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: BLOOMFIELD 5 NNE, MT **COOP ID: 240923**

Climate Division: MT 6 **NWS Call Sign:** **Elevation: 2,680 Feet** **Lat: 47˚32N** **Lon: 104˚52W**

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	24.0	1.9	13.0	63	1981	23	27.6	1990	-38	1982	10	-3.0	1982	1613	0	.0	.0	.7	19.9	30.8	14.5
Feb	31.7	9.7	20.7	60	1982	21	32.7	1991	-37	1986	20	5.8	1989	1240	0	.0	.0	3.4	12.4	27.6	7.6
Mar	43.5	18.6	31.1	75	1986	28	40.3	1986	-25	1989	3	19.9	1996	1053	0	.0	.0	10.0	7.0	30.5	2.6
Apr	57.0	28.7	42.9	89+	1980	21	50.0	1987	-10	1986	15	36.7	1975	666	0	.0	.0	22.4	.8	21.1	.1
May	68.9	39.0	54.0	100	1980	22	60.0	1988	15	1976	2	47.8	1983	354	11	@	.5	29.6	@	5.1	.0
Jun	78.4	47.9	63.2	102	1979	13	75.4	1988	26	1985	4	57.8	1998	137	82	.4	3.3	30.0	.0	.3	.0
Jul	84.9	52.1	68.5	106	1983	14	72.3	1989	34	1972	4	60.6	1992	51	160	1.1	8.8	31.0	.0	.0	.0
Aug	84.8	50.7	67.8	103+	1983	6	74.9	1971	28	1988	27	61.7	1977	83	168	.7	9.4	31.0	.0	.2	.0
Sep	72.4	40.4	56.4	103	1983	1	63.1	1998	15	1985	30	49.6	1984	286	28	.1	1.6	28.9	.0	6.2	.0
Oct	58.9	29.4	44.2	88	1989	1	48.3	1979	-2	1984	31	39.1	1972	647	0	.0	.0	24.3	.4	17.0	.1
Nov	39.1	17.0	28.1	76	1975	5	39.5	1999	-22	1985	25	15.3	1985	1109	0	.0	.0	7.1	8.7	28.4	2.9
Dec	28.2	6.6	17.4	63	1979	4	28.6	1999	-39+	1989	22	-3.1	1983	1475	0	.0	.0	1.5	17.0	30.7	10.1
Ann	56.0	28.5	42.3	106	Jul 1983	14	75.4	Jun 1988	-39+	Dec 1989	22	-3.1	Dec 1983	8714	449	2.3	23.6	219.9	66.2	197.9	37.9

\+ 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: 1968-2001

(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	.20	.18	.50	1989	23	.72	1971	.00+	1987
Feb	.11	.02	.50	2000	13	.93	1986	.00+	1992
Mar	.34	.26	.85	1985	28	1.33	1985	.02	1980
Apr	.73	.56	1.27	1969	26	3.05	1973	.00	1983
May	1.94	1.86	1.98	1982	20	4.50	1982	.24	1980
Jun	2.53	2.32	3.35	1973	18	5.70	1975	.41	1985
Jul	1.91	1.75	3.80	1976	2	5.16	1993	.00	1984
Aug	1.25	.87	1.76	1980	16	3.79	1974	.00	1971
Sep	1.18	.89	2.02	1986	25	5.27	1986	.03	1989
Oct	.62	.43	1.70	1971	1	3.94	1971	.00	1978
Nov	.32	.26	.80	2000	1	.98	1986	.00+	1987
Dec	.18	.15	.17	1969	22	.65	1971	.00+	2000
Ann	11.31	11.75	3.80	Jul 1976	2	5.70	Jun 1975	.00+	Dec 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.8	1.0	@	.0
Feb	4.0	.6	@	.0
Mar	4.5	1.2	.1	.0
Apr	5.7	2.7	.4	.1
May	9.8	5.0	1.0	.2
Jun	10.8	5.7	1.4	.4
Jul	8.0	3.8	1.0	.2
Aug	6.8	3.1	.7	.2
Sep	5.4	2.8	.7	.3
Oct	4.4	2.2	.4	.1
Nov	4.6	1.2	@	.0
Dec	4.4	.6	@	.0
Ann	73.2	29.9	5.7	1.5

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	.03	.07	.10	.13	.16	.20	.25	.31	.41	.51
Feb	.00	.00	.00	.00	.01	.03	.06	.11	.18	.33	.48
Mar	.04	.07	.12	.17	.22	.27	.34	.41	.52	.70	.86
Apr	.03	.09	.19	.30	.42	.55	.70	.90	1.16	1.61	2.04
May	.53	.71	.99	1.24	1.48	1.73	2.01	2.34	2.78	3.45	4.09
Jun	.78	1.02	1.38	1.69	1.98	2.29	2.63	3.02	3.54	4.33	5.07
Jul	.30	.56	.89	1.15	1.41	1.69	1.99	2.35	2.82	3.56	4.26
Aug	.09	.22	.42	.60	.80	1.01	1.25	1.55	1.95	2.60	3.24
Sep	.10	.18	.34	.50	.68	.88	1.13	1.43	1.85	2.55	3.24
Oct	.01	.05	.12	.21	.31	.43	.57	.75	1.02	1.46	1.91
Nov	.00	.04	.10	.15	.20	.26	.32	.39	.50	.67	.83
Dec	.00	.00	.05	.08	.11	.15	.18	.23	.29	.39	.48
Ann	6.96	7.76	8.80	9.61	10.34	11.06	11.80	12.64	13.67	15.18	16.51

\+ 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: 1968-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	23.0	-99.9	2	2	5.0	1989	23	23.0	1984	9	1989	25	5	1989	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	.7	-99.9	2	#	2.0	1991	24	2.0+	1991	6	1989	23	4	1989	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	1.3	-99.9	1	0	5.0	1985	28	5.0	1990	5	1989	6	3	1989	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Apr	1.6	.0	#	0	5.0	2000	14	6.0	2000	5	2000	14	#+	2000	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.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	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	#	0	.0	0	0	.0	0	2	1990	17	#	1990	.0	.0	.0	.0	.0	-9.9	-9.9	-9.9	-9.9
Nov	1.2	-99.9	#	0	6.0	1986	8	6.0	1986	2	1989	28	#+	1990	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Dec	1.3	-99.9	1	1	2.0	1990	19	3.8	1990	6+	1989	22	2+	1990	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	29.1	-9.9	N/A	N/A	6.0	Nov 1986	8	23.0	Jan 1984	9	Jan 1989	25	5	Jan 1989	-9.9	-9.9	-9.9	-9.9	-9.9	-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	6/29	6/20	6/13	6/08	6/03	5/29	5/24	5/17	5/09
32	6/10	6/04	5/30	5/26	5/22	5/19	5/15	5/10	5/03
28	5/21	5/16	5/13	5/10	5/07	5/05	5/02	4/28	4/23
24	5/09	5/05	5/02	4/30	4/27	4/25	4/23	4/20	4/16
20	5/01	4/25	4/21	4/18	4/15	4/12	4/09	4/05	3/30
16	4/22	4/17	4/14	4/11	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	8/09	8/16	8/21	8/25	8/29	9/01	9/06	9/10	9/17
32	8/28	9/02	9/05	9/08	9/11	9/14	9/16	9/20	9/24
28	9/04	9/09	9/13	9/17	9/20	9/23	9/27	10/01	10/06
24	9/14	9/20	9/25	9/29	10/03	10/07	10/11	10/16	10/22
20	9/24	10/01	10/06	10/10	10/14	10/18	10/22	10/28	11/04
16	10/03	10/10	10/15	10/19	10/23	10/27	10/31	11/05	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	113	104	97	91	86	80	75	68	59
32	132	125	120	115	111	107	102	97	90
28	155	148	143	139	135	131	126	121	114
24	180	173	167	162	158	153	149	143	136
20	208	199	192	187	181	176	171	164	155
16	223	214	207	202	197	192	187	180	171

***** 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	1613	1240	1053	666	354	137	51	83	286	647	1109	1475	8714
60	1458	1100	898	518	226	66	15	35	175	492	959	1320	7262
57	1365	1018	805	432	162	37	7	19	120	400	869	1227	6461
55	1303	969	744	376	126	24	2	12	90	340	809	1165	5960
50	1155	838	598	250	57	6	0	3	35	202	668	1012	4824
32	655	419	180	17	0	0	0	0	0	7	241	515	2034

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	65	103	150	342	681	935	1132	1108	733	383	122	63	5817
55	0	9	1	11	93	268	421	407	132	3	0	0	1345
57	0	2	0	6	68	221	364	352	103	1	0	0	1117
60	0	0	0	2	38	160	279	275	67	0	0	0	821
65	0	0	0	0	11	82	160	168	28	0	0	0	449
70	0	0	0	0	2	31	77	89	10	0	0	0	209

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	5	19	170	449	722	922	829	459	215	24	0	0	5	24	194	643	1365	2287	3116	3575	3790	3814	3814
45	0	0	2	87	309	572	767	674	323	113	7	0	0	0	2	89	398	970	1737	2411	2734	2847	2854	2854
50	0	0	0	39	183	423	612	520	200	49	0	0	0	0	0	39	222	645	1257	1777	1977	2026	2026	2026
55	0	0	0	11	90	281	457	368	110	13	0	0	0	0	0	11	101	382	839	1207	1317	1330	1330	1330
60	0	0	0	1	37	162	304	227	48	2	0	0	0	0	0	1	38	200	504	731	779	781	781	781
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	9	33	152	295	457	586	528	325	173	30	1	0	9	42	194	489	946	1532	2060	2385	2558	2588	2589

(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