

Climatography of the United States

No. 20

1971-2000

Station: WATERDALE, CO

COOP ID: 058839

Climate Division: CO 4

NWS Call Sign:

Elevation: 5,230 Feet Lat: 40° 26N

Lon: 105° 13W

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	42.3	13.5	27.9	72	1953	12	37.2	1986	-31	1963	12	15.8	1979	1151	0	.0	.0	10.5	6.4	30.1	4.3
Feb	45.8	17.4	31.6	78	1954	8	37.3	1999	-28	1951	1	19.6	1989	936	0	.0	.0	12.2	4.0	27.0	2.2
Mar	53.0	24.5	38.8	80+	1997	21	46.0	1986	-20	1960	4	33.5	1980	813	0	.0	.0	19.4	2.0	26.5	.4
Apr	60.5	31.9	46.2	89	1992	30	52.7	1981	-6	1975	2	40.4	1973	564	0	.0	.0	23.5	.5	15.7	@
May	70.1	40.7	55.4	95	2000	30	59.5	1994	17	1978	7	49.6	1995	306	8	.0	.4	29.4	.0	2.5	.0
Jun	81.2	48.3	64.8	102	1994	27	70.2	1988	30	1954	3	60.0	1982	92	84	.1	4.9	29.8	.0	.0	.0
Jul	87.1	53.8	70.5	102+	1973	7	73.6	2000	38	1952	8	66.9	1972	7	175	.4	11.0	31.0	.0	.0	.0
Aug	85.0	52.6	68.8	101	1995	8	72.8	1983	33	1956	30	65.9	1974	23	139	.1	6.6	31.0	.0	.0	.0
Sep	76.2	44.4	60.3	98	1995	2	65.9	1998	18	1971	19	55.5	1971	175	34	.0	2.0	29.0	.0	1.8	.0
Oct	64.5	33.8	49.2	88+	1979	8	52.0	1992	2	1991	31	43.7	1984	491	0	.0	.0	27.5	.3	12.3	.0
Nov	50.4	23.2	36.8	78+	1999	9	44.8	1999	-11+	1993	25	29.2	1985	847	0	.0	.0	16.6	3.0	25.8	.5
Dec	43.7	15.4	29.6	74	1957	9	38.8	1980	-30	1990	22	17.9	1983	1099	0	.0	.0	11.4	5.3	29.7	3.2
Ann	63.3	33.3	48.3	102+	Jun 1994	27	73.6	Jul 2000	-31	Jan 1963	12	15.8	Jan 1979	6504	440	.6	24.9	271.3	21.5	171.4	10.6

+ 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

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

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

Station: WATERDALE, CO

COOP ID: 058839

Climate Division: CO 4

NWS Call Sign:

Elevation: 5,230 Feet Lat: 40°26N

Lon: 105°13W

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	.44	.32	.93	1962	8	1.57	1980	.00+	1986	3.5	1.8	.0	.0	.00	.07	.15	.22	.29	.37	.45	.55	.69	.91	1.12
Feb	.46	.28	.75	1975	15	1.48	1989	.00+	1999	3.8	1.6	.2	.0	.00	.00	.11	.19	.27	.36	.46	.58	.74	1.01	1.27
Mar	1.32	.83	1.45	1990	5	4.21	1983	.16	1977	5.1	3.0	.8	.2	.20	.31	.51	.69	.88	1.08	1.32	1.61	2.00	2.63	3.23
Apr	2.13	2.00	2.95	1957	2	6.31	1971	.14	1982	7.5	4.8	1.5	.5	.42	.61	.93	1.21	1.51	1.82	2.17	2.60	3.16	4.06	4.92
May	3.19	2.87	2.97	1978	6	9.34	1995	.15	1974	9.8	6.0	2.1	.8	.52	.79	1.26	1.70	2.15	2.64	3.20	3.89	4.81	6.30	7.72
Jun	1.94	1.58	3.66	1949	4	5.04	1997	.15	1971	7.6	4.3	1.1	.5	.30	.46	.74	1.01	1.28	1.59	1.94	2.36	2.94	3.87	4.76
Jul	1.81	1.44	3.10	1982	27	6.14	1982	.26	2000	8.3	4.1	.8	.3	.37	.53	.80	1.04	1.29	1.55	1.84	2.20	2.67	3.42	4.14
Aug	1.63	1.48	4.18	1951	2	4.56	1979	.30	1971	7.9	4.2	.8	.2	.33	.48	.72	.94	1.16	1.40	1.67	1.99	2.42	3.10	3.75
Sep	1.68	1.44	2.54	1982	14	4.38	1982	.00+	1992	6.4	4.0	1.0	.3	.00	.27	.60	.87	1.13	1.41	1.73	2.10	2.60	3.41	4.17
Oct	1.03	.79	2.00+	1978	22	3.23	1986	.09	1995	4.6	2.7	.5	.2	.10	.17	.31	.45	.61	.79	.99	1.26	1.61	2.21	2.79
Nov	.84	.78	1.42	1979	20	3.02	1979	.00+	1984	4.1	2.3	.4	.1	.00	.05	.18	.31	.45	.61	.79	1.03	1.36	1.91	2.45
Dec	.53	.38	1.07	1979	28	1.93	1979	.00	1991	3.7	1.7	.1	@	.02	.06	.14	.21	.30	.39	.50	.64	.84	1.16	1.48
Ann	17.00	16.19	4.18	Aug 1951	2	9.34	May 1995	.00+	Feb 1999	72.3	40.5	9.3	3.1	11.48	12.52	13.87	14.91	15.83	16.73	17.66	18.69	19.95	21.79	23.38

+ 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: WATERDALE, CO

COOP ID: 058839

Climate Division: CO 4

NWS Call Sign:

Elevation: 5,230 Feet

Lat: 40° 26N

Lon: 105° 13W

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	6.1	5.5	1	#	12.0	1984	14	16.0	1984	12	1997	12	3	1985	2.8	2.2	.9	.3	@	5.5	2.4	.9	.0
Feb	4.4	3.2	1	#	9.0	1971	20	14.7	1971	14	1989	4	3	1978	2.5	1.9	.5	.3	.0	4.0	2.1	.5	.0
Mar	8.2	6.8	1	#	18.0	1988	30	30.0	1988	18	1988	30	7	1983	2.7	2.3	1.1	.4	.2	3.2	1.2	.3	.1
Apr	6.0	3.3	#	#	18.0	1984	21	26.0	1997	18	1984	21	2	1975	1.7	1.4	.9	.4	.2	1.4	.7	.4	.1
May	.1	.0	#	0	2.0	1973	1	2.0+	1999	2	1973	1	#+	1999	.1	.1	.0	.0	.0	@	.0	.0	.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	1.1	.0	#	0	10.0	1971	18	17.1	1971	11	1971	18	1	1971	.3	.3	.1	.1	@	.3	.1	.1	@
Oct	2.4	.7	#	0	9.0	1997	25	12.0	1991	7	1975	24	1	1975	.8	.6	.3	.1	.0	.6	.2	.1	.0
Nov	7.6	4.3	#	#	22.0	1979	20	33.0	1979	15	1973	4	2	1973	2.3	1.7	.9	.4	.1	2.9	1.3	.6	.1
Dec	8.0	4.5	1	#	19.0	1979	28	33.0	1979	10	1982	25	4	1972	3.0	2.2	1.0	.4	.1	4.7	2.3	1.4	.1
Ann	43.9	28.3	N/A	N/A	22.0	Nov 1979	20	33.0+	Dec 1979	18+	Mar 1988	30	7	Mar 1983	16.2	12.7	5.7	2.4	.6	22.6	10.3	4.3	.4

+ 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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Climate Division: CO 4

NWS Call Sign:

Elevation: 5,230 Feet

Lat: 40° 26N

Lon: 105° 13W

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	6/15	6/08	6/04	5/31	5/27	5/23	5/19	5/14	5/08
32	5/18	5/14	5/12	5/09	5/08	5/06	5/03	5/01	4/27
28	5/10	5/06	5/03	5/01	4/29	4/26	4/24	4/21	4/17
24	4/29	4/25	4/21	4/19	4/16	4/13	4/10	4/07	4/03
20	4/21	4/17	4/13	4/10	4/07	4/05	4/02	3/29	3/24
16	4/13	4/07	4/03	3/30	3/27	3/24	3/20	3/16	3/10
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	9/12	9/16	9/18	9/20	9/22	9/24	9/27	9/29	10/03
32	9/16	9/20	9/22	9/25	9/27	9/29	10/02	10/05	10/09
28	9/22	9/27	10/01	10/05	10/08	10/11	10/14	10/18	10/24
24	10/01	10/07	10/11	10/15	10/18	10/22	10/25	10/30	11/04
20	10/14	10/20	10/24	10/27	10/30	11/02	11/05	11/09	11/14
16	10/23	10/28	11/01	11/04	11/07	11/10	11/14	11/17	11/23
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	138	131	126	122	118	114	109	104	97
32	160	154	149	145	142	138	135	130	124
28	181	174	169	165	161	158	153	149	142
24	205	198	193	189	185	181	176	171	164
20	226	218	213	209	205	200	196	191	184
16	251	242	235	230	225	219	214	207	198

* 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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NWS Call Sign:

Elevation: 5,230 Feet Lat: 40° 26N Lon: 105° 13W

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	1151	936	813	564	306	92	7	23	175	491	847	1099	6504
60	996	796	658	419	178	34	0	4	82	337	697	944	5145
57	903	712	565	336	118	15	0	1	45	248	607	851	4401
55	841	656	504	284	85	8	0	0	27	194	547	789	3935
50	686	519	353	171	31	1	0	0	5	86	409	635	2896
32	223	130	23	4	0	0	0	0	0	0	68	178	626

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	96	118	232	431	726	982	1192	1140	849	533	211	102	6612
55	0	0	0	20	98	300	479	427	186	13	0	0	1523
57	0	0	0	12	68	247	417	366	144	6	0	0	1260
60	0	0	0	5	36	175	324	275	91	1	0	0	907
65	0	0	0	0	8	84	175	139	34	0	0	0	440
70	0	0	0	0	1	28	61	45	8	0	0	0	143

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	18	38	103	231	482	743	947	902	623	318	86	28	18	56	159	390	872	1615	2562	3464	4087	4405	4491	4519
45	1	9	46	131	334	593	792	747	477	194	34	2	1	10	56	187	521	1114	1906	2653	3130	3324	3358	3360
50	0	1	13	62	202	447	637	592	341	95	9	0	0	1	14	76	278	725	1362	1954	2295	2390	2399	2399
55	0	0	1	23	99	306	482	438	214	36	0	0	0	0	1	24	123	429	911	1349	1563	1599	1599	1599
60	0	0	0	1	35	179	331	284	108	8	0	0	0	0	0	1	36	215	546	830	938	946	946	946
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	35	55	111	181	312	464	599	572	399	242	88	42	35	90	201	382	694	1158	1757	2329	2728	2970	3058	3100

(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