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: BLUE MESA LAKE, CO **COOP ID: 050797**

Climate Division: CO 2 **NWS Call Sign:** **Elevation: 7,600 Feet** **Lat: 38˚28N** **Lon: 107˚10W**

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	27.4	-.3	13.6	56	1971	31	22.7	1999	-36	1971	7	4.1	1984	1596	0	.0	.0	.2	25.5	31.0	20.6
Feb	31.9	3.5	17.7	54	1990	27	27.9	1995	-34	1989	7	8.8	1974	1324	0	.0	.0	1.1	12.9	28.3	11.6
Mar	42.7	16.5	29.6	67	1971	30	37.2	1999	-14	1997	6	22.1	1984	1098	0	.0	.0	7.5	2.5	30.8	2.3
Apr	54.9	25.2	40.1	78	1992	30	45.1	1981	9	1970	2	34.4	1983	749	0	.0	.0	20.8	.2	28.0	.2
May	65.5	32.9	49.2	85+	2000	30	53.0	1996	19	1970	1	45.7	1995	489	0	.0	.0	29.8	.0	21.5	.0
Jun	76.9	40.6	58.8	93	1990	30	61.9	1981	22	1999	5	55.8	1995	195	8	.0	.4	30.0	.0	2.6	.0
Jul	82.4	47.2	64.8	95	1989	7	67.1	1998	30	1997	2	60.4	1995	60	52	.0	1.3	31.0	.0	@	.0
Aug	80.6	46.6	63.6	92+	1972	1	66.3	1983	28	1972	31	60.7	1993	74	30	.0	.5	31.0	.0	.6	.0
Sep	72.8	38.7	55.8	88+	1995	3	59.9	1998	20	1992	27	52.5	1985	280	2	.0	.0	29.9	.0	9.7	.0
Oct	61.1	28.4	44.8	78+	1997	2	48.4	1972	8	1989	30	39.6	1984	628	0	.0	.0	27.1	.1	25.1	.1
Nov	43.8	17.7	30.8	66	1978	8	35.6	1981	-5	1991	3	23.1	2000	1028	0	.0	.0	8.6	4.9	29.7	1.8
Dec	30.0	4.8	17.4	53	1995	6	27.9	1980	-24+	1992	20	10.9	1978	1477	0	.0	.0	.3	18.0	30.9	14.0
Ann	55.8	25.2	40.5	95	Jul 1989	7	67.1	Jul 1998	-36	Jan 1971	7	4.1	Jan 1984	8998	92	.0	2.2	217.3	64.1	238.2	50.6

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1967-2001

(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	.91	.72	1.03+	1972	24	2.64	1974	.13	1971
Feb	.67	.57	.63	1993	20	2.32	1993	.00	1972
Mar	.53	.44	1.11	1992	4	1.68	1995	.04	1994
Apr	.51	.39	.67	1990	19	1.54	1995	.00+	1982
May	.55	.47	.65	1973	26	2.26	1995	.00	1974
Jun	.59	.40	.96	1997	9	2.03	1984	.00	1998
Jul	1.16	1.11	1.50	1977	22	3.32	1977	.02	2000
Aug	1.31	1.31	1.40	1987	7	3.10	1999	.24	1996
Sep	.83	.79	1.11	1970	13	1.93	1985	.00	1979
Oct	.77	.71	1.87	1969	16	2.34	1972	.00	2000
Nov	.64	.58	.72	1975	27	2.05	1986	.00	1989
Dec	.79	.57	1.02	1981	27	3.29	1983	.01	1998
Ann	9.26	9.03	1.87	Oct 1969	16	3.32	Jul 1977	.00+	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.4	3.1	.3	@
Feb	6.4	2.6	.1	.0
Mar	6.2	2.0	.1	@
Apr	5.5	1.7	.1	.0
May	5.5	1.8	.1	.0
Jun	5.4	1.9	.2	.0
Jul	9.5	3.3	.4	.1
Aug	10.4	4.0	.3	@
Sep	7.3	3.0	.1	.0
Oct	5.7	2.4	.3	.0
Nov	6.0	2.2	.2	.0
Dec	6.9	2.5	.2	@
Ann	82.2	30.5	2.4	.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	.12	.20	.33	.45	.59	.74	.91	1.12	1.40	1.87	2.31
Feb	.08	.17	.28	.38	.47	.57	.68	.82	1.00	1.28	1.55
Mar	.05	.09	.16	.23	.31	.40	.51	.64	.82	1.13	1.43
Apr	.00	.10	.21	.29	.37	.45	.54	.64	.78	1.00	1.21
May	.01	.04	.11	.19	.28	.38	.51	.67	.89	1.28	1.66
Jun	.01	.04	.12	.20	.29	.40	.54	.71	.96	1.38	1.81
Jul	.12	.21	.37	.53	.71	.90	1.13	1.42	1.81	2.46	3.09
Aug	.33	.45	.64	.81	.98	1.15	1.35	1.58	1.88	2.36	2.81
Sep	.10	.20	.34	.46	.58	.70	.85	1.02	1.25	1.61	1.96
Oct	.08	.17	.30	.41	.52	.65	.79	.95	1.18	1.53	1.88
Nov	.03	.09	.18	.28	.38	.49	.62	.79	1.01	1.38	1.75
Dec	.04	.08	.17	.27	.39	.54	.71	.94	1.27	1.82	2.38
Ann	6.15	6.73	7.49	8.07	8.59	9.10	9.63	10.21	10.93	11.97	12.88

\+ 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: 1967-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	12.8	10.5	8	8	12.0	1988	6	39.8	1974	40	1974	21	27	1974	6.5	4.4	1.8	.8	.1	-9.9	-9.9	-9.9	-9.9
Feb	10.7	8.4	10	6	8.0	1993	20	47.3	1993	36	1994	10	32	1974	5.6	4.3	1.3	.4	.0	15.5	8.4	5.5	2.6
Mar	6.2	4.5	6	5	8.0	1985	28	22.4	1975	31	1993	1	19	1975	4.3	2.9	.6	.2	.0	7.9	4.3	3.6	.0
Apr	3.4	1.8	1	#	8.5	1971	21	13.0	1971	19	1975	1	13	1975	2.3	1.5	.2	.1	.0	1.7	.4	.1	.0
May	.5	.0	#	0	4.0	1995	7	4.0	1995	4	1995	7	#+	2000	.3	.3	.1	.0	.0	.2	.1	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	#	2000	19	#	2000	.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	.0	#	0	2.0	1971	17	2.0	1971	#	1996	27	#	1996	@	@	.0	.0	.0	.0	.0	.0	.0
Oct	.6	.0	#	0	3.0	1979	30	3.0+	1997	4	1997	25	#+	1997	.9	.5	.1	.0	.0	.1	.0	.0	.0
Nov	6.6	5.8	1	#	13.0	1975	27	22.5	1975	14	1975	27	3	1998	3.1	2.2	.4	.1	@	5.6	2.4	1.0	.2
Dec	9.9	6.7	4	2	15.5	1981	27	33.3	1973	26	1983	22	13	1983	5.5	3.7	1.4	.6	.1	12.8	4.8	.7	.0
Ann	50.8	37.7	N/A	N/A	15.5	Dec 1981	27	47.3	Feb 1993	40	Jan 1974	21	32	Feb 1974	28.5	19.8	5.9	2.2	.2	-9.9	-9.9	-9.9	-9.9

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

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	94	85	78	72	67	62	56	49	40
32	115	107	102	97	92	87	83	77	69
28	145	134	126	118	112	105	98	90	79
24	162	152	145	139	133	128	122	115	105
20	192	180	171	164	157	150	143	134	122
16	218	205	195	187	179	171	163	153	140

***** 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	1596	1324	1098	749	489	195	60	74	280	628	1028	1477	8998
60	1441	1184	943	599	335	84	9	13	148	473	878	1322	7429
57	1348	1100	850	509	247	40	2	2	87	381	788	1229	6583
55	1286	1044	788	450	193	22	0	1	57	322	728	1167	6058
50	1131	904	633	309	86	2	0	0	14	187	578	1012	4856
32	583	426	172	20	0	0	0	0	0	3	126	462	1792

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	10	26	98	261	534	803	1015	979	712	398	88	8	4932
55	0	0	0	1	14	135	302	267	79	4	0	0	802
57	0	0	0	0	6	93	242	207	50	1	0	0	599
60	0	0	0	0	1	47	157	124	20	0	0	0	349
65	0	0	0	0	0	8	52	30	2	0	0	0	92
70	0	0	0	0	0	0	7	2	0	0	0	0	9

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	0	4	68	266	558	748	716	432	165	7	0	0	0	4	72	338	896	1644	2360	2792	2957	2964	2964
45	0	0	0	19	141	409	593	561	292	66	0	0	0	0	0	19	160	569	1162	1723	2015	2081	2081	2081
50	0	0	0	1	53	265	438	406	161	18	0	0	0	0	0	1	54	319	757	1163	1324	1342	1342	1342
55	0	0	0	0	7	137	283	253	62	1	0	0	0	0	0	0	7	144	427	680	742	743	743	743
60	0	0	0	0	0	44	136	115	16	0	0	0	0	0	0	0	0	44	180	295	311	311	311	311
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	18	111	268	415	507	482	348	191	25	0	0	1	19	130	398	813	1320	1802	2150	2341	2366	2366

(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