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: BYERS 5 ENE, CO **COOP ID: 051179**

Climate Division: CO 4 **NWS Call Sign:** **Elevation: 5,100 Feet** **Lat: 39˚44N** **Lon: 104˚08W**

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	40.2	12.0	26.1	74	1986	30	37.8	1986	-32	1984	18	14.1	1979	1206	0	.0	.0	8.2	7.2	30.7	5.7
Feb	45.3	16.6	31.0	75	1972	28	37.3	2000	-27	1982	5	22.2	1989	954	0	.0	.0	11.5	4.1	27.5	2.5
Mar	53.1	23.6	38.4	85+	1997	21	44.6	1986	-15+	1975	28	32.8	1984	825	0	.0	.0	19.8	1.5	27.3	.5
Apr	61.4	31.8	46.6	92+	1992	30	52.6	1981	-9	1975	2	40.3	1983	553	0	.0	.1	25.3	.4	17.2	.1
May	70.9	41.8	56.4	98	1996	19	61.8	1994	20+	1978	7	50.8	1995	286	17	.0	.8	30.0	.0	3.2	.0
Jun	82.9	51.6	67.3	106	1954	23	73.1	1994	29	1951	2	62.1	1983	64	131	.4	8.8	30.0	.0	@	.0
Jul	89.0	57.2	73.1	106	1997	18	76.1	2000	38	1971	30	70.3	1992	2	254	1.9	17.4	31.0	.0	.0	.0
Aug	86.9	56.0	71.5	102+	1995	11	75.9	1995	37+	1993	31	68.1	1974	11	211	.4	12.9	31.0	.0	.0	.0
Sep	78.1	46.0	62.1	101	1998	6	68.3	1998	10	1985	30	57.9	1974	142	53	@	4.6	29.5	.0	2.0	.0
Oct	66.7	34.1	50.4	91	1997	2	53.4	1992	-3	1997	26	45.2	1984	454	0	.0	.1	28.6	.3	14.5	@
Nov	50.2	21.3	35.8	81	1994	8	44.0	1999	-19	1955	16	26.1	1972	878	0	.0	.0	16.0	3.0	27.2	1.0
Dec	41.7	14.0	27.9	76	1980	27	38.8	1980	-33	1989	22	13.8	1983	1152	0	.0	.0	9.6	6.2	30.5	4.2
Ann	63.9	33.8	48.9	106+	Jul 1997	18	76.1	Jul 2000	-33	Dec 1989	22	13.8	Dec 1983	6527	666	2.7	44.7	270.5	22.7	180.1	14.0

\+ 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/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

Issue Date: February 2004

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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	.43	.39	.68	1962	8	1.15	1989	.00	1983
Feb	.35	.30	.56	1984	11	1.01	1987	.00+	1991
Mar	1.04	.67	1.30	1981	4	3.34	1981	.13	1982
Apr	1.57	1.44	2.02	1957	2	5.12	1999	.32	1982
May	2.76	2.54	3.91	1973	6	6.06	1975	.17	1974
Jun	1.86	1.68	3.02	1965	16	4.07	1995	.46	1980
Jul	2.33	2.03	3.26	1991	23	5.93	1991	.64	1994
Aug	1.81	1.81	4.02	1951	3	4.82	1997	.28	1973
Sep	1.13	.96	4.01	1966	2	3.44	1973	.00	1978
Oct	.82	.58	1.82	1997	25	3.73	1984	.00	1988
Nov	.81	.65	1.66	1972	1	2.74	1972	.10	1989
Dec	.43	.36	.67	1973	24	1.60	1973	.00	1980
Ann	15.34	15.61	4.02	Aug 1951	3	6.06	May 1975	.00+	Feb 1991

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.7	1.6	.1	.0
Feb	3.7	1.3	@	.0
Mar	5.4	2.7	.4	.1
Apr	6.7	4.0	1.0	.1
May	9.0	5.8	1.7	.5
Jun	7.8	4.2	1.2	.3
Jul	8.9	5.0	1.2	.5
Aug	8.2	4.3	1.0	.3
Sep	5.3	2.8	.8	.1
Oct	3.9	2.1	.4	.1
Nov	4.4	2.5	.3	.1
Dec	3.2	1.4	.1	.0
Ann	70.2	37.7	8.2	2.1

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	.07	.12	.20	.26	.32	.38	.45	.53	.63	.80	.96
Feb	.00	.06	.13	.19	.24	.30	.36	.44	.53	.69	.84
Mar	.12	.20	.34	.49	.65	.82	1.02	1.27	1.61	2.18	2.73
Apr	.38	.53	.76	.96	1.16	1.37	1.61	1.89	2.26	2.85	3.40
May	.58	.83	1.24	1.61	1.98	2.37	2.82	3.35	4.06	5.19	6.26
Jun	.53	.71	.98	1.21	1.43	1.67	1.93	2.23	2.63	3.25	3.83
Jul	.57	.79	1.13	1.43	1.73	2.05	2.40	2.82	3.38	4.25	5.07
Aug	.35	.51	.78	1.02	1.27	1.54	1.84	2.20	2.68	3.46	4.19
Sep	.01	.07	.19	.34	.52	.74	1.00	1.35	1.85	2.71	3.58
Oct	.01	.06	.15	.26	.40	.55	.74	.99	1.35	1.95	2.56
Nov	.11	.17	.29	.40	.52	.65	.80	.98	1.23	1.64	2.04
Dec	.03	.07	.14	.20	.26	.34	.42	.53	.67	.91	1.13
Ann	11.18	11.99	13.03	13.81	14.51	15.18	15.86	16.63	17.55	18.88	20.03

\+ 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:
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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	6.9	6.0	3	1
Feb	4.4	3.0	2	1
Mar	9.4	7.5	1	#
Apr	5.3	4.0	#	#
May	.4	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	1.4	.0	#	0
Oct	2.6	.5	#	#
Nov	7.6	5.5	1	1
Dec	6.0	4.4	2	1
Ann	44.0	30.9	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	8.0	1973	27	16.0	1992	12	1974	11	9	1984
Feb	8.0	1984	11	13.0	1984	13	1984	12	9	1984
Mar	12.0	1981	4	32.0	1981	13	1979	23	5	1984
Apr	16.0	1984	21	26.0	1984	14	1984	22	2	1984
May	3.0	1982	6	4.0	1979	4	1973	1	#+	1999
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	12.0	1971	17	12.0+	1995	10	1995	21	1	1971
Oct	16.0	1997	25	19.5	1997	19	1997	26	3	1997
Nov	12.0	1991	17	20.0	1983	15	1983	27	4	1979
Dec	10.0	1982	25	20.0	1982	18	1982	25	9	1983
Ann	16.0+	Oct 1997	25	32.0	Mar 1981	19	Oct 1997	26	9+	Feb 1984

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.9	2.5	.9	.2	.0
Feb	2.5	2.0	.3	.1	.0
Mar	3.2	2.9	1.2	.5	.2
Apr	1.9	1.5	.9	.2	.1
May	.2	.1	@	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.3	.3	.1	.1	.1
Oct	.7	.6	.3	.1	.1
Nov	2.8	2.4	.9	.4	.1
Dec	2.8	2.3	.8	.2	@
Ann	17.3	14.6	5.4	1.8	.6

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	15.4	10.5	8.1	1.2
Feb	10.1	6.3	2.4	.6
Mar	5.0	2.9	1.9	.4
Apr	2.0	1.3	.6	.1
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.3	.2	.1	@
Oct	1.1	.5	.3	.1
Nov	6.6	3.1	1.7	.3
Dec	12.8	8.2	4.3	.9
Ann	53.4	33.0	19.4	3.6

+ 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	6/13	6/07	6/03	5/31	5/27	5/24	5/20	5/16	5/11
32	5/23	5/18	5/15	5/13	5/10	5/08	5/05	5/02	4/28
28	5/12	5/09	5/06	5/04	5/02	4/30	4/28	4/25	4/22
24	5/08	5/02	4/28	4/25	4/22	4/18	4/15	4/11	4/05
20	4/29	4/23	4/18	4/15	4/11	4/08	4/04	3/30	3/24
16	4/14	4/08	4/04	4/01	3/28	3/25	3/22	3/17	3/12

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	9/10	9/13	9/16	9/18	9/21	9/23	9/25	9/28	10/01
32	9/14	9/18	9/21	9/24	9/27	9/29	10/02	10/05	10/09
28	9/19	9/24	9/27	9/30	10/03	10/05	10/08	10/11	10/16
24	9/29	10/05	10/09	10/12	10/16	10/19	10/23	10/27	11/02
20	10/11	10/16	10/20	10/23	10/27	10/30	11/02	11/06	11/12
16	10/18	10/23	10/27	10/30	11/02	11/05	11/09	11/13	11/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	135	129	124	119	115	112	107	102	96
32	159	152	147	143	139	135	130	125	118
28	171	165	160	156	153	149	145	141	135
24	199	191	186	181	177	172	167	162	154
20	221	213	207	202	198	193	188	183	175
16	239	232	227	222	218	214	210	205	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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Degree Days to Selected Base Temperatures (˚F)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1206	954	825	553	286	64	2	11	142	454	878	1152	6527
60	1051	814	670	407	167	22	0	2	62	301	728	997	5221
57	958	730	577	325	111	10	0	0	32	216	638	904	4501
55	896	674	516	273	81	5	0	0	18	165	582	842	4052
50	741	534	368	162	31	0	0	0	3	69	443	697	3048
32	275	138	32	3	0	0	0	0	0	0	97	248	793

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	92	108	230	441	754	1057	1275	1223	901	570	209	119	6979
55	0	0	1	20	123	373	562	510	229	22	4	0	1844
57	0	0	0	12	90	317	500	448	183	10	0	0	1560
60	0	0	0	5	53	239	407	357	123	3	0	0	1187
65	0	0	0	0	17	131	254	211	53	0	0	0	666
70	0	0	0	0	3	56	115	93	16	0	0	0	283

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	10	35	109	260	528	817	1026	972	679	350	79	24	10	45	154	414	942	1759	2785	3757	4436	4786	4865	4889
45	1	9	48	149	380	667	871	817	530	217	31	2	1	10	58	207	587	1254	2125	2942	3472	3689	3720	3722
50	0	1	15	74	243	517	716	662	391	110	6	0	0	1	16	90	333	850	1566	2228	2619	2729	2735	2735
55	0	0	1	26	133	371	561	507	259	44	0	0	0	0	1	27	160	531	1092	1599	1858	1902	1902	1902
60	0	0	0	4	55	237	408	352	146	10	0	0	0	0	0	4	59	296	704	1056	1202	1212	1212	1212
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	27	58	125	216	352	513	642	617	442	285	99	42	27	85	210	426	778	1291	1933	2550	2992	3277	3376	3418

(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