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: FORTINE 1 N, MT **COOP ID: 243139**

Climate Division: MT 1 **NWS Call Sign:** **Elevation: 3,000 Feet** **Lat: 48˚47N** **Lon: 114˚55W**

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	28.9	13.8	21.4	55	1992	31	33.6	1994	-49+	1924	3	.9	1979	1353	0	.0	.0	.5	16.9	29.0	6.3
Feb	36.8	19.0	27.9	64	1995	24	35.4	1992	-42	1936	15	16.0	1989	1039	0	.0	.0	2.2	7.7	25.9	3.0
Mar	46.9	25.1	36.0	74	1960	25	40.9	1992	-31	1960	3	30.2	1996	899	0	.0	.0	11.5	1.6	26.1	.5
Apr	57.8	30.7	44.3	89	1926	29	48.6	1988	-11	1951	19	39.3	1975	623	0	.0	.0	24.2	@	18.5	.0
May	66.8	37.4	52.1	96	1986	31	57.0	1993	8	1954	1	47.8	1974	401	1	.0	.3	30.3	.0	7.8	.0
Jun	74.2	43.8	59.0	98+	1936	23	63.9	1986	23+	1926	12	54.1	1976	203	22	.0	1.1	30.0	.0	1.1	.0
Jul	81.9	47.1	64.5	102	1924	2	70.9	1998	24+	1926	29	58.9	1993	103	87	.1	7.4	31.0	.0	.1	.0
Aug	81.9	46.4	64.2	107	1917	16	68.4	1971	20+	1926	28	59.0	1975	96	68	.1	6.3	31.0	.0	.2	.0
Sep	70.7	37.8	54.3	96	1967	1	62.0	1998	5+	1934	25	48.9	1985	332	10	.0	.8	29.3	.0	7.8	.0
Oct	56.2	30.1	43.2	86	1980	7	47.9	1988	-18	1935	31	39.9	1984	678	0	.0	.0	23.2	.4	19.4	@
Nov	38.2	23.7	31.0	67+	1981	3	38.2	1999	-35	1959	16	14.9	1985	1021	0	.0	.0	3.2	7.0	24.6	1.2
Dec	29.4	16.0	22.7	58	1939	5	32.0	1979	-49	1968	30	9.8	1983	1312	0	.0	.0	.3	17.1	28.7	4.3
Ann	55.8	30.9	43.4	107	Aug 1917	16	70.9	Jul 1998	-49+	Dec 1968	30	.9	Jan 1979	8060	188	.2	15.9	216.7	50.7	189.2	15.3

\+ 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: 1906-2001

(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	1.10	.90	1.40	1954	22	3.24	1974	.23	1985
Feb	.77	.65	2.00	1926	1	1.79	1986	.15	1984
Mar	.89	.91	1.34	1954	27	1.57	1971	.17	1976
Apr	1.15	.99	1.08	1983	25	2.59	1983	.17	1977
May	1.86	1.54	1.62	1951	1	4.74	1990	.58	1983
Jun	2.26	2.06	1.91	2001	12	5.37	1995	.47	1977
Jul	1.74	1.70	2.18	1948	28	5.21	1993	.15	1973
Aug	1.26	1.05	2.08	1916	9	3.57	1976	.27+	1996
Sep	1.19	1.24	2.18	1930	23	4.16	1985	.04	1999
Oct	.91	.71	1.55	1934	25	2.17	1975	.10	1974
Nov	1.33	1.15	1.50	1946	18	3.16	1996	.26	2000
Dec	1.25	1.23	1.16	1964	22	3.21	1996	.20	1985
Ann	15.71+	16.00+	2.18+	Jul 1948	28	5.37	Jun 1995	.04	Sep 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.7	4.3	.2	.0
Feb	7.9	2.6	@	.0
Mar	9.4	3.4	.0	.0
Apr	8.2	3.0	.5	.1
May	11.9	6.0	.6	.1
Jun	11.1	6.5	1.0	.2
Jul	8.1	4.9	.8	.1
Aug	6.7	3.6	.7	.2
Sep	6.7	3.9	.4	.1
Oct	7.7	3.7	.2	.0
Nov	11.1	4.9	.4	@
Dec	11.0	4.4	.2	.0
Ann	109.5	51.2	5.0	.8

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	.29	.39	.55	.69	.83	.97	1.13	1.32	1.57	1.96	2.32
Feb	.23	.30	.41	.51	.60	.69	.80	.92	1.08	1.33	1.56
Mar	.29	.38	.50	.61	.71	.81	.93	1.06	1.23	1.50	1.75
Apr	.32	.43	.59	.74	.88	1.03	1.19	1.39	1.64	2.03	2.40
May	.52	.70	.97	1.20	1.43	1.66	1.93	2.24	2.64	3.27	3.86
Jun	.71	.93	1.24	1.52	1.78	2.05	2.35	2.71	3.16	3.87	4.52
Jul	.22	.35	.60	.84	1.10	1.38	1.72	2.12	2.68	3.59	4.47
Aug	.22	.33	.52	.69	.87	1.06	1.27	1.54	1.89	2.46	3.00
Sep	.15	.24	.41	.58	.75	.95	1.17	1.45	1.82	2.44	3.04
Oct	.19	.28	.41	.53	.65	.78	.93	1.11	1.34	1.71	2.07
Nov	.36	.48	.67	.84	1.01	1.18	1.37	1.60	1.90	2.36	2.80
Dec	.28	.39	.57	.74	.90	1.08	1.28	1.51	1.83	2.32	2.79
Ann	10.55	11.53	12.78	13.75	14.61	15.45	16.32	17.28	18.46	20.18	21.67

+ 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: 1906-2001
(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	10.8	9.5	5	3
Feb	6.6	4.2	4	2
Mar	4.3	3.0	1	#
Apr	1.2	.5	#	0
May	#	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	0	0
Oct	1.4	.0	#	0
Nov	7.1	4.8	1	#
Dec	9.3	8.0	3	2
Ann	40.8	30.0	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	8.0	1972	11	34.0	1972	24	1997	1	17	1997
Feb	9.0	1997	28	21.7	1986	22	1997	28	19	1997
Mar	4.0	1990	22	14.0	1975	23	1997	1	9	1997
Apr	4.0	2000	14	4.0	2000	4	2000	14	#+	2000
May	#	1992	15	#+	1992	0	0	0	0	0
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	1.0	1972	27	2.0	1972	0	0	0	0	0
Oct	4.0	1972	10	10.0+	1984	6	1984	31	1	1984
Nov	15.0	1996	19	41.0	1996	32	1996	27	12	1996
Dec	12.0	1996	29	21.5	1992	41	1996	29	22	1996
Ann	15.0	Nov 1996	19	41.0	Nov 1996	41	Dec 1996	29	22	Dec 1996

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	6.5	4.7	1.0	.3	.0
Feb	3.9	2.4	.7	.3	.0
Mar	3.1	2.4	.4	.0	.0
Apr	1.1	.7	.1	.0	.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	.1	.1	.0	.0	.0
Oct	.8	.6	.2	.0	.0
Nov	3.7	2.8	.7	.2	.1
Dec	6.1	4.4	1.2	.3	@
Ann	25.3	18.1	4.3	1.1	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	20.0	14.6	10.4	4.6
Feb	13.1	8.8	7.1	3.7
Mar	4.2	2.1	.6	@
Apr	.3	@	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.9	.2	@	.0
Nov	6.7	2.7	1.5	.5
Dec	19.8	10.3	6.6	1.0
Ann	65.0	38.7	26.2	9.8

+ 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	7/24	7/15	7/08	7/03	6/28	6/23	6/17	6/11	6/02
32	6/26	6/18	6/13	6/09	6/04	5/31	5/27	5/21	5/14
28	6/06	5/30	5/25	5/21	5/17	5/13	5/09	5/04	4/28
24	5/14	5/08	5/03	4/29	4/26	4/22	4/19	4/14	4/08
20	4/26	4/21	4/18	4/15	4/12	4/09	4/05	4/02	3/28
16	4/14	4/07	4/02	3/29	3/25	3/21	3/17	3/12	3/05

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	8/11	8/16	8/19	8/22	8/24	8/27	8/30	9/02	9/07
32	8/28	9/01	9/04	9/07	9/09	9/11	9/14	9/17	9/21
28	9/01	9/07	9/11	9/15	9/18	9/21	9/25	9/29	10/05
24	9/13	9/20	9/24	9/28	10/01	10/05	10/09	10/13	10/19
20	9/25	10/01	10/05	10/09	10/12	10/16	10/20	10/24	10/30
16	10/06	10/14	10/20	10/25	10/29	11/03	11/08	11/14	11/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	87	77	69	63	57	51	45	37	27
32	122	113	107	101	96	90	85	78	69
28	151	141	135	129	123	118	112	105	95
24	187	177	170	164	158	152	145	138	128
20	210	200	194	188	183	178	172	166	157
16	252	240	232	224	218	211	204	195	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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1353	1039	899	623	401	203	103	96	332	678	1021	1312	8060
60	1198	899	744	473	255	102	38	32	206	523	871	1157	6498
57	1105	815	651	384	178	58	17	14	144	431	781	1064	5642
55	1043	759	589	326	134	36	10	6	108	369	721	1002	5103
50	896	619	434	193	54	9	1	1	44	224	578	847	3900
32	412	201	45	1	0	0	0	0	0	5	164	351	1179

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	82	86	170	369	623	809	1007	995	668	350	133	63	5355
55	0	0	0	3	45	155	304	289	86	1	0	0	883
57	0	0	0	1	26	117	249	234	62	0	0	0	689
60	0	0	0	0	10	71	177	159	34	0	0	0	451
65	0	0	0	0	1	22	87	68	10	0	0	0	188
70	0	0	0	0	0	4	28	18	2	0	0	0	52

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	30	157	387	580	769	754	437	152	19	0	0	1	31	188	575	1155	1924	2678	3115	3267	3286	3286
45	0	0	2	67	242	430	614	600	296	68	3	0	0	0	2	69	311	741	1355	1955	2251	2319	2322	2322
50	0	0	0	19	121	286	459	446	171	22	0	0	0	0	0	19	140	426	885	1331	1502	1524	1524	1524
55	0	0	0	1	49	159	308	295	79	2	0	0	0	0	0	1	50	209	517	812	891	893	893	893
60	0	0	0	0	12	66	174	162	24	0	0	0	0	0	0	0	12	78	252	414	438	438	438	438
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	3	35	135	268	374	488	489	321	130	7	0	0	3	38	173	441	815	1303	1792	2113	2243	2250	2250

(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:
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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