

# Climatology of the United States

No. 20

1971-2000

Station: BLACKLEAF, MT

COOP ID: 240877

Climate Division: MT 3

NWS Call Sign:

Elevation: 4,235 Feet Lat: 48°01N

Lon: 112°26W

## 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	34.3	8.6	21.5	65+	1992	31	36.9	1986	-42	1972	27	4.4	1982	1350	0	.0	.0	4.7	11.1	28.8	10.0
Feb	38.6	12.8	25.7	70	1992	27	38.8	1984	-47	1994	8	10.0	1989	1100	0	.0	.0	6.6	8.2	25.8	6.6
Mar	44.4	19.6	32.0	74	1986	28	41.2	1986	-32	1989	3	22.8	1996	1024	0	.0	.0	11.3	4.9	27.8	2.6
Apr	54.1	27.8	41.0	82+	1987	27	48.7	1987	-6	1975	6	29.9	1975	721	0	.0	.0	19.4	1.2	21.5	.3
May	62.6	35.7	49.2	88	1986	30	53.3	1988	5	1967	3	44.1	1996	491	0	.0	.0	27.6	.1	9.7	.0
Jun	70.3	42.7	56.5	94+	1990	30	63.2	1988	25	1969	11	52.3	1976	269	13	.0	.3	29.7	.0	1.1	.0
Jul	78.2	46.7	62.5	99	1973	10	69.2	1985	28	1999	16	54.9	1993	141	61	.0	2.4	31.0	.0	.1	.0
Aug	78.4	45.1	61.8	102	1969	24	68.0	1983	25	1992	25	55.9	1985	172	71	@	2.7	30.9	.0	.4	.0
Sep	68.1	37.0	52.6	96	1967	1	59.6	1998	11	2000	23	41.3	1985	391	18	.0	.4	27.5	.2	7.0	.0
Oct	58.1	28.3	43.2	87	1992	1	47.6	1974	-20	1984	31	35.1	1984	676	0	.0	.0	23.7	1.1	19.1	.4
Nov	42.5	18.2	30.4	78	1962	3	38.4	1999	-34	1955	13	12.0	1985	1041	0	.0	.0	9.2	5.4	26.2	3.0
Dec	35.6	10.7	23.2	68	1980	16	33.0	1999	-41	1983	24	2.7	1983	1297	0	.0	.0	5.3	10.0	28.7	7.5
Ann	55.4	27.8	41.6	102	Aug 1969	24	69.2	Jul 1985	-47	Feb 1994	8	2.7	Dec 1983	8673	163	@	5.8	226.9	42.2	196.2	30.4

+ 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: 1949-2001

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

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# 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: BLACKLEAF, MT

COOP ID: 240877

Climate Division: MT 3

NWS Call Sign:

Elevation: 4,235 Feet Lat: 48°01N

Lon: 112°26W

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	.51	.39	.74	1953	9	1.29	1971	.00	1995	5.4	2.1	.1	.0	.03	.09	.17	.24	.32	.41	.51	.63	.79	1.06	1.32
Feb	.45	.39	1.00	1963	1	1.78	1986	.04	1998	4.6	1.9	.1	.0	.05	.09	.15	.22	.28	.36	.44	.55	.70	.93	1.17
Mar	.68	.44	.85	1954	27	2.29	1981	.06+	2000	5.9	2.3	.2	.0	.06	.11	.20	.30	.40	.52	.65	.82	1.06	1.45	1.84
Apr	1.15	.87	2.41	1976	26	4.15	1975	.00	1981	6.2	3.2	.5	.1	.03	.10	.25	.41	.59	.81	1.06	1.39	1.85	2.63	3.41
May	2.32	2.34	3.33	1953	25	4.28	1981	.59	1979	7.9	5.2	1.4	.5	.67	.89	1.22	1.51	1.79	2.09	2.41	2.79	3.28	4.06	4.78
Jun	2.77	2.14	4.70	1964	8	7.07	1991	.30	1985	8.4	5.5	1.7	.6	.53	.78	1.18	1.56	1.94	2.34	2.81	3.37	4.11	5.31	6.44
Jul	1.51	1.09	2.17	1970	13	4.53	1987	.08+	1991	6.3	3.5	1.0	.3	.08	.16	.34	.55	.78	1.05	1.39	1.82	2.43	3.46	4.50
Aug	1.78	1.34	2.24	1989	25	7.48	1989	.08	1996	6.8	4.1	1.0	.3	.13	.24	.47	.71	.99	1.30	1.68	2.16	2.83	3.95	5.06
Sep	1.17	.92	1.17	1985	18	4.77	1985	.04	1990	5.4	3.1	.6	.2	.10	.18	.34	.50	.68	.88	1.12	1.43	1.85	2.55	3.24
Oct	.61	.48	1.05	2000	13	2.18	1975	.02	1983	3.8	2.1	.3	@	.05	.09	.17	.25	.34	.45	.58	.75	.97	1.35	1.73
Nov	.52	.44	.72	1999	26	1.50	1978	.00	1984	4.5	2.0	.1	.0	.03	.08	.16	.24	.32	.41	.52	.64	.82	1.10	1.38
Dec	.52	.41	.60	1990	18	1.52	1977	.00+	1999	4.7	1.8	.1	.0	.00	.06	.16	.24	.32	.42	.52	.65	.82	1.10	1.37
Ann	13.99	13.61	4.70	Jun 1964	8	7.48	Aug 1989	.00+	Dec 1999	69.9	36.8	7.1	2.0	7.23	8.38	9.94	11.18	12.32	13.46	14.66	16.02	17.72	20.26	22.54

+ 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: 1949-2001

(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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## No. 20 1971-2000

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
[www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)

**Station: BLACKLEAF, MT**

**COOP ID: 240877**

**Climate Division: MT 3**

**NWS Call Sign:**

**Elevation: 4,235 Feet**

**Lat: 48°01N**

**Lon: 112°26W**

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	10.2	8.0	3	1	10.0	1982	15	24.5	1978	25	1978	29	14	1978	3.9	3.3	1.3	.4	.1	-9.9	-9.9	-9.9	-9.9
Feb	5.1	3.0	2	#	16.0	1986	15	16.0	1986	36	1978	11	16	1978	2.5	2.1	.8	.4	.1	-9.9	-9.9	-9.9	-9.9
Mar	7.4	7.5	#	#	9.0	1979	27	18.0	1982	10	1977	29	2	1976	3.1	2.4	1.1	.3	.0	3.6	1.6	.7	.0
Apr	5.3	4.0	#	0	16.0	1980	2	25.0	1980	14	1976	28	2	1976	1.3	1.1	.6	.3	.1	.8	.6	.3	.2
May	1.3	.0	#	0	8.0	1989	28	8.0+	1989	3	1972	6	#	1972	.4	.4	.2	.1	.0	.1	.1	.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	.2	.0	0	0	3.0	1992	22	6.0	1992	0	0	0	0	0	.1	.1	.1	.0	.0	.0	.0	.0	.0
Sep	1.3	.0	#	0	6.0	2000	21	12.0	2000	#+	1999	26	#+	1999	.3	.3	.2	.1	.0	.0	.0	.0	.0
Oct	2.4	2.0	#	0	6.0	1984	19	8.0	1971	6	1971	16	#+	1977	1.1	1.1	.2	@	.0	.5	.1	.1	.0
Nov	3.8	4.0	#	#	12.0	1999	26	12.0	1990	12	1999	26	4	1973	2.5	2.0	.6	.2	.1	-9.9	-9.9	-9.9	-9.9
Dec	4.6	-99.9	3	#	18.0	1979	15	23.0	1984	32	1978	24	25	1978	2.0	1.8	1.0	.2	.1	-9.9	-9.9	-9.9	-9.9
Ann	41.6	-9.9	N/A	N/A	18.0	Dec 1979	15	25.0	Apr 1980	36	Feb 1978	11	25	Dec 1978	17.2	14.6	6.1	2.0	.5	-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/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

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**NWS Call Sign:**

**Elevation: 4,235 Feet**

**Lat: 48° 01N**

**Lon: 112° 26W**

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	7/22	7/15	7/10	7/05	7/01	6/27	6/23	6/18	6/11
32	6/29	6/22	6/17	6/12	6/08	6/04	5/31	5/26	5/19
28	6/15	6/07	6/01	5/27	5/22	5/18	5/13	5/07	4/29
24	5/16	5/11	5/07	5/04	5/01	4/28	4/24	4/21	4/15
20	5/04	4/29	4/25	4/22	4/19	4/16	4/13	4/09	4/04
16	4/23	4/18	4/14	4/11	4/07	4/04	4/01	3/28	3/23
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	8/08	8/13	8/17	8/20	8/23	8/26	8/29	9/02	9/08
32	8/24	8/28	9/01	9/04	9/06	9/09	9/12	9/15	9/19
28	9/03	9/08	9/11	9/14	9/17	9/20	9/22	9/26	10/01
24	9/11	9/16	9/20	9/23	9/25	9/28	10/01	10/04	10/09
20	9/20	9/26	9/30	10/03	10/06	10/09	10/13	10/17	10/22
16	9/29	10/05	10/10	10/13	10/17	10/20	10/24	10/28	11/03
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	80	70	63	57	52	47	41	34	24
32	116	107	100	94	89	84	78	72	63
28	141	133	127	122	117	112	107	100	92
24	170	162	156	151	147	142	137	132	124
20	194	186	180	174	169	165	159	153	145
16	217	209	202	197	192	187	181	175	166

\* 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: BLACKLEAF, MT**

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**NWS Call Sign:**

**Elevation: 4,235 Feet    Lat: 48°01N    Lon: 112°26W**

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	1350	1100	1024	721	491	269	141	172	391	676	1041	1297	8673
60	1196	960	869	571	339	153	63	92	269	522	891	1142	7067
57	1114	884	776	486	254	99	31	56	206	430	802	1060	6198
55	1055	832	714	429	201	70	19	39	170	370	747	1001	5647
50	910	702	564	297	98	22	3	14	94	234	607	855	4400
32	456	311	143	29	0	0	0	0	0	9	210	408	1566

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	130	135	143	298	532	734	944	922	617	356	160	134	5105
55	15	12	0	8	20	114	249	248	97	4	7	14	788
57	12	8	0	5	11	84	200	203	73	2	1	11	610
60	1	0	0	0	3	47	138	146	46	1	0	0	382
65	0	0	0	0	0	13	61	71	18	0	0	0	163
70	0	0	0	0	0	2	18	26	6	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	15	24	36	130	310	514	722	703	413	196	44	15	15	39	75	205	515	1029	1751	2454	2867	3063	3107	3122
45	1	1	10	61	180	365	567	548	282	106	18	1	1	2	12	73	253	618	1185	1733	2015	2121	2139	2140
50	0	0	0	20	88	225	414	395	168	48	4	0	0	0	0	20	108	333	747	1142	1310	1358	1362	1362
55	0	0	0	2	30	116	266	251	80	17	1	0	0	0	0	2	32	148	414	665	745	762	763	763
60	0	0	0	0	7	46	140	131	29	2	0	0	0	0	0	0	7	53	193	324	353	355	355	355
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	8	22	39	112	212	321	457	458	288	164	34	9	8	30	69	181	393	714	1171	1629	1917	2081	2115	2124

(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](http://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](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)