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: HASTINGS 4 N, NE **COOP ID: 253660**

Climate Division: NE 8 **NWS Call Sign: GID** **Elevation: 1,940 Feet** **Lat: 40˚39N** **Lon: 98˚23W**

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	33.6	13.6	23.6	76	1990	11	34.4	1986	-22	1982	10	11.2	1979	1285	0	.0	.0	4.1	13.1	30.2	5.6
Feb	40.0	19.1	29.6	80+	1995	25	39.4	1991	-18+	1996	3	15.8	1978	992	0	.0	.0	8.6	8.9	25.5	2.8
Mar	50.3	27.9	39.1	89	1986	30	45.8	1986	-15	1998	11	31.1	1975	802	0	.0	.0	16.4	3.1	21.5	.6
Apr	62.6	38.5	50.6	96	1989	23	57.7	1981	9	1975	3	43.5	1983	440	6	.0	.6	25.5	.3	7.8	.0
May	72.9	50.0	61.5	99	1989	30	67.2	1977	26+	1954	3	54.6	1995	170	60	.0	1.0	30.8	.0	.2	.0
Jun	83.7	59.6	71.7	109	1988	22	77.9	1988	34	1951	4	67.4	1982	23	222	1.1	8.5	30.0	.0	.0	.0
Jul	87.9	64.2	76.1	110+	1954	12	80.4	1983	47+	1970	21	71.1	1992	1	343	2.6	14.7	31.0	.0	.0	.0
Aug	85.7	62.1	73.9	109	1983	16	81.7	1983	40	1950	20	69.3	1974	11	286	1.3	11.2	31.0	.0	.0	.0
Sep	77.8	52.4	65.1	104	1948	2	71.0	1998	26	1995	22	60.2	1993	90	93	.2	5.2	29.7	.0	.4	.0
Oct	65.3	40.6	53.0	94+	1997	2	56.1	1971	4	1997	27	48.0	1976	376	1	.0	.4	28.3	.1	5.5	.0
Nov	47.5	26.9	37.2	82+	1980	6	46.0	1999	-4	1986	11	29.1	1985	833	0	.0	.0	14.1	3.3	22.0	.3
Dec	36.1	17.2	26.7	80	1964	23	34.4	1979	-23+	1989	23	9.0	1983	1188	0	.0	.0	5.4	10.8	30.1	3.0
Ann	62.0	39.3	50.7	110+	Jul 1954	12	81.7	Aug 1983	-23+	Dec 1989	23	9.0	Dec 1983	6211	1011	5.2	41.6	254.9	39.6	143.2	12.3

\+ 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

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	.55	.52	1.70	1965	23	1.86	1992	.00	1986
Feb	.67	.47	1.53	1971	19	2.80	1971	.03	1991
Mar	2.08	1.65	2.29	1987	17	7.76	1987	.07	1994
Apr	2.87	2.83	2.32	1954	21	6.95	1984	.03	1989
May	4.59	4.65	3.89	1965	23	8.51	1996	1.03	1994
Jun	3.59	3.37	4.20	1968	24	8.97	1975	.79	1981
Jul	3.81	3.57	3.98	1969	6	11.45	1993	.16	1983
Aug	3.18	2.83	6.09	1969	31	9.84	1990	.45	1971
Sep	2.74	1.90	4.20	1973	3	12.61	1973	.23	1991
Oct	1.67	1.56	2.95	1968	16	4.17	1997	.00	1988
Nov	1.46	1.09	3.21	1996	16	3.96	1996	.02+	1980
Dec	.73	.55	1.46	1984	15	2.82	1973	.00	1976
Ann	27.94	28.41	6.09	Aug 1969	31	12.61	Sep 1973	.00+	Oct 1988

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.5	2.1	.1	.0
Feb	4.2	2.0	.2	@
Mar	6.6	4.2	1.4	.5
Apr	9.5	5.5	1.8	.6
May	11.4	8.0	3.4	1.0
Jun	8.7	5.6	2.1	1.2
Jul	9.0	5.9	2.6	1.0
Aug	8.6	5.4	2.3	.8
Sep	6.8	4.3	1.6	.8
Oct	5.6	3.4	1.0	.4
Nov	5.3	2.9	.9	.4
Dec	4.3	1.8	.4	.1
Ann	84.5	51.1	17.8	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	.03	.09	.17	.25	.34	.43	.55	.68	.87	1.17	1.47
Feb	.03	.07	.15	.24	.34	.46	.61	.80	1.07	1.54	2.00
Mar	.13	.26	.52	.80	1.12	1.50	1.95	2.52	3.33	4.69	6.04
Apr	.41	.65	1.06	1.46	1.88	2.33	2.86	3.51	4.38	5.79	7.16
May	1.60	2.03	2.66	3.19	3.70	4.22	4.79	5.45	6.30	7.61	8.82
Jun	.91	1.25	1.77	2.24	2.69	3.17	3.71	4.34	5.17	6.49	7.71
Jul	.60	.93	1.48	2.01	2.55	3.14	3.83	4.66	5.77	7.57	9.30
Aug	.74	1.04	1.50	1.92	2.33	2.77	3.27	3.85	4.63	5.85	7.01
Sep	.28	.48	.85	1.23	1.64	2.11	2.65	3.34	4.27	5.82	7.34
Oct	.17	.36	.64	.88	1.13	1.39	1.70	2.06	2.54	3.32	4.07
Nov	.05	.11	.26	.44	.66	.94	1.28	1.73	2.38	3.50	4.65
Dec	.04	.11	.22	.33	.44	.57	.72	.90	1.15	1.57	1.97
Ann	19.50	21.12	23.21	24.79	26.21	27.57	28.99	30.55	32.46	35.22	37.62

\+ 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	4.1	3.3	2	1	6.0	1985	9	10.0+	1996	25+	1974	12	11	1974	3.3	1.9	.5	.1	.0	12.0	6.8	3.8	1.2
Feb	5.4	4.0	1	1	11.0	1984	18	17.8	1994	14	1994	25	7	1978	3.1	1.9	.6	.2	@	10.2	5.4	2.9	.6
Mar	5.5	3.9	1	1	14.0	1984	18	18.5+	1987	14+	1984	19	2+	1998	1.9	1.3	.7	.4	.1	4.2	2.5	1.4	.5
Apr	1.4	.0	#	0	6.9	1996	14	8.7	1997	8	1997	11	1	1997	.7	.4	.2	.1	.0	.7	.3	@	.0
May	.0	.0	#	0	.1	1994	1	.1	1994	0	0	0	#	2000	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1993	.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	6.0	1985	29	6.0	1985	4	1985	29	#	1985	.0	.0	@	@	.0	@	@	.0	.0
Oct	1.0	.0	#	0	12.5	1997	25	17.4	1997	17	1997	26	2	1997	.2	.2	.1	.1	@	.3	.2	.1	.1
Nov	3.4	2.8	#	0	10.5	1983	27	13.9	1975	12	1983	27	3	1975	2.2	1.0	.4	.1	@	3.8	1.8	1.2	.3
Dec	5.5	4.4	1	1	11.0	1974	15	16.0	1974	24	1973	31	14	1983	3.1	2.0	.7	.2	.1	8.4	4.0	2.3	1.6
Ann	26.5	18.4	N/A	N/A	14.0	Mar 1984	18	18.5+	Mar 1987	25+	Jan 1974	12	14	Dec 1983	14.5	8.7	3.2	1.2	.2	39.6	21.0	11.7	4.3

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

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	9/18	9/21	9/24	9/26	9/28	9/30	10/02	10/05	10/09
32	9/24	9/29	10/03	10/06	10/09	10/12	10/15	10/19	10/24
28	10/06	10/11	10/15	10/18	10/21	10/24	10/27	10/31	11/05
24	10/15	10/21	10/24	10/27	10/30	11/02	11/05	11/09	11/14
20	10/22	10/28	11/02	11/06	11/10	11/13	11/17	11/22	11/29
16	10/31	11/06	11/10	11/14	11/18	11/21	11/25	11/29	12/06

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	161	157	154	150	147	143	139	134
32	184	179	175	172	169	166	163	160	155
28	210	204	199	195	192	189	185	180	174
24	235	227	221	216	211	207	202	196	188
20	257	248	241	236	231	226	220	214	205
16	272	264	258	253	248	243	238	232	224

***** 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	1285	992	802	440	170	23	1	11	90	376	833	1188	6211
60	1130	852	647	305	87	5	0	2	32	232	683	1033	5008
57	1037	775	557	234	52	2	0	0	14	158	594	940	4363
55	975	722	501	192	35	0	0	0	7	117	538	878	3965
50	825	593	360	106	10	0	0	0	0	47	401	730	3072
32	349	224	55	1	0	0	0	0	0	0	78	273	980

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	87	157	275	557	913	1189	1366	1298	993	649	235	108	7827
55	0	10	8	58	235	500	653	585	310	52	5	0	2416
57	0	7	3	40	190	441	591	523	256	32	1	0	2084
60	0	0	0	21	131	355	498	431	185	12	0	0	1633
65	0	0	0	6	60	222	343	286	93	1	0	0	1011
70	0	0	0	0	20	118	200	161	37	0	0	0	536

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	13	42	137	352	682	970	1139	1071	771	434	101	19	13	55	192	544	1226	2196	3335	4406	5177	5611	5712	5731
45	0	16	71	230	527	820	984	916	622	298	50	2	0	16	87	317	844	1664	2648	3564	4186	4484	4534	4536
50	0	1	32	136	378	670	829	761	478	179	19	0	0	1	33	169	547	1217	2046	2807	3285	3464	3483	3483
55	0	1	7	71	245	521	674	606	339	93	5	0	0	1	8	79	324	845	1519	2125	2464	2557	2562	2562
60	0	0	1	32	131	376	519	451	216	36	0	0	0	0	1	33	164	540	1059	1510	1726	1762	1762	1762
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	14	46	107	231	413	632	757	708	490	275	78	17	14	60	167	398	811	1443	2200	2908	3398	3673	3751	3768

(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