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: WISHEK, ND **COOP ID: 329515**

Climate Division: ND 9 **NWS Call Sign:** **Elevation: 2,120 Feet** **Lat: 46˚15N** **Lon: 99˚34W**

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	.0	.0	.0	56	1981	23	.0	0	-43	1954	21	.0	0	0	0	.0	.0	.2	24.3	31.0	17.1
Feb	.0	.0	.0	64	1958	26	.0	0	-39	1971	8	.0	0	0	0	.0	.0	1.0	17.8	28.1	11.2
Mar	.0	.0	.0	78	1986	29	.0	0	-31	1962	1	.0	0	0	0	.0	.0	5.4	10.7	29.1	4.7
Apr	.0	.0	.0	93	1980	21	.0	0	-13	1975	1	.0	0	0	0	.0	.1	18.9	1.5	19.5	.2
May	.0	.0	.0	99	1969	28	.0	0	12+	1967	3	.0	0	0	0	.0	.4	28.9	.0	5.0	.0
Jun	.0	.0	.0	102	1961	28	.0	0	25+	1969	21	.0	0	0	0	.1	1.4	30.0	.0	.1	.0
Jul	.0	.0	.0	107	1973	12	.0	0	28	1972	4	.0	0	0	0	.5	5.5	31.0	.0	.1	.0
Aug	.0	.0	.0	104	1959	19	.0	0	28+	1964	13	.0	0	0	0	.5	5.1	31.0	.0	.1	.0
Sep	.0	.0	.0	103	1978	6	.0	0	9	1974	30	.0	0	0	0	.2	1.5	28.9	.0	4.0	.0
Oct	.0	.0	.0	93	1970	6	.0	0	2	1991	31	.0	0	0	0	.0	@	21.8	.8	17.6	.0
Nov	.0	.0	.0	76	1965	3	.0	0	-29	1964	30	.0	0	0	0	.0	.0	5.4	11.7	28.7	2.9
Dec	.0	.0	.0	61	1969	2	.0	0	-43	1967	31	.0	0	0	0	.0	.0	.6	21.8	31.0	12.2
Ann	.0	.0	.0	107	Jul 1973	12	-99.9	0	-43+	Dec 1967	31	99.9	0	0	0	1.3	14.0	203.1	88.6	194.3	48.3

+ 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

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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	.44	.60	1956	25	.98	1996	.00+	1987
Feb	.46	.37	.65	2000	26	1.28	1998	.00+	1988
Mar	.87	.87	1.75	1968	19	2.03	1989	.00	1994
Apr	1.64	1.38	2.80	1974	20	5.33	1974	.03	1988
May	2.41	2.22	2.10	1971	23	5.55	1999	.54	1984
Jun	3.71	3.54	4.21	1953	15	7.61	1975	1.27	1972
Jul	2.73	2.11	3.34	1977	5	10.81	1993	.59	1982
Aug	2.25	2.30	2.80+	1998	3	4.45	1996	.26	1982
Sep	1.62	1.18	2.10	1986	17	6.10	1986	.19+	1976
Oct	1.45	.89	2.30	1997	12	4.11	1982	.00+	1993
Nov	.55	.42	.97	1956	2	1.74	1977	.00+	1999
Dec	.34	.32	.70	1969	23	1.04+	1988	.00+	1999
Ann	18.45	17.77	4.21	Jun 1953	15	10.81	Jul 1993	.00+	Dec 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.6	1.3	.0	.0
Feb	5.5	2.0	@	.0
Mar	6.2	3.2	.4	.0
Apr	6.2	4.4	1.1	.3
May	8.0	6.1	1.5	.5
Jun	9.2	6.9	2.3	.9
Jul	7.3	5.8	1.9	.7
Aug	6.1	4.3	1.6	.6
Sep	5.3	3.8	1.0	.4
Oct	4.5	3.5	.8	.3
Nov	4.9	2.3	.2	.0
Dec	4.6	.8	@	.0
Ann	73.4	44.4	10.8	3.7

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	.00	.00	.14	.23	.30	.37	.45	.54	.66	.84	1.01
Feb	.00	.06	.15	.22	.29	.37	.46	.57	.72	.96	1.18
Mar	.14	.25	.40	.52	.64	.77	.91	1.07	1.29	1.63	1.95
Apr	.16	.28	.50	.73	.97	1.25	1.58	2.00	2.56	3.50	4.43
May	.65	.88	1.23	1.53	1.83	2.14	2.49	2.90	3.44	4.28	5.06
Jun	1.13	1.48	2.01	2.46	2.90	3.36	3.86	4.45	5.22	6.41	7.52
Jul	.40	.62	1.02	1.40	1.79	2.22	2.72	3.34	4.16	5.50	6.80
Aug	.48	.69	1.02	1.32	1.62	1.94	2.31	2.74	3.31	4.22	5.09
Sep	.17	.29	.51	.73	.98	1.25	1.57	1.98	2.53	3.44	4.33
Oct	.00	.10	.33	.56	.80	1.07	1.39	1.79	2.34	3.26	4.17
Nov	.00	.00	.04	.14	.25	.37	.51	.69	.94	1.35	1.78
Dec	.00	.00	.12	.18	.23	.29	.35	.43	.53	.69	.84
Ann	11.19	12.51	14.25	15.60	16.82	18.02	19.27	20.67	22.40	24.94	27.18

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	8.7	8.8	5	3
Feb	7.9	6.5	7	5
Mar	6.1	6.0	2	#
Apr	2.9	1.0	#	0
May	.4	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	1.3	.0	#	0
Nov	7.3	5.1	1	#
Dec	5.9	5.0	1	#
Ann	40.5	32.4	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	7.0	1989	7	21.5	1997	28	1978	29	24	1978
Feb	8.0	1977	24	22.0	1979	26	1979	25	25	1994
Mar	11.0	1982	20	13.3	1989	22	1979	3	10	1979
Apr	13.0	1984	28	13.0	1984	7	1979	13	2	1979
May	5.0	1979	11	6.0+	1991	3	1979	11	#	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	.3	1995	21	.3	1995	0	0	0	0	0
Oct	5.5	1992	16	7.0	1971	5	1971	31	#+	1999
Nov	13.0	1993	23	28.5	1993	16	1985	30	16	1985
Dec	15.0	1988	27	19.6	1988	9	1978	31	6	1978
Ann	15.0	Dec 1988	27	28.5	Nov 1993	28	Jan 1978	29	25	Feb 1994

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.4	2.9	.9	.2	.0
Feb	4.3	2.9	.8	.1	.0
Mar	3.1	2.2	.5	.2	@
Apr	1.0	.9	.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	@	.0	.0	.0	.0
Oct	.5	.5	.1	@	.0
Nov	3.0	2.3	.9	.4	@
Dec	3.7	2.2	.4	@	@
Ann	20.2	14.0	4.0	1.0	@

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	-9.9	-9.9	-9.9	-9.9
Apr	1.3	.4	.2	.0
May	.1	@	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.4	@	@	.0
Nov	9.0	4.8	2.4	.8
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

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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	6/25	6/16	6/09	6/03	5/29	5/24	5/18	5/11	5/02
32	6/12	6/05	5/30	5/25	5/20	5/16	5/11	5/05	4/27
28	5/27	5/20	5/16	5/12	5/08	5/04	4/30	4/25	4/18
24	5/13	5/08	5/04	5/01	4/29	4/26	4/23	4/20	4/15
20	5/07	5/01	4/27	4/23	4/20	4/16	4/13	4/08	4/02
16	4/18	4/14	4/11	4/08	4/06	4/04	4/01	3/29	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	8/15	8/23	8/28	9/02	9/06	9/11	9/16	9/21	9/29
32	9/02	9/08	9/12	9/15	9/18	9/21	9/24	9/28	10/04
28	9/14	9/18	9/21	9/24	9/27	9/29	10/02	10/06	10/10
24	9/18	9/23	9/26	9/29	10/02	10/05	10/08	10/11	10/16
20	9/30	10/05	10/09	10/12	10/15	10/18	10/21	10/25	10/30
16	10/08	10/14	10/19	10/23	10/27	10/30	11/03	11/08	11/14

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	141	127	117	108	100	91	83	72	58
32	150	140	132	126	120	114	108	100	90
28	169	160	153	147	141	136	130	123	114
24	177	169	164	160	156	152	147	142	135
20	201	193	187	182	177	172	167	162	153
16	223	216	211	207	203	199	195	190	183

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	15	148	459	701	894	840	497	194	19	0	0	0	15	163	622	1323	2217	3057	3554	3748	3767	3767
45	0	0	3	80	322	552	739	685	357	108	5	0	0	0	3	83	405	957	1696	2381	2738	2846	2851	2851
50	0	0	0	40	198	405	584	532	231	48	1	0	0	0	0	40	238	643	1227	1759	1990	2038	2039	2039
55	0	0	0	13	107	269	431	382	136	15	0	0	0	0	0	13	120	389	820	1202	1338	1353	1353	1353
60	0	0	0	5	44	148	282	240	67	4	0	0	0	0	0	5	49	197	479	719	786	790	790	790
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	18	114	292	434	571	533	322	149	23	0	0	0	18	132	424	858	1429	1962	2284	2433	2456	2456

(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

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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