

Climatography of the United States

No. 20

1971-2000

Station: DUPREE, SD

COOP ID: 392429

Climate Division: SD 3

NWS Call Sign:

Elevation: 2,375 Feet Lat: 45°03N

Lon: 101°36W

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	26.5	6.3	16.4	68	1981	23	27.9	1992	-39	1966	29	1.5	1978	1507	0	.0	.0	1.6	17.6	30.5	10.9
Feb	33.1	12.5	22.8	71+	1992	29	33.7	1999	-35	1936	14	6.1	1979	1182	0	.0	.0	5.0	12.5	27.3	6.1
Mar	43.2	21.3	32.3	83	1946	31	40.1	1986	-31	1998	11	23.6	1996	1015	0	.0	.0	10.4	5.6	27.2	2.1
Apr	57.9	32.3	45.1	96	1980	21	52.1	1987	-7	1936	3	38.4	1995	598	1	.0	.2	22.9	.9	15.6	@
May	70.0	43.9	57.0	107	1934	28	64.0	1977	18+	1954	3	51.2	1996	272	23	.0	.7	30.0	.0	2.9	.0
Jun	79.7	53.1	66.4	110	1931	28	76.8	1988	31+	1969	14	60.9	1993	81	123	.6	4.3	30.0	.0	.0	.0
Jul	86.9	58.4	72.7	114	1936	6	78.4	1974	38	1950	13	64.5	1992	24	261	2.8	12.6	31.0	.0	.0	.0
Aug	86.3	56.5	71.4	110+	1947	9	78.8	1983	34	1964	12	65.2	1992	35	232	1.9	12.6	31.0	.0	.0	.0
Sep	74.9	45.9	60.4	107	1931	9	68.2	1998	8	1926	25	55.6	1986	191	53	.6	3.9	29.6	.0	2.1	.0
Oct	60.6	34.6	47.6	97	1953	1	51.6	1973	-11	1925	29	44.9	1976	539	0	.0	.2	25.9	.3	11.8	.1
Nov	40.4	20.6	30.5	78	1999	8	41.8	1999	-22+	1985	27	14.5	1985	1036	0	.0	.0	9.4	7.6	26.8	1.9
Dec	29.1	10.0	19.6	71	1939	6	29.7	1999	-34	1990	30	1.8	1983	1409	0	.0	.0	2.2	15.2	30.4	7.5
Ann	57.4	33.0	45.2	114	Jul 1936	6	78.8	Aug 1983	-39	Jan 1966	29	1.5	Jan 1978	7889	693	5.9	34.5	229.0	59.7	174.6	28.6

+ 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: 1922-2001

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

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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: DUPREE, SD

COOP ID: 392429

Climate Division: SD 3

NWS Call Sign:

Elevation: 2,375 Feet Lat: 45°03N

Lon: 101°36W

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	.34	.33	1.00	1932	2	1.13	1997	.00+	1984	4.4	1.3	@	.0	.00	.04	.09	.15	.20	.26	.33	.42	.53	.72	.91
Feb	.49	.36	1.41	1930	24	2.23	1987	.01	1984	4.2	1.6	.1	@	.05	.08	.15	.22	.29	.38	.48	.60	.77	1.05	1.32
Mar	1.15	.68	2.02	2000	8	3.54	1987	.09	1978	6.2	2.9	.5	.1	.08	.15	.30	.45	.63	.83	1.08	1.39	1.83	2.56	3.28
Apr	1.86	1.52	2.67	1975	28	4.63	1986	.09	1981	8.0	4.4	1.1	.3	.26	.41	.68	.94	1.21	1.50	1.85	2.27	2.83	3.76	4.65
May	3.06	2.84	3.67	1972	22	7.91	1972	.35	1989	9.9	6.6	2.1	.5	.62	.90	1.35	1.76	2.17	2.62	3.12	3.72	4.52	5.80	7.01
Jun	3.34	2.91	2.82	1977	22	7.10	1993	.80	1997	9.8	6.2	2.1	.8	1.10	1.41	1.88	2.27	2.65	3.05	3.48	3.98	4.63	5.63	6.56
Jul	2.25	2.10	3.33	1987	18	5.47	1992	.06	1988	8.5	5.2	1.2	.4	.32	.50	.83	1.14	1.47	1.83	2.24	2.75	3.44	4.56	5.64
Aug	1.70	1.47	4.27	1933	21	5.55	1999	.15	2000	6.6	3.8	1.2	.3	.26	.40	.65	.88	1.12	1.39	1.70	2.08	2.58	3.40	4.19
Sep	1.17	.68	2.34	1996	18	5.55	1996	.11+	1978	5.3	2.9	.7	.1	.08	.15	.30	.46	.64	.84	1.10	1.42	1.86	2.62	3.37
Oct	1.57	1.02	2.26	1982	9	5.63	1982	.10	1978	5.3	3.1	1.0	.4	.12	.23	.43	.65	.89	1.16	1.49	1.91	2.48	3.45	4.41
Nov	.53	.48	2.06	1948	5	1.60	1985	.00	1974	5.0	1.9	.1	.0	.01	.04	.11	.18	.27	.37	.49	.64	.86	1.23	1.60
Dec	.38	.34	.92	1965	11	1.65	1996	.00	1986	4.5	1.5	@	.0	.02	.06	.12	.18	.23	.30	.37	.46	.59	.79	.98
Ann	17.84	17.44	4.27	Aug 1933	21	7.91	May 1972	.00+	Dec 1986	77.7	41.4	10.1	2.9	11.71	12.86	14.35	15.49	16.51	17.51	18.55	19.70	21.12	23.18	24.98

+ 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: 1922-2001

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

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

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Station: DUPREE, SD

COOP ID: 392429

Climate Division: SD 3

NWS Call Sign:

Elevation: 2,375 Feet

Lat: 45°03N

Lon: 101°36W

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	4.6	4.5	5	3	8.0	1997	4	14.0	1997	26	1986	4	18	1997	2.8	2.7	.8	.1	.0	18.4	13.4	9.5	4.1
Feb	6.0	5.0	4	2	15.0	1987	27	26.0	1987	24	1978	21	20	1978	2.5	2.4	.9	.2	@	11.8	7.5	5.1	2.1
Mar	8.5	5.0	3	2	9.0	1977	29	28.0+	1982	22	1975	28	12	1978	2.5	2.5	1.3	.5	.0	9.4	7.3	5.7	2.2
Apr	3.7	.5	#	#	10.5	1994	26	18.5	1995	21	1975	2	6	1975	1.1	1.1	.5	.3	.1	2.0	1.3	.9	.4
May	.3	.0	#	0	3.0	1991	3	3.0+	1991	#+	1991	3	#+	1991	.2	.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	#	1984	24	#+	1984	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	1.1	.0	#	0	7.0	1999	1	8.0	1971	5	1971	30	2	1972	.5	.4	.2	@	.0	.5	.2	@	.0
Nov	4.4	3.0	2	#	9.0	1977	19	27.0	1985	20	1985	30	9	1985	2.5	2.3	.5	.1	.0	6.9	4.2	3.0	.8
Dec	6.2	4.5	4	2	9.0	1988	26	22.5	1996	26	1985	21	23	1985	2.8	2.6	.8	.2	.0	15.7	10.2	6.5	1.9
Ann	34.8	22.5	N/A	N/A	15.0	Feb 1987	27	28.0+	Mar 1982	26+	Jan 1986	4	23	Dec 1985	14.9	14.1	5.0	1.4	.1	64.7	44.1	30.7	11.5

+ 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

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Elevation: 2,375 Feet

Lat: 45° 03N

Lon: 101° 36W

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	6/09	6/03	5/30	5/26	5/23	5/20	5/16	5/12	5/06
32	5/21	5/17	5/15	5/12	5/10	5/08	5/05	5/02	4/29
28	5/17	5/12	5/08	5/05	5/02	4/29	4/26	4/23	4/18
24	5/05	4/30	4/27	4/24	4/21	4/18	4/15	4/12	4/07
20	4/24	4/19	4/16	4/13	4/11	4/08	4/05	4/02	3/28
16	4/13	4/08	4/04	4/01	3/29	3/26	3/23	3/20	3/15
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	9/07	9/10	9/12	9/14	9/16	9/18	9/19	9/22	9/25
32	9/10	9/14	9/17	9/19	9/21	9/24	9/26	9/29	10/03
28	9/15	9/21	9/25	9/29	10/02	10/05	10/09	10/13	10/19
24	9/21	9/28	10/02	10/06	10/10	10/13	10/17	10/22	10/28
20	10/03	10/09	10/13	10/17	10/20	10/24	10/27	11/01	11/06
16	10/13	10/20	10/24	10/28	11/01	11/05	11/09	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	136	129	123	119	115	111	107	102	95
32	149	144	140	137	134	131	127	124	118
28	177	168	162	157	152	147	142	136	127
24	193	186	180	175	171	167	162	157	149
20	214	206	201	196	192	188	183	178	171
16	240	232	226	221	216	211	206	200	192

* 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	1507	1182	1015	598	272	81	24	35	191	539	1036	1409	7889
60	1352	1042	860	454	160	30	7	11	99	385	886	1254	6540
57	1259	964	767	373	108	14	1	4	59	294	796	1161	5800
55	1198	913	706	321	80	8	0	2	39	237	736	1099	5339
50	1049	781	560	209	32	1	0	0	11	117	598	953	4311
32	557	374	150	13	0	0	0	0	0	2	198	467	1761

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	73	116	159	406	774	1032	1260	1220	852	486	152	80	6610
55	1	11	1	24	141	350	547	509	201	8	0	0	1793
57	0	6	0	15	107	296	486	449	161	3	0	0	1523
60	0	0	0	7	66	222	399	364	111	1	0	0	1170
65	0	0	0	1	23	123	261	232	53	0	0	0	693
70	0	0	0	0	5	55	151	131	20	0	0	0	362

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	11	51	229	545	805	1032	1000	648	302	43	2	0	11	62	291	836	1641	2673	3673	4321	4623	4666	4668
45	0	2	14	131	398	655	877	845	505	188	14	0	0	2	16	147	545	1200	2077	2922	3427	3615	3629	3629
50	0	0	4	70	261	505	722	690	364	98	3	0	0	0	4	74	335	840	1562	2252	2616	2714	2717	2717
55	0	0	0	35	152	359	567	535	239	41	0	0	0	0	0	35	187	546	1113	1648	1887	1928	1928	1928
60	0	0	0	12	74	223	413	382	140	11	0	0	0	0	0	12	86	309	722	1104	1244	1255	1255	1255
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	18	49	169	344	507	660	638	417	216	39	4	1	19	68	237	581	1088	1748	2386	2803	3019	3058	3062

(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