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: BEAVER CITY, NE **COOP ID: 250640**

Climate Division: NE 8 **NWS Call Sign:** **Elevation: 2,160 Feet** **Lat: 40˚08N** **Lon: 99˚50W**

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	41.6	12.3	27.0	80	1989	31	38.3	1986	-26	1974	12	13.8	1979	1180	0	.0	.0	9.5	8.7	30.5	5.1
Feb	48.5	17.2	32.9	83	1970	17	42.3	1999	-24	1981	11	20.1	1978	900	0	.0	.0	13.8	5.4	26.0	3.0
Mar	58.2	26.2	42.2	92+	1989	10	49.0	1986	-20	1960	3	35.7	1996	706	0	.0	.1	22.0	1.4	22.5	.6
Apr	68.7	36.2	52.5	101	1989	22	58.8	1981	9	1962	2	46.1	1984	382	6	@	1.1	27.6	@	10.1	.0
May	76.8	47.3	62.1	103+	1967	24	67.3	1998	21	1989	1	56.1	1995	160	69	.2	2.3	31.0	.0	1.5	.0
Jun	87.7	57.2	72.5	111+	1988	22	79.6	1988	34	1998	6	66.0	1982	21	245	2.5	13.6	30.0	.0	.0	.0
Jul	93.3	63.0	78.2	112	1973	6	82.6	1980	40+	1990	14	73.5	1992	0	407	7.9	22.0	31.0	.0	.0	.0
Aug	92.1	61.0	76.6	111+	1984	28	84.1	1983	37	1985	13	71.3	1992	6	365	5.9	20.3	31.0	.0	.0	.0
Sep	84.6	50.8	67.7	107+	1985	1	73.9	1998	16	1984	29	63.1	1993	53	134	1.4	10.8	30.0	.0	1.1	.0
Oct	73.0	37.7	55.4	98+	1997	2	59.1	1974	1	1997	27	49.4	1976	304	4	.0	2.1	29.9	.1	9.8	.0
Nov	54.0	24.5	39.3	89	1980	6	46.5	1999	-13	1975	26	30.3	1985	773	0	.0	.0	18.1	2.0	24.3	.5
Dec	43.8	15.5	29.7	84	1964	23	35.9	1979	-34	1989	23	11.5	1983	1096	0	.0	.0	10.0	5.9	30.3	2.6
Ann	68.5	37.4	53.0	112	Jul 1973	6	84.1	Aug 1983	-34	Dec 1989	23	11.5	Dec 1983	5581	1230	17.9	72.3	283.9	23.5	156.1	11.8

\+ 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: 1948-2001

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

Issue Date: February 2004

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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	.62	.47	1.60	1960	15	1.67	1992	.00	1986
Feb	.71	.42	1.65	1958	28	2.37	2000	.00	1996
Mar	2.01	1.60	1.98	1995	26	6.40	1987	.00	1994
Apr	2.19	2.06	2.35	1984	21	6.30	1984	.18	1989
May	3.60	3.46	3.26	1953	28	10.11	1995	.62	2000
Jun	3.50	3.55	5.80	1966	24	6.71	1975	.71	1973
Jul	3.11	2.78	3.97	1952	14	9.04	1993	.23	1997
Aug	2.81	2.00	4.60	1963	12	7.42	1993	.35	1984
Sep	1.88	1.58	2.93	1970	15	7.12	1973	.08	1984
Oct	1.39	1.06	4.65	1965	18	5.54	1984	.03+	1999
Nov	1.31	.97	2.33	1975	19	4.08	1975	.00	1989
Dec	.64	.55	.98	1968	22	2.48	1973	.00	1995
Ann	23.77	22.92	5.80	Jun 1966	24	10.11	May 1995	.00+	Feb 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.9	1.9	.3	@
Feb	3.8	2.0	.4	.1
Mar	6.8	4.3	1.2	.5
Apr	7.3	5.0	1.6	.4
May	10.6	7.3	2.2	.8
Jun	8.5	5.6	2.2	.9
Jul	8.0	5.4	2.3	.9
Aug	6.9	4.6	2.0	.7
Sep	5.3	3.8	1.1	.4
Oct	4.8	3.1	.9	.3
Nov	4.8	2.8	1.0	.2
Dec	3.8	1.8	.3	.0
Ann	74.5	47.6	15.5	5.2

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	.04	.10	.20	.29	.39	.49	.61	.76	.97	1.30	1.62
Feb	.03	.09	.19	.29	.41	.53	.68	.87	1.12	1.55	1.96
Mar	.09	.26	.56	.85	1.17	1.53	1.95	2.47	3.19	4.38	5.54
Apr	.51	.71	1.03	1.32	1.60	1.91	2.25	2.65	3.18	4.02	4.81
May	.93	1.27	1.79	2.25	2.71	3.18	3.72	4.35	5.17	6.47	7.68
Jun	1.10	1.44	1.93	2.35	2.76	3.18	3.64	4.18	4.88	5.97	6.98
Jul	.50	.77	1.22	1.65	2.09	2.57	3.12	3.79	4.69	6.15	7.55
Aug	.47	.72	1.13	1.51	1.91	2.34	2.83	3.43	4.23	5.53	6.77
Sep	.18	.31	.56	.82	1.11	1.43	1.81	2.29	2.95	4.04	5.11
Oct	.07	.14	.30	.49	.70	.95	1.27	1.67	2.24	3.21	4.19
Nov	.07	.19	.39	.59	.79	1.02	1.28	1.61	2.06	2.80	3.52
Dec	.02	.07	.16	.25	.35	.47	.60	.78	1.02	1.42	1.82
Ann	15.94	17.41	19.33	20.79	22.10	23.37	24.69	26.15	27.94	30.55	32.82

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	4.7	5.0	2	1
Feb	5.1	2.2	1	#
Mar	5.9	4.5	#	#
Apr	1.8	.0	#	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.4	.0	#	0
Oct	.2	.0	#	0
Nov	4.4	2.0	1	#
Dec	5.8	5.5	1	#
Ann	28.3	19.2	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	13.0	1993	9	13.0	1980	18	1974	8	11	1974
Feb	12.0	1978	13	20.5	1978	19	1978	13	8	1993
Mar	15.0	1984	19	31.5	1987	16	1984	19	2	1993
Apr	6.0	1973	7	9.0	1997	9	1997	12	1+	1997
May	.0	0	0	.0	0	0	0	0	0	0
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	8.0	1985	29	11.0	1985	8	1985	29	#	1985
Oct	3.5	1991	31	3.5	1991	11	1997	26	1	1997
Nov	10.0	1973	20	23.2	1975	14	1975	20	4	1975
Dec	10.0	1973	18	30.0	1973	14	1983	29	9	1983
Ann	15.0	Mar 1984	19	31.5	Mar 1987	19	Feb 1978	13	11	Jan 1974

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.8	2.3	.7	.2	@
Feb	2.3	1.8	.7	.3	.1
Mar	2.7	2.0	.8	.4	@
Apr	.9	.6	.3	.1	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.1	@	.0
Oct	.1	.1	@	.0	.0
Nov	1.5	1.2	.5	.3	@
Dec	2.4	1.9	.8	.3	.1
Ann	12.8	10.0	3.9	1.6	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	11.1	5.4	2.8	.9
Feb	7.6	4.2	2.8	1.0
Mar	3.2	1.7	.9	.2
Apr	.9	.3	.1	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	.1	@	.0
Oct	.1	@	.0	.0
Nov	3.0	1.4	.8	.4
Dec	8.1	4.1	2.3	.9
Ann	34.1	17.2	9.7	3.4

+ 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	5/29	5/24	5/20	5/17	5/15	5/12	5/09	5/05	4/30
32	5/20	5/15	5/11	5/08	5/05	5/02	4/29	4/25	4/21
28	5/08	5/03	4/30	4/27	4/24	4/21	4/18	4/14	4/09
24	4/28	4/23	4/19	4/16	4/13	4/09	4/06	4/02	3/28
20	4/14	4/09	4/06	4/03	3/31	3/28	3/25	3/22	3/17
16	4/07	3/31	3/27	3/23	3/19	3/16	3/12	3/07	3/01

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	9/11	9/14	9/17	9/20	9/22	9/24	9/26	9/29	10/03
32	9/15	9/20	9/23	9/26	9/28	10/01	10/04	10/07	10/11
28	9/25	9/30	10/04	10/07	10/10	10/13	10/16	10/20	10/25
24	10/03	10/08	10/12	10/15	10/18	10/21	10/24	10/28	11/02
20	10/12	10/18	10/22	10/26	10/30	11/02	11/06	11/10	11/16
16	10/19	10/26	10/30	11/03	11/07	11/11	11/15	11/20	11/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	144	139	136	132	130	127	124	120	115
32	165	158	153	149	146	142	138	133	126
28	187	180	176	172	168	165	161	157	150
24	206	200	195	191	188	184	180	176	169
20	235	227	221	217	212	207	203	197	189
16	259	250	243	238	232	227	222	215	206

***** 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	1180	900	706	382	160	21	0	6	53	304	773	1096	5581
60	1025	763	551	250	80	5	0	0	14	172	623	941	4424
57	932	685	463	182	47	2	0	0	4	110	535	848	3808
55	871	633	405	143	31	1	0	0	1	78	479	786	3428
50	725	505	271	67	9	0	0	0	0	28	344	641	2590
32	271	167	24	0	0	0	0	0	0	0	52	208	722

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	114	191	341	614	932	1214	1430	1382	1071	723	269	136	8417
55	1	13	9	67	249	524	717	669	382	87	6	0	2724
57	0	10	5	46	204	465	655	607	325	58	2	0	2377
60	0	3	0	24	144	379	562	514	245	27	0	0	1898
65	0	0	0	6	69	245	407	365	134	4	0	0	1230
70	0	0	0	1	25	136	259	229	60	0	0	0	710

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	17	66	182	407	711	1001	1205	1146	829	482	112	19	17	83	265	672	1383	2384	3589	4735	5564	6046	6158	6177
45	1	20	99	278	556	851	1050	991	681	341	54	1	1	21	120	398	954	1805	2855	3846	4527	4868	4922	4923
50	0	3	43	171	407	701	895	836	533	214	16	0	0	3	46	217	624	1325	2220	3056	3589	3803	3819	3819
55	0	0	15	93	265	552	740	681	395	115	4	0	0	0	15	108	373	925	1665	2346	2741	2856	2860	2860
60	0	0	1	43	151	403	585	526	269	48	0	0	0	0	1	44	195	598	1183	1709	1978	2026	2026	2026
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	40	86	178	302	463	642	764	723	537	361	116	42	40	126	304	606	1069	1711	2475	3198	3735	4096	4212	4254

(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