## 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: HARROLD 12 SSW, SD 1971-2000 COOP ID: 393608

Climate Division: SD 6 NWS Call Sign: Elevation: 1,800 Feet Lat: 44°22N Lon: 99°48W

									r	Гетр	eratur	re (°F)									
	Mea	<b>n</b> (1)						Extr	emes					Degree Base To	Days (1) emp 65		Mean	Numb	er of I	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	26.6	1.0	13.8	68	1981	25	29.1	1990	-40	1966	29	-2.4	1978	1586	0	.0	.0	1.5	19.0	30.9	13.5
Feb	34.0	8.6	21.3	72	1995	22	32.9	1999	-44	1994	9	4.5	1979	1223	0	.0	.0	4.9	13.0	27.9	7.4
Mar	45.5	19.8	32.7	88	1988	28	40.3	2000	-22+	1989	5	23.3	1996	1003	0	.0	.0	12.3	5.9	27.4	2.4
Apr	59.8	31.1	45.5	96+	1990	23	51.9	1985	2	1966	20	39.4	1995	587	1	.0	.3	22.8	.7	16.3	.0
May	71.4	43.7	57.6	103	1969	27	63.8	1977	15+	1980	8	51.9	1979	266	34	@	1.0	30.1	.0	3.7	.0
Jun	80.8	53.9	67.4	112	1988	25	77.2	1988	24	1969	2	61.6	1993	77	147	.6	5.4	30.0	.0	.1	.0
Jul	88.4	59.3	73.9	113	1976	10	81.1	1974	32	1971	30	64.5	1992	23	297	3.7	13.9	31.0	.0	@	.0
Aug	88.0	57.3	72.7	113	1965	13	79.5	1983	32+	1988	28	65.7	1992	28	266	3.1	13.4	31.0	.0	.1	.0
Sep	78.5	45.5	62.0	109	1983	3	68.0	1998	14	1974	30	55.8	1993	150	60	.6	5.1	29.7	.0	3.1	.0
Oct	64.4	32.5	48.5	98	1990	6	53.6	1973	-2	1991	30	44.8	1976	513	0	.0	.5	26.6	.2	14.7	@
Nov	43.8	19.0	31.4	83	1990	1	42.8	1999	-22	1964	21	18.7	1985	1007	0	.0	.0	10.2	7.1	27.9	1.7
Dec	31.3	6.6	19.0	69	1975	5	28.3	1979	-38	1990	30	.5	1983	1428	0	.0	.0	2.9	15.8	30.9	9.0
Ann	59.4	31.5	45.5	113+	Jul 1976	10	81.1	Jul 1974	-44	Feb 1994	9	-2.4	Jan 1978	7891	805	8.0	39.6	233.0	61.7	183.0	34.0

<sup>+</sup> Also occurred on an earlier date(s)

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

Issue Date: February 2004 038-A

<sup>@</sup> Denotes mean number of days greater than 0 but less than .05

<sup>(1)</sup> From the 1971-2000 Monthly Normals

<sup>(2)</sup> Derived from station's available digital record: 1963-2000

<sup>(3)</sup> Derived from 1971-2000 serially complete daily data

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**COOP ID: 393608** 

Station: HARROLD 12 SSW, SD

Climate Division: SD 6 NWS Call Sign: Elevation: 1,800 Feet Lat: 44°22N Lon: 99°48W

										Pı	recipi	tation	(incl	nes)										
	Me	ans/	P	recip	itatio	on Total					ean N of D	ays (3	5)	Proba	ability th		nonthly/	annual j	precipita ated am		ll be equ		less tha	an the
	Medi	ans(1)				Extremes	,			"	any 11c	стриацо	11		Th	ese value	s were det	termined	from the	incomplet	e gamma	distribut	ion	
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	.35	.29	.64	1985	16	.93	1982	.00	1983	5.1	1.0	.1	.0	.02	.05	.10	.15	.21	.27	.35	.44	.56	.76	.96
Feb	.51	.35	.95	1977	24	1.59	1987	.00	1983	4.6	1.4	.2	.0	.02	.05	.13	.20	.28	.37	.49	.63	.82	1.15	1.48
Mar	1.22	1.11	1.20	1982	20	3.57	1977	.06	1994	5.8	3.3	.7	.2	.18	.28	.46	.63	.80	1.00	1.22	1.49	1.86	2.45	3.03
Apr	1.97	1.85	2.27	1964	27	4.99	1995	.00	1980	6.9	4.7	1.5	.2	.20	.43	.76	1.04	1.34	1.65	2.00	2.43	3.00	3.92	4.80
May	2.45	2.17	1.64	1974	20	5.79	1991	.42	1992	8.5	6.1	1.8	.4	.63	.86	1.21	1.53	1.84	2.16	2.52	2.96	3.52	4.41	5.24
Jun	2.92	3.12	4.14	1969	25	5.28	1993	.48	1974	9.1	6.4	1.7	.5	.78	1.05	1.48	1.85	2.21	2.59	3.02	3.52	4.18	5.21	6.18
Jul	2.62	2.45	3.15	1968	26	6.34	1992	.57	1976	7.8	5.8	1.8	.4	.61	.85	1.24	1.58	1.92	2.28	2.69	3.18	3.81	4.83	5.78
Aug	2.09	1.92	1.82	1980	16	4.29	1980	.30	1976	6.5	4.2	1.4	.6	.41	.59	.90	1.18	1.47	1.78	2.13	2.55	3.11	4.01	4.86
Sep	1.22	1.15	2.15	1986	19	6.07	1996	.00+	1981	4.3	2.7	.8	.2	.00	.09	.28	.47	.67	.90	1.17	1.51	1.97	2.75	3.51
Oct	1.52	1.25	1.93	1982	9	5.07	1998	.00	1992	4.5	3.2	1.0	.3	.06	.18	.40	.62	.86	1.14	1.46	1.86	2.42	3.35	4.27
Nov	.72	.54	1.25	1993	13	2.14	1985	.00	1990	5.0	2.2	.2	@	.02	.06	.16	.26	.37	.51	.67	.88	1.17	1.66	2.15
Dec	.35	.22	.76	1972	29	1.05	1972	.01	1995	4.7	1.1	.1	.0	.02	.03	.08	.12	.18	.24	.32	.42	.57	.81	1.06
Ann	17.94	17.79	4.14	Jun 1969	25	6.34	Jul 1992	.00+	Oct 1992	72.8	42.1	11.3	2.8	11.31	12.54	14.14	15.38	16.49	17.58	18.72	19.99	21.54	23.83	25.83

<sup>+</sup> Also occurred on an earlier date(s)

Complete documentation available from:

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

<sup>#</sup> Denotes amounts of a trace

<sup>@</sup> Denotes mean number of days greater than 0 but less than .05

<sup>\*\*</sup> Statistics not computed because less than six years out of thirty had measurable precipitation

<sup>(1)</sup> From the 1971-2000 Monthly Normals

<sup>(2)</sup> Derived from station's available digital record: 1963-2000

<sup>(3)</sup> Derived from 1971-2000 serially complete daily data

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**COOP ID: 393608** 

Station: HARROLD 12 SSW, SD

Climate Division: SD 6 NWS Call Sign: Elevation: 1,800 Feet Lat: 44°22N Lon: 99°48W

										Snov	w (incl	hes)											
						Sno	ow To	tals									Mea	n Nu	mber	of Day	<b>ys</b> (1)		
	Mean	s/Medi	ans (1)	)					Extre	mes (2)							ow Fa					Depth esholo	
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	4.9	3.0	5	4	7.0	1982	22	18.0	1979	27	1982	27	19	1986	3.4	2.9	.7	.2	.0	17.1	14.9	11.1	4.5
Feb	6.5	6.5	5	2	10.0	1990	15	15.0	1989	24	1986	24	19	1986	3.1	2.7	.8	.2	.1	12.3	9.5	6.6	2.6
Mar	8.3	7.0	2	1	12.0	1982	20	24.0	1985	20	1985	5	7	1978	3.3	3.3	1.2	.7	.1	7.0	4.9	3.4	.9
Apr	5.3	1.5	#	#	12.0	1995	19	46.0	1995	24	1995	12	6	1995	1.2	1.2	.7	.5	.1	1.3	.9	.6	.4
May	.3	.0	0	0	4.0	1989	1	4.0	1989	0	0	0	0	0	.1	.1	.1	.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	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	1.7	.0	#	0	6.0	1971	28	11.0	1971	9	1971	30	1	1980	.6	.6	.2	.2	.0	.6	.3	.2	.0
Nov	6.8	4.5	2	1	10.0	1993	13	42.0	1985	38	1985	30	12	1985	3.3	2.9	.9	.4	@	8.4	4.9	3.0	1.5
Dec	7.7	8.0	4	2	10.0	1987	28	16.0	1988	50	1985	21	39	1985	3.9	3.5	.7	.2	@	14.6	10.2	8.2	3.9
Ann	41.5	30.5	N/A	N/A	12.0+	Apr 1995	19	46.0	Apr 1995	50	Dec 1985	21	39	Dec 1985	18.9	17.2	5.3	2.4	.3	61.3	45.6	33.1	13.8

<sup>+</sup> Also occurred on an earlier date(s) #Denotes trace amounts

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

<sup>@</sup> Denotes mean number of days greater than 0 but less than .05

<sup>-9/-9.9</sup> represents missing values Annual statistics for Mean/Median snow depths are not appropriate

<sup>(1)</sup> Derived from Snow Climatology and 1971-2000 daily data

<sup>(2)</sup> Derived from 1971-2000 daily data

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**COOP ID: 393608** 

Lat: 44°22N

Lon: 99°48W

Station: HARROLD 12 SSW, SD

**Climate Division: SD 6** 

**NWS Call Sign:** 

				Freez	e Data									
			Spri	ng Freeze D	ates (Month/	Day)								
Probability of later date in spring (thru Jul 31) than indicated(*)   10   20   30   40   50   50   50   50   50   50   5														
Temp (F)	.10	.20	.30	.40	.50	.60	.70	.80	.90					
36	6/22	6/14	6/08	6/03	5/29	5/24	5/19	5/13	5/05					
32	6/11	6/02	5/27	5/22	5/17	5/13	5/07	5/01	4/23					
28	5/16	5/11	5/08	5/05	5/03	4/30	4/28	4/24	4/20					
24	5/13	5/08	5/04	5/01	4/28	4/25	4/22	4/18	4/13					
20	5/05	4/29	4/24	4/21	4/17	4/13	4/10	4/05	3/30					
16	4/20	4/14	4/10	4/07	4/03	3/31	3/27	3/23	3/17					
•		•	Fal	l Freeze Da	tes (Month/D	ay)			•					
Tomp (F)		Pro	bability of ea	arlier date i	n fall (beginn	ing Aug 1) t	han indicate	d(*)						
remp (r)	.10	.20	.30	.40	.50	.60	.70	.80	.90					
36	8/27	9/02	9/05	9/09	9/12	9/14	9/18	9/21	9/27					
32	9/02	9/08	9/12	9/16	9/19	9/23	9/26	10/01	10/07					
28	9/14	9/20	9/23	9/27	9/30	10/03	10/06	10/10	10/15					
24	9/24	9/29	10/03	10/06	10/09	10/12	10/15	10/19	10/24					
20	9/26	10/03	10/07	10/11	10/15	10/19	10/23	10/27	11/03					
16	10/09	10/15	10/20	10/23	10/27	10/30	11/03	11/08	11/14					
<u>'</u>		•		Freeze F	ree Period		•	1	•					
Toman (E)			Probability	of longer th	an indicated	freeze free p	eriod (Days)							
Temp (F)	.10	.20	.30	.40	.50	.60	.70	.80	.90					
36	135	125	117	111	105	99	92	85	74					
32	157	146	138	131	124	118	111	103	92					
28	172	164	158	153	149	145	140	134	126					
24	185	178	172	167	163	159	154	148	141					
20	205	197	191	185	180	175	170	164	155					
16	235	225	218	212	206	200	194	187	177					

<sup>\*</sup> 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.

Complete documentation available from:

Elevation: 1,800 Feet

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Station: HARROLD 12 SSW, SD

Climate Division: SD 6 NWS Call Sign: Elevation: 1,800 Feet Lat: 44°22N Lon: 99°48W

				Deg	ree Days to	o Selected	Base Tem	peratures	(°F)				
Base						Heatin	g Degree l	Days (1)					
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1586	1223	1003	587	266	77	23	28	150	513	1007	1428	7891
60	1431	1083	848	442	159	29	7	9	67	360	857	1273	6565
57	1338	1007	755	359	109	15	1	2	35	272	767	1180	5840
55	1277	955	695	308	82	9	0	1	21	218	709	1118	5393
50	1127	824	549	195	34	1	0	0	3	110	571	968	4382
32	627	413	148	9	0	0	0	0	0	2	180	479	1858

Base						Coolin	g Degree l	Days (1)					
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	64	114	168	413	791	1061	1297	1261	901	512	163	74	6819
55	1	12	1	22	160	379	584	549	231	15	2	0	1956
57	0	8	0	14	125	326	523	489	186	7	0	0	1678
60	0	0	0	6	82	250	436	402	128	2	0	0	1306
65	0	0	0	1	34	147	297	266	60	0	0	0	805
70	0	0	0	0	10	73	182	159	22	0	0	0	446

										Gro	wing l	Degre	e Uni	ts (2)										
Base					Growin	g Degree	Units (M	Ionthly)								Growi	ng Degre	ee Units (	Accumu	lated Mo	onthly)			
	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov De												Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	0	9	56	227	553	828	1060	1014	659	292	40	1	0	9	65	292	845	1673	2733	3747	4406	4698	4738	4739
45	0 1 23 132 405 678 905 859 513 181 16											0	0	1	24	156	561	1239	2144	3003	3516	3697	3713	3713
50	0 0 4 75 271 529 750 704 375 97 2											0	0	0	4	79	350	879	1629	2333	2708	2805	2807	2807
55	0	0	1	37	158	384	595	551	253	40	0	0	0	0	1	38	196	580	1175	1726	1979	2019	2019	2019
60	0 0 0 12 82 248 442 402 150 9 0										0	0	0	0	12	94	342	784	1186	1336	1345	1345	1345	
Base	Growing Degree Units for Corn (Monthly)														Gr	owing D	egree Un	its for C	orn (Acc	umulate	d Month	ly)		
50/86	/ <b>86</b> 2 19 61 176 356 526 682 645 434 231 49 5											5	2	21	82	258	614	1140	1822	2467	2901	3132	3181	3186

(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

#### 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

- c. Snow Tables
  - 1. Snow Climatology
  - 2. Cooperative Summary of the Day
- d. Freeze Data Table

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

### 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