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: ALTENBERN, CO **COOP ID: 050214**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 5,678 Feet** **Lat: 39˚30N** **Lon: 108˚23W**

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	35.8	10.7	23.3	57+	2000	19	32.1	1981	-32	1963	13	14.2	1973	1295	0	.0	.0	1.4	9.6	30.9	6.1
Feb	42.8	17.2	30.0	67	1986	26	37.6	1995	-28	1989	7	20.4	1974	981	0	.0	.0	5.8	2.2	27.4	1.9
Mar	52.9	24.4	38.7	75	1986	29	44.5	1986	-11	1966	4	33.2	1977	817	0	.0	.0	19.5	.2	28.1	.1
Apr	62.0	29.5	45.8	84+	2000	27	52.1	1989	1	1975	2	41.1	1975	578	0	.0	.0	26.4	@	20.3	.0
May	71.7	37.2	54.5	93+	2000	30	58.9	1989	19	1990	9	49.8	1975	330	4	.0	.2	30.7	.0	6.1	.0
Jun	83.3	43.1	63.2	102	1990	30	67.6	1981	22	1990	2	57.8	1975	118	64	.2	6.0	30.0	.0	.6	.0
Jul	88.8	49.8	69.3	104	1989	6	71.8	1989	30	1992	16	66.3	1995	9	142	.3	14.8	31.0	.0	@	.0
Aug	85.9	48.8	67.4	99	2000	1	71.3	2000	26	1992	27	64.1	1975	39	111	.0	7.8	31.0	.0	.1	.0
Sep	77.4	41.1	59.3	97	1978	7	65.2	1990	20	1999	29	53.4	1971	196	24	.0	1.3	30.0	.0	3.1	.0
Oct	65.0	31.5	48.3	86	1963	1	54.0	1988	8	1991	31	44.2	1984	519	0	.0	.0	28.4	.1	17.9	.0
Nov	48.4	21.1	34.8	72	1999	7	39.8	1999	-7	1976	28	28.3	1979	908	0	.0	.0	13.8	1.5	28.2	.5
Dec	37.5	12.2	24.9	61	1999	1	34.9	1980	-23+	1998	22	15.4	1978	1244	0	.0	.0	2.2	7.4	30.7	4.4
Ann	62.6	30.6	46.6	104	Jul 1989	6	71.8	Jul 1989	-32	Jan 1963	13	14.2	Jan 1973	7034	345	.5	30.1	250.2	21.0	193.4	13.0

\+ 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

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: ALTENBERN, CO **COOP ID: 050214**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 5,678 Feet** **Lat: 39˚30N** **Lon: 108˚23W**

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	1.13	.83	1.45	1954	25	4.04	1980	.00	1972
Feb	1.29	1.22	1.47	1996	21	3.45	1996	.00	1972
Mar	1.65	1.65	1.74	1993	28	3.55	1978	.09	1972
Apr	1.51	1.33	.82	1997	9	4.16	1999	.20	1981
May	1.81	1.42	1.19	1992	9	4.23	1992	.00	1974
Jun	.97	.82	1.82	1984	7	3.60	1984	.01	1980
Jul	1.35	1.32	1.32+	1985	20	3.20	1986	.15	1993
Aug	1.36	1.41	1.70	1986	8	3.17	1986	.18	1978
Sep	1.64	1.36	1.49	1995	29	5.09	1997	.06	1979
Oct	1.82	1.89	1.48	1992	31	4.30	1984	.12	1978
Nov	1.41	1.13	1.26	1985	9	4.59	1985	.03	1976
Dec	1.06	.92	1.66	1966	6	3.04	1984	.14	1976
Ann	17.00	16.53	1.82	Jun 1984	7	5.09	Sep 1997	.00+	May 1974

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.6	3.9	.3	@
Feb	7.2	3.7	.6	.1
Mar	9.3	5.4	.6	@
Apr	8.7	5.1	.6	.0
May	9.9	5.0	.9	.1
Jun	5.4	2.8	.4	.1
Jul	7.6	4.0	.6	.1
Aug	8.3	3.9	.6	.1
Sep	7.5	4.6	.8	.1
Oct	7.8	5.0	1.1	.1
Nov	7.5	4.5	.6	.1
Dec	7.2	3.7	.4	.0
Ann	94.0	51.6	7.5	.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	.15	.29	.48	.64	.80	.98	1.17	1.40	1.70	2.18	2.64
Feb	.09	.22	.42	.61	.81	1.03	1.28	1.59	2.01	2.69	3.35
Mar	.29	.44	.68	.91	1.14	1.39	1.67	2.01	2.47	3.21	3.92
Apr	.35	.49	.71	.90	1.10	1.31	1.55	1.83	2.19	2.78	3.33
May	.23	.45	.76	1.02	1.27	1.55	1.86	2.23	2.71	3.49	4.22
Jun	.04	.08	.18	.31	.45	.63	.86	1.15	1.57	2.30	3.04
Jul	.25	.37	.56	.75	.94	1.14	1.37	1.65	2.02	2.62	3.19
Aug	.24	.36	.56	.74	.93	1.14	1.38	1.66	2.05	2.66	3.25
Sep	.25	.39	.62	.85	1.09	1.34	1.64	2.01	2.49	3.29	4.05
Oct	.26	.41	.67	.92	1.19	1.48	1.81	2.22	2.77	3.68	4.55
Nov	.23	.35	.56	.75	.95	1.17	1.42	1.72	2.12	2.78	3.41
Dec	.18	.27	.43	.57	.72	.89	1.07	1.30	1.60	2.08	2.54
Ann	11.07	12.18	13.62	14.73	15.73	16.69	17.70	18.82	20.20	22.21	23.96

\+ 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

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: ALTENBERN, CO **COOP ID: 050214**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 5,678 Feet** **Lat: 39°30N** **Lon: 108°23W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	14.5	12.0	8	7
Feb	10.3	8.0	7	2
Mar	7.3	7.4	1	#
Apr	2.9	1.4	#	0
May	.6	.0	#	0
Jun	.1	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	1.6	.0	#	0
Nov	7.6	5.1	1	#
Dec	13.8	11.4	3	3
Ann	58.7	45.3	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	16.0	1980	28	38.5	1974	34	1988	19	26	1988
Feb	20.4	1989	4	38.2	1989	37	1989	14	29	1989
Mar	11.0	1993	28	19.2	1987	25	1989	3	9	1989
Apr	6.3	1975	1	18.1	1975	7	1999	2	1	1999
May	5.0	1983	17	7.0	1983	#	1999	10	#	1999
Jun	2.0	1974	8	2.0+	1976	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	.0	0	0	.0	0	0	0	0	0	0
Oct	9.0	1972	29	12.5	1984	8	1972	29	1	1972
Nov	14.0	1985	9	32.0	1985	14	1985	9	3	1985
Dec	14.5	1998	20	36.2	1972	22	1983	28	9	1978
Ann	20.4	Feb 1989	4	38.5	Jan 1974	37	Feb 1989	14	29	Feb 1989

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	6.2	4.8	2.1	.8	@
Feb	4.3	3.2	1.3	.6	.1
Mar	3.3	2.4	1.1	.3	@
Apr	1.2	1.1	.4	.1	.0
May	.3	.2	.1	@	.0
Jun	.1	.1	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.5	.5	.3	.1	.0
Nov	3.3	2.8	.9	.3	.1
Dec	6.0	4.6	1.6	.6	.2
Ann	25.2	19.7	7.8	2.8	.4

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	21.8	18.6	15.7	7.8
Feb	11.9	9.5	7.7	4.3
Mar	3.4	2.2	1.5	.6
Apr	.2	.1	@	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.4	.2	@	.0
Nov	4.0	2.1	.9	.1
Dec	15.7	11.5	6.5	2.2
Ann	57.4	44.2	32.3	15.0

+ 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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: ALTENBERN, CO **COOP ID: 050214**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 5,678 Feet** **Lat: 39˚30N** **Lon: 108˚23W**

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	7/12	7/04	6/28	6/23	6/18	6/13	6/08	6/02	5/25
32	6/20	6/12	6/07	6/03	5/30	5/25	5/21	5/16	5/08
28	5/30	5/24	5/20	5/16	5/13	5/09	5/06	5/01	4/25
24	5/13	5/06	5/02	4/28	4/24	4/21	4/17	4/12	4/06
20	4/28	4/22	4/18	4/15	4/12	4/08	4/05	4/01	3/26
16	4/17	4/11	4/06	4/02	3/29	3/26	3/22	3/17	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	8/23	8/29	9/03	9/07	9/11	9/14	9/18	9/23	9/30
32	9/10	9/14	9/17	9/20	9/23	9/26	9/28	10/02	10/06
28	9/13	9/20	9/24	9/28	10/01	10/04	10/08	10/13	10/19
24	9/25	10/01	10/05	10/09	10/13	10/16	10/20	10/24	10/31
20	10/10	10/16	10/20	10/23	10/26	10/29	11/02	11/06	11/11
16	10/22	10/27	10/31	11/03	11/06	11/08	11/11	11/15	11/20

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	119	107	98	91	84	77	69	60	48
32	144	134	127	121	116	110	104	97	88
28	166	157	151	145	140	135	130	124	115
24	197	188	181	176	171	166	160	154	145
20	221	213	207	202	197	192	187	181	173
16	245	237	230	225	220	216	210	204	196

***** 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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: ALTENBERN, CO **COOP ID: 050214**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 5,678 Feet** **Lat: 39˚30N** **Lon: 108˚23W**

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	1295	981	817	578	330	118	9	39	196	519	908	1244	7034
60	1140	841	662	430	195	49	1	8	96	366	758	1089	5635
57	1047	757	569	346	129	24	0	2	54	279	668	996	4871
55	985	701	508	292	93	14	0	1	34	224	608	934	4394
50	830	561	359	175	32	3	0	0	7	112	459	779	3317
32	331	145	27	4	0	0	0	0	0	0	67	262	836

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	59	88	233	416	697	936	1156	1095	818	504	149	41	6192
55	0	0	0	14	76	260	443	383	162	16	0	0	1354
57	0	0	0	8	50	210	381	322	122	8	0	0	1101
60	0	0	0	2	24	145	289	235	74	2	0	0	771
65	0	0	0	0	4	64	142	111	24	0	0	0	345
70	0	0	0	0	0	19	39	32	5	0	0	0	95

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	0	9	68	213	468	714	917	856	591	283	32	0	0	9	77	290	758	1472	2389	3245	3836	4119	4151	4151
45	0	0	17	108	316	564	762	701	442	154	7	0	0	0	17	125	441	1005	1767	2468	2910	3064	3071	3071
50	0	0	1	40	184	415	607	546	302	64	0	0	0	0	1	41	225	640	1247	1793	2095	2159	2159	2159
55	0	0	0	7	79	273	452	391	167	15	0	0	0	0	0	7	86	359	811	1202	1369	1384	1384	1384
60	0	0	0	0	18	142	298	237	66	0	0	0	0	0	0	0	18	160	458	695	761	761	761	761
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	14	88	198	346	485	582	552	417	244	56	4	0	14	102	300	646	1131	1713	2265	2682	2926	2982	2986

(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.
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