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: LARIMORE, ND **COOP ID: 325013**

Climate Division: ND 3 **NWS Call Sign:** **Elevation: 1,133 Feet** **Lat: 47˚55N** **Lon: 97˚38W**

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	13.9	-4.1	4.9	51	1990	11	18.5	1990	-39	1996	31	-9.2	1982	1865	0	.0	.0	@	27.3	31.0	20.4
Feb	21.3	2.4	11.9	67	2000	23	25.6	1998	-39	1996	1	-4.8	1979	1488	0	.0	.0	.3	21.5	27.9	13.7
Mar	33.0	14.2	23.6	77	1963	31	34.7	2000	-30	1962	1	14.0	1996	1283	0	.0	.0	2.4	13.5	29.4	5.6
Apr	51.6	27.9	39.8	100	1980	22	48.4	1987	-6	1979	5	30.3	1979	759	1	@	.1	16.7	2.3	19.3	.3
May	67.7	42.3	55.0	100	1964	21	64.7	1977	-3	1967	3	47.0	1979	337	27	.0	.5	28.5	.0	4.7	.0
Jun	75.7	52.2	64.0	98	1995	18	71.2	1988	24	1964	1	57.6	1985	115	82	.0	1.6	29.9	.0	.0	.0
Jul	80.1	56.5	68.3	103	1988	5	72.3	1975	36	1954	1	60.6	1992	45	146	.1	2.9	31.0	.0	.0	.0
Aug	79.1	53.5	66.3	102	1958	8	72.8	1983	32	1964	13	59.6	1977	90	131	.1	3.1	31.0	.0	@	.0
Sep	68.5	42.3	55.4	102	1978	6	62.2	1998	20	1965	26	50.8+	1993	306	19	.1	.9	29.0	.0	2.6	.0
Oct	54.7	31.5	43.1	92	1992	2	49.2	1973	1	1991	31	37.6	1991	680	0	.0	@	19.5	.9	15.1	.0
Nov	33.9	16.7	25.3	77	1999	1	38.3	1981	-25	1958	29	13.3	1985	1191	0	.0	.0	3.4	14.8	28.2	3.2
Dec	19.7	1.3	10.5	59	1969	1	24.7	1997	-36	1967	31	-2.3	1983	1690	0	.0	.0	.1	24.6	30.9	15.0
Ann	49.9	28.1	39.0	103	Jul 1988	5	72.8	Aug 1983	-39+	Feb 1996	1	-9.2	Jan 1982	9849	406	.3	9.1	191.8	104.9	189.1	58.2

+ 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: 1948-2001

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

Issue Date: February 2004

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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	.53	.46	.88	1950	25	1.55	1994	.00+	1981
Feb	.53	.46	1.12	2000	26	1.38	1974	.00+	1997
Mar	.97	1.07	1.65	1966	5	1.79	1973	.00+	1998
Apr	1.25	.86	1.62	1994	27	4.00	1986	.00	1980
May	2.24	2.00	1.73	1989	18	6.40	1999	.19	1980
Jun	3.57	3.06	6.48	2000	13	10.27	2000	.89	1988
Jul	3.45	3.53	2.28	1991	1	7.85	1993	.65	1973
Aug	2.91	2.95	2.52	1974	15	6.73	1974	.34	1996
Sep	2.05	1.74	7.41	1957	2	5.18	1973	.06	1979
Oct	1.55	1.13	2.17	1949	10	5.02	1998	.00+	1999
Nov	.91	.71	1.47	1952	18	2.77	2000	.00+	1999
Dec	.45	.43	.92	1995	14	1.62	1995	.00+	2000
Ann	20.41	20.83	7.41	Sep 1957	2	10.27	Jun 2000	.00+	Dec 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.1	1.0	.1	.0
Feb	3.7	1.5	.2	.1
Mar	5.6	2.5	.3	@
Apr	5.7	2.9	.6	.1
May	8.6	4.8	1.3	.4
Jun	9.8	6.2	2.3	.7
Jul	9.8	6.3	2.3	.8
Aug	9.0	5.6	2.2	.5
Sep	7.7	4.2	1.1	.5
Oct	5.9	3.3	1.1	.3
Nov	5.4	2.5	.4	@
Dec	4.5	1.3	.1	.0
Ann	79.8	42.1	12.0	3.4

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	.00	.00	.19	.29	.39	.48	.57	.69	.83	1.05	1.26
Feb	.00	.00	.14	.23	.32	.42	.54	.67	.85	1.15	1.44
Mar	.00	.27	.47	.62	.75	.89	1.04	1.21	1.44	1.79	2.11
Apr	.04	.14	.31	.49	.69	.91	1.18	1.53	2.00	2.78	3.56
May	.54	.75	1.08	1.37	1.66	1.96	2.31	2.71	3.25	4.09	4.89
Jun	1.11	1.45	1.96	2.39	2.81	3.24	3.72	4.28	5.00	6.13	7.17
Jul	.81	1.13	1.64	2.09	2.54	3.01	3.55	4.18	5.02	6.35	7.60
Aug	1.00	1.28	1.68	2.01	2.34	2.67	3.03	3.46	4.00	4.84	5.61
Sep	.34	.51	.81	1.09	1.38	1.70	2.06	2.51	3.10	4.05	4.97
Oct	.00	.09	.31	.55	.81	1.10	1.46	1.91	2.53	3.59	4.63
Nov	.00	.03	.14	.27	.42	.60	.82	1.10	1.50	2.18	2.87
Dec	.00	.00	.06	.16	.25	.34	.45	.58	.76	1.04	1.32
Ann	13.27	14.60	16.34	17.68	18.88	20.04	21.26	22.61	24.27	26.69	28.81

\+ 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	1.5	-99.9	11	8
Feb	5.4	3.8	10	11
Mar	7.1	7.0	5	3
Apr	2.0	.0	1	0
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.5	.0	#	0
Nov	9.5	9.6	2	1
Dec	7.1	5.5	3	3
Ann	33.1	-9.9	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	5.0	1988	17	6.1	1987	28	1989	19	25	1996
Feb	8.5	1974	21	15.5	1974	22+	1989	6	20+	1994
Mar	10.0	1972	27	11.5	1987	25	1987	3	16	1987
Apr	7.0	1990	28	10.0	1990	17	1989	1	5	1989
May	.0	0	0	.0	0	4	1990	1	#	1990
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	.0	0	0	.0	0	0	0	0	0	0
Oct	8.5	1991	24	8.5	1991	9	1991	24	1	1991
Nov	12.0	1977	20	21.0	1977	16	1996	20	8	1986
Dec	8.0	1995	14	20.0	1996	16	1988	30	10	1986
Ann	12.0	Nov 1977	20	21.0	Nov 1977	28	Jan 1989	19	25	Jan 1996

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.0	2.2	.8	.1	.0
Feb	2.2	1.9	.7	.2	.0
Mar	1.7	1.4	.9	.4	.1
Apr	.6	.6	.3	.1	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.2	.1	@	@	.0
Nov	2.6	2.3	1.1	.6	.2
Dec	2.6	2.3	.7	.1	.0
Ann	12.9	10.8	4.5	1.5	.3

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	3.4	2.5	1.9	.7
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.6	.4	.3	.0
Nov	-9.9	-9.9	-9.9	-9.9
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	6/07	6/01	5/29	5/26	5/23	5/20	5/17	5/13	5/08
32	5/24	5/20	5/17	5/15	5/13	5/10	5/08	5/05	5/01
28	5/16	5/10	5/06	5/03	4/30	4/27	4/23	4/20	4/14
24	5/06	4/30	4/26	4/23	4/20	4/17	4/14	4/10	4/05
20	4/19	4/15	4/12	4/10	4/08	4/05	4/03	3/31	3/27
16	4/17	4/12	4/08	4/05	4/01	3/29	3/26	3/22	3/17

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	9/04	9/07	9/11	9/14	9/16	9/20	9/23	9/28
32	9/12	9/17	9/20	9/23	9/25	9/28	9/30	10/04	10/08
28	9/20	9/26	9/29	10/03	10/06	10/09	10/12	10/16	10/21
24	9/29	10/05	10/09	10/12	10/15	10/19	10/22	10/26	11/01
20	10/08	10/14	10/18	10/21	10/24	10/28	10/31	11/04	11/09
16	10/18	10/23	10/27	10/30	11/02	11/05	11/08	11/12	11/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	135	128	122	117	113	109	104	99	91
32	154	148	143	139	135	131	127	122	116
28	180	173	167	163	158	154	149	144	136
24	203	194	188	182	177	172	167	161	152
20	220	213	208	203	199	195	190	185	178
16	238	229	224	219	214	209	204	198	190

***** 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	1865	1488	1283	759	337	115	45	90	306	680	1191	1690	9849
60	1710	1348	1128	613	222	49	11	36	190	525	1041	1535	8408
57	1617	1264	1035	528	166	25	5	19	132	433	951	1442	7617
55	1555	1208	973	474	133	16	0	11	100	373	891	1380	7114
50	1400	1068	819	347	70	3	0	2	41	237	747	1225	5959
32	863	599	336	60	1	0	0	0	0	14	301	697	2871

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	21	35	76	292	714	958	1124	1064	702	358	101	30	5475
55	0	0	0	16	133	283	411	362	112	3	0	0	1320
57	0	0	0	10	104	233	354	307	84	1	0	0	1093
60	0	0	0	5	68	167	267	232	52	0	0	0	791
65	0	0	0	1	27	82	146	131	19	0	0	0	406
70	0	0	0	0	9	28	64	59	5	0	0	0	165

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	6	138	489	726	880	832	493	183	17	0	0	1	7	145	634	1360	2240	3072	3565	3748	3765	3765
45	0	0	0	72	350	577	725	677	354	98	6	0	0	0	0	72	422	999	1724	2401	2755	2853	2859	2859
50	0	0	0	31	231	430	570	522	225	47	1	0	0	0	0	31	262	692	1262	1784	2009	2056	2057	2057
55	0	0	0	15	130	286	415	368	127	15	0	0	0	0	0	15	145	431	846	1214	1341	1356	1356	1356
60	0	0	0	5	65	165	270	231	59	4	0	0	0	0	0	5	70	235	505	736	795	799	799	799
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	5	99	304	446	567	529	302	118	12	0	0	0	5	104	408	854	1421	1950	2252	2370	2382	2382

(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