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: HEBRON, NE **COOP ID: 253735**

Climate Division: NE 9 **NWS Call Sign:** **Elevation: 1,480 Feet** **Lat: 40˚11N** **Lon: 97˚35W**

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	34.2	12.3	23.3	78	1990	11	33.7	1992	-21	1974	12	10.2	1979	1294	0	.0	.0	4.6	13.6	30.4	6.0
Feb	40.7	16.3	28.5	80	1972	29	38.8	1999	-16+	1996	3	13.5	1979	1023	0	.0	.0	8.8	9.1	26.1	3.4
Mar	51.7	26.4	39.1	89+	1986	30	45.2	1986	-15	1978	4	31.2	1975	805	0	.0	.0	17.4	2.5	20.4	.6
Apr	63.0	36.8	49.9	98	1989	25	57.9	1981	9	1975	3	43.0	1983	456	4	.0	.5	25.5	.1	8.0	.0
May	72.7	48.7	60.7	100+	2000	31	66.7	1998	27	1953	14	54.4	1995	190	57	.1	1.0	30.8	.0	.6	.0
Jun	83.5	59.2	71.4	105+	1980	28	76.9	1988	38	1950	4	65.7	1982	24	213	.9	8.5	30.0	.0	.0	.0
Jul	88.6	64.6	76.6	113	1954	13	81.7	1974	44	1971	30	71.4	1992	1	360	3.4	15.8	31.0	.0	.0	.0
Aug	86.4	62.0	74.2	109+	1983	18	82.0	1983	41	1950	20	68.9	1992	17	302	2.1	12.5	31.0	.0	.0	.0
Sep	78.8	51.8	65.3	107	2000	3	72.2	1998	25+	1995	23	59.2	1993	88	96	.4	6.0	29.8	.0	.3	.0
Oct	66.8	39.3	53.1	95+	2000	2	57.4	2000	12	1993	31	48.5	1976	372	2	.0	.4	28.9	@	6.1	.0
Nov	49.6	26.4	38.0	84	1950	1	47.4	1999	-6	1976	28	29.9	1985	811	0	.0	.0	15.5	2.9	21.7	.2
Dec	37.7	16.8	27.3	73	1995	1	34.3	1999	-26+	1989	24	8.6	1983	1171	0	.0	.0	5.9	9.8	29.7	2.6
Ann	62.8	38.4	50.6	113	Jul 1954	13	82.0	Aug 1983	-26+	Dec 1989	24	8.6	Dec 1983	6252	1034	6.9	44.7	259.2	38.0	143.3	12.8

\+ 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	.76	.78	1.30	1998	31	1.93	1993	.00+	1986
Feb	.72	.60	1.77	1966	9	2.22	1971	.00+	1996
Mar	2.32	2.16	2.30	1987	23	8.62	1987	.05	1994
Apr	2.64	2.26	2.22	1986	26	7.15	1986	.09	1989
May	4.46	3.82	2.97	1971	22	9.20	1995	1.18	1998
Jun	3.91	3.45	4.05	1989	25	8.43	1990	1.14	1996
Jul	4.10	3.22	7.80	1992	25	14.94	1992	.09	1983
Aug	3.48	3.22	4.57	1985	3	10.87	1977	.27	1971
Sep	2.77	2.21	5.10	1983	29	10.10	1973	.26	1980
Oct	2.00	1.34	4.42	1962	20	5.78	1973	.00+	1999
Nov	1.61	1.29	2.72	1996	16	4.69	1996	.00	1980
Dec	.93	.82	1.59	1984	16	2.61	1984	.00+	1998
Ann	29.70	29.20	7.80	Jul 1992	25	14.94	Jul 1992	.00+	Oct 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.3	2.3	.3	@
Feb	4.9	2.1	.3	@
Mar	7.7	4.4	1.6	.4
Apr	9.1	5.4	1.6	.6
May	11.7	7.6	3.1	1.3
Jun	9.4	6.3	2.8	.9
Jul	8.6	5.6	2.8	1.1
Aug	8.7	5.5	2.1	.9
Sep	7.7	4.8	1.6	.7
Oct	6.1	3.8	.9	.4
Nov	5.9	3.2	1.0	.4
Dec	4.9	2.2	.6	.1
Ann	90.0	53.2	18.7	6.8

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	.12	.26	.39	.51	.63	.78	.95	1.17	1.54	1.89
Feb	.00	.07	.20	.31	.43	.56	.71	.90	1.15	1.56	1.97
Mar	.19	.35	.65	.97	1.33	1.73	2.21	2.82	3.66	5.06	6.45
Apr	.57	.81	1.20	1.55	1.90	2.28	2.70	3.20	3.87	4.93	5.94
May	1.30	1.72	2.36	2.91	3.45	4.01	4.62	5.35	6.30	7.78	9.15
Jun	1.06	1.43	2.00	2.49	2.98	3.48	4.05	4.71	5.58	6.94	8.22
Jul	.51	.83	1.41	1.98	2.59	3.26	4.04	5.00	6.31	8.46	10.55
Aug	.68	1.00	1.51	1.98	2.45	2.97	3.54	4.24	5.16	6.65	8.05
Sep	.33	.55	.94	1.32	1.73	2.19	2.73	3.39	4.28	5.76	7.20
Oct	.00	.18	.52	.84	1.17	1.54	1.96	2.48	3.19	4.37	5.52
Nov	.04	.15	.37	.60	.85	1.15	1.51	1.96	2.59	3.66	4.71
Dec	.00	.09	.25	.40	.55	.72	.92	1.16	1.49	2.03	2.56
Ann	18.31	20.39	23.13	25.24	27.15	29.03	30.98	33.17	35.85	39.81	43.28

\+ 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	5.9	5.4	2	2
Feb	4.8	3.9	2	1
Mar	5.2	3.7	1	#
Apr	1.1	.0	#	#
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	0	0
Oct	.6	.0	#	0
Nov	3.3	1.2	#	#
Dec	5.5	4.1	1	1
Ann	26.5	18.3	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	8.0	1971	3	21.5	1993	13+	1993	21	7	1993
Feb	11.0	1971	22	17.5	1971	13	1971	23	6	1978
Mar	12.0	1987	29	14.7	1971	12	1987	29	3	1998
Apr	4.0	1979	2	6.2	1983	5	1987	1	1	1987
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	2.5	1985	30	2.5	1985	0	0	0	0	0
Oct	10.0	1997	26	10.0	1997	10	1997	26	1	1997
Nov	8.0	1975	26	11.4	1975	9	1975	26	2	1991
Dec	10.0	1984	14	18.8	1973	12	1983	28	7	1983
Ann	12.0	Mar 1987	29	21.5	Jan 1993	13+	Jan 1993	21	7+	Jan 1993

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.6	2.1	.5	.2	.0
Feb	3.5	1.5	.6	.3	@
Mar	2.7	1.5	.5	.4	@
Apr	.7	.4	.2	.0	.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	@	@	.0	.0	.0
Oct	.3	.1	.1	@	@
Nov	2.3	1.2	.4	.1	.0
Dec	3.4	1.6	.7	.2	@
Ann	17.5	8.4	3.0	1.2	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	15.5	8.7	3.4	.6
Feb	10.9	6.1	2.9	.4
Mar	4.1	1.8	1.0	.2
Apr	.5	.1	@	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.2	.1	.1	@
Nov	2.9	1.0	.4	.0
Dec	9.2	3.5	1.9	.3
Ann	43.3	21.3	9.7	1.5

+ 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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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	5/18	5/13	5/09	5/06	5/03	4/30	4/27	4/23	4/18
32	5/11	5/05	5/02	4/28	4/25	4/22	4/19	4/15	4/10
28	4/23	4/19	4/16	4/14	4/12	4/10	4/07	4/05	4/01
24	4/13	4/08	4/05	4/03	3/31	3/29	3/26	3/23	3/18
20	4/06	4/01	3/27	3/24	3/21	3/17	3/14	3/10	3/04
16	3/31	3/24	3/19	3/15	3/11	3/07	3/02	2/25	2/18

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	9/16	9/20	9/23	9/26	9/28	10/01	10/03	10/06	10/10
32	9/26	10/01	10/04	10/07	10/09	10/12	10/15	10/18	10/23
28	10/04	10/09	10/13	10/17	10/20	10/23	10/27	10/31	11/05
24	10/19	10/23	10/27	10/30	11/01	11/04	11/07	11/10	11/15
20	10/22	10/29	11/02	11/06	11/10	11/14	11/18	11/22	11/29
16	11/03	11/09	11/14	11/17	11/21	11/24	11/28	12/02	12/09

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	167	160	155	151	148	144	140	135	129
32	183	177	173	170	167	163	160	156	150
28	206	201	197	194	190	187	184	180	174
24	235	228	223	218	214	211	206	201	194
20	262	252	245	239	234	228	222	215	205
16	281	272	265	260	254	249	244	237	228

***** 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	1294	1023	805	456	190	24	1	17	88	372	811	1171	6252
60	1139	888	650	318	102	5	0	4	31	232	661	1016	5046
57	1047	810	560	243	64	2	0	1	13	162	573	923	4398
55	986	757	503	199	45	1	0	0	6	122	517	861	3997
50	836	629	362	108	15	0	0	0	0	53	381	714	3098
32	362	261	57	0	0	0	0	0	0	0	69	261	1010

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	91	163	274	538	890	1179	1382	1308	998	653	248	113	7837
55	1	15	8	46	222	490	669	595	314	62	6	0	2428
57	0	11	3	31	179	431	607	534	261	40	2	0	2099
60	0	5	0	15	124	345	514	444	188	17	0	0	1652
65	0	0	0	4	57	213	360	302	96	2	0	0	1034
70	0	0	0	0	20	110	219	183	39	0	0	0	571

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	7	45	149	370	689	980	1175	1108	802	450	116	16	7	52	201	571	1260	2240	3415	4523	5325	5775	5891	5907
45	0	16	82	248	534	830	1020	953	652	313	58	3	0	16	98	346	880	1710	2730	3683	4335	4648	4706	4709
50	0	3	39	153	385	680	865	798	507	194	22	0	0	3	42	195	580	1260	2125	2923	3430	3624	3646	3646
55	0	0	12	85	248	532	710	643	369	103	6	0	0	0	12	97	345	877	1587	2230	2599	2702	2708	2708
60	0	0	2	38	143	386	556	488	243	45	0	0	0	0	2	40	183	569	1125	1613	1856	1901	1901	1901
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	17	47	117	237	421	644	783	735	512	296	86	22	17	64	181	418	839	1483	2266	3001	3513	3809	3895	3917

(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