

Climatology of the United States

No. 20

1971-2000

Station: DEL BONITA, MT

COOP ID: 242301

Climate Division: MT 3

NWS Call Sign:

Elevation: 4,337 Feet Lat: 49°00N

Lon: 112°47W

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	29.5	9.0	19.3	62+	1987	12	33.0	1986	-43	1971	13	2.3	1982	1419	0	.0	.0	1.3	15.0	29.4	9.9
Feb	34.4	13.4	23.9	69	1992	27	35.8	1977	-38	1989	2	8.8	1989	1151	0	.0	.0	2.6	10.1	26.3	6.3
Mar	41.4	19.9	30.7	67	1966	29	39.6	1986	-28	1962	3	22.5	1975	1065	0	.0	.0	7.2	6.3	28.3	2.4
Apr	53.3	27.7	40.5	83	1987	28	47.5	1987	-9	1975	1	28.5	1975	736	0	.0	.0	18.2	1.4	21.6	.3
May	63.4	36.3	49.9	90	1986	30	54.2	1987	7	1967	3	44.8	1974	469	0	.0	@	27.8	.0	9.3	.0
Jun	70.4	43.2	56.8	91	1988	22	62.8	1988	28+	1982	1	52.4	1976	256	9	.0	.2	29.7	.0	.8	.0
Jul	76.8	46.7	61.8	97+	2000	18	67.2	2000	31	1999	16	53.3	1993	154	52	.0	1.2	30.9	.0	.1	.0
Aug	77.0	46.5	61.8	100	1961	5	68.6	1971	24	1992	24	55.7	1980	181	79	.0	1.3	30.9	.0	.3	.0
Sep	67.5	38.8	53.2	95	1967	4	60.6	1998	11	1970	13	44.7	1985	375	19	.0	.2	27.8	.1	6.5	.0
Oct	56.1	30.6	43.4	83+	2001	1	49.1	1974	-11+	1991	29	37.1	1984	670	0	.0	.0	22.5	1.5	18.0	.4
Nov	38.5	18.9	28.7	75	1962	3	38.1	1999	-28+	1985	27	9.0	1985	1090	0	.0	.0	5.2	8.3	27.1	3.1
Dec	31.2	11.6	21.4	60	1980	16	32.4	1999	-48	1968	30	3.9	1983	1351	0	.0	.0	1.3	14.0	29.4	7.3
Ann	53.3	28.6	41.0	100	Aug 1961	5	68.6	Aug 1971	-48	Dec 1968	30	2.3	Jan 1982	8917	159	.0	2.9	205.4	56.7	197.1	29.7

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1951-2001

(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: DEL BONITA, MT

COOP ID: 242301

Climate Division: MT 3

NWS Call Sign:

Elevation: 4,337 Feet Lat: 49°00N

Lon: 112°47W

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	.42	.31	.80	1975	18	1.69	1972	.00	1973	4.7	1.4	.1	.0	.01	.03	.08	.13	.20	.28	.37	.50	.68	.99	1.30
Feb	.35	.30	.50	1997	3	.94	1975	.00	1998	4.1	1.2	@	.0	.01	.04	.08	.13	.19	.25	.33	.42	.56	.78	1.00
Mar	.73	.71	1.03	1981	17	1.82	1972	.02	1999	5.1	2.4	.2	.1	.05	.10	.19	.29	.40	.53	.68	.88	1.15	1.61	2.07
Apr	1.22	1.07	1.47	1974	27	3.98	1975	.00	1981	6.3	3.6	.7	.1	.10	.24	.44	.62	.80	1.00	1.23	1.51	1.89	2.49	3.08
May	2.58	2.27	2.25	1985	30	6.71	1981	.64	1983	9.0	5.9	1.5	.6	.64	.88	1.26	1.59	1.92	2.27	2.66	3.12	3.72	4.67	5.57
Jun	2.85	2.55	3.06	1951	24	7.83	1995	.48	2000	9.2	6.0	1.8	.6	.68	.94	1.36	1.73	2.10	2.49	2.93	3.45	4.13	5.21	6.23
Jul	1.69	1.12	3.80	1998	4	5.55	1993	.10	1973	7.2	4.2	.8	.3	.15	.27	.49	.73	.99	1.28	1.63	2.06	2.66	3.66	4.64
Aug	1.85	1.88	1.92	1978	17	5.16	1978	.20	1996	8.1	4.5	1.0	.3	.33	.49	.76	1.02	1.27	1.56	1.87	2.26	2.78	3.61	4.40
Sep	1.50	1.29	3.60	1968	21	5.24	1978	.04	1979	6.7	3.9	.8	.2	.14	.25	.45	.66	.88	1.14	1.45	1.83	2.35	3.22	4.07
Oct	.52	.49	1.16	1968	7	2.00	1994	.02	1987	4.3	1.7	.2	.0	.03	.06	.12	.19	.28	.37	.49	.63	.84	1.19	1.54
Nov	.54	.43	1.20	1958	25	1.35	1992	.00	1984	4.7	2.1	.1	.0	.04	.10	.18	.26	.35	.44	.54	.67	.84	1.13	1.40
Dec	.38	.32	1.00	2001	3	.94	1989	.00	1997	4.6	1.3	@	.0	.04	.08	.15	.20	.26	.32	.38	.46	.57	.74	.91
Ann	14.63	14.08	3.80	Jul 1998	4	7.83	Jun 1995	.00+	Feb 1998	74.0	38.2	7.2	2.2	7.56	8.77	10.40	11.70	12.89	14.08	15.33	16.76	18.53	21.19	23.56

+ 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: 1951-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

Climatography of the United States

No. 20 1971-2000

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Asheville, North Carolina 28801
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Station: DEL BONITA, MT

COOP ID: 242301

Climate Division: MT 3

NWS Call Sign:

Elevation: 4,337 Feet

Lat: 49°00N

Lon: 112°47W

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	7.1	5.2	3	2	9.5	1975	18	18.5	1972	18	1991	9	11	1991	4.8	2.5	.9	.2	.0	15.7	5.3	1.9	.1
Feb	4.6	3.9	2	2	6.0	1974	19	9.8	1989	13+	1993	25	7	1975	3.3	1.9	.5	.1	.0	11.6	7.2	2.9	.5
Mar	11.2	11.5	2	1	12.0	1977	28	19.0	1987	14	1972	26	10	1972	4.5	3.1	1.1	.3	.1	9.1	4.9	2.7	.7
Apr	11.0	9.3	1	#	18.0	1974	27	25.5	1975	25	1975	10	8	1975	3.4	2.7	1.3	.7	.1	4.2	2.5	1.6	.7
May	2.1	.8	#	0	12.0	1989	28	12.0	1989	10	1989	28	1	1989	.9	.8	.2	.1	@	.3	.1	.1	@
Jun	#	.0	#	0	#	1979	6	#+	1979	1	1993	12	#+	1994	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	#	0	.0	0	0	.0	0	2	1999	15	#	1999	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.2	.0	0	0	4.0	1992	22	7.0	1992	7	1992	23	1	1992	.1	.1	.1	.0	.0	.1	.1	@	.0
Sep	2.4	.0	#	0	6.0	1985	6	12.5	1985	4	1985	6	#+	2000	1.0	.9	.3	@	.0	.3	.1	.0	.0
Oct	5.0	3.3	#	#	8.0	1975	7	25.0	1994	12	1994	12	2	1994	2.1	1.4	.9	.4	.0	1.7	1.0	.7	.1
Nov	7.6	6.5	2	1	11.0	1995	27	20.9	1995	17	1990	30	5	1996	3.9	2.5	1.1	.4	@	8.6	4.4	2.8	.6
Dec	7.7	5.7	3	2	8.0	1974	22	20.0	1989	23	1996	30	12	1990	4.3	2.5	.8	.2	.0	15.7	9.9	5.5	2.0
Ann	58.9	46.2	N/A	N/A	18.0	Apr 1974	27	25.5	Apr 1975	25	Apr 1975	10	12	Dec 1990	28.3	18.4	7.2	2.4	.2	67.3	35.5	18.2	4.7

+ 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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No. 20 1971-2000

Station: DEL BONITA, MT

COOP ID: 242301

Climate Division: MT 3

NWS Call Sign:

Elevation: 4,337 Feet

Lat: 49°00N

Lon: 112°47W

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	7/19	7/11	7/05	6/30	6/25	6/21	6/16	6/10	6/01
32	6/23	6/16	6/11	6/07	6/03	5/30	5/25	5/21	5/14
28	5/28	5/23	5/19	5/16	5/14	5/11	5/08	5/05	4/30
24	5/14	5/10	5/07	5/04	5/02	4/30	4/27	4/24	4/20
20	5/07	5/01	4/27	4/23	4/20	4/17	4/13	4/09	4/03
16	4/19	4/14	4/11	4/08	4/05	4/02	3/30	3/26	3/22
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	8/17	8/21	8/25	8/28	8/31	9/03	9/06	9/09	9/14
32	8/26	8/31	9/04	9/07	9/10	9/13	9/16	9/20	9/25
28	9/04	9/09	9/14	9/17	9/20	9/24	9/27	10/01	10/07
24	9/15	9/21	9/25	9/28	10/02	10/05	10/09	10/13	10/18
20	9/28	10/03	10/07	10/10	10/12	10/15	10/18	10/22	10/27
16	10/07	10/13	10/18	10/21	10/25	10/28	10/31	11/05	11/11
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	93	83	77	71	66	60	55	48	39
32	122	114	108	103	99	94	89	83	75
28	155	146	140	134	129	124	118	112	103
24	176	168	162	157	152	147	142	136	128
20	197	189	184	179	175	170	166	160	153
16	226	218	212	207	202	197	192	186	178

* 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: DEL BONITA, MT

COOP ID: 242301

Climate Division: MT 3 NWS Call Sign: Elevation: 4,337 Feet Lat: 49°00N Lon: 112°47W

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	1419	1151	1065	736	469	256	154	181	375	670	1090	1351	8917
60	1264	1011	910	586	320	137	71	100	254	516	940	1196	7305
57	1173	929	817	501	237	84	37	63	193	425	850	1103	6412
55	1117	879	755	444	188	56	22	44	157	366	796	1041	5865
50	973	748	605	312	93	14	6	17	83	233	656	901	4641
32	502	340	171	35	0	0	0	0	0	13	245	430	1736

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	106	113	129	289	555	743	922	922	635	365	145	102	5026
55	9	8	0	8	29	109	231	253	101	5	6	0	759
57	3	2	0	5	16	77	183	210	77	2	0	0	575
60	0	0	0	0	7	40	125	154	48	1	0	0	375
65	0	0	0	0	0	9	52	79	19	0	0	0	159
70	0	0	0	0	0	1	16	31	7	0	0	0	55

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	1	8	25	121	320	508	690	686	411	189	25	1	1	9	34	155	475	983	1673	2359	2770	2959	2984	2985
45	0	0	0	56	195	360	535	532	280	102	8	0	0	0	0	56	251	611	1146	1678	1958	2060	2068	2068
50	0	0	0	19	97	225	380	380	166	43	0	0	0	0	0	19	116	341	721	1101	1267	1310	1310	1310
55	0	0	0	3	40	113	237	238	86	15	0	0	0	0	0	3	43	156	393	631	717	732	732	732
60	0	0	0	0	7	42	114	125	32	1	0	0	0	0	0	0	7	49	163	288	320	321	321	321
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	7	21	97	213	312	431	433	275	138	18	0	0	7	28	125	338	650	1081	1514	1789	1927	1945	1945

(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