

Climatography of the United States

No. 20

1971-2000

Station: CASTLE ROCK, CO

COOP ID: 051401

Climate Division: CO 4

NWS Call Sign:

Elevation: 6,352 Feet Lat: 39° 22N

Lon: 104° 50W

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	43.9	13.6	28.8	73	1997	3	40.9	1986	-35	1963	12	17.4	1979	1123	0	.0	.0	12.5	5.1	30.4	4.4
Feb	46.6	17.4	32.0	75	1986	26	39.5	2000	-29	1982	4	24.3	1989	923	0	.0	.0	13.7	3.5	27.1	2.1
Mar	51.9	23.4	37.7	80+	1997	21	44.7	1986	-14	1965	18	31.3	1984	848	0	.0	.0	19.8	1.7	27.1	.7
Apr	58.3	30.2	44.3	91	1981	27	50.7	1981	-7	1975	2	36.6	1983	623	0	.0	@	23.7	.5	18.8	.1
May	67.4	39.5	53.5	91	1996	17	57.3	1994	18	1970	1	48.4	1983	362	4	.0	.1	29.6	.0	5.3	.0
Jun	78.2	47.6	62.9	98+	1994	28	67.7	1994	28	1975	11	58.2	1982	120	58	.0	3.4	29.9	.0	.4	.0
Jul	84.0	53.1	68.6	99	1973	6	70.7	2000	39	1962	16	65.3	1973	14	123	.0	8.5	31.0	.0	.0	.0
Aug	81.9	51.4	66.7	98	1979	7	70.8	1995	35+	1992	27	63.9	1974	38	89	.0	4.1	31.0	.0	.0	.0
Sep	74.4	43.0	58.7	94+	1995	2	64.1	1998	15	1971	19	53.1	1974	214	25	.0	1.4	29.1	@	2.6	.0
Oct	65.0	31.8	48.4	91	1997	5	52.5	1988	-3	1993	30	39.8	1984	515	0	.0	@	28.1	.2	16.6	.1
Nov	51.2	21.2	36.2	78+	1989	20	44.5	1999	-18	1976	28	28.0	1972	864	0	.0	.0	18.4	2.3	26.5	1.1
Dec	45.0	14.8	29.9	71+	1998	2	37.6	1980	-26	1972	6	16.6	1983	1088	0	.0	.0	13.8	4.6	29.9	3.5
Ann	62.3	32.3	47.3	99	Jul 1973	6	70.8	Aug 1995	-35	Jan 1963	12	16.6	Dec 1983	6732	299	.0	17.5	280.6	17.9	184.7	12.0

+ 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: 1948-2001

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

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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: CASTLE ROCK, CO

COOP ID: 051401

Climate Division: CO 4

NWS Call Sign:

Elevation: 6,352 Feet Lat: 39°22N

Lon: 104°50W

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	.55	.50	.82	1988	19	1.34	1987	.03	1998	3.6	1.9	.2	.0	.11	.16	.24	.31	.39	.47	.56	.67	.82	1.06	1.28
Feb	.53	.46	1.00	2001	9	1.95	1984	.00+	1991	3.4	1.9	.1	.0	.00	.11	.22	.30	.38	.46	.55	.65	.79	1.01	1.22
Mar	1.50	1.42	1.55	1992	9	4.42	1990	.00	1987	5.3	3.2	.8	.2	.13	.30	.55	.77	.99	1.24	1.52	1.86	2.31	3.04	3.74
Apr	1.87	1.67	2.69	1967	13	6.58	1999	.17	1987	6.5	4.6	1.3	.3	.38	.55	.82	1.07	1.32	1.60	1.90	2.27	2.76	3.54	4.29
May	2.42	2.10	2.98	1973	6	7.32	1973	.08	1974	8.1	5.4	1.5	.5	.28	.46	.80	1.14	1.50	1.90	2.37	2.96	3.75	5.07	6.34
Jun	1.92	1.94	7.00	1965	16	4.62	1995	.00	1980	6.9	4.7	1.3	.3	.24	.48	.81	1.08	1.36	1.65	1.97	2.36	2.88	3.70	4.47
Jul	2.37	2.37	2.20	1998	10	4.92	1998	.14	1994	8.4	5.3	1.4	.4	.47	.68	1.03	1.35	1.67	2.02	2.41	2.89	3.52	4.53	5.48
Aug	2.16	2.05	2.00	1994	2	5.49	1997	.27	1978	9.3	5.4	1.1	.3	.55	.76	1.07	1.35	1.62	1.91	2.23	2.61	3.10	3.89	4.62
Sep	1.24	1.07	1.28	1973	29	2.93	1973	.04	1992	5.9	3.1	.7	.1	.10	.18	.34	.51	.70	.92	1.18	1.50	1.95	2.71	3.45
Oct	1.09	1.05	1.72	1987	13	2.87	1987	.08	1988	3.8	2.6	.8	.1	.07	.14	.28	.43	.59	.79	1.02	1.33	1.74	2.45	3.16
Nov	.98	.80	1.27	1985	18	2.62	1992	.00+	1989	4.2	2.6	.5	.1	.00	.15	.34	.50	.66	.82	1.01	1.22	1.52	1.99	2.44
Dec	.71	.61	1.05	1979	23	2.34	1979	.00	1990	3.8	1.8	.4	.1	.02	.06	.16	.26	.37	.50	.66	.87	1.15	1.63	2.11
Ann	17.34	17.13	7.00	Jun 1965	16	7.32	May 1973	.00+	Feb 1991	69.2	42.5	10.1	2.4	12.63	13.55	14.72	15.61	16.40	17.16	17.94	18.80	19.84	21.35	22.65

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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No. 20 1971-2000

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151 Patton Avenue
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Station: CASTLE ROCK, CO

COOP ID: 051401

Climate Division: CO 4

NWS Call Sign:

Elevation: 6,352 Feet

Lat: 39°22N

Lon: 104°50W

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	7.1	7.0	3	1	16.0	1988	19	18.0	1988	22	1988	20	16	1974	2.5	1.8	.7	.3	@	9.4	5.6	3.5	1.7
Feb	6.6	5.7	1	1	9.0	1984	26	21.0	1984	11	1987	27	6	1987	2.4	2.1	.6	.2	.0	5.2	2.9	.2	.0
Mar	10.8	9.5	1	1	18.0	1983	5	25.1	1988	20	1983	9	5	1983	3.1	2.4	1.0	.6	.2	2.8	1.1	.6	.1
Apr	9.6	7.3	1	1	13.2	1986	3	25.5	1973	19	1986	4	4	1975	2.4	2.2	1.3	.6	@	2.4	1.4	.8	.2
May	1.2	.0	#	0	8.2	1978	5	12.0	1978	8	1978	5	1	1975	.4	.4	.1	.1	.0	.3	.1	@	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	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	.3	.0	#	0	3.0	1996	27	4.0	1996	3	1996	27	#+	1996	.2	.2	@	.0	.0	.1	@	.0	.0
Oct	2.8	1.9	#	0	6.5	1989	31	10.0	1976	19	1997	27	3	1997	.9	.9	.4	.2	.0	.6	.5	.1	.0
Nov	9.1	5.0	1	#	14.5	1975	9	29.7	1992	15	1979	21	3	1972	2.8	2.3	1.1	.5	.2	3.6	1.7	1.1	.1
Dec	12.6	10.0	3	2	18.0	1973	25	39.4	1973	28	1987	28	16	1973	3.2	2.5	1.2	.6	.2	14.4	9.4	6.1	1.4
Ann	60.1	46.4	N/A	N/A	18.0+	Mar 1983	5	39.4	Dec 1973	28	Dec 1987	28	16+	Jan 1974	17.9	14.8	6.4	3.1	.6	38.8	22.7	12.4	3.5

+ 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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Climate Division: CO 4

NWS Call Sign:

Elevation: 6,352 Feet

Lat: 39° 22N

Lon: 104° 50W

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	6/16	6/10	6/06	6/02	5/30	5/27	5/23	5/19	5/13
32	6/11	6/04	5/30	5/26	5/22	5/19	5/15	5/10	5/03
28	5/19	5/15	5/11	5/08	5/06	5/03	4/30	4/27	4/22
24	5/09	5/04	4/30	4/27	4/24	4/22	4/18	4/15	4/10
20	4/28	4/23	4/20	4/17	4/14	4/11	4/08	4/05	3/31
16	4/17	4/12	4/09	4/06	4/04	4/01	3/29	3/26	3/21
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	9/05	9/09	9/12	9/15	9/18	9/20	9/23	9/26	9/30
32	9/12	9/16	9/19	9/22	9/24	9/27	9/30	10/03	10/07
28	9/19	9/23	9/26	9/29	10/02	10/04	10/07	10/10	10/14
24	9/21	9/27	10/02	10/05	10/09	10/12	10/16	10/20	10/26
20	10/01	10/08	10/12	10/16	10/20	10/24	10/28	11/02	11/08
16	10/11	10/17	10/22	10/25	10/29	11/01	11/05	11/09	11/16
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	132	124	119	114	110	105	101	95	88
32	151	142	135	129	124	119	113	107	98
28	170	163	157	153	148	144	139	134	126
24	192	183	177	172	167	162	156	150	142
20	211	203	198	193	188	184	179	174	166
16	228	221	216	212	208	204	199	194	187

* 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

Complete documentation available from:
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NWS Call Sign:

Elevation: 6,352 Feet Lat: 39° 22N Lon: 104° 50W

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	1123	923	848	623	362	120	14	38	214	515	864	1088	6732
60	968	783	693	476	226	50	1	7	114	364	714	933	5329
57	875	699	600	391	157	24	0	2	70	279	624	840	4561
55	813	643	539	337	119	14	0	1	47	227	566	778	4084
50	658	503	392	216	50	2	0	0	13	119	426	623	3002
32	202	112	41	11	0	0	0	0	0	2	77	165	610

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	102	113	215	378	665	927	1132	1074	801	510	204	100	6221
55	0	0	1	15	71	251	419	362	158	22	2	0	1301
57	0	0	0	9	48	201	357	302	121	12	0	0	1050
60	0	0	0	3	23	137	266	213	75	4	0	0	721
65	0	0	0	0	4	58	123	89	25	0	0	0	299
70	0	0	0	0	0	16	31	18	6	0	0	0	71

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	22	38	97	209	451	721	918	857	595	321	95	28	22	60	157	366	817	1538	2456	3313	3908	4229	4324	4352
45	0	8	37	115	305	573	763	702	452	193	41	4	0	8	45	160	465	1038	1801	2503	2955	3148	3189	3193
50	0	0	10	48	180	425	608	548	312	91	10	0	0	0	10	58	238	663	1271	1819	2131	2222	2232	2232
55	0	0	0	17	86	284	454	394	189	30	0	0	0	0	0	17	103	387	841	1235	1424	1454	1454	1454
60	0	0	0	0	23	156	299	240	89	2	0	0	0	0	0	0	23	179	478	718	807	809	809	809
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	42	59	109	180	302	460	582	546	403	276	114	53	42	101	210	390	692	1152	1734	2280	2683	2959	3073	3126

(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/normals/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