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: HANSBORO 4 NNE, ND **COOP ID: 323963**

Climate Division: ND 3 **NWS Call Sign:** **Elevation: 1,540 Feet** **Lat: 49˚00N** **Lon: 99˚21W**

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	11.9	-10.4	.8	54	1942	23	13.9	1990	-43	1943	20	-15.1	1982	1993	0	.0	.0	.0	26.7	30.9	20.4
Feb	19.4	-1.8	8.8	60+	2000	23	21.9	1984	-45	1996	1	-9.9	1979	1575	0	.0	.0	.3	20.9	28.1	13.2
Mar	31.0	11.6	21.3	74	1946	27	32.9	2000	-38	1962	1	11.4	1996	1355	0	.0	.0	2.4	12.9	29.7	6.4
Apr	50.1	27.3	38.7	96	1980	21	48.7	1987	-18	1979	2	26.7	1979	790	1	.0	.1	17.2	2.3	20.9	.4
May	66.2	39.8	53.0	105	1934	30	60.9	1977	12	1967	3	43.9	1974	390	18	.0	.7	29.0	.0	5.8	.0
Jun	74.0	48.4	61.2	103	1933	18	70.6	1988	20	1964	1	55.0	1985	166	52	.0	1.4	30.0	.0	.2	.0
Jul	78.6	52.3	65.5	109	1936	10	69.9	1975	33+	1984	6	58.0	1992	75	88	.1	2.3	31.0	.0	.0	.0
Aug	78.6	49.8	64.2	105	1936	10	70.3	1983	27	1982	27	56.7	1977	129	104	.1	3.5	31.0	.0	.1	.0
Sep	67.4	39.6	53.5	100+	1978	5	58.7	1994	11	1965	26	46.7	1974	355	9	.1	.9	29.0	.0	4.4	.0
Oct	53.2	27.8	40.5	93	1992	1	46.0	1994	-6	1991	30	32.7	1976	761	0	.0	.1	20.1	1.0	18.2	.1
Nov	31.1	10.7	20.9	73	2001	18	33.1	1999	-31	1985	29	7.1	1985	1323	0	.0	.0	3.1	14.7	28.8	4.6
Dec	17.1	-3.8	6.7	65	1939	6	20.1	1999	-39	1983	23	-6.6	1983	1810	0	.0	.0	.1	25.2	31.0	15.1
Ann	48.2	24.3	36.3	109	Jul 1936	10	70.6	Jun 1988	-45	Feb 1996	1	-15.1	Jan 1982	10722	272	.3	9.0	193.2	103.7	198.1	60.2

\+ 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: 1932-2001

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

Issue Date: February 2004

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: HANSBORO 4 NNE, ND

COOP ID: 323963

Climate Division: ND 3 **NWS Call Sign:** **Elevation: 1,540 Feet** **Lat: 49°00N** **Lon: 99°21W**

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	.64	.45	1.97	1981	25	2.27	1981	.07	1973
Feb	.63	.49	2.30	1998	28	4.50	1998	.00+	1997
Mar	.85	.61	1.87	1971	14	2.89	1990	.00	1977
Apr	1.12	.69	2.00	1997	6	4.09	1975	.02	1985
May	2.39	2.13	3.50	1999	6	9.68	1999	.28	1980
Jun	3.19	3.29	5.05	1952	22	5.50	1971	1.04	1992
Jul	2.87	2.70	4.51	1943	11	9.02	1993	.13	1976
Aug	2.59	2.32	3.40	1937	1	7.10	1980	.35	1988
Sep	1.62	1.42	1.75	1941	3	3.92	1973	.14	1998
Oct	1.22	.56	2.50	1937	5	5.58	1994	.02	1999
Nov	.81	.72	2.60	1932	10	2.95	1995	.00	1999
Dec	.57	.47	.84	1974	23	1.47	1996	.12	1989
Ann	18.50	18.04	5.05	Jun 1952	22	9.68	May 1999	.00+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.9	1.8	.1	.1
Feb	3.9	1.4	.3	.1
Mar	4.4	2.4	.3	.1
Apr	4.7	2.8	.6	.2
May	8.2	5.4	1.4	.4
Jun	10.3	7.1	2.1	.6
Jul	9.1	5.7	1.8	.6
Aug	7.6	4.8	1.7	.6
Sep	7.1	3.6	1.0	.2
Oct	5.8	2.8	.8	.2
Nov	5.1	2.1	.5	.1
Dec	4.7	1.6	.2	.0
Ann	75.8	41.5	10.8	3.2

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	.09	.14	.23	.32	.41	.51	.63	.78	.97	1.29	1.61
Feb	.00	.00	.11	.21	.32	.45	.60	.79	1.05	1.49	1.92
Mar	.07	.16	.30	.43	.55	.70	.86	1.06	1.32	1.75	2.16
Apr	.04	.10	.22	.36	.54	.74	1.00	1.34	1.82	2.65	3.48
May	.42	.63	.98	1.30	1.64	2.00	2.41	2.92	3.59	4.67	5.70
Jun	1.25	1.54	1.96	2.31	2.64	2.98	3.34	3.76	4.30	5.12	5.87
Jul	.56	.82	1.24	1.63	2.02	2.44	2.92	3.49	4.26	5.48	6.64
Aug	.48	.71	1.09	1.44	1.80	2.19	2.63	3.16	3.87	5.00	6.08
Sep	.35	.50	.74	.95	1.17	1.40	1.65	1.96	2.37	3.02	3.63
Oct	.04	.09	.22	.37	.56	.78	1.07	1.44	1.98	2.92	3.87
Nov	.02	.07	.18	.29	.42	.57	.75	.99	1.31	1.86	2.41
Dec	.12	.17	.25	.33	.41	.49	.58	.69	.84	1.08	1.31
Ann	11.87	13.11	14.71	15.95	17.06	18.15	19.28	20.54	22.09	24.35	26.33

+ 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: 1932-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: HANSBORO 4 NNE, ND **COOP ID: 323963**

Climate Division: ND 3 **NWS Call Sign:** **Elevation: 1,540 Feet** **Lat: 49°00N** **Lon: 99°21W**

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	7.0	7.0	6	4	14.0	1981	25	18.3	1981	21	1989	7	17	1997	4.2	3.3	.6	@	@	25.8	14.1	7.7	2.9
Feb	5.1	5.0	6	5	8.0	1976	28	13.0+	1976	24	1974	28	18	1974	3.2	2.5	.5	.2	.0	23.9	16.7	10.9	3.1
Mar	7.3	5.5	5	4	17.0	1971	14	26.0	1976	31	1976	12	21	1976	3.2	2.5	.8	.2	@	14.6	9.8	6.8	1.4
Apr	1.8	1.1	1	#	10.0	1997	6	10.0	1997	17	1979	13	14	1979	1.3	1.2	.2	.1	@	2.7	1.3	.8	.0
May	.2	.0	#	0	6.0	1991	4	6.0+	1991	2	1979	11	#+	2000	@	@	@	@	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	3.0	1972	26	3.0	1972	#	1972	26	#	1972	.1	.1	@	.0	.0	.0	.0	.0	.0
Oct	2.0	.0	#	#	10.0	1991	29	10.0	1985	10	1985	9	1	1985	1.0	.9	.2	.1	@	1.0	.3	.2	.1
Nov	6.4	6.0	2	1	16.0	1986	8	17.0	1996	18	1986	8	8	1996	3.7	2.9	.7	.2	@	11.7	6.4	3.9	1.4
Dec	6.1	5.3	4	3	9.0	1974	23	13.0	1990	19	1996	31	13	1996	4.0	2.8	.6	.2	.0	19.7	10.9	6.4	3.2
Ann	36.1	29.9	N/A	N/A	17.0	Mar 1971	14	26.0	Mar 1976	31	Mar 1976	12	21	Mar 1976	20.7	16.2	3.6	1.0	@	99.4	59.5	36.7	12.1

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: HANSBORO 4 NNE, ND **COOP ID: 323963**

Climate Division: ND 3 **NWS Call Sign:** **Elevation: 1,540 Feet** **Lat: 49˚00N** **Lon: 99˚21W**

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	6/22	6/16	6/11	6/07	6/03	5/30	5/26	5/21	5/15
32	6/02	5/29	5/26	5/23	5/20	5/18	5/15	5/12	5/07
28	5/22	5/17	5/14	5/12	5/09	5/07	5/04	5/01	4/26
24	5/12	5/07	5/03	4/30	4/27	4/24	4/21	4/17	4/12
20	5/03	4/28	4/25	4/22	4/19	4/16	4/13	4/09	4/04
16	4/21	4/17	4/13	4/10	4/08	4/05	4/02	3/30	3/25

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	8/17	8/23	8/27	8/30	9/02	9/05	9/08	9/12	9/17
32	9/01	9/05	9/09	9/11	9/14	9/16	9/19	9/22	9/27
28	9/13	9/18	9/21	9/24	9/27	9/30	10/03	10/06	10/11
24	9/23	9/29	10/02	10/05	10/08	10/11	10/14	10/18	10/23
20	9/30	10/05	10/09	10/12	10/14	10/17	10/20	10/24	10/28
16	10/05	10/11	10/15	10/19	10/22	10/26	10/29	11/02	11/08

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	114	106	100	95	90	86	81	75	67
32	134	128	124	120	116	112	108	104	97
28	160	153	148	144	140	136	132	127	120
24	187	179	173	168	163	159	154	148	140
20	198	191	186	182	178	174	170	165	158
16	219	212	206	201	197	192	188	182	175

***** 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: HANSBORO 4 NNE, ND **COOP ID: 323963**

Climate Division: ND 3 **NWS Call Sign:** **Elevation: 1,540 Feet** **Lat: 49˚00N** **Lon: 99˚21W**

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	1993	1575	1355	790	390	166	75	129	355	761	1323	1810	10722
60	1838	1435	1200	646	265	85	20	60	225	606	1173	1655	9208
57	1745	1351	1107	562	203	50	8	34	159	513	1083	1562	8377
55	1683	1295	1045	509	167	33	3	22	121	452	1023	1500	7853
50	1528	1155	896	382	92	10	0	6	49	304	873	1345	6640
32	988	674	417	86	2	0	0	0	0	28	397	811	3403

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	18	23	85	287	654	877	1036	998	644	290	64	24	5000
55	0	0	1	20	105	219	326	307	75	1	0	0	1054
57	0	0	0	13	79	176	269	256	53	0	0	0	846
60	0	0	0	7	48	122	188	190	29	0	0	0	584
65	0	0	0	1	18	52	88	104	9	0	0	0	272
70	0	0	0	0	5	16	26	43	2	0	0	0	92

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	0	0	5	131	462	680	834	789	457	169	11	0	0	0	5	136	598	1278	2112	2901	3358	3527	3538	3538
45	0	0	0	67	324	531	679	635	318	87	3	0	0	0	0	67	391	922	1601	2236	2554	2641	2644	2644
50	0	0	0	30	206	382	524	480	197	36	0	0	0	0	0	30	236	618	1142	1622	1819	1855	1855	1855
55	0	0	0	13	112	246	371	332	104	7	0	0	0	0	0	13	125	371	742	1074	1178	1185	1185	1185
60	0	0	0	4	49	133	223	201	44	0	0	0	0	0	0	4	53	186	409	610	654	654	654	654
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	4	105	307	424	531	504	292	126	11	0	0	0	4	109	416	840	1371	1875	2167	2293	2304	2304

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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