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: LAMAR, CO **COOP ID: 054770**

Climate Division: CO 1 **NWS Call Sign:** **Elevation: 3,627 Feet** **Lat: 38˚06N** **Lon: 102˚38W**

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	43.7	13.5	28.6	82	1928	14	40.0	1986	-29	1949	30	18.0	1979	1129	0	.0	.0	11.5	6.6	30.7	2.9
Feb	50.2	18.8	34.5	84	1981	20	41.4	1976	-21+	1960	28	23.3	1989	855	0	.0	.0	16.2	3.8	26.8	1.4
Mar	58.8	26.3	42.6	92+	1989	11	49.3	1986	-26	1948	11	37.9	1996	695	0	.0	.1	23.4	1.0	22.0	.2
Apr	67.8	35.7	51.8	98+	1989	23	58.5	1981	8+	1997	12	46.1	1983	402	5	.0	1.1	27.2	.1	9.3	.0
May	76.0	46.3	61.2	103+	1927	17	65.4+	1998	20	1920	13	56.6	1995	163	43	.2	4.0	30.5	.0	.7	.0
Jun	87.0	57.2	72.1	108+	1937	23	76.1	1994	34	1919	2	65.9	1989	15	227	2.9	14.6	30.0	.0	.0	.0
Jul	92.1	62.2	77.2	111+	1934	14	81.2	1980	43	1952	8	74.3	1992	0	377	5.3	22.5	31.0	.0	.0	.0
Aug	90.0	60.6	75.3	110+	1938	2	80.6	1983	40+	1992	29	71.1	1992	5	323	2.4	19.4	31.0	.0	.0	.0
Sep	82.0	50.4	66.2	105	1931	6	71.2	1998	23	1985	30	61.8	1993	75	111	.5	9.0	29.8	.0	.4	.0
Oct	70.6	36.4	53.5	99+	1926	17	56.5	1974	8	1991	29	49.3	1976	359	2	.0	1.1	29.3	.2	8.6	.0
Nov	54.7	23.2	39.0	89	1927	10	45.1	1981	-18	1991	3	31.7	1972	782	0	.0	.0	19.4	1.6	25.8	.3
Dec	45.5	15.1	30.3	82	1955	24	37.8	1980	-23+	1989	22	19.0	1983	1076	0	.0	.0	12.3	5.3	30.6	2.3
Ann	68.2	37.1	52.7	111+	Jul 1934	14	81.2	Jul 1980	-29	Jan 1949	30	18.0	Jan 1979	5556	1088	11.3	71.8	291.6	18.6	154.9	7.1

\+ 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: 1918-2001

(3) Derived from 1971-2000 serially complete daily data

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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	.32	1.25	1921	23	1.12	1999	.00	1998
Feb	.45	.24	1.25	1934	11	1.87	1990	.00	1973
Mar	1.03	.92	1.67	1924	16	4.67	1973	.00	1986
Apr	1.39	1.32	2.19	1969	16	5.05	1980	.02	1992
May	2.42	2.33	5.64	1964	29	6.44	1979	.44	2000
Jun	2.29	2.38	4.70	1949	4	5.99	1996	.21	1984
Jul	2.26	1.97	2.83	1957	25	7.88	1998	.56	1989
Aug	2.34	1.94	2.72	1992	11	7.51	1997	.06	1974
Sep	1.29	.94	2.65	1941	22	3.45	1988	.03	1974
Oct	.84	.41	2.51	1930	11	4.77	1997	.00+	1980
Nov	.72	.56	1.58	1946	2	1.99	1992	.00+	1995
Dec	.36	.26	1.70	1921	3	1.24	1979	.00	1976
Ann	15.82	15.66	5.64	May 1964	29	7.88	Jul 1998	.00+	Jan 1998

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.5	1.6	.1	@
Feb	3.3	1.2	.2	@
Mar	4.5	2.6	.5	.1
Apr	5.3	3.4	.8	.3
May	8.6	5.4	1.3	.4
Jun	7.2	4.5	1.5	.5
Jul	8.1	4.8	1.4	.4
Aug	6.8	3.8	1.7	.5
Sep	5.0	2.8	.9	.2
Oct	3.3	1.9	.5	.2
Nov	3.5	1.7	.4	@
Dec	3.2	1.2	.1	.0
Ann	62.3	34.9	9.4	2.6

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	.03	.07	.14	.21	.27	.34	.43	.53	.67	.89	1.11
Feb	.00	.02	.07	.12	.20	.28	.39	.54	.75	1.11	1.48
Mar	.02	.09	.22	.37	.53	.72	.95	1.25	1.66	2.36	3.06
Apr	.12	.22	.41	.60	.81	1.05	1.34	1.70	2.19	3.02	3.83
May	.55	.77	1.13	1.44	1.76	2.10	2.48	2.94	3.53	4.48	5.38
Jun	.36	.56	.89	1.21	1.53	1.89	2.30	2.80	3.47	4.55	5.59
Jul	.54	.75	1.08	1.38	1.67	1.98	2.33	2.74	3.28	4.14	4.94
Aug	.17	.31	.61	.93	1.29	1.70	2.20	2.83	3.71	5.19	6.66
Sep	.08	.15	.31	.49	.69	.92	1.20	1.56	2.06	2.92	3.77
Oct	.00	.02	.09	.20	.33	.49	.70	.98	1.39	2.11	2.84
Nov	.00	.00	.11	.24	.37	.52	.70	.91	1.21	1.69	2.17
Dec	.01	.03	.07	.12	.18	.24	.33	.43	.58	.83	1.08
Ann	10.64	11.62	12.89	13.86	14.73	15.57	16.45	17.42	18.60	20.33	21.83

\+ 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: 1918-2001
(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	5.6	5.0	1	1
Feb	4.7	2.6	#	#
Mar	5.8	5.0	#	#
Apr	1.9	.0	#	0
May	#	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	#	0
Oct	2.1	.0	#	0
Nov	4.9	2.6	1	#
Dec	4.4	3.7	1	#
Ann	29.5	18.9	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	1990	19	13.5	1990	12	1990	20	4	1984
Feb	12.0	1990	28	24.0	1990	12+	1993	17	3	1993
Mar	14.9	1973	30	18.7	1973	11+	1998	19	1	1999
Apr	9.0	1988	1	9.0	1988	9	1988	1	#+	1997
May	#	1990	3	#+	1990	#	1990	3	#	1990
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	2.0	1985	28	2.0	1985	1+	1995	21	#+	1995
Oct	22.0	1997	26	30.0	1997	30	1997	27	4	1997
Nov	16.7	1975	19	20.6	1972	10	1991	1	3	1987
Dec	9.0	1979	28	14.0	1979	7	1979	29	2	1992
Ann	22.0	Oct 1997	26	30.0	Oct 1997	30	Oct 1997	27	4+	Oct 1997

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.8	1.9	.7	.2	.0
Feb	2.3	1.3	.5	.2	@
Mar	1.8	1.6	.7	.4	.1
Apr	.8	.7	.3	.1	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.0	.0	.0
Oct	.3	.3	.3	.2	@
Nov	1.8	1.4	.7	.3	@
Dec	2.5	1.7	.5	.2	.0
Ann	12.4	9.0	3.7	1.6	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	7.2	3.3	1.8	.1
Feb	3.8	1.6	.7	.2
Mar	1.7	.9	.4	.1
Apr	.7	.2	.1	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	.0	.0	.0
Oct	.3	.3	.3	.2
Nov	3.3	1.9	1.0	.1
Dec	5.5	2.1	.6	.0
Ann	22.6	10.3	4.9	.7

+ 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	5/23	5/18	5/14	5/11	5/08	5/05	5/02	4/29	4/24
32	5/15	5/10	5/06	5/02	4/29	4/26	4/23	4/19	4/13
28	4/27	4/23	4/20	4/17	4/15	4/12	4/09	4/06	4/02
24	4/20	4/15	4/11	4/08	4/05	4/03	3/30	3/27	3/22
20	4/13	4/07	4/02	3/30	3/26	3/22	3/19	3/14	3/08
16	4/03	3/26	3/21	3/16	3/12	3/07	3/03	2/25	2/18

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

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	162	155	151	147	143	140	136	131	125
32	182	174	168	164	159	154	150	144	136
28	208	200	194	190	185	180	176	170	162
24	227	219	214	209	205	200	195	190	182
20	250	241	235	230	225	220	215	209	200
16	277	267	260	254	248	242	236	229	219

***** 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	1129	855	695	402	163	15	0	5	75	359	782	1076	5556
60	974	715	540	268	75	3	0	0	25	216	632	921	4369
57	881	631	448	198	42	0	0	0	10	143	542	828	3723
55	819	575	388	157	26	0	0	0	5	103	485	766	3324
50	666	445	249	78	6	0	0	0	0	37	348	615	2444
32	211	95	9	0	0	0	0	0	0	0	47	178	540

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	105	164	337	592	903	1202	1400	1342	1026	666	255	126	8118
55	0	0	3	60	216	512	687	629	340	55	3	0	2505
57	0	0	1	40	170	452	625	567	286	34	0	0	2175
60	0	0	0	20	111	364	532	474	210	13	0	0	1724
65	0	0	0	5	43	227	377	323	111	2	0	0	1088
70	0	0	0	0	11	116	227	187	47	0	0	0	588

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	17	64	200	410	703	987	1178	1120	815	454	114	25	17	81	281	691	1394	2381	3559	4679	5494	5948	6062	6087
45	2	22	109	283	550	837	1023	965	668	310	53	5	2	24	133	416	966	1803	2826	3791	4459	4769	4822	4827
50	0	3	50	167	401	687	868	810	523	189	14	0	0	3	53	220	621	1308	2176	2986	3509	3698	3712	3712
55	0	1	17	88	263	538	713	655	382	92	0	0	0	1	18	106	369	907	1620	2275	2657	2749	2749	2749
60	0	0	3	37	147	393	558	500	252	34	0	0	0	0	3	40	187	580	1138	1638	1890	1924	1924	1924
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	51	104	196	306	443	620	750	715	515	336	132	58	51	155	351	657	1100	1720	2470	3185	3700	4036	4168	4226

(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