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: COCHETOPA CREEK, CO **COOP ID: 051713**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 8,000 Feet** **Lat: 38˚27N** **Lon: 106˚46W**

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	29.6	-3.1	13.3	52	1969	8	22.0	1981	-40	1971	6	-3.1	1984	1605	0	.0	.0	@	18.7	31.0	20.5
Feb	35.3	1.9	18.6	58	1981	20	28.2	1995	-37	1951	1	2.5	1974	1300	0	.0	.0	1.1	11.2	28.3	13.8
Mar	45.4	14.3	29.9	67	1986	31	36.8	1972	-25	1966	5	21.4	1984	1089	0	.0	.0	9.0	2.8	30.9	3.6
Apr	55.0	22.3	38.7	78	1992	30	43.9	1992	-10	1973	8	31.4	1984	791	0	.0	.0	20.7	.3	28.5	.1
May	65.5	29.3	47.4	86+	2000	31	51.6	1992	8	1970	2	43.9	1971	546	0	.0	.0	29.1	.0	22.8	.0
Jun	76.0	36.0	56.0	93	1981	26	59.6	1988	18+	1990	2	52.1	1975	272	3	.0	.2	30.0	.0	8.5	.0
Jul	80.9	42.4	61.7	93	1989	9	65.0	1998	30+	1993	6	58.4	1995	119	14	.0	.7	31.0	.0	.6	.0
Aug	79.3	41.7	60.5	92+	1996	14	63.4	2000	22+	1964	28	56.5	1974	154	13	.0	.3	31.0	.0	1.5	.0
Sep	72.6	33.2	52.9	90	1995	5	57.6	1998	9	1978	21	49.1	1971	365	1	.0	@	29.8	.0	14.2	.0
Oct	61.3	22.1	41.7	80	1980	1	45.6	1992	-7	1975	25	37.7	1984	722	0	.0	.0	26.9	.1	28.4	.1
Nov	44.9	12.4	28.7	66+	1999	15	32.8	1973	-27	1952	27	21.6	1993	1091	0	.0	.0	10.4	4.3	29.7	3.8
Dec	32.7	.3	16.5	55+	1999	2	27.3	1980	-36	1996	18	7.0	1978	1503	0	.0	.0	.8	15.6	31.0	17.5
Ann	56.5	21.1	38.8	93+	Jul 1989	9	65.0	Jul 1998	-40	Jan 1971	6	-3.1	Jan 1984	9557	31	.0	1.2	219.8	53.0	255.4	59.4

+ 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	.74	.62	.85	1969	26	2.43	1979	.08	1983
Feb	.67	.58	.62	1962	9	2.12	1986	.00	1972
Mar	.82	.77	.75	1955	11	1.72	1991	.09	1977
Apr	.91	.80	.73	1999	30	2.59	1990	.00	1979
May	1.01	.98	1.00	1957	16	3.16	1995	.00	1974
Jun	.71	.62	1.05	1997	9	2.14	1997	.00+	1980
Jul	1.52	1.47	1.44	1968	28	3.66	1981	.26	1994
Aug	1.81	1.77	1.70+	1971	25	4.08	1971	.38+	1996
Sep	1.14	1.06	.90	1982	12	3.59	1990	.05+	1987
Oct	.82	.80	1.19	1969	4	2.30	1998	.08	1976
Nov	.73	.71	.71	1990	6	1.81	1983	.10+	1989
Dec	.79	.57	.85	1983	25	3.58	1983	.05+	1982
Ann	11.67+	11.15+	1.70+	Aug 1971	25	4.08	Aug 1971	.00+	Jun 1980

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.2	2.6	.1	.0
Feb	6.2	2.6	.1	.0
Mar	7.5	3.6	.0	.0
Apr	6.9	3.5	.2	.0
May	7.2	3.8	.2	.0
Jun	5.3	2.3	.3	@
Jul	8.5	4.8	.7	.0
Aug	10.0	5.5	.7	.1
Sep	6.5	3.7	.5	.0
Oct	5.3	3.0	.2	.0
Nov	6.4	3.0	.1	.0
Dec	6.1	3.0	.1	.0
Ann	82.1	41.4	3.2	.1

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	.10	.16	.27	.37	.48	.60	.74	.91	1.14	1.51	1.87
Feb	.06	.14	.25	.35	.45	.56	.68	.83	1.03	1.36	1.67
Mar	.22	.30	.42	.52	.63	.73	.85	.99	1.18	1.47	1.73
Apr	.21	.34	.49	.61	.72	.83	.96	1.11	1.29	1.59	1.85
May	.13	.26	.43	.57	.72	.87	1.04	1.24	1.51	1.94	2.35
Jun	.00	.13	.27	.39	.49	.61	.74	.89	1.09	1.41	1.71
Jul	.37	.52	.74	.93	1.13	1.33	1.56	1.84	2.19	2.76	3.29
Aug	.55	.72	.98	1.20	1.41	1.64	1.88	2.17	2.54	3.12	3.66
Sep	.12	.20	.36	.52	.69	.88	1.11	1.39	1.78	2.41	3.04
Oct	.14	.21	.33	.44	.56	.69	.83	1.00	1.23	1.61	1.97
Nov	.13	.19	.30	.40	.50	.61	.74	.90	1.10	1.44	1.76
Dec	.05	.10	.20	.31	.43	.57	.74	.96	1.26	1.77	2.28
Ann	8.41	9.04	9.86	10.47	11.02	11.55	12.09	12.70	13.42	14.48	15.39

\+ 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	10.9	10.0	9	8	8.0	1975	7	33.5	1979	34	1979	31	25	1979	5.7	5.4	1.1	.5	.0	-9.9	-9.9	-9.9	-9.9
Feb	8.8	9.0	11	11	7.0	1989	4	26.0	1993	36	1979	3	30	1979	5.1	4.8	.8	.1	.0	-9.9	-9.9	-9.9	-9.9
Mar	7.4	7.5	6	4	6.0	1972	28	16.5	1991	28	1984	3	24	1984	4.7	4.6	.6	.1	.0	-9.9	-9.9	-9.9	-9.9
Apr	4.4	3.3	1	#	6.0	1990	30	14.0	1995	21	1984	12	17	1984	2.4	2.4	.6	@	.0	2.4	.6	.2	.0
May	.7	.0	#	#	3.0	1982	13	5.0	1983	3	1982	13	#+	2000	.6	.6	@	.0	.0	.5	@	.0	.0
Jun	#	.0	#	0	#	1999	6	#+	1999	#+	1999	6	#+	1999	.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	#	0	.5	1996	27	.5	1996	1	1996	27	#+	2000	@	.0	.0	.0	.0	@	.0	.0	.0
Oct	1.8	.8	#	#	5.0	1998	17	8.0	1990	6	1997	25	2	1998	1.1	.9	.1	@	.0	1.2	.4	.1	.0
Nov	7.3	6.0	1	1	7.0	1975	27	20.0	1975	12	1975	30	4	1983	4.2	3.7	.8	.1	.0	5.5	2.1	.3	.1
Dec	10.8	7.8	4	3	9.0	1983	25	50.0	1983	25	1983	26	17	1983	5.0	4.7	1.4	.3	.0	6.6	1.9	.7	.5
Ann	52.1	44.4	N/A	N/A	9.0	Dec 1983	25	50.0	Dec 1983	36	Feb 1979	3	30	Feb 1979	28.8	27.1	5.4	1.1	.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

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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	8/02	7/27	7/22	7/18	7/15	7/11	7/07	7/03	6/26
32	7/14	7/09	7/05	7/02	6/29	6/26	6/22	6/19	6/13
28	6/24	6/19	6/16	6/14	6/11	6/08	6/06	6/03	5/29
24	6/19	6/13	6/08	6/04	5/31	5/28	5/24	5/19	5/12
20	6/04	5/28	5/24	5/20	5/17	5/13	5/09	5/05	4/29
16	5/18	5/10	5/05	4/30	4/26	4/22	4/17	4/12	4/05

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	7/30	8/03	8/07	8/10	8/13	8/16	8/20	8/23	8/29
32	8/13	8/19	8/24	8/27	8/31	9/03	9/07	9/11	9/17
28	8/26	9/01	9/05	9/08	9/11	9/15	9/18	9/22	9/28
24	9/07	9/11	9/15	9/18	9/20	9/23	9/26	9/29	10/04
20	9/18	9/21	9/24	9/26	9/29	10/01	10/03	10/06	10/09
16	9/22	9/28	10/02	10/05	10/08	10/11	10/15	10/19	10/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	56	47	40	34	29	23	18	11	1
32	87	79	73	67	62	57	52	46	37
28	115	107	101	96	92	87	82	76	68
24	139	130	123	117	111	106	100	93	84
20	156	149	143	139	134	130	125	120	112
16	194	184	176	170	164	159	152	145	135

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1605	1300	1089	791	546	272	119	154	365	722	1091	1503	9557
60	1450	1160	934	641	391	142	31	55	223	567	941	1348	7883
57	1357	1076	841	551	300	84	8	22	149	474	851	1255	6968
55	1295	1020	779	491	242	54	2	10	108	413	791	1193	6398
50	1140	880	624	348	120	12	0	1	36	264	641	1038	5104
32	605	417	163	29	0	0	0	0	0	6	161	494	1875

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	23	41	97	228	477	721	918	883	626	307	59	14	4394
55	0	0	0	0	6	85	208	180	44	1	0	0	524
57	0	0	0	0	2	54	152	129	26	0	0	0	363
60	0	0	0	0	0	23	81	70	9	0	0	0	183
65	0	0	0	0	0	3	14	13	1	0	0	0	31
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	4	71	247	483	680	637	391	114	4	0	0	0	4	75	322	805	1485	2122	2513	2627	2631	2631
45	0	0	0	19	124	335	525	482	252	36	0	0	0	0	0	19	143	478	1003	1485	1737	1773	1773	1773
50	0	0	0	0	45	203	370	328	125	5	0	0	0	0	0	0	45	248	618	946	1071	1076	1076	1076
55	0	0	0	0	4	89	216	182	44	0	0	0	0	0	0	0	4	93	309	491	535	535	535	535
60	0	0	0	0	0	16	79	62	8	0	0	0	0	0	0	0	0	16	95	157	165	165	165	165
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	25	109	250	394	483	458	342	192	30	0	0	1	26	135	385	779	1262	1720	2062	2254	2284	2284

(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