U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: GREEN MT DAM, CO **COOP ID: 053592**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 7,740 Feet** **Lat: 39˚53N** **Lon: 106˚20W**

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	26.7	2.5	14.6	60	1956	8	22.4	1971	-41+	1963	13	2.2	1984	1563	0	.0	.0	.2	19.3	30.8	12.6
Feb	32.0	4.6	18.3	58+	1979	13	25.2	1995	-46	1989	7	8.7	1984	1307	0	.0	.0	.9	11.0	28.2	9.7
Mar	40.6	14.9	27.8	66+	1953	29	34.5	1972	-26	1980	18	19.7	1988	1156	0	.0	.0	7.1	3.7	30.7	2.9
Apr	49.4	24.0	36.7	74+	1964	24	45.6	1992	-8+	1980	1	29.7	1984	848	0	.0	.0	17.8	.9	26.6	.3
May	60.8	32.7	46.8	86+	1964	20	53.4	2000	12+	1999	6	41.9	1995	565	0	.0	.0	27.7	.0	14.6	.0
Jun	71.8	39.2	55.5	95	1954	24	60.0	1977	23	1980	28	51.8	1993	289	5	.0	.0	29.8	.0	3.2	.0
Jul	76.9	44.5	60.7	97	1954	13	63.5	1998	24	1980	5	56.5	1990	146	12	.0	@	31.0	.0	2.0	.0
Aug	75.3	43.1	59.2	98	1964	11	62.5	1994	24+	1980	16	54.2	1993	191	11	.0	.1	31.0	.0	1.7	.0
Sep	67.0	35.6	51.3	95	1952	6	55.6	1998	14	1999	29	46.4	1993	411	0	.0	.0	29.2	.0	8.4	.0
Oct	55.3	26.3	40.8	84	1952	8	46.2	1992	1+	1993	30	33.3	1984	751	0	.0	.0	24.1	.6	25.2	.0
Nov	38.6	15.4	27.0	67	1980	10	35.0	1995	-17	1976	28	19.1	2000	1140	0	.0	.0	6.6	6.9	29.0	1.8
Dec	28.4	6.1	17.3	59	1966	1	27.7	1980	-26	1952	25	10.0	1988	1480	0	.0	.0	.7	18.3	30.9	9.2
Ann	51.9	24.1	38.0	98	Aug 1964	11	63.5	Jul 1998	-46	Feb 1989	7	2.2	Jan 1984	9847	28	.0	.1	206.1	60.7	231.3	36.5

\+ 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

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

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

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Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	.92	.80	1.11	1951	29	2.84	1980	.00	1990
Feb	.96	.86	1.29	1996	21	2.69	1996	.07	1991
Mar	1.35	1.26	.80	1978	3	3.00	1995	.50	1986
Apr	1.39	1.30	1.60	2000	23	2.92	1997	.62	1987
May	1.67	1.51	1.31	1960	5	3.82	1995	.09	1998
Jun	1.13	.94	1.40	1963	16	2.84	1983	.01	1980
Jul	1.60	1.32	1.52	1995	3	3.98	1984	.40	2000
Aug	1.41	1.16	2.50	2000	29	3.96	2000	.06	1996
Sep	1.31	1.16	1.50	1959	27	2.68	1996	.07	1979
Oct	1.10	1.07	1.50	1970	7	2.60	1984	.27	1992
Nov	1.11	.92	1.55	1985	8	2.77	1983	.38+	1991
Dec	.98	.80	1.20	1966	6	2.57	1983	.12	1976
Ann	14.93	14.33	2.50	Aug 2000	29	3.98	Jul 1984	.00	Jan 1990

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.8	3.6	.2	.0
Feb	7.5	3.5	.2	.1
Mar	9.1	4.6	.3	.0
Apr	8.6	4.5	.5	.1
May	8.7	5.2	1.0	.0
Jun	6.7	3.6	.5	.1
Jul	9.8	5.1	.8	.1
Aug	8.9	4.6	.5	@
Sep	7.6	3.6	.5	.1
Oct	5.8	3.4	.4	.1
Nov	7.2	3.6	.2	@
Dec	7.3	3.3	.3	@
Ann	95.0	48.6	5.4	.6

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.11	.22	.38	.51	.64	.78	.94	1.14	1.39	1.80	2.19
Feb	.18	.26	.40	.53	.66	.81	.97	1.16	1.42	1.84	2.24
Mar	.52	.65	.83	.98	1.12	1.26	1.42	1.60	1.83	2.18	2.50
Apr	.66	.78	.95	1.08	1.20	1.33	1.46	1.60	1.79	2.07	2.33
May	.36	.51	.75	.98	1.20	1.44	1.70	2.02	2.45	3.12	3.76
Jun	.18	.27	.44	.59	.75	.93	1.13	1.38	1.71	2.24	2.76
Jul	.39	.54	.78	.98	1.19	1.40	1.64	1.93	2.30	2.90	3.45
Aug	.26	.38	.59	.78	.98	1.19	1.43	1.72	2.11	2.74	3.33
Sep	.30	.42	.62	.79	.96	1.14	1.34	1.59	1.90	2.41	2.89
Oct	.33	.44	.60	.73	.86	1.00	1.15	1.32	1.55	1.91	2.24
Nov	.30	.40	.56	.70	.84	.99	1.15	1.34	1.58	1.97	2.33
Dec	.20	.29	.43	.56	.69	.84	1.00	1.19	1.45	1.86	2.25
Ann	10.38	11.25	12.37	13.22	13.98	14.72	15.48	16.33	17.35	18.85	20.14

\+ 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: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	12.6	10.5	8	8	22.0	1980	28	57.5	1980	30	1980	28	17	1993	6.6	5.0	1.4	.4	.1	28.1	26.8	21.7	8.7
Feb	12.1	8.7	10	10	17.0	1989	3	45.0	1989	32	1993	28	23	1993	6.0	4.3	1.3	.5	.1	24.3	20.8	18.7	13.0
Mar	14.7	14.5	7	7	12.0	1978	3	31.0	1974	30	1993	6	20	1993	6.7	5.1	1.7	.5	.1	18.9	16.5	14.4	8.4
Apr	7.3	6.5	1	#	8.0	1979	11	18.8	1975	23	1984	10	10	1984	3.7	2.9	.9	.2	.0	6.1	3.7	2.5	1.1
May	2.7	.0	#	#	11.0	1979	7	22.0	1979	10	1979	8	1	1983	1.1	.9	.3	.2	@	1.0	.4	.2	.1
Jun	.3	.0	#	0	4.0	1979	9	4.0	1979	1	1979	9	#+	1984	.1	.1	.1	.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	.3	.0	#	0	2.0	1978	20	2.0+	1986	7	1971	17	#+	1996	.3	.2	.0	.0	.0	.2	.0	.0	.0
Oct	3.5	2.0	#	#	14.0	1975	23	19.0	1984	14	1975	23	3	1984	1.5	1.1	.3	.2	@	1.8	.9	.6	.1
Nov	11.8	9.0	2	1	24.0	1985	8	40.0	1985	24	1985	8	9	1985	4.5	3.5	1.2	.4	.1	9.8	5.4	2.7	.9
Dec	13.3	9.5	5	4	11.0	1978	2	36.5	1978	30	1974	22	11	1971	5.7	3.9	1.3	.6	.2	24.1	20.9	13.1	4.8
Ann	78.6	60.7	N/A	N/A	24.0	Nov 1985	8	57.5	Jan 1980	32	Feb 1993	28	23	Feb 1993	36.2	27.0	8.5	3.0	.6	114.3	95.4	73.9	37.1

+ 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

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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	7/28	7/20	7/14	7/09	7/04	6/30	6/25	6/19	6/11
32	7/13	7/04	6/27	6/22	6/16	6/11	6/06	5/30	5/21
28	6/30	6/18	6/09	6/02	5/26	5/19	5/12	5/03	4/21
24	6/09	5/30	5/23	5/16	5/11	5/05	4/29	4/22	4/12
20	5/09	5/04	4/30	4/26	4/23	4/20	4/16	4/12	4/06
16	5/02	4/26	4/23	4/19	4/16	4/13	4/10	4/07	4/01

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	8/01	8/08	8/13	8/17	8/21	8/24	8/29	9/02	9/09
32	8/14	8/22	8/27	9/01	9/05	9/10	9/15	9/20	9/28
28	8/22	8/30	9/04	9/09	9/13	9/17	9/22	9/27	10/05
24	9/08	9/14	9/19	9/23	9/27	10/01	10/05	10/10	10/17
20	9/22	9/29	10/03	10/07	10/11	10/14	10/18	10/23	10/29
16	10/06	10/12	10/16	10/20	10/23	10/27	10/31	11/04	11/10

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	85	72	62	54	47	39	31	22	8
32	124	109	98	89	80	72	62	52	36
28	162	144	131	120	110	99	88	75	57
24	179	165	155	147	139	131	122	112	98
20	195	187	180	175	170	165	160	154	145
16	210	203	198	193	189	185	181	176	169

***** 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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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	1563	1307	1156	848	565	289	146	191	411	751	1140	1480	9847
60	1408	1167	1001	698	411	161	49	82	267	596	990	1325	8155
57	1315	1083	908	608	322	102	17	40	190	503	900	1232	7220
55	1253	1027	846	549	267	71	7	22	145	443	840	1170	6640
50	1098	887	691	407	147	21	0	3	61	300	690	1015	5320
32	554	399	197	59	2	0	0	0	0	21	216	467	1915

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	14	16	64	200	460	706	889	843	580	294	66	10	4142
55	0	0	0	1	12	86	183	152	35	2	0	0	471
57	0	0	0	0	5	58	131	108	20	0	0	0	322
60	0	0	0	0	1	27	70	57	7	0	0	0	162
65	0	0	0	0	0	5	12	11	0	0	0	0	28
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	0	6	72	264	495	647	616	385	134	9	0	0	0	6	78	342	837	1484	2100	2485	2619	2628	2628
45	0	0	0	20	136	348	493	461	245	48	0	0	0	0	0	20	156	504	997	1458	1703	1751	1751	1751
50	0	0	0	2	45	209	339	307	122	7	0	0	0	0	0	2	47	256	595	902	1024	1031	1031	1031
55	0	0	0	0	7	95	191	158	38	0	0	0	0	0	0	0	7	102	293	451	489	489	489	489
60	0	0	0	0	0	24	65	48	8	0	0	0	0	0	0	0	0	24	89	137	145	145	145	145
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	16	86	207	357	442	421	292	144	19	0	0	0	16	102	309	666	1108	1529	1821	1965	1984	1984

(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

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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.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/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 are 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.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

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