

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: CONRAD, MT

1971-2000

COOP ID: 241974

Climate Division: MT 3

NWS Call Sign:

Elevation: 3,550 Feet Lat: 48° 11N

Lon: 111° 58W

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	31.7	7.0	19.4	65	1981	22	33.1	1986	-42	1972	27	4.1	1979	1415	0	.0	.0	3.4	12.4	29.5	10.6
Feb	37.2	11.7	24.5	72	1992	27	36.7	1977	-45	1936	15	9.7	1989	1136	0	.0	.0	7.2	8.6	26.9	6.7
Mar	45.6	19.4	32.5	75	1939	23	41.7	1986	-32+	1951	8	23.1	1989	1008	0	.0	.0	13.8	4.2	28.5	2.1
Apr	56.9	28.0	42.5	88	1987	28	49.2	1987	-19	1936	2	31.2	1975	677	0	.0	.0	23.2	.8	21.4	.1
May	66.1	37.5	51.8	93	1936	27	55.3+	1993	9	1954	2	47.4	1996	409	0	.0	.1	29.4	.0	7.8	.0
Jun	73.8	44.8	59.3	101	1936	27	66.1	1988	27	1935	6	55.2	1981	193	21	.0	.9	29.9	.0	.6	.0
Jul	80.2	48.3	64.3	103+	1936	22	68.9	1998	31	1999	16	57.2	1993	100	77	.1	3.9	31.0	.0	@	.0
Aug	80.2	47.4	63.8	105	1961	5	69.1	1971	25	1992	25	58.4	1980	125	88	.1	4.0	30.9	.0	.2	.0
Sep	69.9	38.0	54.0	99	1967	1	61.3	1998	0	1934	25	46.4	1985	346	16	.0	.7	28.2	@	7.1	.0
Oct	58.8	28.9	43.9	91	1992	1	47.9	1974	-16	1991	29	37.6	1984	655	0	.0	@	25.3	.9	19.6	.3
Nov	41.7	17.1	29.4	82	1962	3	38.6	1999	-32	1985	28	10.7	1985	1068	0	.0	.0	9.5	5.8	27.4	3.2
Dec	34.0	9.9	22.0	72	1939	5	34.2	1999	-46	1983	24	1.7	1983	1335	0	.0	.0	4.4	10.8	29.7	7.6
Ann	56.3	28.2	42.3	105	Aug 1961	5	69.1	Aug 1971	-46	Dec 1983	24	1.7	Dec 1983	8467	202	.2	9.6	236.2	43.5	198.7	30.6

+ 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: 1911-2001

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

036-A

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: CONRAD, MT

COOP ID: 241974

Climate Division: MT 3

NWS Call Sign:

Elevation: 3,550 Feet Lat: 48°11N

Lon: 111°58W

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	.44	.29	.61	1975	18	1.34	1972	.00	1995	6.1	1.2	.1	.0	.02	.06	.12	.18	.25	.33	.43	.54	.70	.97	1.23
Feb	.33	.25	.74	1943	21	1.18	1986	.01	1990	4.2	1.2	.0	.0	.03	.05	.10	.14	.19	.25	.31	.40	.51	.70	.89
Mar	.67	.55	1.06	1981	30	2.67	1981	.00	1973	5.7	2.1	.2	@	.03	.08	.18	.27	.38	.50	.65	.83	1.07	1.49	1.90
Apr	1.04	1.03	1.45	1994	25	3.61	1975	.00+	1987	6.4	2.8	.5	.1	.00	.12	.31	.48	.65	.83	1.04	1.29	1.64	2.20	2.74
May	2.17	2.11	2.12	1996	23	3.82	1981	.85	1998	9.6	5.1	1.3	.3	.81	1.01	1.31	1.55	1.78	2.02	2.27	2.57	2.95	3.53	4.06
Jun	2.23	1.95	3.40	1964	8	5.22	1991	.56	1985	9.6	5.3	1.3	.3	.57	.78	1.10	1.39	1.67	1.97	2.30	2.69	3.20	4.02	4.78
Jul	1.22	.79	3.57	1941	11	4.27	1987	.02	1973	6.8	3.6	.6	.1	.09	.17	.33	.49	.68	.90	1.16	1.49	1.94	2.71	3.47
Aug	1.45	1.10	2.51	1954	5	3.69	1989	.10	2000	7.5	3.4	.8	.1	.17	.29	.49	.69	.91	1.15	1.42	1.77	2.24	3.01	3.75
Sep	1.01	.72	1.68	1968	20	5.00	1985	.12	1981	6.0	2.8	.4	.2	.07	.13	.26	.40	.56	.73	.95	1.23	1.61	2.25	2.89
Oct	.58	.41	1.30	1923	8	2.66	1975	.00	1987	4.6	1.8	.2	.0	.02	.05	.13	.22	.31	.42	.55	.71	.94	1.33	1.72
Nov	.47	.45	1.12	1930	12	1.81	1978	.00+	1987	5.0	1.7	@	.0	.00	.06	.15	.22	.30	.38	.48	.59	.74	.99	1.22
Dec	.45	.28	.98	1972	2	1.72	1977	.00+	1997	5.3	1.7	@	.0	.00	.03	.09	.16	.23	.32	.42	.55	.74	1.04	1.35
Ann	12.06	11.68	3.57	Jul 1941	11	5.22	Jun 1991	.00+	Dec 1997	76.8	32.7	5.4	1.1	6.49	7.46	8.76	9.78	10.72	11.65	12.64	13.75	15.13	17.19	19.02

+ 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: 1911-2001

(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

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

Station: CONRAD, MT

COOP ID: 241974

Climate Division: MT 3

NWS Call Sign:

Elevation: 3,550 Feet

Lat: 48° 11N

Lon: 111° 58W

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	7.3	4.7	1	1	6.0	1971	10	23.5	1972	9	1982	23	4+	1997	5.8	2.8	.7	.1	.0	-9.9	-9.9	-9.9	-9.9
Feb	4.8	4.4	1	#	6.0	1986	15	16.5	1986	17	1986	18	7	1982	3.4	1.8	.2	.2	.0	4.2	1.2	.2	.0
Mar	6.3	5.5	1	#	6.0	1977	28	15.0	1977	10	1982	19	3	1996	4.0	2.4	.8	.2	.0	3.2	1.8	.7	.1
Apr	5.3	3.8	#	0	9.0	1975	8	22.5	1975	7	1997	4	2	1997	2.2	1.5	.6	.2	.0	1.4	.9	.5	.0
May	.4	.0	#	0	6.0	1983	9	8.0	1983	3	2000	31	#+	2000	.2	.1	@	@	.0	.1	.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	.4	.0	0	0	6.0	1992	23	9.0	1992	0	0	0	0	0	.1	.1	.1	@	.0	.0	.0	.0	.0
Sep	.6	.0	#	0	4.0	1985	6	5.2	1985	2	1983	30	#+	2000	.3	.2	.1	.0	.0	.2	.0	.0	.0
Oct	2.1	.5	#	0	5.0	1975	23	9.0	1984	5	1985	8	2	1984	1.4	.8	.2	.1	.0	.5	.2	.1	.0
Nov	5.7	5.0	1	#	5.5	1975	24	20.8	1985	15	1985	30	8	1985	3.8	2.1	.3	@	.0	6.0	3.4	1.6	.6
Dec	6.3	5.2	2	1	12.0	1972	2	19.2	1977	19	1985	12	16	1985	4.6	2.7	.5	.2	@	-9.9	-9.9	-9.9	-9.9
Ann	39.2	29.1	N/A	N/A	12.0	Dec 1972	2	23.5	Jan 1972	19	Dec 1985	12	16	Dec 1985	25.8	14.5	3.5	1.0	@	-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

Climatography of the United States

No. 20 1971-2000

Station: CONRAD, MT

COOP ID: 241974

Climate Division: MT 3

NWS Call Sign:

Elevation: 3,550 Feet

Lat: 48° 11N

Lon: 111° 58W

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	7/15	7/08	7/03	6/29	6/25	6/21	6/17	6/12	6/06
32	6/21	6/15	6/10	6/06	6/03	5/30	5/26	5/22	5/16
28	5/26	5/22	5/19	5/16	5/14	5/12	5/09	5/06	5/02
24	5/13	5/09	5/06	5/03	5/01	4/28	4/25	4/22	4/18
20	5/04	4/29	4/25	4/22	4/19	4/16	4/12	4/09	4/03
16	4/25	4/20	4/16	4/13	4/10	4/07	4/04	3/31	3/26
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	8/15	8/20	8/24	8/28	8/31	9/03	9/06	9/10	9/15
32	8/28	9/01	9/04	9/07	9/10	9/12	9/15	9/18	9/22
28	9/08	9/12	9/15	9/17	9/19	9/22	9/24	9/27	10/01
24	9/16	9/21	9/24	9/26	9/29	10/01	10/04	10/07	10/12
20	9/27	10/02	10/05	10/08	10/10	10/13	10/15	10/18	10/23
16	10/10	10/14	10/17	10/20	10/22	10/25	10/27	10/30	11/04
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	84	77	71	66	60	54	48	38
32	120	112	107	102	98	94	89	84	77
28	145	139	135	131	127	124	120	116	110
24	170	163	159	154	151	147	143	138	131
20	196	188	183	178	174	169	165	159	151
16	216	209	203	199	194	190	186	180	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

**Climatography
of the United States
No. 20
1971-2000**

Station: CONRAD, MT

COOP ID: 241974

Climate Division: MT 3

NWS Call Sign:

Elevation: 3,550 Feet Lat: 48° 11N Lon: 111° 58W

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	1415	1136	1008	677	409	193	100	125	346	655	1068	1335	8467
60	1260	996	853	527	262	92	34	55	224	500	918	1180	6901
57	1170	921	760	442	183	50	15	30	163	408	828	1087	6057
55	1113	868	699	386	137	30	8	19	128	348	772	1036	5544
50	970	738	551	257	56	6	0	5	59	210	632	889	4373
32	499	342	137	18	0	0	0	0	0	7	223	428	1654

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	107	131	152	331	614	818	1000	986	660	375	144	116	5434
55	8	13	0	9	38	158	295	292	97	3	3	11	927
57	3	9	0	5	21	118	240	241	73	1	0	0	711
60	0	0	0	1	8	71	166	173	44	0	0	0	463
65	0	0	0	0	0	21	77	88	16	0	0	0	202
70	0	0	0	0	0	4	23	31	4	0	0	0	62

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	6	15	38	157	383	591	767	760	447	203	33	10	6	21	59	216	599	1190	1957	2717	3164	3367	3400	3410
45	0	0	9	77	243	441	612	605	307	107	11	0	0	0	9	86	329	770	1382	1987	2294	2401	2412	2412
50	0	0	0	28	131	293	457	451	188	47	0	0	0	0	0	28	159	452	909	1360	1548	1595	1595	1595
55	0	0	0	7	57	171	306	300	92	12	0	0	0	0	0	7	64	235	541	841	933	945	945	945
60	0	0	0	0	17	71	173	164	34	2	0	0	0	0	0	0	17	88	261	425	459	461	461	461
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	4	23	53	151	270	375	492	484	320	181	36	6	4	27	80	231	501	876	1368	1852	2172	2353	2389	2395

(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