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: MEDORA, ND **COOP ID: 325813**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,290 Feet** **Lat: 46˚55N** **Lon: 103˚31W**

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	27.3	3.9	15.6	66	1981	23	29.2	1992	-49	1950	26	.7+	1982	1532	0	.0	.0	1.7	16.7	30.4	12.9
Feb	35.1	11.3	23.2	70	1992	29	33.9	1992	-47	1962	28	7.7	1979	1170	0	.0	.0	5.6	10.6	27.3	6.6
Mar	44.8	20.0	32.4	80	1993	24	42.0	1986	-34	1998	11	21.9	1996	1010	0	.0	.0	13.6	5.4	28.1	2.4
Apr	58.1	30.5	44.3	95	1980	21	51.6	1987	-13	1975	1	36.1	1975	621	0	.0	.2	23.3	.7	17.6	.1
May	69.9	41.7	55.8	101+	1980	23	62.7	1977	8	1967	3	50.8	1996	308	23	.1	1.3	30.0	.0	4.4	.0
Jun	78.7	50.6	64.7	107	1988	7	77.3	1988	28+	1969	20	54.9	1998	125	115	.5	4.5	30.0	.0	.4	.0
Jul	86.2	55.6	70.9	110	1981	6	75.9	1989	34+	1972	4	63.4	1993	29	212	2.5	12.3	31.0	.0	.0	.0
Aug	86.1	53.8	70.0	110	1949	7	77.1	1983	28	1964	12	63.0+	1977	60	213	1.6	13.4	31.0	.0	.2	.0
Sep	74.4	42.2	58.3	106+	1978	5	65.6	1998	13+	1961	30	52.6	1984	242	41	.4	3.7	29.1	.0	3.9	.0
Oct	61.3	31.8	46.6	95+	1963	4	50.8	1973	-13	1991	30	42.4	1976	572	0	.0	.1	25.4	.4	16.4	.1
Nov	42.3	18.7	30.5	83	1999	8	40.1	1999	-31	1985	29	16.8	1985	1035	0	.0	.0	9.3	7.1	27.3	2.3
Dec	30.9	7.8	19.4	66	1979	4	28.8	1979	-44	1983	23	1.2	1983	1414	0	.0	.0	2.8	13.6	30.5	9.0
Ann	57.9	30.7	44.3	110+	Jul 1981	6	77.3	Jun 1988	-49	Jan 1950	26	.7+	Jan 1982	8118	604	5.1	35.5	232.8	54.5	186.5	33.4

\+ 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

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: MEDORA, ND **COOP ID: 325813**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,290 Feet** **Lat: 46°55N** **Lon: 103°31W**

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	.27	.78	1949	8	1.09	1971	.02	2000
Feb	.36	.32	.79	1998	25	1.39	1998	.01+	1985
Mar	.64	.53	1.25	1963	25	2.09	1982	.03	1981
Apr	1.35	1.20	1.74	1967	16	2.90	1989	.00+	1988
May	2.26	2.15	3.14	1970	8	6.84	1974	.10	1984
Jun	2.89	2.76	2.63	1960	21	8.51	1971	.40	1985
Jul	2.16	1.69	2.30	1987	12	7.54	1987	.39	1989
Aug	1.38	1.38	2.15	1999	11	4.08	1987	.05	1971
Sep	1.45	.92	3.30	1971	5	6.05	1986	.03	1995
Oct	1.12	.69	2.42	1982	28	4.48	1982	.09	1973
Nov	.58	.47	2.10	2000	1	3.29	2000	.04	1997
Dec	.37	.29	.45	1975	13	1.38	1972	.00	1987
Ann	14.91	13.94	3.30	Sep 1971	5	8.51	Jun 1971	.00+	Apr 1988

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.8	1.2	@	.0
Feb	4.1	1.2	.1	.0
Mar	5.1	1.9	.2	.0
Apr	6.5	3.6	.6	.1
May	9.2	4.9	1.3	.4
Jun	10.0	6.1	1.9	.5
Jul	8.2	4.6	1.3	.5
Aug	6.1	3.2	.8	.3
Sep	6.0	3.3	.8	.3
Oct	5.3	2.5	.5	.2
Nov	4.5	2.0	.1	.1
Dec	4.6	1.5	.0	.0
Ann	74.4	36.0	7.6	2.4

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	.06	.11	.15	.21	.27	.34	.42	.54	.74	.94
Feb	.03	.05	.09	.14	.20	.26	.34	.44	.57	.80	1.03
Mar	.07	.12	.21	.30	.39	.50	.63	.78	1.00	1.35	1.70
Apr	.00	.15	.39	.61	.83	1.07	1.35	1.68	2.14	2.89	3.61
May	.38	.58	.91	1.22	1.54	1.88	2.28	2.75	3.39	4.43	5.41
Jun	.65	.92	1.34	1.72	2.10	2.51	2.96	3.50	4.22	5.35	6.42
Jul	.28	.46	.76	1.07	1.38	1.73	2.14	2.64	3.31	4.42	5.49
Aug	.09	.17	.34	.53	.74	.99	1.29	1.67	2.21	3.12	4.02
Sep	.10	.19	.37	.57	.79	1.05	1.36	1.76	2.32	3.25	4.18
Oct	.09	.17	.32	.47	.64	.84	1.07	1.36	1.77	2.45	3.11
Nov	.04	.08	.15	.23	.32	.42	.55	.70	.92	1.28	1.63
Dec	.02	.05	.11	.16	.22	.29	.37	.46	.59	.81	1.01
Ann	9.23	10.27	11.64	12.69	13.65	14.58	15.55	16.64	17.98	19.95	21.68

\+ 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

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: MEDORA, ND **COOP ID: 325813**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,290 Feet** **Lat: 46˚55N** **Lon: 103˚31W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.5	4.0	4	3
Feb	5.3	4.1	3	2
Mar	4.1	2.5	2	1
Apr	3.0	.9	#	#
May	.5	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.3	.0	#	0
Oct	1.3	.0	#	0
Nov	4.0	2.8	1	1
Dec	5.8	5.4	2	1
Ann	29.8	19.7	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	5.5	1982	22	17.5	1989	13	1986	4	9+	1997
Feb	7.0	1973	12	15.0	1998	24	1978	17	16	1978
Mar	12.0	1975	23	18.0	1982	28	1975	28	9	1998
Apr	13.0	1984	27	18.5	1984	18	1984	27	4+	1997
May	9.0	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	4.0	1984	23	8.0	1984	4	1984	23	#+	1984
Oct	7.8	1985	8	9.0	1991	7	1991	28	1	1991
Nov	6.5	1996	23	11.5	1985	11	1993	26	5	1993
Dec	6.0	1988	26	14.0	1972	13	1985	20	9	1985
Ann	13.0	Apr 1984	27	18.5	Apr 1984	28	Mar 1975	28	16	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.8	2.3	.6	.1	.0
Feb	3.3	2.4	.7	.1	.0
Mar	2.3	1.7	.6	.1	@
Apr	.9	.7	.5	.3	.1
May	.2	.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	.0
Oct	.6	.6	.1	.1	.0
Nov	2.5	1.8	.5	@	.0
Dec	4.2	2.4	.6	.1	.0
Ann	17.9	12.1	3.8	.8	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	20.9	15.8	9.9	1.1
Feb	13.1	8.4	6.0	3.2
Mar	6.9	4.2	2.2	.9
Apr	1.5	1.3	.8	.3
May	.1	.1	@	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	.1	.0	.0
Oct	.8	.3	.1	.0
Nov	6.6	3.1	1.4	.0
Dec	15.7	8.5	3.8	.2
Ann	65.7	41.8	24.2	5.7

+ 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: MEDORA, ND **COOP ID: 325813**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,290 Feet** **Lat: 46˚55N** **Lon: 103˚31W**

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	5/14
32	6/08	6/01	5/28	5/23	5/20	5/16	5/12	5/07	5/01
28	5/23	5/18	5/14	5/11	5/08	5/05	5/02	4/28	4/23
24	5/12	5/07	5/03	4/30	4/28	4/25	4/22	4/19	4/14
20	4/30	4/25	4/21	4/18	4/15	4/12	4/09	4/06	3/31
16	4/22	4/17	4/13	4/10	4/07	4/04	4/01	3/28	3/23

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	8/21	8/26	8/30	9/02	9/05	9/08	9/11	9/14	9/19
32	9/02	9/06	9/09	9/12	9/14	9/16	9/19	9/22	9/26
28	9/10	9/15	9/18	9/21	9/23	9/26	9/29	10/02	10/07
24	9/19	9/24	9/28	10/02	10/05	10/08	10/12	10/15	10/21
20	9/22	9/29	10/04	10/08	10/11	10/15	10/19	10/24	10/31
16	10/12	10/17	10/21	10/24	10/27	10/30	11/03	11/06	11/12

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	117	109	103	98	93	88	83	77	69
32	135	128	124	120	117	113	109	105	99
28	159	152	146	142	138	133	129	123	116
24	179	172	167	163	159	156	152	147	140
20	203	195	188	183	178	173	168	162	153
16	224	216	211	207	202	198	194	189	181

***** 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: MEDORA, ND **COOP ID: 325813**

Climate Division: ND 7 **NWS Call Sign:** **Elevation: 2,290 Feet** **Lat: 46˚55N** **Lon: 103˚31W**

Degree Days to Selected Base Temperatures (˚F)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1532	1170	1010	621	308	125	29	60	242	572	1035	1414	8118
60	1377	1030	855	475	191	61	8	24	140	418	885	1259	6723
57	1284	955	762	390	135	35	2	12	92	326	795	1166	5954
55	1224	903	702	336	103	24	1	7	66	268	735	1104	5473
50	1079	771	558	217	44	7	0	1	23	142	598	953	4393
32	588	369	157	11	0	0	0	0	0	3	196	464	1788

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	79	123	170	380	738	980	1206	1177	789	454	150	72	6318
55	3	13	2	15	128	313	493	471	166	6	0	0	1610
57	0	8	0	9	98	264	432	414	131	2	0	0	1358
60	0	0	0	3	61	200	346	332	89	1	0	0	1032
65	0	0	0	0	23	115	212	213	41	0	0	0	604
70	0	0	0	0	6	53	113	123	16	0	0	0	311

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	12	48	214	517	768	981	954	574	254	35	1	0	12	60	274	791	1559	2540	3494	4068	4322	4357	4358
45	0	1	16	120	374	618	826	799	429	150	10	0	0	1	17	137	511	1129	1955	2754	3183	3333	3343	3343
50	0	0	3	63	241	470	671	644	297	72	2	0	0	0	3	66	307	777	1448	2092	2389	2461	2463	2463
55	0	0	0	21	137	326	516	489	183	25	0	0	0	0	0	21	158	484	1000	1489	1672	1697	1697	1697
60	0	0	0	7	65	197	367	339	96	7	0	0	0	0	0	7	72	269	636	975	1071	1078	1078	1078
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	18	62	174	343	493	621	603	385	210	41	5	0	18	80	254	597	1090	1711	2314	2699	2909	2950	2955

(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