

# Climatography of the United States No. 20

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

Station: BROCKWAY 3 WSW, MT

1971-2000

COOP ID: 241169

Climate Division: MT 6

NWS Call Sign:

Elevation: 2,630 Feet Lat: 47° 17N

Lon: 105° 50W

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	25.9	5.0	15.5	68	1992	31	30.0	1992	-44	1969	25	-1.3	1979	1536	0	.0	.0	.9	17.7	30.6	12.1
Feb	33.4	12.7	23.1	71	1992	27	34.9	1984	-47	1962	28	5.9	1979	1176	0	.0	.0	3.9	11.3	27.3	7.2
Mar	44.4	22.0	33.2	77+	1999	26	43.0	1986	-36	1996	8	21.3	1996	986	0	.0	.0	12.1	6.0	27.6	2.6
Apr	58.1	32.5	45.3	91	1980	21	52.4	1987	-9	1986	15	37.7	1975	591	0	.0	.1	22.4	.8	17.8	.1
May	69.1	42.9	56.0	101	1988	29	62.8	1988	12	1984	1	49.7	1974	301	22	.1	.7	29.8	@	4.9	.0
Jun	78.4	51.6	65.0	110	1988	26	78.1	1988	25	1964	2	58.4	1998	113	113	.4	4.1	30.0	.0	.3	.0
Jul	85.4	55.3	70.4	108+	1966	16	74.6	1984	33+	1972	4	61.7	1993	42	209	1.3	10.5	31.0	.0	.0	.0
Aug	84.8	53.9	69.4	108	1995	7	76.2	1983	28+	1994	31	61.9	1974	72	206	1.2	10.7	31.0	.0	.2	.0
Sep	72.4	42.2	57.3	103	1983	1	65.9	1998	14	1995	21	52.2	1972	273	41	.2	2.4	28.9	.0	4.2	.0
Oct	59.4	31.6	45.5	94	1992	1	49.3	1979	-10	1991	30	40.0	1972	605	0	.0	@	24.6	.5	16.7	@
Nov	40.9	18.8	29.9	78	1999	7	41.2	1999	-35	1993	24	12.3	1985	1054	0	.0	.0	8.7	7.2	27.3	3.0
Dec	29.6	8.5	19.1	68	1979	4	30.0	1999	-43	1963	14	-.6	1983	1426	0	.0	.0	2.0	15.6	30.5	8.9
Ann	56.8	31.4	44.1	110	Jun 1988	26	78.1	Jun 1988	-47	Feb 1962	28	-1.3	Jan 1979	8175	591	3.2	28.5	225.3	59.1	187.4	33.9

+ 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/normal/usnormals.html](http://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: 1959-2001

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

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# Climatography of the United States

## No. 20

### 1971-2000

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Station: BROCKWAY 3 WSW, MT

COOP ID: 241169

Climate Division: MT 6

NWS Call Sign:

Elevation: 2,630 Feet Lat: 47° 17N

Lon: 105° 50W

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	.23	.11	.40	1965	21	1.09	1971	.00+	1995	3.8	.9	.0	.0	.00	.00	.03	.06	.10	.15	.20	.28	.38	.56	.74
Feb	.18	.13	.53	1978	12	.96	1978	.00+	1992	2.6	.6	@	.0	.00	.00	.02	.04	.08	.11	.16	.22	.30	.43	.57
Mar	.42	.33	.78+	1995	12	1.23	1995	.00	1999	3.8	1.3	.1	.0	.03	.07	.14	.20	.26	.34	.42	.52	.66	.89	1.10
Apr	.97	.61	2.00	1992	18	3.72	1989	.07	1977	4.4	2.7	.4	.1	.06	.12	.25	.38	.53	.70	.91	1.18	1.55	2.18	2.81
May	1.90	1.47	1.48	1965	7	6.72	1978	.22	1980	7.1	4.9	1.2	.2	.28	.44	.71	.97	1.25	1.55	1.89	2.32	2.89	3.82	4.72
Jun	2.31	2.04	3.21	1986	29	6.73	1986	.34	1997	7.0	5.1	1.2	.5	.36	.56	.90	1.21	1.54	1.90	2.31	2.82	3.49	4.58	5.63
Jul	1.71	1.49	2.42	1962	14	8.94	1993	.00	1984	5.3	3.6	1.1	.3	.12	.30	.57	.82	1.09	1.37	1.70	2.11	2.65	3.54	4.40
Aug	1.19	.99	2.60	1976	5	4.39	1976	.00	1979	4.1	2.9	.8	.2	.07	.18	.37	.54	.73	.93	1.17	1.47	1.87	2.53	3.16
Sep	1.29	1.02	2.00	1986	25	5.10	1986	.00	1979	4.5	2.7	.7	.2	.04	.12	.30	.48	.68	.92	1.21	1.57	2.07	2.92	3.76
Oct	.80	.43	1.46	1971	18	3.10	1971	.00	1987	3.1	2.1	.4	.1	.02	.08	.19	.30	.43	.58	.76	.98	1.29	1.81	2.32
Nov	.26	.24	.80	1966	10	.74	1998	.00+	1999	2.7	1.1	.0	.0	.00	.00	.04	.09	.14	.19	.26	.33	.44	.61	.78
Dec	.26	.26	.40	1977	3	.91	1977	.00+	1999	3.5	1.0	.0	.0	.00	.00	.04	.09	.14	.19	.25	.33	.43	.59	.75
Ann	11.52	11.26	3.21	Jun 1986	29	8.94	Jul 1993	.00+	Dec 1999	51.9	28.9	5.9	1.6	6.04	6.98	8.25	9.25	10.17	11.09	12.06	13.16	14.52	16.57	18.39

+ 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: 1959-2001

(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: BROCKWAY 3 WSW, MT**

**COOP ID: 241169**

**Climate Division: MT 6**

**NWS Call Sign:**

**Elevation: 2,630 Feet**

**Lat: 47° 17N**

**Lon: 105° 50W**

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	-99.9	-99.9	#	0	#	1992	14	#+	1992	#	1992	14	#	1992	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	-99.9	-99.9	0	0	#	1985	5	#	1985	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	-99.9	-99.9	#	0	#	1999	7	#+	1999	#+	1999	7	#+	1999	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Apr	1.0	-99.9	0	0	3.0	1991	13	3.0	1991	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
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	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jul	.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
Aug	.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
Sep	#	.0	0	0	#	1985	28	#	1985	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Oct	-99.9	-99.9	0	0	#	1989	31	#	1989	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Nov	-99.9	-99.9	#	0	.0	0	0	.0	0	#	1991	23	#	1991	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Dec	1.5	-99.9	0	0	3.0	1984	30	3.0	1984	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	N/A	N/A	3.0+	Apr 1991	13	3.0+	Apr 1991	#+	Mar 1999	7	#+	Mar 1999	-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

Complete documentation available from:

[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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## No. 20 1971-2000

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**COOP ID: 241169**

**Climate Division: MT 6**

**NWS Call Sign:**

**Elevation: 2,630 Feet**

**Lat: 47° 17N**

**Lon: 105° 50W**

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	6/28	6/20	6/14	6/09	6/05	5/31	5/27	5/21	5/13
32	6/08	6/01	5/27	5/23	5/19	5/16	5/12	5/07	4/30
28	5/20	5/15	5/12	5/09	5/07	5/04	5/02	4/28	4/24
24	5/11	5/06	5/02	4/29	4/26	4/23	4/20	4/16	4/11
20	5/04	4/29	4/25	4/21	4/18	4/14	4/11	4/07	4/01
16	4/22	4/15	4/11	4/06	4/03	3/30	3/26	3/21	3/14
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	8/13	8/20	8/25	8/29	9/01	9/05	9/09	9/14	9/20
32	9/01	9/05	9/08	9/11	9/14	9/17	9/19	9/23	9/27
28	9/04	9/10	9/14	9/17	9/20	9/23	9/27	9/30	10/06
24	9/18	9/24	9/28	10/01	10/05	10/08	10/12	10/16	10/22
20	9/28	10/03	10/07	10/10	10/13	10/16	10/19	10/23	10/28
16	10/03	10/09	10/14	10/18	10/21	10/25	10/29	11/02	11/09
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	120	109	101	94	88	81	75	67	56
32	142	134	127	122	117	112	106	100	91
28	157	150	144	140	136	131	127	121	114
24	182	175	170	165	161	157	152	147	140
20	203	194	188	183	178	173	167	161	153
16	228	219	212	206	201	196	190	183	173

\* 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:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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No. 20  
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**Station: BROCKWAY 3 WSW, MT**

**COOP ID: 241169**

**Climate Division: MT 6**

**NWS Call Sign:**

**Elevation: 2,630 Feet    Lat: 47° 17N    Lon: 105° 50W**

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	1536	1176	986	591	301	113	42	72	273	605	1054	1426	8175
60	1382	1041	831	447	184	51	14	31	169	451	904	1271	6776
57	1293	965	739	364	129	27	7	17	118	360	818	1178	6015
55	1235	912	679	312	97	18	1	11	89	300	764	1116	5534
50	1092	781	535	198	41	4	0	3	37	171	624	973	4459
32	609	385	146	10	0	0	0	0	0	6	229	485	1870

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	96	133	184	408	744	990	1190	1156	758	424	165	83	6331
55	9	16	3	21	128	318	478	454	157	5	9	0	1598
57	5	13	1	13	97	268	422	399	125	2	4	0	1349
60	1	5	0	5	60	201	336	319	86	1	0	0	1014
65	0	0	0	0	22	113	209	206	41	0	0	0	591
70	0	0	0	0	6	51	117	120	16	0	0	0	310

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	9	42	193	474	729	930	912	533	235	33	1	0	9	51	244	718	1447	2377	3289	3822	4057	4090	4091
45	0	1	15	107	329	579	775	757	391	130	12	0	0	1	16	123	452	1031	1806	2563	2954	3084	3096	3096
50	0	0	2	52	205	430	620	603	264	57	2	0	0	0	2	54	259	689	1309	1912	2176	2233	2235	2235
55	0	0	0	15	109	290	465	449	156	19	0	0	0	0	0	15	124	414	879	1328	1484	1503	1503	1503
60	0	0	0	3	45	165	317	301	77	3	0	0	0	0	0	3	48	213	530	831	908	911	911	911
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	11	51	158	309	457	588	580	358	186	33	1	0	11	62	220	529	986	1574	2154	2512	2698	2731	2732

(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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
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## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)