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: COLORADO NATL MONUMENT, CO **COOP ID: 051772**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 5,780 Feet** **Lat: 39˚06N** **Lon: 108˚44W**

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	37.1	17.1	27.1	55+	2000	20	36.8	1981	-18	1963	13	17.9	1973	1175	0	.0	.0	2.1	8.2	30.0	.6
Feb	44.5	22.8	33.7	66	1986	26	42.5	1995	-12	1989	6	25.1	1974	877	0	.0	.0	7.5	2.1	25.3	.3
Mar	53.7	29.8	41.8	76	1972	11	49.1	1972	3	1955	21	35.4	1977	722	0	.0	.0	20.9	.2	19.8	.0
Apr	62.4	36.4	49.4	87	1992	30	56.1	1989	11	1997	11	43.4	1983	471	3	.0	.0	27.6	.0	8.4	.0
May	73.4	46.1	59.8	97	2000	30	65.9	1974	21	1965	11	53.1	1995	208	45	.0	.3	30.7	.0	1.5	.0
Jun	86.0	55.9	71.0	104	1994	26	77.3	1994	31	1990	2	66.0	1983	37	215	.5	10.9	30.0	.0	.3	.0
Jul	92.0	62.0	77.0	105	1989	7	80.8	2000	41	1957	23	72.4+	1992	1	373	1.7	21.2	31.0	.0	.0	.0
Aug	89.3	59.8	74.6	102+	2000	3	78.0	1995	40+	1992	27	70.0	1997	4	299	.3	15.7	31.0	.0	.0	.0
Sep	80.0	51.3	65.7	100	1960	12	70.9	1979	27	1996	27	60.4	1986	81	100	.0	3.1	30.0	.0	.4	.0
Oct	66.2	40.0	53.1	88	1957	1	59.1	1988	9	1991	31	46.2	1984	381	11	.0	.0	29.0	.1	5.7	.0
Nov	48.8	27.2	38.0	72	1964	1	43.0+	1999	2+	1976	28	32.6	2000	810	0	.0	.0	14.2	1.0	21.3	.0
Dec	39.2	19.4	29.3	62	1999	2	39.9	1980	-11	1990	23	21.0	1978	1106	0	.0	.0	2.3	5.8	29.7	.5
Ann	64.4	39.0	51.7	105	Jul 1989	7	80.8	Jul 2000	-18	Jan 1963	13	17.9	Jan 1973	5873	1046	2.5	51.2	256.3	17.4	142.4	1.4

\+ 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	.71	.65	.85	1951	29	1.71	1974	.06	1976
Feb	.67	.61	.85	1989	4	1.65	1989	.00+	1973
Mar	1.14	1.13	1.00	1996	25	2.56	1975	.00+	1997
Apr	.93	.91	1.40	1965	27	2.39	1997	.08	1992
May	1.21	.91	1.90	1993	17	4.07	1993	.00	1974
Jun	.68	.39	1.61	1969	24	2.99	1984	.00+	1980
Jul	.86	.72	1.61	2001	11	2.38	1985	.00	1994
Aug	1.02	1.02	2.55	1957	6	2.57	1988	.00	1985
Sep	.93	.78	.97	1962	22	3.23	1997	.06	1979
Oct	1.29	1.20	1.37	1984	4	3.56	1972	.02	1978
Nov	.95	.90	1.00	1996	30	2.15	1996	.09	1976
Dec	.78	.77	1.62	1966	6	2.38	1978	.00	1976
Ann	11.17	11.11	2.55	Aug 1957	6	4.07	May 1993	.00+	Mar 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.7	2.8	.1	.0
Feb	5.0	2.5	.2	.0
Mar	6.7	3.8	.5	@
Apr	6.0	2.9	.3	.0
May	6.2	3.5	.5	.1
Jun	3.8	1.8	.4	.1
Jul	6.4	2.5	.4	.0
Aug	6.5	2.9	.4	.1
Sep	5.8	3.0	.3	.0
Oct	5.6	3.5	.7	.1
Nov	5.7	3.2	.4	@
Dec	4.9	2.5	.3	.0
Ann	68.3	34.9	4.5	.4

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	.17	.27	.37	.47	.59	.71	.87	1.08	1.42	1.75
Feb	.00	.09	.21	.32	.43	.55	.68	.84	1.06	1.41	1.75
Mar	.00	.26	.50	.67	.84	1.01	1.20	1.42	1.70	2.16	2.58
Apr	.06	.12	.24	.37	.51	.67	.87	1.13	1.48	2.08	2.67
May	.08	.21	.40	.58	.77	.97	1.21	1.50	1.89	2.53	3.15
Jun	.00	.02	.10	.19	.30	.44	.60	.81	1.12	1.64	2.17
Jul	.03	.10	.23	.35	.49	.65	.83	1.06	1.38	1.91	2.43
Aug	.05	.15	.30	.45	.61	.79	1.00	1.26	1.61	2.19	2.75
Sep	.09	.16	.29	.42	.56	.72	.90	1.14	1.45	1.98	2.50
Oct	.13	.22	.40	.58	.77	.99	1.25	1.57	2.02	2.75	3.47
Nov	.18	.27	.41	.54	.67	.80	.96	1.15	1.41	1.81	2.20
Dec	.09	.18	.31	.43	.54	.66	.80	.96	1.18	1.53	1.86
Ann	7.06	7.82	8.81	9.58	10.27	10.95	11.65	12.44	13.40	14.82	16.06

\+ 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	7.1	4.7	3	1	9.8	1978	24	18.6	1978	16	1974	26	12	1973	4.0	2.8	.4	.1	.0	17.4	13.1	8.9	2.2
Feb	5.3	2.6	2	1	8.0	1989	4	21.3	1989	13	1989	6	8	1979	2.7	1.8	.5	.2	.0	9.2	5.8	4.2	.9
Mar	3.2	1.5	#	#	8.0	1985	28	12.0	1985	8	1985	28	2	1979	2.3	1.6	.4	@	.0	2.4	.7	.1	.0
Apr	1.3	.0	#	0	6.0	1997	2	6.0+	1997	4	1983	3	#+	1999	.6	.5	.2	.1	.0	.4	.1	.0	.0
May	.2	.0	#	0	2.5	1979	8	3.4	1979	2	1979	8	#+	1993	.2	.1	.0	.0	.0	.1	.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	#	1995	13	#	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	#	0	.0	0	0	.0	0	#	1977	20	#	1977	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	#	.0	0	0	#	1971	17	#	1971	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	1.0	.0	#	0	5.0	1975	23	8.0	1972	8	1972	30	1	1975	.4	.3	.2	@	.0	.5	.3	.2	.0
Nov	3.3	3.0	#	#	7.0	1979	20	12.0	1979	7	1991	16	2	1979	1.9	1.2	.3	.1	.0	2.3	.8	.3	.0
Dec	7.4	7.5	1	1	7.0	1998	21	23.3	1983	12	1983	28	6	1978	3.6	2.7	.8	.3	.0	10.4	5.5	2.7	.2
Ann	28.8	19.3	N/A	N/A	9.8	Jan 1978	24	23.3	Dec 1983	16	Jan 1974	26	12	Jan 1973	15.7	11.0	2.8	.8	.0	42.7	26.3	16.4	3.3

+ 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	6/09	6/03	5/30	5/26	5/22	5/18	5/15	5/10	5/04
32	5/26	5/19	5/14	5/10	5/06	5/02	4/28	4/23	4/16
28	5/08	5/01	4/25	4/21	4/17	4/12	4/08	4/03	3/26
24	4/23	4/16	4/12	4/08	4/04	3/31	3/27	3/23	3/16
20	4/14	4/04	3/27	3/21	3/15	3/09	3/03	2/24	2/13
16	4/02	3/23	3/16	3/09	3/03	2/25	2/19	2/12	2/01

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	9/18	9/24	9/27	10/01	10/04	10/07	10/10	10/14	10/20
32	9/27	10/02	10/06	10/09	10/12	10/15	10/18	10/22	10/27
28	10/09	10/15	10/19	10/23	10/26	10/30	11/02	11/07	11/13
24	10/23	10/28	10/31	11/04	11/06	11/09	11/13	11/16	11/21
20	10/24	10/30	11/03	11/07	11/10	11/14	11/17	11/21	11/27
16	11/02	11/10	11/17	11/22	11/27	12/02	12/08	12/14	12/23

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	156	149	143	139	134	130	125	120	112
32	182	174	168	163	158	153	148	142	134
28	217	209	202	197	192	187	181	175	166
24	237	230	224	220	216	211	207	202	194
20	270	259	252	245	239	234	227	220	209
16	310	296	285	277	268	260	251	241	227

***** 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	1175	877	722	471	208	37	1	4	81	381	810	1106	5873
60	1020	737	569	334	113	11	0	0	30	251	660	951	4676
57	927	653	480	259	71	5	0	0	14	185	570	858	4022
55	865	597	423	215	50	2	0	0	8	147	511	796	3614
50	710	459	290	124	16	0	0	0	1	73	367	641	2681
32	248	87	24	3	0	0	0	0	0	0	35	174	571

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	96	134	326	525	859	1168	1395	1319	1009	654	215	90	7790
55	0	0	11	47	197	480	682	606	327	87	1	0	2438
57	0	0	7	31	156	423	620	544	273	64	0	0	2118
60	0	0	2	16	104	339	527	451	199	37	0	0	1675
65	0	0	0	3	45	215	373	299	100	11	0	0	1046
70	0	0	0	0	14	118	228	165	38	2	0	0	565

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	23	136	332	628	930	1148	1073	780	427	81	5	0	23	159	491	1119	2049	3197	4270	5050	5477	5558	5563
45	0	7	63	206	477	780	993	918	630	288	32	0	0	7	70	276	753	1533	2526	3444	4074	4362	4394	4394
50	0	0	23	110	333	632	838	763	483	168	8	0	0	0	23	133	466	1098	1936	2699	3182	3350	3358	3358
55	0	0	0	49	208	482	683	608	340	86	0	0	0	0	0	49	257	739	1422	2030	2370	2456	2456	2456
60	0	0	0	16	105	345	528	453	206	28	0	0	0	0	0	16	121	466	994	1447	1653	1681	1681	1681
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	21	103	221	404	609	747	702	504	266	52	2	0	21	124	345	749	1358	2105	2807	3311	3577	3629	3631

(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