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: DICKINSON EXP STN, ND **COOP ID: 322188**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,460 Feet** **Lat: 46˚53N** **Lon: 102˚49W**

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	23.9	.0	12.0	60	1981	24	25.4	1992	-44+	1916	13	-2.6	1982	1644	0	.0	.0	.7	20.0	30.9	14.7
Feb	30.9	6.9	18.9	67+	1992	28	30.2	1998	-47	1936	16	3.6	1979	1291	0	.0	.0	3.0	14.2	28.1	9.4
Mar	40.8	16.5	28.7	85	1910	22	38.5	1986	-36	1962	1	20.1	1996	1127	0	.0	.0	8.7	8.6	30.2	3.7
Apr	54.6	28.0	41.3	93	1980	22	48.0	1987	-16	1975	1	33.7	1975	711	0	.0	.1	19.3	1.4	21.0	.2
May	67.1	39.7	53.4	102	1934	29	61.7	1977	7	1967	3	48.3	1983	369	9	.0	.5	29.0	@	6.0	.0
Jun	76.0	48.8	62.4	109	1936	24	75.0	1988	26	1985	4	56.4	1985	157	79	.3	2.2	29.9	.0	.3	.0
Jul	82.6	53.5	68.1	114	1936	6	74.0	1989	31	1967	3	60.8	1992	63	158	1.0	6.7	31.0	.0	.0	.0
Aug	82.9	51.6	67.3	109	1949	8	73.9	1983	26	1911	28	60.9+	1985	89	158	.6	7.8	31.0	.0	.1	.0
Sep	71.0	39.8	55.4	104+	1978	6	63.0	1998	12	1926	25	49.6	1984	309	21	.2	2.2	28.6	.0	5.6	.0
Oct	57.9	28.7	43.3	95	1963	5	48.3	1973	-23	1942	24	39.1	1991	672	0	.0	.1	22.6	.9	20.5	.1
Nov	39.3	15.2	27.3	81	1990	1	38.7	1999	-29	1985	29	14.5	1985	1132	0	.0	.0	7.4	9.4	29.1	3.7
Dec	28.2	4.1	16.2	68	1939	5	26.2+	1999	-41	1990	30	-2.8	1983	1514	0	.0	.0	1.7	17.6	30.9	11.8
Ann	54.6	27.7	41.2	114	Jul 1936	6	75.0	Jun 1988	-47	Feb 1936	16	-2.8	Dec 1983	9078	425	2.1	19.6	212.9	72.1	202.7	43.6

\+ 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: 1903-2001

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

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: DICKINSON EXP STN, ND **COOP ID: 322188**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,460 Feet** **Lat: 46°53N** **Lon: 102°49W**

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	.35	.29	2.00	1932	14	.85	1982	.00	1975
Feb	.37	.36	.81	1998	26	1.63	1998	.03	1981
Mar	.67	.47	1.35	1963	25	2.13	1987	.00	1981
Apr	1.63	1.36	1.95	1916	19	4.25	1975	.00	1988
May	2.24	1.85	2.95	1965	24	5.13	1995	.05	1984
Jun	3.57	3.36	3.25	1957	22	7.54	1971	1.45	1988
Jul	2.20	1.77	4.03	1914	28	6.36	1997	.25	1971
Aug	1.65	1.43	2.95	1995	24	4.05	1981	.12	1990
Sep	1.62	1.19	2.51	1971	5	5.78	1977	.09	1997
Oct	1.31	.66	2.12	1971	2	6.51	1982	.03+	1993
Nov	.63	.47	1.15	2000	1	2.70	2000	.04+	1990
Dec	.37	.37	.60	1906	13	1.28	1977	.00	1987
Ann	16.61	16.04	4.03	Jul 1914	28	7.54	Jun 1971	.00+	Apr 1988

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.6	1.3	@	.0
Feb	4.5	1.4	@	.0
Mar	5.2	2.3	.2	@
Apr	7.7	4.0	1.0	.2
May	9.9	4.9	1.5	.2
Jun	11.6	6.8	2.3	.5
Jul	8.2	4.9	1.3	.4
Aug	6.8	3.6	1.0	.3
Sep	7.1	3.7	.9	.2
Oct	4.6	2.7	.9	.3
Nov	5.2	1.9	.1	@
Dec	5.3	1.3	@	.0
Ann	80.7	38.8	9.2	2.1

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	.08	.14	.19	.24	.30	.36	.43	.53	.68	.83
Feb	.04	.06	.11	.16	.22	.29	.36	.45	.58	.80	1.01
Mar	.03	.09	.19	.29	.39	.51	.65	.82	1.06	1.45	1.84
Apr	.08	.22	.47	.70	.96	1.25	1.58	2.00	2.58	3.52	4.45
May	.29	.47	.79	1.10	1.43	1.80	2.22	2.74	3.45	4.60	5.72
Jun	1.36	1.69	2.17	2.56	2.94	3.32	3.73	4.21	4.82	5.76	6.62
Jul	.37	.56	.88	1.19	1.50	1.83	2.22	2.69	3.31	4.32	5.29
Aug	.17	.29	.52	.75	1.00	1.28	1.61	2.02	2.58	3.51	4.42
Sep	.21	.34	.57	.80	1.04	1.30	1.60	1.98	2.48	3.31	4.12
Oct	.03	.08	.21	.37	.57	.82	1.13	1.55	2.15	3.20	4.28
Nov	.04	.08	.16	.25	.34	.45	.59	.76	1.00	1.41	1.81
Dec	.02	.06	.12	.17	.23	.30	.37	.46	.58	.79	.98
Ann	10.63	11.74	13.19	14.31	15.32	16.30	17.32	18.46	19.86	21.90	23.70

\+ 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: 1903-2001
(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: DICKINSON EXP STN, ND **COOP ID: 322188**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,460 Feet** **Lat: 46°53N** **Lon: 102°49W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.2	3.7	5	4
Feb	5.0	3.5	4	3
Mar	5.5	4.0	2	1
Apr	4.3	.5	1	#
May	.4	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.4	.0	#	0
Oct	1.7	.0	#	#
Nov	5.6	4.6	1	#
Dec	5.9	6.1	2	1
Ann	34.0	22.4	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	7.5	1988	12	15.9	1996	16	1994	31	13	1994
Feb	14.0	1998	26	14.3	1986	20	1986	20	14	1994
Mar	8.0	1977	30	15.7	1984	28	1975	31	6	1998
Apr	24.0	1984	27	28.5	1984	28	1975	1	19	1975
May	8.0	1983	12	9.0	1983	8	1983	12	#+	1996
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	1984	24	8.0	1984	8	1984	24	#+	1985
Oct	8.5	1985	8	9.5	1985	9	1991	29	1	1991
Nov	8.0	1977	20	16.0	1977	11	1993	26	5	1993
Dec	7.0	1988	26	14.1	1977	11	1996	24	11	1996
Ann	24.0	Apr 1984	27	28.5	Apr 1984	28+	Apr 1975	1	19	Apr 1975

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.4	2.0	.5	.2	.0
Feb	3.9	2.2	.5	.2	@
Mar	2.8	2.0	.5	.2	.0
Apr	1.2	.8	.5	.2	.1
May	.1	.1	@	@	.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	.6	.6	.3	.1	.0
Nov	2.7	1.7	.6	.2	.0
Dec	4.1	2.5	.4	@	.0
Ann	18.9	12.0	3.4	1.1	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	1.1	.6	.0	.0
Apr	.9	.5	.3	.0
May	.1	@	@	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	.1	@	.0
Oct	.7	.3	@	.0
Nov	3.4	1.1	.7	.0
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9

+ 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: DICKINSON EXP STN, ND **COOP ID: 322188**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,460 Feet** **Lat: 46˚53N** **Lon: 102˚49W**

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	7/01	6/22	6/16	6/11	6/06	6/01	5/27	5/21	5/13
32	6/07	6/01	5/28	5/25	5/21	5/18	5/14	5/10	5/04
28	5/28	5/22	5/18	5/15	5/12	5/09	5/06	5/02	4/26
24	5/18	5/13	5/09	5/06	5/03	4/30	4/27	4/23	4/18
20	5/05	4/30	4/26	4/23	4/20	4/17	4/14	4/10	4/05
16	4/24	4/19	4/15	4/12	4/09	4/06	4/02	3/30	3/24

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	8/15	8/21	8/25	8/28	9/01	9/04	9/07	9/12	9/17
32	8/28	9/02	9/06	9/09	9/12	9/15	9/18	9/22	9/27
28	9/11	9/15	9/18	9/20	9/23	9/25	9/27	9/30	10/04
24	9/17	9/22	9/26	9/29	10/02	10/05	10/08	10/12	10/17
20	9/22	9/28	10/03	10/07	10/11	10/15	10/19	10/24	10/30
16	10/03	10/09	10/13	10/17	10/21	10/24	10/28	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	113	104	97	91	86	80	75	68	58
32	135	128	122	118	113	109	104	99	91
28	153	146	141	137	133	129	125	120	113
24	172	165	159	155	151	147	142	137	130
20	196	189	183	178	173	169	164	158	150
16	217	209	204	199	194	190	185	179	172

***** 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: DICKINSON EXP STN, ND **COOP ID: 322188**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,460 Feet** **Lat: 46˚53N** **Lon: 102˚49W**

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	1644	1291	1127	711	369	157	63	89	309	672	1132	1514	9078
60	1489	1151	972	562	238	81	21	38	192	517	982	1359	7602
57	1396	1067	879	475	172	48	10	21	134	425	892	1266	6785
55	1334	1011	817	419	134	32	6	14	101	364	832	1204	6268
50	1183	885	666	289	62	11	0	3	41	225	688	1049	5102
32	678	451	219	28	0	0	0	0	0	9	247	549	2181

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	56	84	115	307	663	913	1118	1091	702	360	105	58	5572
55	0	0	0	8	84	255	411	392	113	2	0	0	1265
57	0	0	0	5	60	211	353	337	86	1	0	0	1053
60	0	0	0	1	33	154	271	261	54	0	0	0	774
65	0	0	0	0	9	79	158	158	21	0	0	0	425
70	0	0	0	0	2	31	78	82	6	0	0	0	199

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	1	26	147	432	682	880	851	477	189	25	0	0	1	27	174	606	1288	2168	3019	3496	3685	3710	3710
45	0	0	5	77	294	533	725	697	342	102	8	0	0	0	5	82	376	909	1634	2331	2673	2775	2783	2783
50	0	0	1	36	181	385	570	542	220	48	0	0	0	0	1	37	218	603	1173	1715	1935	1983	1983	1983
55	0	0	0	14	90	249	416	391	124	11	0	0	0	0	0	14	104	353	769	1160	1284	1295	1295	1295
60	0	0	0	2	38	136	268	250	63	3	0	0	0	0	0	2	40	176	444	694	757	760	760	760
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	5	41	124	279	423	561	542	326	165	31	1	0	5	46	170	449	872	1433	1975	2301	2466	2497	2498

(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