

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: ROCK SPRINGS, MT

1971-2000

COOP ID: 247136

Climate Division: MT 7

NWS Call Sign:

Elevation: 3,024 Feet Lat: 46°49N

Lon: 106°15W

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	27.4	6.2	16.8	68	1992	31	30.7	1992	-40	1954	20	1.1	1979	1495	0	.0	.0	1.1	16.9	30.5	11.3
Feb	34.1	12.7	23.4	72	1995	24	35.2	1991	-35+	1971	7	7.1	1989	1165	0	.0	.0	4.7	10.9	27.0	6.6
Mar	44.8	21.5	33.2	76+	1999	26	42.6	1986	-28	1960	4	21.9	1996	987	0	.0	.0	12.3	5.6	27.5	2.1
Apr	57.1	31.6	44.4	89	1952	28	51.5	1987	-5	1982	5	37.3	1975	620	0	.0	.0	22.1	1.0	17.6	.1
May	67.6	41.9	54.8	100	1988	29	62.1	1988	12	1954	3	49.2	1996	335	17	@	.4	29.2	@	3.7	.0
Jun	77.0	50.7	63.9	107+	1988	26	77.1	1988	30+	1979	8	56.8	1998	134	99	.4	3.3	30.0	.0	.1	.0
Jul	85.0	56.1	70.6	106+	1999	28	74.8	1974	35	1972	4	62.4	1993	41	213	1.4	10.4	31.0	.0	.0	.0
Aug	84.7	55.5	70.1	105+	2001	7	77.3	1971	29	1992	25	63.6	1974	60	218	.6	10.5	31.0	.0	@	.0
Sep	72.4	44.3	58.4	101+	1998	4	66.3	1998	12	1972	26	52.4	1985	246	45	.1	2.2	28.8	.0	3.2	.0
Oct	59.2	33.6	46.4	92	1963	4	49.9	1979	-10	1991	30	42.0	1972	577	0	.0	.1	24.8	.5	15.2	.1
Nov	41.1	20.1	30.6	76	1999	12	40.8	1999	-26	1955	13	13.5	1985	1032	0	.0	.0	8.9	7.7	27.0	2.4
Dec	30.4	9.0	19.7	68	1979	4	32.0	1999	-40	1989	22	.9	1983	1405	0	.0	.0	2.1	14.6	30.1	8.0
Ann	56.7	31.9	44.4	107+	Jun 1988	26	77.3	Aug 1971	-40+	Dec 1989	22	.9	Dec 1983	8097	592	2.5	26.9	226.0	57.2	181.9	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/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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Climate Division: MT 7

NWS Call Sign:

Elevation: 3,024 Feet Lat: 46° 49N

Lon: 106° 15W

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	.29	.21	.58	1954	23	1.30	1971	.00+	1995	5.4	.9	.0	.0	.00	.02	.07	.11	.16	.21	.28	.36	.47	.66	.85
Feb	.18	.16	.84	1952	18	.61	1978	.00+	1992	3.8	.4	.0	.0	.00	.00	.04	.07	.10	.14	.18	.23	.29	.40	.50
Mar	.34	.31	.75	1957	13	.95	1995	.03	1999	4.9	1.1	.0	.0	.07	.11	.16	.20	.25	.30	.35	.42	.50	.64	.77
Apr	1.04	.66	1.49	1973	20	3.89	1973	.06	1983	6.3	2.9	.4	.2	.10	.18	.32	.47	.62	.80	1.01	1.27	1.63	2.23	2.81
May	2.15	1.48	2.40	1975	6	7.16	1987	.61	1988	9.0	5.3	1.2	.3	.39	.58	.89	1.19	1.49	1.81	2.18	2.62	3.21	4.17	5.08
Jun	2.32	2.09	3.70	1964	18	6.79	1991	.66	1985	9.7	5.9	1.3	.4	.75	.97	1.30	1.58	1.84	2.12	2.42	2.77	3.23	3.93	4.58
Jul	1.53	1.23	2.91	1997	1	5.26	1993	.00	1988	5.9	3.6	1.0	.3	.10	.25	.49	.72	.96	1.22	1.52	1.89	2.40	3.22	4.02
Aug	.87	.82	1.23	1999	12	2.44	1999	.10	2000	4.8	2.6	.4	@	.13	.21	.33	.46	.58	.72	.87	1.07	1.32	1.74	2.15
Sep	1.17	.86	1.83	1978	18	4.59	1978	.11	1989	5.0	2.9	.6	.2	.11	.19	.35	.52	.69	.89	1.13	1.42	1.83	2.50	3.16
Oct	.87	.54	1.44	1980	22	2.72	1998	.00	1987	4.6	2.4	.4	.1	.03	.09	.21	.33	.47	.63	.82	1.06	1.39	1.95	2.50
Nov	.36	.26	1.09	1974	1	1.24	1975	.01	1972	4.1	1.1	.1	@	.03	.05	.10	.15	.20	.27	.34	.44	.57	.80	1.02
Dec	.25	.19	1.10	1955	23	.99	1989	.00	1990	4.5	.6	.1	.0	.01	.04	.08	.11	.15	.19	.25	.31	.39	.53	.67
Ann	11.37	11.00	3.70	Jun 1964	18	7.16	May 1987	.00+	Jan 1995	68.0	29.7	5.5	1.5	6.10	7.02	8.25	9.22	10.11	10.99	11.92	12.97	14.28	16.23	17.97

+ 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

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Station: ROCK SPRINGS, MT

COOP ID: 247136

Climate Division: MT 7

NWS Call Sign:

Elevation: 3,024 Feet

Lat: 46° 49N

Lon: 106° 15W

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	1.3	-99.9	2	2	4.0	1991	1	4.0	1991	12	1971	31	5	1990	.7	.6	.2	.0	.0	-9.9	-9.9	-9.9	-9.9
Feb	1.0	.7	1	#	3.0	1989	1	3.0	1974	14	1971	8	9	1971	.9	.4	.1	.0	.0	-9.9	-9.9	-9.9	-9.9
Mar	.5	.0	1	#	2.0	1976	1	2.0	1971	8	1975	28	4	1982	.4	.2	.0	.0	.0	-9.9	-9.9	-9.9	-9.9
Apr	.3	#	1	0	3.0	1994	25	3.0	1994	11	1989	27	11	1989	.2	.1	.1	.0	.0	.0	.0	.0	.0
May	#	.0	#	0	#	1984	25	#	1984	12	1983	12	1	1983	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	#	.0	0	0	#	1979	8	#	1979	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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	#	.0	#	0	#	1985	28	#	1985	3	1983	19	#+	2000	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.7	.0	#	#	4.0	1976	17	4.0	1976	5	1993	8	#+	1997	.2	.2	.1	.0	.0	.1	.1	.0	.0
Nov	1.3	.0	1	#	6.0	1986	30	6.0	1986	7	1977	25	2	1993	.2	.2	.2	.0	.0	-9.9	-9.9	-9.9	-9.9
Dec	2.0	-99.9	2	1	4.0	1982	24	10.1	1982	11	1975	1	7	1975	.4	.3	.2	.0	.0	-9.9	-9.9	-9.9	-9.9
Ann	7.1	-9.9	N/A	N/A	6.0	Nov 1986	30	10.1	Dec 1982	14	Feb 1971	8	11	Apr 1989	3.0	2.0	.9	.0	.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:

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No. 20 1971-2000

Station: ROCK SPRINGS, MT

COOP ID: 247136

Climate Division: MT 7

NWS Call Sign:

Elevation: 3,024 Feet

Lat: 46° 49N

Lon: 106° 15W

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	6/18	6/12	6/08	6/05	6/01	5/29	5/26	5/22	5/16
32	5/28	5/23	5/20	5/17	5/15	5/12	5/09	5/06	5/01
28	5/16	5/13	5/10	5/08	5/06	5/04	5/01	4/29	4/25
24	5/09	5/04	4/30	4/27	4/24	4/20	4/17	4/13	4/08
20	5/02	4/26	4/22	4/18	4/15	4/11	4/08	4/03	3/28
16	4/23	4/18	4/13	4/10	4/06	4/03	3/30	3/26	3/20
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	8/24	8/29	9/02	9/06	9/09	9/12	9/15	9/19	9/25
32	9/05	9/09	9/13	9/16	9/19	9/21	9/24	9/28	10/02
28	9/10	9/16	9/20	9/24	9/27	9/30	10/04	10/08	10/14
24	9/23	9/29	10/03	10/06	10/09	10/12	10/15	10/19	10/25
20	10/01	10/07	10/11	10/14	10/18	10/21	10/24	10/28	11/03
16	10/08	10/14	10/18	10/22	10/26	10/29	11/02	11/06	11/12
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	121	113	108	103	99	94	90	84	76
32	146	139	134	130	126	122	118	113	106
28	166	159	153	148	144	139	134	129	121
24	191	183	177	172	168	163	158	153	145
20	209	200	195	190	185	180	176	170	162
16	227	218	212	206	201	196	191	185	176

* 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

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COOP ID: 247136

Climate Division: MT 7

NWS Call Sign:

Elevation: 3,024 Feet Lat: 46° 49N Lon: 106° 15W

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	1495	1165	987	620	335	134	41	60	246	577	1032	1405	8097
60	1340	1034	832	474	212	66	13	24	145	422	882	1250	6694
57	1250	956	741	390	152	38	5	13	98	331	792	1157	5923
55	1190	903	681	336	117	25	2	7	72	273	740	1095	5441
50	1047	774	538	217	53	8	0	1	26	147	599	954	4364
32	562	383	151	12	0	0	0	0	0	3	206	474	1791

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	90	141	187	381	705	955	1195	1181	790	450	164	92	6331
55	5	18	5	16	110	290	484	476	171	6	7	1	1589
57	2	14	2	9	82	243	425	419	137	3	0	0	1336
60	0	8	0	4	49	181	340	337	95	1	0	0	1015
65	0	0	0	0	17	99	213	218	45	0	0	0	592
70	0	0	0	0	4	43	119	128	18	0	0	0	312

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	10	50	190	454	709	938	919	540	235	39	3	0	10	60	250	704	1413	2351	3270	3810	4045	4084	4087
45	0	2	16	103	312	559	783	764	397	132	12	0	0	2	18	121	433	992	1775	2539	2936	3068	3080	3080
50	0	0	1	48	185	410	628	609	266	57	0	0	0	0	1	49	234	644	1272	1881	2147	2204	2204	2204
55	0	0	0	17	96	273	473	454	154	19	0	0	0	0	0	17	113	386	859	1313	1467	1486	1486	1486
60	0	0	0	3	39	152	322	309	78	3	0	0	0	0	0	3	42	194	516	825	903	906	906	906
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	12	53	146	287	438	594	579	350	178	35	3	0	12	65	211	498	936	1530	2109	2459	2637	2672	2675

(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

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