

Climatology of the United States

No. 20

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

Station: PUEBLO AP, CO

1971-2000

COOP ID: 056740

Climate Division: CO 1

NWS Call Sign: PUB

Elevation: 4,684 Feet Lat: 38° 17N

Lon: 104° 30W

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	44.6	14.0	29.3	81	1997	2	38.6	1986	-28	1959	4	15.2	1979	1094	0	.0	.0	13.6	6.3	30.4	3.5
Feb	50.4	18.8	34.6	81+	1981	20	40.7	2000	-26	1996	3	23.6	1989	843	0	.0	.0	17.3	3.1	26.8	1.4
Mar	57.3	26.3	41.8	86	1989	10	46.5	1986	-10	1964	9	37.2	1976	703	0	.0	.0	23.5	1.0	24.0	.1
Apr	65.3	34.5	49.9	93+	1992	30	58.3	1981	2+	1997	12	43.8	1997	439	2	.0	.2	26.8	.1	11.4	.0
May	74.6	44.8	59.7	102+	2000	30	64.7	1996	26+	1997	3	54.1	1995	179	31	.1	2.5	30.5	.0	1.0	.0
Jun	86.1	53.5	69.8	108	1990	29	74.4	1981	36+	2001	15	65.1	1995	24	183	2.1	14.7	30.0	.0	.0	.0
Jul	91.4	59.4	75.4	106+	1981	21	79.3	1980	44+	1995	5	71.8	1995	1	337	5.1	22.2	31.0	.0	.0	.0
Aug	88.8	58.1	73.5	104+	1995	7	76.9	2000	40	1968	24	69.7	1992	3	276	1.3	18.8	31.0	.0	.0	.0
Sep	80.8	48.7	64.8	101	1995	5	69.8	1998	21	1999	29	59.4	1993	88	91	.1	7.2	29.6	.0	.9	.0
Oct	69.4	35.3	52.4	94	1991	16	56.3	1974	4	1997	26	47.9	1976	381	2	.0	.4	29.5	.2	11.4	.0
Nov	54.3	22.5	38.4	84	1980	7	45.8	1981	-17	1991	3	30.5	1985	782	0	.0	.0	19.5	1.9	26.9	.4
Dec	45.4	15.1	30.3	82	1980	17	40.6	1980	-28	1961	12	20.2	1983	1061	0	.0	.0	13.2	4.9	30.2	2.8
Ann	67.4	35.9	51.7	108	Jun 1990	29	79.3	Jul 1980	-28+	Dec 1961	12	15.2	Jan 1979	5598	922	8.7	66.0	295.5	17.5	163.0	8.2

+ 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: 1954-2001

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

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Elevation: 4,684 Feet Lat: 38°17N

Lon: 104°30W

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	.33	.30	.55	1990	19	.94	1988	.01	1995	4.3	1.1	@	.0	.03	.06	.10	.15	.20	.25	.32	.40	.51	.69	.87
Feb	.26	.17	.60	1987	14	1.39	1987	.01+	1999	3.5	.8	@	.0	.02	.03	.06	.10	.14	.18	.24	.31	.41	.58	.76
Mar	.97	.87	1.26	1998	18	2.94	2000	.10	1977	6.2	3.0	.3	@	.14	.22	.36	.50	.64	.79	.97	1.19	1.48	1.96	2.41
Apr	1.25	.88	2.00	1999	30	5.30	1999	.13+	1982	6.8	3.5	.5	.1	.15	.25	.42	.60	.78	.99	1.23	1.52	1.92	2.59	3.23
May	1.49	1.39	2.67	1995	17	4.30	1995	.40	1992	8.2	4.0	.6	.2	.42	.56	.78	.96	1.14	1.34	1.55	1.80	2.12	2.63	3.10
Jun	1.33	1.31	2.24	1979	24	3.51	1979	.00	1990	6.8	2.9	.8	.1	.08	.21	.42	.62	.83	1.05	1.32	1.65	2.09	2.81	3.51
Jul	2.04	1.90	1.96	1977	25	5.14	1990	.09	1987	9.5	4.8	1.2	.3	.32	.50	.80	1.08	1.37	1.69	2.05	2.49	3.09	4.05	4.98
Aug	2.27	2.19	2.95	1955	29	4.37	1984	.67	1988	9.1	4.5	1.4	.5	.72	.93	1.25	1.53	1.79	2.07	2.37	2.72	3.17	3.88	4.54
Sep	.84	.64	1.57	1982	13	2.73	1976	.06	1975	5.3	2.3	.4	@	.07	.13	.24	.36	.49	.63	.81	1.03	1.33	1.83	2.32
Oct	.64	.60	2.77	1957	8	2.55	1984	.00+	1995	3.5	1.5	.4	.0	.00	.00	.12	.24	.36	.48	.63	.81	1.05	1.44	1.82
Nov	.58	.47	.78	1991	16	2.48	1991	.00	1989	4.5	1.7	.2	.0	.01	.05	.12	.20	.29	.40	.53	.70	.94	1.35	1.76
Dec	.39	.36	.61	1979	27	.97	1979	.00+	1995	4.1	1.4	.1	.0	.00	.03	.09	.15	.22	.29	.38	.48	.63	.88	1.12
Ann	12.39	12.18	2.95	Aug 1955	29	5.30	Apr 1999	.00+	Dec 1995	71.8	31.5	5.9	1.2	8.20	8.99	10.01	10.80	11.50	12.18	12.89	13.68	14.64	16.05	17.28

+ 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: 1954-2001

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

Complete documentation available from:
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Climate Division: CO 1

NWS Call Sign: PUB

Elevation: 4,684 Feet

Lat: 38° 17N

Lon: 104° 30W

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	5.7	4.6	1	0	11.6	1990	19	18.3	1988	10+	1990	20	3+	1989	4.5	1.7	.4	.2	@	7.2	2.6	.9	.1
Feb	3.5	3.0	#	0	7.5	1989	5	12.7	1990	7	1989	6	1+	1990	3.5	1.2	.2	.1	.0	2.5	.6	.2	.0
Mar	6.4	6.3	#	0	11.1	1998	18	13.0	1980	10	1998	19	1+	1976	4.3	1.8	.8	.2	@	1.7	.6	.2	@
Apr	4.7	2.5	#	0	12.8	1990	29	19.2	1995	9	1990	30	#	2000	2.3	1.2	.6	.2	@	.7	.3	.2	.0
May	.7	.0	#	0	6.4	1990	3	10.6	1990	3+	1990	3	#	2000	.4	.2	.1	@	.0	.1	.1	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1990	.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	.6	.0	#	0	7.3	1971	17	7.5	1971	1+	1995	21	#	1995	.3	.1	.1	@	.0	.1	.0	.0	.0
Oct	1.9	.0	#	0	12.6	1972	31	16.3	1991	8	1997	26	#	1997	.6	.4	.2	.1	.1	.3	.1	.1	.0
Nov	4.8	2.4	#	0	16.0	1985	14	25.6	1991	12	1972	1	3	1985	2.9	1.4	.5	.2	@	3.0	1.4	.6	.1
Dec	5.4	4.9	1	0	6.6	1979	27	12.9	1983	8+	1983	30	3	1983	4.2	1.7	.6	.1	.0	5.8	2.4	1.0	.0
Ann	33.7	23.7	N/A	N/A	16.0	Nov 1985	14	25.6	Nov 1991	12	Nov 1972	1	3+	Jan 1989	23.0	9.7	3.5	1.1	.1	21.4	8.1	3.2	.2

+ 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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NWS Call Sign: PUB

Elevation: 4,684 Feet

Lat: 38° 17N

Lon: 104° 30W

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	5/26	5/21	5/18	5/15	5/12	5/09	5/07	5/03	4/28
32	5/14	5/09	5/06	5/03	4/30	4/27	4/24	4/21	4/16
28	5/02	4/28	4/25	4/23	4/20	4/18	4/15	4/12	4/08
24	4/25	4/20	4/16	4/13	4/10	4/07	4/03	3/31	3/25
20	4/15	4/09	4/04	4/01	3/28	3/25	3/21	3/17	3/10
16	4/07	3/31	3/25	3/21	3/16	3/12	3/07	3/02	2/22
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	9/25	9/27	9/29	10/02	10/05	10/09
32	9/20	9/25	9/29	10/02	10/05	10/08	10/11	10/15	10/20
28	9/28	10/03	10/07	10/10	10/13	10/15	10/18	10/22	10/27
24	10/08	10/14	10/17	10/21	10/24	10/27	10/30	11/03	11/09
20	10/18	10/23	10/27	10/31	11/03	11/06	11/09	11/13	11/18
16	10/27	11/01	11/04	11/07	11/10	11/13	11/16	11/20	11/25
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	154	148	144	141	137	134	130	126	120
32	181	173	167	162	157	153	148	142	134
28	195	188	183	179	175	171	166	161	154
24	221	212	206	201	196	192	186	180	172
20	245	236	230	224	219	213	208	201	192
16	271	260	252	245	238	232	225	217	206

* 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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Lon: 104°30W

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	1094	843	703	439	179	24	1	3	88	381	782	1061	5598
60	951	711	564	315	100	6	0	0	27	248	648	921	4491
57	858	627	471	239	59	2	0	0	10	174	563	828	3831
55	796	571	410	194	40	1	0	0	5	131	506	766	3420
50	647	436	266	103	11	0	0	0	0	57	372	614	2506
32	204	78	7	0	0	0	0	0	0	0	64	173	526

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	108	172	352	567	885	1158	1366	1299	994	644	252	114	7911
55	0	1	6	47	204	469	653	586	322	67	3	0	2358
57	0	0	3	30	158	410	591	524	269	45	1	0	2031
60	0	0	1	13	98	325	499	432	195	20	0	0	1583
65	0	0	0	2	31	183	337	276	91	2	0	0	922
70	0	0	0	0	6	85	196	137	27	0	0	0	451

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	65	164	349	646	926	1129	1057	763	409	109	33	30	95	259	608	1254	2180	3309	4366	5129	5538	5647	5680
45	5	20	77	224	494	776	974	902	614	271	47	10	5	25	102	326	820	1596	2570	3472	4086	4357	4404	4414
50	0	2	26	118	346	626	819	747	470	155	16	0	0	2	28	146	492	1118	1937	2684	3154	3309	3325	3325
55	0	0	2	48	213	477	664	592	329	69	1	0	0	0	2	50	263	740	1404	1996	2325	2394	2395	2395
60	0	0	0	14	104	334	510	437	203	20	0	0	0	0	0	14	118	452	962	1399	1602	1622	1622	1622
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	64	111	182	276	420	570	700	670	485	325	135	67	64	175	357	633	1053	1623	2323	2993	3478	3803	3938	4005

(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