

# Climatography of the United States No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: DENVER STAPELTON, CO

1971-2000

COOP ID: 052220

Climate Division: CO 4

NWS Call Sign: DNR

Elevation: 5,286 Feet Lat: 39°46N

Lon: 104°52W

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	43.2	15.2	29.2	74	1997	2	38.9	1986	-25+	1963	12	16.1	1979	1111	0	.0	.0	12.1	6.2	29.6	3.2
Feb	47.2	19.1	33.2	76	1963	5	39.0	2000	-25	1951	1	20.7	1989	892	0	.0	.0	13.8	4.3	25.8	1.5
Mar	53.7	25.4	39.6	84	1971	26	45.5	1986	-8	1960	3	34.6	1983	788	0	.0	.0	20.3	2.0	23.1	.2
Apr	60.9	34.2	47.6	90	1992	30	55.2	1981	-2	1975	2	40.1	1983	524	2	.0	@	24.4	.5	11.0	@
May	70.5	43.8	57.2	95+	2000	30	62.5	1994	22	1954	2	49.8	1995	267	23	.0	.5	29.9	.0	1.1	.0
Jun	82.1	53.0	67.6	104	1994	26	73.0	1994	30	1951	2	62.3	1983	60	136	.2	7.3	29.9	.0	.0	.0
Jul	88.0	58.7	73.4	103+	1989	8	76.9	2000	43+	1972	5	70.1	1992	1	261	.5	15.0	31.0	.0	.0	.0
Aug	86.0	57.4	71.7	100+	1980	6	75.5	1995	41	1964	23	68.2	1992	9	217	@	9.4	31.0	.0	.0	.0
Sep	77.4	47.3	62.4	97+	1995	4	67.5	1998	17	1985	29	57.7	1971	136	57	.0	2.9	29.2	@	1.1	.0
Oct	66.0	35.9	51.0	89	1991	16	54.8	1973	3	1969	13	44.3	1984	436	0	.0	.0	27.6	.4	8.2	.0
Nov	51.5	23.5	37.5	79+	1999	8	47.1	1999	-8+	1993	24	28.8	1985	826	0	.0	.0	16.6	2.7	23.9	.2
Dec	44.1	16.4	30.3	75	1980	27	39.3	1980	-25	1990	22	16.3	1983	1078	0	.0	.0	12.0	5.3	28.8	2.5
Ann	64.2	35.8	50.1	104	Jun 1994	26	76.9	Jul 2000	-25+	Dec 1990	22	16.1	Jan 1979	6128	696	.7	35.1	277.8	21.4	152.6	7.6

+ 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/normal/usnormals.html](http://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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## No. 20

### 1971-2000

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COOP ID: 052220

Climate Division: CO 4

NWS Call Sign: DNR

Elevation: 5,286 Feet Lat: 39°46N

Lon: 104°52W

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	.51	.38	.92	1962	8	1.31	1973	.12	1998	5.8	1.4	.1	.0	.11	.15	.23	.29	.36	.43	.52	.61	.74	.95	1.15
Feb	.49	.45	1.01	1953	19	1.21	1987	.07	1983	5.6	1.8	.0	.0	.08	.12	.19	.26	.33	.41	.49	.60	.74	.98	1.20
Mar	1.28	1.18	2.68	1983	5	4.56	1983	.18	1982	8.1	3.8	.4	.2	.24	.36	.55	.72	.89	1.08	1.30	1.56	1.90	2.45	2.98
Apr	1.93	1.96	3.25	1967	13	5.35	1999	.34	1982	8.8	4.9	.9	.2	.47	.65	.93	1.18	1.43	1.69	1.98	2.33	2.79	3.51	4.18
May	2.32	2.08	3.27	1973	6	5.06	1973	.06	1974	11.4	5.3	1.3	.4	.34	.54	.87	1.20	1.53	1.90	2.32	2.84	3.54	4.67	5.76
Jun	1.56	1.52	3.16	1970	11	3.50	1987	.09	1980	8.6	3.8	.8	.2	.24	.38	.60	.82	1.04	1.29	1.57	1.91	2.37	3.12	3.83
Jul	2.16	1.91	3.83	1997	19	6.99	1998	.50	1994	9.3	4.2	1.2	.6	.43	.62	.94	1.23	1.53	1.84	2.20	2.63	3.21	4.13	5.00
Aug	1.82	1.53	1.98	1992	24	5.85	1979	.16	1974	9.3	3.6	1.0	.4	.20	.34	.59	.85	1.12	1.42	1.78	2.22	2.83	3.83	4.80
Sep	1.14	.89	1.44	1973	28	2.85+	1973	.01	1992	7.0	3.2	.4	.2	.07	.14	.28	.43	.61	.82	1.06	1.38	1.83	2.59	3.34
Oct	.99	.80	1.58	1960	18	3.47	1984	.06	1988	5.1	2.7	.5	.1	.12	.20	.34	.48	.62	.78	.97	1.21	1.52	2.04	2.55
Nov	.98	.78	.95	1979	20	2.67	1991	.15	1989	6.3	3.0	.4	.0	.18	.27	.41	.54	.68	.83	1.00	1.20	1.47	1.91	2.32
Dec	.63	.47	2.00	1982	24	2.84	1973	.03	1977	5.7	1.8	.1	.1	.06	.10	.19	.27	.37	.48	.61	.77	1.00	1.37	1.73
Ann	15.81	15.49	3.83	Jul 1997	19	6.99	Jul 1998	.01	Sep 1992	91.0	39.5	7.1	2.4	10.42	11.43	12.75	13.76	14.67	15.55	16.47	17.49	18.74	20.56	22.15

+ 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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**Station: DENVER STAPELTON, CO**

**COOP ID: 052220**

**Climate Division: CO 4**

**NWS Call Sign: DNR**

**Elevation: 5,286 Feet**

**Lat: 39°46N**

**Lon: 104°52W**

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	7.7	6.3	1	1	13.8	1992	7	24.3	1992	13	1983	1	5+	1988	5.8	2.3	.6	.2	.1	13.5	6.1	2.6	.2
Feb	6.3	6.3	#	1	6.4	1971	20	16.9	1993	8	1971	21	2	1989	5.3	2.2	.4	.1	.0	7.0	1.9	.4	.0
Mar	11.6	11.4	#	1	18.0	1983	5	30.5	1983	12	1983	6	2	1983	6.6	3.3	1.3	.6	.1	4.8	2.1	1.0	.1
Apr	8.8	9.0	#	1	15.7	1972	26	24.8	1973	12	1972	27	1+	1999	4.4	2.7	.8	.3	.1	2.7	1.4	.7	.1
May	1.3	.0	#	0	7.7	1978	5	13.5	1978	7	1978	7	#	2000	.6	.3	.2	.1	.0	.3	.1	.1	.0
Jun	#	.0	#	0	#	1974	8	#	1974	0	0	0	#	1983	.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	1.9	.0	#	0	12.0	1971	17	17.2	1971	10	1971	18	1	1971	.7	.5	.2	.1	@	.3	.2	.1	@
Oct	3.9	2.7	#	0	11.8	1997	24	22.1	1997	17	1997	25	2	1997	1.7	1.2	.4	.2	.1	1.3	.6	.3	.1
Nov	10.6	8.1	1	1	13.5	1979	20	29.6	1991	17	1979	21	4	1979	5.4	3.1	1.2	.6	.1	8.1	3.5	1.6	.3
Dec	8.4	7.9	1	1	23.6	1982	24	30.8	1973	24+	1982	26	4+	1983	5.6	2.8	.7	.3	.1	11.4	5.7	2.5	.5
Ann	60.5	51.7	N/A	N/A	23.6	Dec 1982	24	30.8	Dec 1973	24+	Dec 1982	26	5+	Jan 1988	36.1	18.4	5.8	2.5	.6	49.4	21.6	9.3	1.3

+ 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

Complete documentation available from:

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**Elevation: 5,286 Feet**

**Lat: 39° 46N**

**Lon: 104° 52W**

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	5/27	5/22	5/18	5/15	5/12	5/09	5/06	5/02	4/27
32	5/13	5/09	5/05	5/02	4/30	4/27	4/24	4/21	4/16
28	5/07	5/01	4/27	4/23	4/20	4/17	4/13	4/09	4/03
24	4/27	4/21	4/16	4/12	4/09	4/05	4/02	3/28	3/22
20	4/15	4/09	4/05	4/02	3/30	3/27	3/23	3/20	3/14
16	4/09	4/01	3/27	3/22	3/18	3/13	3/09	3/03	2/24
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	9/15	9/19	9/22	9/24	9/27	9/29	10/01	10/04	10/09
32	9/18	9/24	9/28	10/01	10/04	10/08	10/11	10/15	10/21
28	9/28	10/04	10/08	10/11	10/15	10/18	10/22	10/26	11/01
24	10/10	10/16	10/20	10/24	10/28	10/31	11/04	11/08	11/14
20	10/17	10/23	10/27	10/31	11/03	11/06	11/10	11/14	11/20
16	10/30	11/04	11/08	11/11	11/14	11/16	11/19	11/23	11/28
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	158	151	146	141	137	133	128	123	115
32	182	173	167	162	157	152	147	141	132
28	200	192	186	182	177	172	167	162	154
24	223	215	210	205	201	196	192	186	179
20	239	231	226	222	217	213	208	203	196
16	268	259	252	246	240	235	229	222	212

\* 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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**Elevation: 5,286 Feet    Lat: 39°46N**

**Lon: 104°52W**

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	1111	892	788	524	267	60	1	9	136	436	826	1078	6128
60	956	752	633	382	155	19	0	1	59	286	676	923	4842
57	863	668	540	303	103	9	0	0	30	206	586	830	4138
55	801	612	479	254	76	5	0	0	17	158	531	768	3701
50	651	477	333	151	29	0	0	0	3	68	393	618	2723
32	203	101	21	3	0	0	0	0	0	0	69	182	579

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	116	133	255	470	779	1065	1283	1231	911	588	233	128	7192
55	0	0	1	31	141	380	570	518	238	32	5	0	1916
57	0	0	0	20	107	324	508	456	191	18	0	0	1624
60	0	0	0	10	65	245	415	364	130	6	0	0	1235
65	0	0	0	2	23	136	261	217	57	0	0	0	696
70	0	0	0	0	5	58	121	96	17	0	0	0	297

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	30	61	139	288	555	842	1048	994	695	382	113	43	30	91	230	518	1073	1915	2963	3957	4652	5034	5147	5190
45	5	20	65	176	403	692	893	839	550	250	55	11	5	25	90	266	669	1361	2254	3093	3643	3893	3948	3959
50	0	0	20	91	270	543	738	684	410	140	21	0	0	0	20	111	381	924	1662	2346	2756	2896	2917	2917
55	0	0	1	38	151	398	583	529	278	65	0	0	0	0	1	39	190	588	1171	1700	1978	2043	2043	2043
60	0	0	0	13	67	258	430	376	161	16	0	0	0	0	0	13	80	338	768	1144	1305	1321	1321	1321
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	44	68	126	203	342	528	677	644	441	270	105	53	44	112	238	441	783	1311	1988	2632	3073	3343	3448	3501

(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](http://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](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
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## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)