26	.38	.58	.77	.96	1.16	1.39	1.67	2.04	2.64	3.20
Apr	.48	.70	1.03	1.34	1.65	1.98	2.36	2.81	3.40	4.34	5.24
May	.92	1.24	1.74	2.17	2.60	3.05	3.54	4.13	4.90	6.11	7.24
Jun	1.04	1.35	1.80	2.18	2.55	2.92	3.34	3.83	4.45	5.43	6.33
Jul	1.02	1.29	1.67	2.00	2.30	2.62	2.96	3.36	3.87	4.66	5.38
Aug	.39	.56	.82	1.06	1.29	1.55	1.83	2.17	2.62	3.34	4.01
Sep	.18	.30	.51	.71	.93	1.17	1.45	1.80	2.27	3.04	3.78
Oct	.24	.36	.58	.79	1.01	1.24	1.51	1.84	2.28	3.00	3.69
Nov	.16	.24	.35	.46	.56	.68	.81	.96	1.16	1.49	1.80
Dec	.00	.06	.15	.22	.29	.37	.46	.56	.70	.93	1.15
Ann	13.04	14.38	16.12	17.46	18.67	19.85	21.07	22.44	24.11	26.56	28.70

\+ 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: 1960-2001
(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	6.3	6.0	3	1
Feb	6.9	7.0	3	2
Mar	10.5	9.0	2	1
Apr	6.1	4.0	1	#
May	.5	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.2	.0	#	0
Oct	3.0	1.5	#	#
Nov	8.1	7.2	1	1
Dec	6.4	5.0	3	1
Ann	48.0	39.7	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	1971	30	14.0+	1996	18	1986	8	13	1986
Feb	8.0	1977	23	20.5	1978	20	1978	20	11	1978
Mar	15.0	1977	29	59.0	1977	27	1977	12	12	1977
Apr	15.0	1995	11	34.0	1995	21	1977	4	4	1977
May	5.0	1979	9	9.0	1979	2	1979	10	#+	1983
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	4.0	1985	28	4.0	1985	4	1985	28	#+	1985
Oct	9.0	1975	24	18.0	1995	8	1975	24	1	1995
Nov	8.0	1985	10	33.0	1985	16	1985	30	8	1985
Dec	10.0	1987	27	24.0	1987	16	1985	5	13	1985
Ann	15.0+	Apr 1995	11	59.0	Mar 1977	27	Mar 1977	12	13+	Jan 1986

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.6	3.4	.7	.2	.1
Feb	3.4	3.3	.8	.3	.0
Mar	3.9	3.8	1.4	.6	.1
Apr	2.1	2.0	1.0	.4	@
May	.2	.2	.1	@	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	@	.0	.0
Oct	1.0	1.0	.4	.2	.0
Nov	3.2	3.1	1.1	.4	.0
Dec	3.3	3.0	.7	.2	@
Ann	20.8	19.9	6.2	2.3	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	15.2	10.3	6.6	2.7
Feb	10.8	7.8	5.7	1.9
Mar	6.5	4.8	2.9	1.1
Apr	1.8	1.4	1.0	.5
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	@	@	.0	.0
Oct	.9	.6	.3	.0
Nov	8.2	5.4	3.0	.7
Dec	13.8	8.8	4.8	1.9
Ann	57.3	39.1	24.3	8.8

+ 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	6/14	6/07	6/03	5/30	5/26	5/22	5/18	5/13	5/07
32	5/28	5/23	5/20	5/17	5/14	5/12	5/09	5/05	5/01
28	5/15	5/11	5/08	5/06	5/03	5/01	4/28	4/26	4/21
24	5/11	5/06	5/03	4/30	4/27	4/25	4/22	4/19	4/14
20	5/05	4/29	4/25	4/21	4/17	4/14	4/10	4/05	3/30
16	4/15	4/10	4/07	4/04	4/01	3/30	3/27	3/23	3/19

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	9/11	9/14	9/15	9/17	9/19	9/22	9/25
32	9/08	9/13	9/16	9/18	9/21	9/23	9/26	9/29	10/03
28	9/13	9/18	9/22	9/25	9/28	10/01	10/04	10/08	10/13
24	9/23	9/28	10/01	10/04	10/07	10/10	10/13	10/17	10/22
20	10/04	10/09	10/13	10/15	10/18	10/21	10/24	10/27	11/01
16	10/13	10/18	10/22	10/25	10/27	10/30	11/02	11/06	11/11

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	132	125	120	116	112	108	104	99	92
32	150	143	137	133	128	124	120	114	107
28	169	161	156	151	147	143	138	133	126
24	182	175	170	166	162	158	154	149	143
20	206	198	193	188	183	179	174	168	160
16	228	221	216	212	208	204	200	196	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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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	1380	1083	933	579	272	72	19	26	165	513	970	1293	7305
60	1225	943	778	433	156	24	4	6	80	360	820	1138	5967
57	1132	862	685	349	102	10	0	2	45	270	730	1045	5232
55	1071	811	623	297	74	5	0	1	28	215	674	983	4782
50	923	680	476	182	27	0	0	0	6	103	535	837	3769
32	440	288	92	5	0	0	0	0	0	1	157	364	1347

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	83	129	182	417	768	1035	1253	1212	881	511	177	95	6743
55	1	9	0	18	129	350	540	500	218	12	5	0	1782
57	0	3	0	11	95	295	478	439	175	5	0	0	1501
60	0	0	0	4	56	219	389	350	120	1	0	0	1139
65	0	0	0	0	17	117	249	216	56	0	0	0	655
70	0	0	0	0	3	49	137	112	20	0	0	0	321

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	4	23	77	230	529	805	1018	978	656	307	63	8	4	27	104	334	863	1668	2686	3664	4320	4627	4690	4698
45	0	4	32	136	378	655	863	823	509	190	24	1	0	4	36	172	550	1205	2068	2891	3400	3590	3614	3615
50	0	0	11	70	249	506	708	668	370	100	9	0	0	0	11	81	330	836	1544	2212	2582	2682	2691	2691
55	0	0	2	32	142	361	553	513	250	43	0	0	0	0	2	34	176	537	1090	1603	1853	1896	1896	1896
60	0	0	0	10	65	226	400	362	147	12	0	0	0	0	0	10	75	301	701	1063	1210	1222	1222	1222
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	9	32	81	177	341	511	648	625	428	234	62	16	9	41	122	299	640	1151	1799	2424	2852	3086	3148	3164

(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