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: WOLF CREEK PASS 1 E, CO **COOP ID: 059181**

Climate Division: CO 5 **NWS Call Sign:** **Elevation: 10,640 Feet** **Lat: 37˚28N** **Lon: 106˚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	31.1	3.6	17.4	57	1984	5	24.5	1986	-30	1963	12	10.2	1979	1477	0	.0	.0	.9	16.3	31.0	10.8
Feb	31.8	5.6	18.7	63	1958	20	24.2	1995	-40	1982	5	12.9	1994	1296	0	.0	.0	.5	14.1	28.3	7.9
Mar	34.9	10.5	22.7	61	1987	6	32.4	1972	-20	1977	6	16.0	1977	1296	0	.0	.0	2.0	10.6	31.0	3.6
Apr	40.9	17.0	29.0	69	1992	29	35.3	1972	-12	1983	5	22.7	1983	1082	0	.0	.0	7.6	5.5	29.2	.9
May	49.9	27.1	38.5	73	1958	28	44.3	1996	-1	1967	1	32.6	1995	822	0	.0	.0	19.4	.5	23.5	.0
Jun	60.9	34.8	47.9	80	1990	28	51.8	1990	9	1969	26	43.6	1995	515	0	.0	.1	28.5	.0	10.0	.0
Jul	65.8	40.2	53.0	80	1989	6	55.7	1980	18	1981	27	49.8	1976	372	0	.0	.0	30.9	.0	.8	.0
Aug	64.1	39.0	51.6	78	1980	4	53.8+	1995	15	1981	30	46.8	1976	417	0	.0	.0	30.7	.0	1.5	.0
Sep	57.3	33.2	45.3	81	1990	14	49.1	1998	13+	1996	19	41.1	1986	593	0	.0	.0	25.8	@	12.0	.0
Oct	47.4	23.7	35.6	68+	1979	1	40.7	1977	-10+	1975	26	29.0	1976	912	0	.0	.0	15.3	2.1	28.7	.2
Nov	36.8	11.6	24.2	65	1973	12	33.1	1999	-28	1976	28	16.9+	2000	1224	0	.0	.0	4.7	9.4	30.0	3.5
Dec	31.2	5.2	18.2	56	1975	11	27.5	1980	-27	1990	23	10.7	1978	1450	0	.0	.0	1.8	14.9	31.0	8.7
Ann	46.0	21.0	33.5	81	Sep 1990	14	55.7	Jul 1980	-40	Feb 1982	5	10.2	Jan 1979	11456	0	.0	.1	168.1	73.4	257.0	35.6

\+ 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

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1957-2001

(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	3.92	2.97	2.71	1965	6	15.66	1980	.19	1986
Feb	4.25	3.28	3.14	1993	20	19.08	1980	.36	1981
Mar	5.29	4.56	3.05	1995	6	14.38	1979	.67	1997
Apr	3.31	2.97	2.55	2001	6	8.35	1999	.70	1981
May	2.47	2.14	2.72	1979	8	7.21	1979	.00	1974
Jun	1.71	1.76	2.02	1981	29	6.25	1984	.00	1982
Jul	3.70	3.90	3.10	1979	29	7.84	1999	.43	1982
Aug	4.71	4.40	2.00+	1992	25	10.89	1993	.21	1978
Sep	4.31	3.74	3.89	1970	6	9.85	1985	1.30	1987
Oct	4.96	4.66	4.00	1986	12	14.45	1972	.05	1995
Nov	4.30	4.29	3.10	1966	8	11.00	1978	.60	1989
Dec	3.54	2.81	4.10	1978	20	14.82	1978	.18	1976
Ann	46.47	46.75	4.10	Dec 1978	20	19.08	Feb 1980	.00+	Jun 1982

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.9	7.0	2.7	1.1
Feb	9.8	7.9	2.8	1.2
Mar	11.8	9.4	3.9	1.5
Apr	8.9	6.8	2.2	.4
May	8.9	5.7	1.2	.3
Jun	6.9	4.5	.8	.2
Jul	13.6	8.9	2.0	.5
Aug	16.0	10.9	2.4	.5
Sep	10.5	7.5	2.4	1.2
Oct	8.3	7.0	3.4	1.7
Nov	9.5	7.2	3.0	1.2
Dec	9.7	6.2	2.1	.8
Ann	123.8	89.0	28.9	10.6

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	.50	.81	1.37	1.91	2.49	3.13	3.87	4.79	6.03	8.06	10.03
Feb	.46	.78	1.37	1.97	2.60	3.32	4.15	5.19	6.61	8.95	11.24
Mar	.99	1.47	2.24	2.96	3.69	4.48	5.37	6.45	7.88	10.19	12.38
Apr	.92	1.23	1.71	2.12	2.53	2.96	3.43	3.98	4.71	5.84	6.90
May	.36	.68	1.10	1.44	1.79	2.15	2.55	3.04	3.67	4.67	5.61
Jun	.13	.30	.58	.83	1.09	1.38	1.71	2.11	2.66	3.54	4.40
Jul	.97	1.32	1.86	2.33	2.79	3.28	3.83	4.47	5.31	6.63	7.87
Aug	1.18	1.62	2.31	2.91	3.51	4.15	4.85	5.69	6.79	8.52	10.15
Sep	1.33	1.73	2.34	2.87	3.37	3.90	4.48	5.16	6.04	7.41	8.67
Oct	.47	.83	1.50	2.19	2.94	3.79	4.79	6.05	7.77	10.63	13.44
Nov	.89	1.28	1.91	2.49	3.07	3.69	4.39	5.23	6.35	8.13	9.82
Dec	.37	.63	1.12	1.62	2.15	2.75	3.45	4.32	5.52	7.50	9.44
Ann	31.21	34.10	37.84	40.70	43.25	45.74	48.32	51.18	54.68	59.77	64.21

\+ 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: 1957-2001
(3) Derived from 1971-2000 serially complete daily data

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Climate Division: CO 5 **NWS Call Sign:** **Elevation: 10,640 Feet** **Lat: 37°28N** **Lon: 106°47W**

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	66.5	49.3	50	45	55.0	1997	14	171.0	1997	196	1979	29	145	1979	9.7	8.8	6.3	5.0	2.7	-9.9	-9.9	-9.9	-9.9
Feb	66.7	57.6	49	50	36.5	1997	28	209.0	1980	196	1979	2	169	1979	10.1	9.6	7.3	5.3	2.6	-9.9	-9.9	-9.9	-9.9
Mar	74.4	58.0	63	51	34.0	1979	20	155.0	1979	251	1979	31	196	1979	11.4	10.6	7.7	5.2	2.5	-9.9	-9.9	-9.9	-9.9
Apr	46.8	48.0	45	42	35.0	1999	2	86.0	1984	163	1979	13	146	1979	7.9	7.3	5.0	3.1	1.1	-9.9	-9.9	-9.9	-9.9
May	14.7	10.0	16	4	26.0	1979	8	40.0	1979	84	1985	12	68	1985	3.6	3.0	1.9	1.0	.2	-9.9	-9.9	-9.9	-9.9
Jun	1.0	.0	#	0	8.0	1979	9	15.0	1979	5+	1997	16	#+	1999	.4	.4	.2	.1	.0	.5	.2	.1	.0
Jul	.0	.0	#	0	.0	0	0	.0	0	#	1992	24	#	1992	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	#	.0	#	0	#	1979	12	#	1979	#+	1996	16	#+	1996	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	3.1	.0	#	0	14.0	1982	14	34.0	1982	12	1986	26	2	1986	.8	.6	.3	.1	.1	.4	.1	.0	.0
Oct	24.8	17.6	3	2	24.0	1991	30	69.1	1998	47	1991	31	13	1998	5.5	4.9	3.4	1.9	.9	7.3	5.3	4.4	2.7
Nov	57.7	58.6	18	18	33.0	1975	29	117.0	1978	68	1982	20	38+	1998	9.7	8.8	6.6	4.3	2.0	-9.9	-9.9	-9.9	-9.9
Dec	72.2	49.8	33	32	40.0	1978	20	192.9	1978	116	1978	31	100	1978	9.9	8.7	5.9	4.3	2.2	-9.9	-9.9	-9.9	-9.9
Ann	427.9	348.9	N/A	N/A	55.0	Jan 1997	14	209.0	Feb 1980	251	Mar 1979	31	196	Mar 1979	69.0	62.7	44.6	30.3	14.3	-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	7/31	7/25	7/22	7/18	7/15	7/12	7/08	7/05	6/29
32	7/11	7/05	7/01	6/27	6/24	6/20	6/17	6/13	6/07
28	7/08	7/01	6/26	6/22	6/18	6/14	6/10	6/05	5/29
24	6/27	6/19	6/13	6/08	6/03	5/30	5/25	5/19	5/11
20	6/11	6/03	5/28	5/23	5/18	5/13	5/08	5/02	4/24
16	6/02	5/25	5/19	5/14	5/09	5/04	4/29	4/23	4/15

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	7/29	8/04	8/08	8/12	8/16	8/20	8/24	8/28	9/03
32	8/13	8/19	8/24	8/27	8/31	9/04	9/08	9/12	9/18
28	9/01	9/06	9/10	9/13	9/16	9/19	9/23	9/26	10/01
24	9/07	9/14	9/19	9/23	9/27	10/01	10/05	10/10	10/17
20	9/15	9/22	9/27	10/01	10/06	10/10	10/14	10/19	10/26
16	9/22	9/29	10/04	10/09	10/13	10/17	10/21	10/27	11/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	60	50	43	37	31	25	19	12	2
32	98	88	80	74	68	61	55	47	37
28	120	110	102	96	90	84	77	70	60
24	151	139	130	122	115	108	100	91	79
20	176	163	154	147	140	132	125	116	104
16	188	177	169	163	156	150	143	135	124

***** 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	1477	1296	1296	1082	822	515	372	417	593	912	1224	1450	11456
60	1322	1156	1156	932	667	365	217	262	443	757	1074	1295	9646
57	1229	1072	1063	842	574	278	131	175	353	664	984	1202	8567
55	1167	1016	1001	782	512	223	82	122	294	602	924	1140	7865
50	1012	876	846	632	360	109	13	35	162	449	774	985	6253
32	454	373	310	163	25	0	0	0	1	59	267	433	2085

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	0	1	22	71	227	476	651	606	398	170	33	7	2662
55	0	0	0	0	0	9	19	15	2	0	0	0	45
57	0	0	0	0	0	3	6	6	0	0	0	0	15
60	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	15	88	269	435	385	201	46	0	0	0	0	0	15	103	372	807	1192	1393	1439	1439	1439
45	0	0	0	1	26	141	281	233	93	7	0	0	0	0	0	1	27	168	449	682	775	782	782	782
50	0	0	0	0	0	50	131	103	25	0	0	0	0	0	0	0	0	50	181	284	309	309	309	309
55	0	0	0	0	0	6	32	25	1	0	0	0	0	0	0	0	0	6	38	63	64	64	64	64
60	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	0	26	76	201	278	242	144	55	14	0	0	0	0	26	102	303	581	823	967	1022	1036	1036

(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:
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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