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: SIDNEY 6 NNW, NE **COOP ID: 257830**

Climate Division: NE 1 **NWS Call Sign:** **Elevation: 4,320 Feet** **Lat: 41˚13N** **Lon: 103˚01W**

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	36.3	13.0	24.7	74	1982	27	31.5	1983	-30	1963	19	10.3	1979	1252	0	.0	.0	5.6	10.4	30.5	6.0
Feb	42.1	17.2	29.7	76+	1962	11	37.9	1976	-30	1989	3	18.3	1989	990	0	.0	.0	10.1	6.8	27.3	3.3
Mar	48.7	23.1	35.9	83	1967	30	43.2	1986	-27	1960	3	31.0	1980	903	0	.0	.0	16.1	4.0	27.6	.8
Apr	57.3	30.7	44.0	91	1989	22	51.0	1981	-7	1975	2	38.6	1984	631	0	.0	.1	22.7	.9	18.8	.1
May	66.7	41.3	54.0	96	1967	25	59.7	1994	16	1989	1	48.2	1995	347	7	.0	.2	29.0	.0	4.3	.0
Jun	77.9	51.0	64.5	103	1989	20	68.4	1988	29	1979	1	58.2	1998	94	79	.2	4.8	29.9	.0	.1	.0
Jul	85.2	57.0	71.1	108	1989	9	74.4	1974	36	1952	8	66.4	1992	10	199	1.5	13.2	31.0	.0	.0	.0
Aug	83.4	55.1	69.3	104+	1980	7	74.6	1983	35+	1978	19	64.9	1992	35	166	.5	10.4	31.0	.0	.0	.0
Sep	74.2	45.4	59.8	101+	1985	1	65.0	1998	13	1985	30	55.2	1993	192	37	.1	3.8	29.0	@	3.0	.0
Oct	61.7	33.3	47.5	94	1996	13	51.5	1979	-2	1997	26	42.2	1976	543	0	.0	.1	26.2	.5	15.9	.1
Nov	46.2	22.1	34.2	78+	1989	13	42.0	1999	-19	1976	27	23.6	1985	926	0	.0	.0	13.3	5.4	27.6	.9
Dec	39.1	15.2	27.2	75	1980	28	35.7	1980	-39	1989	22	11.4	1983	1174	0	.0	.0	7.9	8.6	30.0	4.1
Ann	59.9	33.7	46.8	108	Jul 1989	9	74.6	Aug 1983	-39	Dec 1989	22	10.3	Jan 1979	7097	488	2.3	32.6	251.8	36.6	185.1	15.3

\+ 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: 1948-2001

(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	.29	.22	.60	1973	27	1.12	1978	.00+	1998
Feb	.35	.30	.67	1998	10	1.35	1987	.00+	1996
Mar	.99	.83	1.95	2000	8	2.45	1992	.07+	1976
Apr	1.49	1.31	1.85	2000	30	4.28	1977	.16	1991
May	2.89	2.69	2.92	1995	9	6.93	1995	.61	1974
Jun	2.74	2.38	3.90	1965	15	5.45	1986	.64	1989
Jul	2.26	1.97	3.25	1957	20	4.53	1982	.63	1989
Aug	1.89	1.73	2.42	2001	23	3.81	1999	.51	1991
Sep	1.29	1.04	2.15	1959	24	4.86	1996	.00	1977
Oct	.84	.48	1.45	1963	20	4.00	1994	.00	1999
Nov	.58	.42	1.03	1983	29	2.20	1979	.00	1997
Dec	.23	.15	.68	1994	7	1.14	1973	.00+	1996
Ann	15.84	16.33	3.90	Jun 1965	15	6.93	May 1995	.00+	Oct 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.6	1.0	.1	.0
Feb	2.7	1.2	.1	.0
Mar	4.7	2.7	.4	.2
Apr	7.0	3.8	.8	.1
May	10.5	6.3	1.9	.6
Jun	8.5	5.8	1.7	.6
Jul	7.9	5.3	1.5	.4
Aug	7.4	4.4	.9	.4
Sep	5.6	3.3	.6	.3
Oct	4.1	2.3	.6	.1
Nov	3.0	1.8	.2	.1
Dec	2.0	.8	.1	.0
Ann	66.0	38.7	8.9	2.8

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	.00	.01	.05	.09	.14	.20	.27	.35	.48	.69	.90
Feb	.00	.00	.03	.09	.15	.22	.31	.43	.59	.86	1.14
Mar	.10	.17	.30	.44	.59	.76	.96	1.21	1.55	2.12	2.67
Apr	.28	.42	.64	.84	1.04	1.26	1.52	1.82	2.22	2.87	3.48
May	.94	1.22	1.62	1.97	2.30	2.64	3.01	3.45	4.02	4.89	5.70
Jun	.85	1.11	1.50	1.83	2.15	2.49	2.85	3.28	3.84	4.70	5.50
Jul	.80	1.01	1.32	1.58	1.83	2.08	2.36	2.68	3.09	3.72	4.31
Aug	.64	.81	1.08	1.30	1.51	1.73	1.97	2.25	2.61	3.16	3.67
Sep	.08	.21	.41	.60	.80	1.02	1.27	1.59	2.02	2.72	3.40
Oct	.02	.07	.18	.30	.43	.59	.78	1.02	1.36	1.93	2.50
Nov	.02	.06	.14	.22	.32	.42	.55	.71	.93	1.31	1.67
Dec	.00	.00	.03	.07	.11	.15	.21	.28	.38	.55	.71
Ann	11.14	12.05	13.21	14.09	14.87	15.63	16.41	17.28	18.33	19.86	21.19

\+ 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: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	3.7	2.2	1	#	12.0	1988	21	14.0	1973	12	1990	20	4	1974	1.8	1.4	.3	.2	.1	-9.9	-9.9	-9.9	-9.9
Feb	3.9	2.5	#	0	8.0	1987	27	14.8	1978	6	1980	8	2	1984	2.1	1.4	.3	.2	.0	2.8	.5	.0	.0
Mar	7.8	7.0	1	#	14.0	1975	28	22.9	1971	13	1974	11	6	1980	2.3	2.0	.7	.3	.1	-9.9	-9.9	-9.9	-9.9
Apr	2.0	.0	#	0	8.0	1975	2	11.0	1995	6	1979	12	1	1983	.8	.7	.2	@	.0	.5	.1	.0	.0
May	.0	.0	#	0	.5	1973	1	.5	1973	3	1990	9	#	1990	@	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	#	1984	28	#	1984	.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	.2	.0	#	0	5.0	1985	29	5.0	1985	5	1985	29	#+	1993	.1	.1	@	@	.0	.1	.1	.1	.0
Oct	.4	.0	#	0	8.0	1997	27	8.0	1997	3+	1995	23	#+	1995	.2	.2	.1	@	.0	.1	.1	.0	.0
Nov	2.6	2.0	1	#	5.5	1998	3	6.0	1994	18	1983	29	7	1983	1.1	.8	.3	.1	.0	-9.9	-9.9	-9.9	-9.9
Dec	3.4	2.8	1	#	6.0	1973	25	14.8	1973	12	1985	25	11	1985	1.3	1.0	.4	.1	.0	.6	.2	.1	.0
Ann	24.0	16.5	N/A	N/A	14.0	Mar 1975	28	22.9	Mar 1971	18	Nov 1983	29	11	Dec 1985	9.7	7.6	2.3	.9	.2	-9.9	-9.9	-9.9	-9.9

+ 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	6/16	6/10	6/06	6/02	5/30	5/26	5/23	5/18	5/12
32	5/27	5/23	5/20	5/17	5/14	5/11	5/09	5/05	5/01
28	5/16	5/12	5/10	5/07	5/05	5/03	5/01	4/29	4/25
24	5/07	5/02	4/29	4/26	4/23	4/21	4/18	4/14	4/10
20	4/29	4/24	4/20	4/17	4/14	4/11	4/08	4/04	3/30
16	4/21	4/15	4/11	4/08	4/04	4/01	3/28	3/24	3/18

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	8/30	9/04	9/08	9/12	9/15	9/18	9/22	9/25	10/01
32	9/12	9/16	9/19	9/22	9/24	9/26	9/29	10/02	10/06
28	9/16	9/21	9/25	9/28	10/02	10/05	10/08	10/12	10/17
24	9/29	10/04	10/08	10/12	10/15	10/18	10/21	10/25	10/31
20	10/04	10/09	10/13	10/16	10/20	10/23	10/26	10/30	11/05
16	10/12	10/18	10/22	10/26	10/30	11/02	11/06	11/10	11/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	134	125	119	113	108	102	96	90	81
32	151	144	140	136	132	128	124	120	113
28	168	161	156	152	148	145	141	136	129
24	195	188	182	178	174	170	165	160	153
20	208	201	196	192	188	184	180	175	168
16	235	226	219	213	207	202	196	189	180

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1252	990	903	631	347	94	10	35	192	543	926	1174	7097
60	1097	850	748	482	215	35	1	8	97	389	776	1019	5717
57	1004	766	655	395	150	16	0	3	57	300	686	926	4958
55	942	710	593	339	113	9	0	1	37	244	626	864	4478
50	787	577	441	212	47	1	0	0	9	126	486	715	3401
32	298	181	60	6	0	0	0	0	0	1	111	257	914

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	69	115	180	365	683	975	1212	1154	835	482	176	105	6351
55	0	0	0	8	83	293	499	442	181	11	0	0	1517
57	0	0	0	4	58	241	437	382	141	5	0	0	1268
60	0	0	0	1	30	170	344	294	92	1	0	0	932
65	0	0	0	0	7	79	199	166	37	0	0	0	488
70	0	0	0	0	1	25	86	74	10	0	0	0	196

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	6	30	84	201	458	748	986	926	621	290	67	25	6	36	120	321	779	1527	2513	3439	4060	4350	4417	4442
45	0	8	36	113	309	598	831	771	477	175	29	2	0	8	44	157	466	1064	1895	2666	3143	3318	3347	3349
50	0	0	11	55	192	453	676	616	341	89	5	0	0	0	11	66	258	711	1387	2003	2344	2433	2438	2438
55	0	0	1	21	95	314	522	465	220	32	0	0	0	0	1	22	117	431	953	1418	1638	1670	1670	1670
60	0	0	0	1	39	186	372	317	124	8	0	0	0	0	0	1	40	226	598	915	1039	1047	1047	1047
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	19	44	92	170	294	468	616	585	405	233	79	33	19	63	155	325	619	1087	1703	2288	2693	2926	3005	3038

(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