

Climatography of the United States

No. 20

1971-2000

Station: CASCADE 5 S, MT

COOP ID: 241552

Climate Division: MT 4

NWS Call Sign:

Elevation: 3,360 Feet Lat: 47° 13N

Lon: 111° 43W

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	35.9	15.0	25.5	70	1992	31	37.6	1986	-52	1909	10	8.8	1979	1225	0	.0	.0	5.9	9.9	25.0	7.9
Feb	41.0	19.0	30.0	71	1932	27	41.1	1991	-57	1936	15	10.9	1989	979	0	.0	.0	9.5	6.6	21.7	4.9
Mar	48.4	24.9	36.7	77+	1999	25	45.8	1986	-42	1951	8	26.5	1996	880	0	.0	.0	16.2	3.7	23.3	1.9
Apr	58.1	32.6	45.4	91	1910	26	52.8	1987	-18+	1936	2	33.2	1975	588	0	.0	.0	23.0	.8	16.0	.3
May	66.9	40.7	53.8	96	1919	28	57.7	1985	11	1954	2	49.4	1996	349	2	.0	.2	29.4	.0	4.9	.0
Jun	75.4	47.8	61.6	103	1919	21	69.3	1988	24	1910	3	57.7	1998	151	49	@	2.3	30.0	.0	.2	.0
Jul	83.3	50.6	67.0	104+	1973	10	72.2	1985	32	1968	31	59.4	1993	56	118	.4	7.5	31.0	.0	.0	.0
Aug	82.9	49.6	66.3	109	1940	12	74.1	1971	29+	1992	25	60.4	1987	94	133	.3	8.3	31.0	.0	.1	.0
Sep	72.0	41.3	56.7	99	1998	7	64.1	1998	6	1926	24	49.1	1985	275	25	.0	1.7	28.5	@	4.9	.0
Oct	61.0	34.6	47.8	94	1992	1	50.9+	1980	-18	1919	25	41.9	1984	533	0	.0	@	26.0	.6	13.5	.3
Nov	44.9	25.6	35.3	77	1999	7	45.7	1999	-37	1959	13	14.6	1985	892	0	.0	.0	11.6	4.3	19.6	2.6
Dec	37.7	18.1	27.9	73	1939	5	38.6	1999	-51	1968	29	9.9	1983	1150	0	.0	.0	6.5	8.2	24.2	5.8
Ann	59.0	33.3	46.2	109	Aug 1940	12	74.1	Aug 1971	-57	Feb 1936	15	8.8	Jan 1979	7172	327	.7	20.0	248.6	34.1	153.4	23.7

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1904-2001

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

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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

Station: CASCADE 5 S, MT

COOP ID: 241552

Climate Division: MT 4

NWS Call Sign:

Elevation: 3,360 Feet Lat: 47°13N

Lon: 111°43W

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	.58	.54	.60+	1975	26	1.34	1993	.04	1987	5.5	2.0	.1	.0	.11	.16	.24	.32	.40	.49	.59	.71	.87	1.12	1.36
Feb	.50	.44	.90	1951	21	1.20	1989	.03	1992	4.6	1.5	.1	.0	.09	.13	.21	.28	.34	.42	.50	.61	.74	.96	1.17
Mar	.98	.80	1.30	1987	19	3.44	1981	.18	1999	6.8	3.4	.2	@	.22	.31	.45	.58	.71	.85	1.00	1.19	1.43	1.82	2.18
Apr	1.77	1.53	2.66	1975	26	4.82	1975	.07	1981	7.9	4.3	.9	.2	.28	.43	.69	.93	1.19	1.46	1.78	2.16	2.68	3.52	4.33
May	2.95	2.53	3.35	1980	25	7.32	1981	.72	1973	10.0	6.2	2.0	.5	.91	1.19	1.61	1.97	2.31	2.67	3.07	3.53	4.13	5.06	5.93
Jun	2.28	1.72	5.01	1907	23	6.32	1980	.58	1985	8.9	6.0	1.3	.2	.51	.72	1.05	1.35	1.66	1.98	2.34	2.77	3.33	4.24	5.09
Jul	1.58	1.18	2.35	1983	10	6.26	1993	.10	1973	6.2	3.9	.9	.2	.14	.24	.45	.67	.91	1.19	1.52	1.93	2.49	3.44	4.38
Aug	1.61	1.35	2.01	1933	21	5.67	1985	.08	2000	7.5	4.4	.8	.2	.18	.30	.53	.76	1.00	1.27	1.58	1.97	2.50	3.38	4.24
Sep	1.64	1.48	2.10	1909	3	4.53	1985	.12	1990	6.3	4.1	1.0	.2	.18	.31	.54	.76	1.01	1.28	1.60	2.00	2.54	3.44	4.31
Oct	1.22	.94	2.30	1980	15	4.62	1975	.00	1987	4.8	3.0	.7	.2	.07	.19	.38	.56	.75	.96	1.20	1.50	1.90	2.57	3.21
Nov	.67	.63	1.15	1918	5	1.66	1978	.06	1972	5.2	2.4	.2	.0	.14	.20	.30	.39	.48	.58	.69	.82	.99	1.27	1.54
Dec	.57	.42	2.00	1926	11	1.55	1978	.10	1999	5.4	2.0	.1	.0	.10	.15	.24	.31	.39	.48	.57	.69	.85	1.10	1.33
Ann	16.35	15.38	5.01	Jun 1907	23	7.32	May 1981	.00	Oct 1987	79.1	43.2	8.3	1.7	10.10	11.24	12.75	13.91	14.96	15.99	17.06	18.27	19.74	21.92	23.82

+ 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: 1904-2001

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Station: CASCADE 5 S, MT

COOP ID: 241552

Climate Division: MT 4

NWS Call Sign:

Elevation: 3,360 Feet

Lat: 47° 13N

Lon: 111° 43W

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	11.3	10.8	2	2	12.0	1975	26	24.0	1993	13	1975	26	6	1993	4.7	4.1	1.3	.5	.1	9.7	5.9	3.4	.4
Feb	9.7	6.5	1	1	20.0	1996	25	27.0	1996	23	1996	25	5	1979	3.9	3.5	1.2	.5	.1	8.7	5.3	3.0	.3
Mar	11.0	9.0	1	1	11.0	1987	19	24.5	1977	14+	1985	3	4	1989	4.2	4.0	1.9	.8	.1	6.5	3.9	1.7	.5
Apr	9.9	6.5	#	#	17.0	1973	20	48.0	1975	28	1975	8	4	1975	2.4	2.3	1.3	.7	.1	2.5	1.5	1.0	.3
May	.9	.0	#	0	8.0	1983	10	11.0	1983	6	1983	10	#+	1989	.3	.3	.1	@	.0	.1	.1	@	.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	5.0	1992	23	5.0	1992	0	0	0	0	0	@	@	@	@	.0	.0	.0	.0	.0
Sep	1.0	.0	#	0	6.0	1983	19	8.0	1983	5	1984	23	#+	2000	.4	.4	.2	.1	.0	.4	.1	@	.0
Oct	3.9	3.0	#	#	8.0	1980	15	11.0	1980	8+	1992	15	1	1992	1.6	1.6	.5	.2	.0	1.6	.6	.2	.0
Nov	10.9	9.0	1	1	14.0	1994	17	27.2	1973	16	1977	19	5	1978	3.5	3.2	1.3	.6	.1	6.1	4.0	2.5	.6
Dec	11.0	7.0	2	1	9.0	1982	23	31.4	1971	15	1996	29	8	1978	4.7	4.4	1.4	.5	.0	9.5	4.5	2.6	.5
Ann	69.8	51.8	N/A	N/A	20.0	Feb 1996	25	48.0	Apr 1975	28	Apr 1975	8	8	Dec 1978	25.7	23.8	9.2	3.9	.5	45.1	25.9	14.4	2.6

+ 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:

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Climate Division: MT 4

NWS Call Sign:

Elevation: 3,360 Feet

Lat: 47° 13N

Lon: 111° 43W

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	7/09	7/01	6/26	6/21	6/16	6/12	6/07	6/02	5/25
32	6/08	6/02	5/30	5/27	5/24	5/21	5/17	5/14	5/08
28	5/24	5/18	5/14	5/11	5/08	5/05	5/01	4/27	4/22
24	5/08	5/03	4/29	4/25	4/22	4/19	4/16	4/12	4/06
20	4/29	4/23	4/19	4/15	4/12	4/08	4/05	4/01	3/26
16	4/17	4/12	4/08	4/04	4/01	3/29	3/26	3/22	3/16
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	8/19	8/23	8/26	8/29	9/01	9/05	9/09	9/14
32	9/03	9/07	9/09	9/12	9/14	9/16	9/19	9/22	9/26
28	9/12	9/16	9/19	9/22	9/24	9/26	9/28	10/01	10/05
24	9/18	9/24	9/28	10/01	10/05	10/08	10/12	10/16	10/22
20	9/29	10/05	10/09	10/13	10/16	10/19	10/23	10/27	11/02
16	10/09	10/15	10/19	10/23	10/27	10/30	11/03	11/08	11/14
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	99	90	84	78	73	68	62	56	47
32	132	125	121	117	113	109	105	100	94
28	161	153	147	143	138	134	129	124	116
24	189	181	175	170	165	160	155	149	140
20	210	202	196	191	187	182	177	171	163
16	229	222	217	212	208	204	199	194	186

* 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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Elevation: 3,360 Feet Lat: 47° 13N Lon: 111° 43W

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	1225	979	880	588	349	151	56	94	275	533	892	1150	7172
60	1080	850	725	447	208	70	14	39	164	378	754	998	5727
57	994	771	633	366	137	37	6	21	111	287	669	915	4947
55	936	719	573	315	99	22	1	13	81	231	615	856	4461
50	794	594	430	205	35	5	0	3	29	111	484	713	3403
32	375	245	76	13	0	0	0	0	0	2	155	302	1168

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	172	190	220	415	676	888	1085	1061	740	493	253	175	6368
55	21	20	3	26	61	220	373	361	131	8	22	16	1262
57	17	16	1	18	37	175	315	307	101	3	17	13	1020
60	10	11	0	9	15	118	231	232	64	0	11	3	704
65	0	0	0	0	2	49	118	133	25	0	0	0	327
70	0	0	0	0	0	14	44	61	8	0	0	0	127

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	39	59	87	205	423	644	836	816	509	285	87	39	39	98	185	390	813	1457	2293	3109	3618	3903	3990	4029
45	11	18	36	111	279	494	681	661	369	172	40	9	11	29	65	176	455	949	1630	2291	2660	2832	2872	2881
50	0	2	10	51	157	347	526	507	237	89	17	1	0	2	12	63	220	567	1093	1600	1837	1926	1943	1944
55	0	0	0	15	70	210	372	354	129	39	1	0	0	0	0	15	85	295	667	1021	1150	1189	1190	1190
60	0	0	0	2	24	103	225	211	61	10	0	0	0	0	0	2	26	129	354	565	626	636	636	636
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	16	35	69	153	273	399	531	519	344	203	50	19	16	51	120	273	546	945	1476	1995	2339	2542	2592	2611

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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