

Climatology of the United States

No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: MOHALL, ND

1971-2000

COOP ID: 326025

Climate Division: ND 2

NWS Call Sign:

Elevation: 1,640 Feet Lat: 48°46N

Lon: 101°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	16.0	-4.3	5.9	53	1987	13	20.8	1990	-40	1968	4	-13.1	1982	1836	0	.0	.0	@	25.8	30.9	18.8
Feb	23.2	2.7	13.0	64	1988	28	27.0	1998	-40+	1996	2	-4.6	1979	1458	0	.0	.0	.6	19.5	28.1	12.8
Mar	34.8	13.8	24.3	79	1963	24	34.7	2000	-35+	1980	1	14.4	1996	1262	0	.0	.0	3.4	12.5	30.3	5.5
Apr	52.8	26.0	39.4	92+	2001	29	48.5	1987	-20	1975	1	29.5	1979	769	0	.0	.1	17.1	2.0	20.9	.3
May	67.3	38.6	53.0	100	1980	23	61.5	1977	14	1967	3	44.1	1979	389	15	@	.7	28.8	.0	4.8	.0
Jun	75.6	48.2	61.9	101+	1988	24	72.7	1988	27	1964	1	55.2	1985	156	63	.2	2.1	29.8	.0	.1	.0
Jul	80.4	52.2	66.3	104	1988	28	71.3	1989	33	1967	3	59.9	1993	74	113	.1	3.3	31.0	.0	.0	.0
Aug	80.8	49.5	65.2	107	1949	7	71.1	1983	28+	1982	27	58.5	1977	119	124	.4	4.9	31.0	.0	.1	.0
Sep	68.7	38.9	53.8	103	2001	6	61.7	1998	18	1965	26	47.4	1972	352	16	.1	1.2	28.2	.0	4.1	.0
Oct	54.9	28.5	41.7	93+	1992	2	45.5	1994	-4+	1991	31	36.5	1976	722	0	.0	.1	19.9	1.1	19.6	.1
Nov	34.6	15.2	24.9	77	1999	8	38.8	1999	-27	1964	29	11.9	1985	1203	0	.0	.0	4.2	13.8	29.0	4.0
Dec	21.4	1.6	11.5	58	1969	2	26.7	1999	-42+	1983	25	-4.4	1983	1659	0	.0	.0	.2	23.3	30.9	14.5
Ann	50.9	25.9	38.4	107	Aug 1949	7	72.7	Jun 1988	-42+	Dec 1983	25	-13.1	Jan 1982	9999	331	.8	12.4	194.2	98.0	198.8	56.0

+ 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/normal/usnormals.html

Issue Date: February 2004

(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

064-A

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Station: MOHALL, ND

COOP ID: 326025

Climate Division: ND 2

NWS Call Sign:

Elevation: 1,640 Feet Lat: 48°46N

Lon: 101°31W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.52	.42	.68	1989	7	1.60	1989	.05	1999	5.0	2.0	@	.0	.08	.12	.20	.27	.35	.43	.52	.64	.79	1.04	1.29
Feb	.42	.32	.55	1958	27	1.98	1998	.00	2000	4.1	1.4	@	.0	.02	.06	.12	.18	.24	.32	.40	.51	.66	.90	1.14
Mar	.73	.70	.86	1976	2	1.95	1987	.00	1998	5.7	2.4	.2	.0	.02	.08	.18	.29	.40	.53	.69	.89	1.16	1.62	2.08
Apr	1.24	1.09	1.42	1970	29	3.87	1984	.08	1987	6.0	2.9	.8	.1	.17	.27	.44	.62	.80	1.00	1.23	1.51	1.90	2.53	3.14
May	2.17	2.03	2.11	1949	30	7.77	1999	.00	1980	8.2	5.1	1.3	.4	.37	.67	1.04	1.33	1.62	1.93	2.26	2.66	3.18	3.99	4.75
Jun	2.98	3.28	4.41	1973	3	7.34	1973	.87	1974	10.5	6.8	1.7	.4	.97	1.26	1.67	2.03	2.37	2.72	3.11	3.56	4.14	5.05	5.88
Jul	2.86	2.40	2.73	1971	7	6.52	1987	.61+	1985	9.1	5.6	1.8	.7	.77	1.04	1.45	1.81	2.17	2.54	2.95	3.44	4.09	5.09	6.03
Aug	2.17	1.81	2.93+	1985	17	6.92	1985	.25	1971	7.8	4.5	1.2	.5	.37	.56	.88	1.18	1.48	1.81	2.19	2.64	3.25	4.24	5.18
Sep	1.89	1.91	3.21	1971	5	4.87	1971	.11	1974	6.9	3.9	.9	.3	.28	.44	.71	.97	1.24	1.54	1.88	2.30	2.87	3.78	4.66
Oct	1.46	1.06	2.62	1984	7	7.78	1984	.05+	1990	5.1	3.0	.8	.2	.04	.09	.23	.40	.62	.90	1.25	1.71	2.38	3.57	4.77
Nov	.63	.59	1.11	2000	2	1.76	2000	.00	1999	4.6	2.1	.2	@	.02	.06	.14	.23	.33	.44	.58	.76	1.01	1.43	1.85
Dec	.39	.34	.60	1988	14	1.17	1988	.00	1997	5.0	1.6	.1	.0	.02	.05	.11	.16	.23	.30	.38	.48	.62	.85	1.08
Ann	17.46	17.75	4.41	Jun 1973	3	7.78	Oct 1984	.00+	Feb 2000	78.0	41.3	9.0	2.6	11.93	12.98	14.33	15.37	16.29	17.18	18.11	19.14	20.39	22.21	23.79

+ 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

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Station: MOHALL, ND

COOP ID: 326025

Climate Division: ND 2

NWS Call Sign:

Elevation: 1,640 Feet

Lat: 48°46N

Lon: 101°31W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	7.8	6.1	6	5	10.0	1989	7	28.7	1989	32	1989	12	21	1989	4.4	3.0	.8	.1	@	22.5	18.5	9.7	5.3
Feb	5.0	4.3	5	3	5.8	1996	10	9.8	1986	24	1998	26	18	1994	2.8	2.0	.4	.1	.0	15.3	10.3	8.2	5.2
Mar	6.1	7.6	3	2	7.0	1975	27	15.5	1987	23	1976	14	12	1976	2.4	2.0	1.0	.4	.0	9.5	6.6	3.3	.5
Apr	3.5	2.3	1	#	8.2	1984	28	13.0	1984	16	1996	4	4	1996	1.1	.8	.5	.3	.0	1.9	1.3	.6	.1
May	.3	.0	#	0	4.0	1991	4	4.0	1991	2	1991	4	#+	1998	.1	.1	@	.0	.0	.2	.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	.0	.0	#	0	.0	0	0	.0	0	1	1984	24	#	1984	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	1.3	.0	#	0	7.3	1984	16	11.5	1991	11	1991	31	1	1996	.4	.3	.2	.1	.0	.6	.3	.1	@
Nov	6.4	6.2	2	1	10.5	1996	20	16.5	1998	13	1996	28	11	1991	3.1	2.7	.7	.3	.1	9.4	6.5	2.9	.6
Dec	5.8	4.0	3	3	7.5	1988	14	14.3	1994	18	1996	31	13	1996	3.5	2.4	.4	.1	.0	23.3	16.7	7.3	.7
Ann	36.2	30.5	N/A	N/A	10.5	Nov 1996	20	28.7	Jan 1989	32	Jan 1989	12	21	Jan 1989	17.8	13.3	4.0	1.4	.1	82.7	60.2	32.1	12.4

+ 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:

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No. 20
1971-2000**

Station: MOHALL, ND

COOP ID: 326025

Climate Division: ND 2

NWS Call Sign:

Elevation: 1,640 Feet

Lat: 48° 46N

Lon: 101° 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	6/09	6/04	6/01	5/29	5/26	5/23	5/20	5/17	5/12
32	5/27	5/23	5/20	5/18	5/15	5/13	5/10	5/07	5/03
28	5/20	5/14	5/10	5/07	5/04	5/01	4/27	4/23	4/18
24	5/13	5/07	5/03	4/29	4/25	4/22	4/18	4/14	4/08
20	5/02	4/27	4/23	4/20	4/17	4/14	4/10	4/07	4/01
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	8/30	9/03	9/06	9/08	9/11	9/13	9/15	9/18	9/22
32	9/02	9/07	9/11	9/14	9/17	9/20	9/23	9/27	10/02
28	9/09	9/15	9/20	9/24	9/28	10/02	10/06	10/11	10/17
24	9/24	9/30	10/04	10/07	10/10	10/14	10/17	10/21	10/26
20	10/05	10/10	10/13	10/17	10/20	10/23	10/26	10/30	11/04
16	10/07	10/13	10/18	10/22	10/25	10/29	11/02	11/07	11/13
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	127	120	115	111	107	103	99	94	87
32	144	137	132	128	124	120	116	111	104
28	174	164	158	152	146	141	135	129	119
24	190	182	177	172	167	163	158	152	144
20	208	200	194	190	185	181	176	170	163
16	223	215	209	204	200	195	190	185	177

* 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:

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Station: MOHALL, ND

COOP ID: 326025

Climate Division: ND 2

NWS Call Sign:

Elevation: 1,640 Feet Lat: 48°46N Lon: 101°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	1836	1458	1262	769	389	156	74	119	352	722	1203	1659	9999
60	1681	1318	1107	623	262	78	22	56	229	567	1053	1504	8500
57	1588	1234	1014	539	198	45	10	32	167	474	963	1411	7675
55	1526	1178	953	485	161	30	5	21	130	413	903	1349	7154
50	1371	1038	809	356	87	9	0	6	59	265	760	1194	5954
32	846	585	346	67	2	0	0	0	0	14	310	679	2849

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	34	51	107	287	650	897	1062	1027	654	315	96	43	5223
55	0	0	0	16	97	237	355	336	94	1	0	0	1136
57	0	0	0	10	72	192	297	284	71	0	0	0	926
60	0	0	0	4	43	136	216	215	44	0	0	0	658
65	0	0	0	0	15	63	113	124	16	0	0	0	331
70	0	0	0	0	4	21	43	57	5	0	0	0	130

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	10	136	457	699	856	819	457	160	14	0	0	0	10	146	603	1302	2158	2977	3434	3594	3608	3608
45	0	0	0	71	318	550	701	664	321	82	3	0	0	0	0	71	389	939	1640	2304	2625	2707	2710	2710
50	0	0	0	34	199	400	546	510	199	32	0	0	0	0	0	34	233	633	1179	1689	1888	1920	1920	1920
55	0	0	0	12	106	260	392	358	105	7	0	0	0	0	0	12	118	378	770	1128	1233	1240	1240	1240
60	0	0	0	1	44	143	245	220	47	2	0	0	0	0	0	1	45	188	433	653	700	702	702	702
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	7	103	287	428	539	513	288	126	14	0	0	0	7	110	397	825	1364	1877	2165	2291	2305	2305

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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