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: CHEESMAN, CO **COOP ID: 051528**

Climate Division: CO 4 **NWS Call Sign:** **Elevation: 6,880 Feet** **Lat: 39˚13N** **Lon: 105˚17W**

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	42.4	5.5	24.0	70	1954	31	33.4	1986	-41	1962	10	10.5	1979	1272	0	.0	.0	11.2	4.1	30.7	8.9
Feb	45.2	8.0	26.6	73	1954	8	32.9	1999	-40	1951	1	18.3	1989	1075	0	.0	.0	13.6	2.8	28.0	5.6
Mar	49.2	16.5	32.9	75+	1997	21	38.6	1986	-18	1965	3	27.5	1977	997	0	.0	.0	19.4	1.4	30.0	1.7
Apr	55.0	24.0	39.5	82+	1992	30	47.2	1981	-11	1975	2	33.9	1997	764	0	.0	.0	23.3	.8	26.3	.3
May	64.7	31.9	48.3	89	1996	17	53.5	1996	13	1995	1	40.8	1995	518	0	.0	.0	28.9	@	16.1	.0
Jun	76.1	40.3	58.2	99+	1994	27	63.6	1981	18	1998	6	53.4	1998	221	17	.0	1.8	29.9	.0	3.3	.0
Jul	81.6	45.0	63.3	98+	1989	8	66.6	1983	25	1995	5	60.2	1994	90	38	.0	5.2	31.0	.0	.6	.0
Aug	79.8	43.2	61.5	97	1990	30	66.8	1983	26	1992	27	57.7	1992	137	28	.0	1.8	31.0	.0	.6	.0
Sep	72.4	35.4	53.9	96	1995	4	58.9	1983	11	1995	26	48.9	1993	339	5	.0	.5	29.3	.0	9.3	.0
Oct	62.7	25.0	43.9	90	1980	1	47.6	1983	-3	1997	26	37.8	1993	655	0	.0	@	28.0	.5	26.6	.1
Nov	49.1	15.0	32.1	77	1975	5	38.9	1998	-21	1976	28	23.1	2000	990	0	.0	.0	17.5	2.2	29.1	2.4
Dec	42.5	7.4	25.0	70	1955	22	34.6	1980	-32	1978	8	14.9	1978	1241	0	.0	.0	11.8	4.1	30.7	7.3
Ann	60.1	24.8	42.4	99+	Jun 1994	27	66.8	Aug 1983	-41	Jan 1962	10	10.5	Jan 1979	8299	88	.0	9.3	274.9	15.9	231.3	26.3

\+ 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	.42	.34	.67	1974	18	1.06	2000	.07	1981
Feb	.56	.56	.58	1987	15	1.64	1987	.00	1973
Mar	1.41	1.26	1.87	1990	7	4.20	1990	.21	1989
Apr	1.78	1.79	2.53	1967	13	4.34	1973	.32	1981
May	2.04	1.94	2.43	1973	6	5.36	1973	.15	1974
Jun	1.92	1.78	1.56	1979	8	4.72	1992	.14	1971
Jul	2.57	2.38	1.67	1984	29	5.71	1971	.68	1993
Aug	2.75	2.47	2.65	1969	23	5.95	1997	.38	1973
Sep	1.20	1.00	1.61	1959	29	3.07	1990	.06	1992
Oct	1.08	.94	2.04	1997	25	3.84	1984	.04	1983
Nov	.86	.55	1.53	1972	1	2.62	1972	.14	1984
Dec	.66	.49	1.44	1982	24	2.98	1973	.00	1980
Ann	17.25	16.96	2.65	Aug 1969	23	5.95	Aug 1997	.00+	Dec 1980

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.0	1.5	.1	.0
Feb	3.9	1.9	.1	.0
Mar	6.7	3.8	.6	.1
Apr	7.9	4.8	1.0	.3
May	8.8	5.0	1.1	.2
Jun	9.3	4.5	1.2	.3
Jul	12.9	6.8	1.3	.3
Aug	13.6	7.3	1.3	.3
Sep	6.8	3.5	.5	.1
Oct	5.0	2.6	.5	.1
Nov	5.2	2.6	.3	.1
Dec	4.4	1.9	.4	@
Ann	88.5	46.2	8.4	1.8

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	.08	.12	.18	.23	.29	.35	.42	.51	.62	.80	.97
Feb	.08	.15	.25	.32	.40	.48	.58	.68	.83	1.05	1.27
Mar	.34	.47	.67	.86	1.04	1.23	1.45	1.71	2.05	2.58	3.09
Apr	.49	.66	.92	1.14	1.36	1.59	1.84	2.15	2.54	3.15	3.72
May	.37	.55	.84	1.12	1.41	1.72	2.07	2.49	3.06	3.97	4.84
Jun	.36	.53	.81	1.07	1.34	1.62	1.95	2.34	2.86	3.69	4.48
Jul	.86	1.10	1.46	1.76	2.05	2.35	2.68	3.06	3.55	4.32	5.02
Aug	.78	1.04	1.43	1.78	2.11	2.46	2.85	3.31	3.90	4.83	5.70
Sep	.17	.27	.44	.60	.78	.97	1.19	1.46	1.83	2.43	3.01
Oct	.11	.19	.34	.49	.65	.83	1.05	1.31	1.68	2.29	2.88
Nov	.11	.18	.30	.42	.55	.69	.85	1.05	1.32	1.76	2.19
Dec	.03	.09	.19	.29	.39	.51	.64	.81	1.04	1.42	1.79
Ann	13.02	13.85	14.91	15.71	16.42	17.09	17.79	18.55	19.48	20.80	21.95

\+ 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

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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	5.8	5.0	1	1
Feb	7.9	7.7	1	1
Mar	14.0	12.0	1	1
Apr	10.5	9.0	1	#
May	1.7	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	1.1	.0	#	0
Oct	5.0	2.0	#	#
Nov	11.0	8.0	1	1
Dec	9.3	7.3	2	1
Ann	66.3	51.0	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	1989	12	18.0	1989	13	1983	2	5	1983
Feb	10.0	1971	20	23.0	1987	12	1989	6	3	1989
Mar	18.0	1977	11	32.0	1983	20	1977	12	4	1983
Apr	16.0	1974	13	25.5	1999	17	1986	4	2+	1999
May	7.0	1983	18	10.0+	1983	6	1973	6	1	1982
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	10.0	1971	17	13.0	1971	10	1971	17	1	1971
Oct	20.0	1984	16	25.0	1984	22	1984	16	2	1997
Nov	20.0	1972	1	39.0	1972	24	1972	1	4	1972
Dec	16.0	1972	5	33.0	1973	28	1982	25	7	1972
Ann	20.0+	Oct 1984	16	39.0	Nov 1972	28	Dec 1982	25	7	Dec 1972

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.2	2.8	.7	.1	.0
Feb	3.1	2.9	1.2	.3	@
Mar	4.8	4.6	1.9	.9	.1
Apr	3.2	3.1	1.4	.7	.2
May	.7	.6	.2	.1	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.4	.4	.1	@	@
Oct	1.5	1.3	.6	.2	.1
Nov	3.8	3.5	1.2	.6	.2
Dec	3.4	3.0	1.2	.6	.1
Ann	24.1	22.2	8.5	3.5	.7

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	11.2	4.8	1.7	.2
Feb	7.4	2.4	.6	.1
Mar	6.7	3.1	1.6	.3
Apr	3.6	1.8	.9	.2
May	.6	.2	.1	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.3	.1	@	@
Oct	2.1	1.0	.5	.3
Nov	7.7	3.3	1.7	.5
Dec	12.2	5.5	3.1	1.0
Ann	51.8	22.2	10.2	2.6

+ 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	7/18	7/10	7/04	6/29	6/24	6/19	6/14	6/08	5/31
32	7/06	6/28	6/22	6/17	6/12	6/07	6/02	5/28	5/20
28	6/14	6/07	6/02	5/29	5/25	5/21	5/16	5/11	5/04
24	6/01	5/26	5/21	5/17	5/13	5/09	5/05	4/30	4/23
20	5/17	5/11	5/06	5/02	4/28	4/25	4/21	4/16	4/10
16	5/05	4/29	4/24	4/20	4/16	4/13	4/09	4/04	3/29

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	8/05	8/14	8/19	8/24	8/29	9/03	9/08	9/13	9/21
32	8/18	8/26	8/31	9/05	9/09	9/14	9/19	9/24	10/02
28	9/07	9/12	9/16	9/19	9/22	9/25	9/28	10/02	10/07
24	9/16	9/21	9/25	9/28	10/01	10/04	10/07	10/11	10/16
20	9/22	9/29	10/03	10/07	10/10	10/14	10/18	10/22	10/28
16	10/02	10/09	10/13	10/17	10/21	10/25	10/29	11/03	11/09

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	108	94	83	74	65	57	48	37	22
32	130	115	105	97	89	80	72	62	48
28	149	139	132	125	119	114	107	100	90
24	170	160	152	146	140	135	129	121	111
20	194	184	176	170	164	158	152	145	134
16	214	205	198	192	187	182	176	169	160

***** 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	1272	1075	997	764	518	221	90	137	339	655	990	1241	8299
60	1117	935	842	614	366	115	22	52	208	500	840	1086	6697
57	1024	851	749	524	282	69	7	23	143	409	750	993	5824
55	962	795	687	467	230	46	2	12	106	349	690	931	5277
50	807	655	533	328	122	12	0	2	41	214	543	776	4033
32	297	187	86	27	1	0	0	0	0	6	131	268	1003

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	48	35	111	253	506	786	970	915	656	374	132	50	4836
55	0	0	0	2	22	142	259	214	72	4	0	0	715
57	0	0	0	0	13	105	202	163	48	2	0	0	533
60	0	0	0	0	4	61	124	99	23	0	0	0	311
65	0	0	0	0	0	17	38	28	5	0	0	0	88
70	0	0	0	0	0	3	5	4	0	0	0	0	12

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	4	6	40	119	312	584	754	701	467	211	44	9	4	10	50	169	481	1065	1819	2520	2987	3198	3242	3251
45	0	0	6	48	182	436	599	546	326	102	10	0	0	0	6	54	236	672	1271	1817	2143	2245	2255	2255
50	0	0	1	12	84	291	444	391	196	30	0	0	0	0	1	13	97	388	832	1223	1419	1449	1449	1449
55	0	0	0	0	23	163	292	239	86	4	0	0	0	0	0	0	23	186	478	717	803	807	807	807
60	0	0	0	0	2	66	148	99	20	0	0	0	0	0	0	0	2	68	216	315	335	335	335	335
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	36	48	83	151	280	426	513	487	377	252	87	39	36	84	167	318	598	1024	1537	2024	2401	2653	2740	2779

(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