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: HEMINGFORD, NE **COOP ID: 253755**

Climate Division: NE 1 **NWS Call Sign:** **Elevation: 4,270 Feet** **Lat: 42˚19N** **Lon: 103˚04W**

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	35.2	13.7	24.5	70+	1982	27	32.9	1981	-23	1979	1	10.2	1979	1256	0	.0	.0	4.7	11.6	29.8	5.9
Feb	40.6	18.4	29.5	71	1982	22	37.5	1992	-25	1989	3	17.2	1989	995	0	.0	.0	8.3	7.2	26.0	3.3
Mar	47.5	24.4	36.0	80+	1986	31	42.8	1986	-13	1989	5	29.8	1975	901	0	.0	.0	14.8	4.4	25.3	.9
Apr	56.5	32.6	44.6	89+	1989	23	52.1	1981	-6	1975	2	38.9	1997	613	0	.0	.0	21.0	1.1	15.0	@
May	66.7	42.9	54.8	95	1969	28	60.3	1985	18	1967	1	48.3	1995	329	12	.0	.2	28.4	@	2.7	.0
Jun	78.2	52.3	65.3	103	1989	20	73.0	1988	31	1969	14	59.8	1982	88	94	.1	4.1	29.8	.0	.0	.0
Jul	85.6	58.2	71.9	107	1989	9	75.4	1989	41+	1972	4	66.3	1992	13	227	1.0	11.5	31.0	.0	.0	.0
Aug	84.0	56.7	70.4	102	1995	8	75.9	1983	36	1968	10	65.0	1977	28	195	.2	9.5	31.0	.0	.0	.0
Sep	74.1	47.1	60.6	97+	1998	5	67.6	1998	20	1985	30	55.8	1973	187	55	.0	2.7	28.6	@	1.7	.0
Oct	61.5	35.7	48.6	90	1980	1	51.3	1974	-3	1991	31	44.9	1976	507	0	.0	@	25.1	.6	9.7	@
Nov	45.4	23.7	34.6	78+	1999	9	45.7	1999	-12	1985	27	22.0	1985	913	0	.0	.0	12.0	5.6	24.0	.9
Dec	37.7	15.9	26.8	70+	1990	11	34.5	1979	-35	1989	23	12.7	1983	1185	0	.0	.0	6.5	9.4	29.3	3.9
Ann	59.4	35.1	47.3	107	Jul 1989	9	75.9	Aug 1983	-35	Dec 1989	23	10.2	Jan 1979	7015	583	1.3	28.0	241.2	39.9	163.5	14.9

\+ 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: 1964-2001

(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	.42	.33	1.15	1976	1	1.83	1976	.00	1989
Feb	.42	.31	.98	1966	9	1.32	1987	.00+	1996
Mar	1.06	.82	1.64	1990	7	3.49	1990	.05+	1981
Apr	1.83	1.72	2.10	2000	19	4.22	1972	.54	1987
May	3.46	3.30	3.33	1977	7	8.17	1977	1.09	1984
Jun	2.52	2.14	2.83	1970	12	5.98	1991	.30	1989
Jul	2.36	1.95	2.81	1973	20	5.66	1998	.46	1989
Aug	1.67	1.40	1.90	1976	1	5.30	1977	.44	1983
Sep	1.37	.99	1.79	1973	12	6.35	1973	.10	1992
Oct	1.03	.80	1.18	1994	6	3.78	1994	.07+	1999
Nov	.58	.41	.89	1978	26	1.55	1985	.01	1989
Dec	.37	.24	.71	1978	2	1.15	1978	.00	1991
Ann	17.09	17.21	3.33	May 1977	7	8.17	May 1977	.00+	Feb 1996

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.3	1.1	.1	@
Feb	3.8	1.5	.1	.0
Mar	5.9	2.8	.6	.1
Apr	8.4	4.6	1.1	.2
May	11.0	6.2	2.1	.7
Jun	10.0	5.8	1.6	.5
Jul	9.3	4.9	1.6	.3
Aug	7.5	4.2	.8	.3
Sep	6.5	3.4	.8	.1
Oct	5.9	2.9	.5	.1
Nov	4.4	1.8	.2	.0
Dec	4.1	1.4	.1	.0
Ann	81.1	40.6	9.6	2.3

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	.02	.06	.12	.18	.25	.32	.41	.52	.66	.91	1.15
Feb	.00	.03	.09	.15	.22	.30	.40	.51	.68	.95	1.22
Mar	.08	.15	.28	.43	.59	.78	1.00	1.28	1.67	2.33	2.98
Apr	.47	.64	.91	1.14	1.37	1.62	1.89	2.22	2.64	3.31	3.93
May	1.18	1.51	1.99	2.39	2.78	3.17	3.61	4.12	4.77	5.77	6.70
Jun	.51	.74	1.11	1.44	1.79	2.15	2.57	3.06	3.72	4.78	5.78
Jul	.72	.95	1.28	1.57	1.85	2.14	2.46	2.83	3.31	4.07	4.76
Aug	.36	.51	.76	.98	1.20	1.44	1.71	2.03	2.45	3.12	3.76
Sep	.11	.20	.38	.57	.78	1.02	1.30	1.66	2.16	2.99	3.81
Oct	.11	.19	.33	.47	.62	.80	1.00	1.25	1.60	2.17	2.73
Nov	.05	.10	.17	.25	.34	.44	.56	.70	.90	1.24	1.57
Dec	.02	.06	.11	.17	.22	.29	.36	.45	.58	.79	.99
Ann	10.99	12.12	13.60	14.73	15.75	16.75	17.79	18.94	20.35	22.43	24.24

\+ 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: 1964-2001
(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	6.2	5.5	3	2
Feb	6.4	5.5	2	1
Mar	9.9	8.1	1	1
Apr	7.1	6.4	#	#
May	.8	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.9	.0	#	0
Oct	3.3	2.3	#	#
Nov	7.2	5.3	1	1
Dec	6.4	6.0	2	2
Ann	48.2	39.1	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	11.0	1976	1	19.6	1976	18	1979	16	15	1979
Feb	8.0	1986	5	16.5	1986	15+	1986	15	9	1979
Mar	11.0	1990	7	24.5	1980	13	1989	4	3	1993
Apr	9.0	1988	22	18.9	1972	11	1980	3	2	1984
May	7.0	1979	9	11.0	1979	7	1979	10	1	1979
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	6.5	1995	20	7.0	1995	6	1995	20	#+	2000
Oct	9.0	1997	25	13.0	1997	13	1997	25	2	1997
Nov	10.0	1978	26	22.0	1983	12	1979	24	5	1979
Dec	7.0	1978	2	15.0	1994	17	1978	4	14	1978
Ann	11.0+	Mar 1990	7	24.5	Mar 1980	18	Jan 1979	16	15	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.6	2.7	.6	.2	@
Feb	3.8	2.7	.8	.2	.0
Mar	4.8	3.3	1.1	.4	@
Apr	3.0	2.4	1.1	.4	.0
May	.3	.2	.1	.1	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.4	.4	.1	.1	.0
Oct	1.4	1.1	.5	.2	.0
Nov	3.5	2.4	.8	.3	@
Dec	4.3	2.6	.7	.2	.0
Ann	26.1	17.8	5.8	2.1	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	18.5	9.8	5.0	2.0
Feb	13.1	5.8	3.3	1.1
Mar	10.0	4.2	2.1	.4
Apr	4.1	1.9	.8	.1
May	.3	.1	.1	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.4	.1	@	.0
Oct	2.1	.8	.4	.1
Nov	9.1	4.0	2.0	.3
Dec	14.9	6.2	2.8	1.3
Ann	72.5	32.9	16.5	5.3

+ 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	6/08	6/03	5/30	5/26	5/23	5/20	5/16	5/13	5/07
32	5/22	5/18	5/15	5/12	5/10	5/08	5/05	5/02	4/28
28	5/08	5/04	5/01	4/28	4/25	4/23	4/20	4/17	4/12
24	5/02	4/27	4/23	4/19	4/16	4/13	4/09	4/05	3/31
20	4/26	4/20	4/15	4/12	4/08	4/05	4/01	3/28	3/22
16	4/16	4/08	4/03	3/29	3/25	3/21	3/16	3/11	3/03

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	9/16	9/18	9/20	9/22	9/23	9/26	9/29
32	9/14	9/19	9/22	9/25	9/28	10/01	10/04	10/07	10/12
28	9/21	9/27	10/01	10/05	10/08	10/11	10/15	10/19	10/24
24	9/30	10/06	10/10	10/14	10/17	10/20	10/24	10/28	11/03
20	10/13	10/18	10/22	10/25	10/28	10/31	11/03	11/07	11/12
16	10/24	10/28	11/01	11/04	11/06	11/09	11/12	11/15	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	138	132	127	123	119	115	111	106	100
32	160	153	148	144	140	136	132	127	120
28	187	180	174	169	165	160	156	150	142
24	208	200	193	188	183	178	173	167	158
20	226	218	212	207	202	197	192	186	178
16	251	242	236	231	226	220	215	209	200

***** 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	1256	995	901	613	329	88	13	28	187	507	913	1185	7015
60	1101	855	746	465	204	33	1	7	98	354	763	1030	5657
57	1008	771	653	379	142	15	0	2	59	264	673	937	4903
55	946	715	591	324	108	8	0	1	39	208	620	875	4435
50	794	584	443	202	46	1	0	0	11	93	481	724	3379
32	319	193	66	6	0	0	0	0	0	1	124	262	971

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	86	122	188	383	705	997	1237	1190	858	516	200	101	6583
55	0	0	0	11	100	315	524	478	208	10	7	0	1653
57	0	0	0	6	73	262	462	417	167	5	0	0	1392
60	0	0	0	2	41	189	371	328	116	1	0	0	1048
65	0	0	0	0	12	94	227	195	55	0	0	0	583
70	0	0	0	0	2	35	113	93	20	0	0	0	263

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	9	36	90	215	481	772	1005	959	642	321	82	22	9	45	135	350	831	1603	2608	3567	4209	4530	4612	4634
45	0	6	37	124	338	622	850	804	496	207	38	6	0	6	43	167	505	1127	1977	2781	3277	3484	3522	3528
50	0	1	12	62	213	475	695	649	361	114	13	0	0	1	13	75	288	763	1458	2107	2468	2582	2595	2595
55	0	0	1	29	117	336	542	495	242	51	0	0	0	0	1	30	147	483	1025	1520	1762	1813	1813	1813
60	0	0	0	9	48	207	391	347	139	16	0	0	0	0	0	9	57	264	655	1002	1141	1157	1157	1157
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	11	35	77	157	287	478	644	617	402	216	66	23	11	46	123	280	567	1045	1689	2306	2708	2924	2990	3013

(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