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: CARLSBAD AP, NM **COOP ID: 291475**

Climate Division: NM 7 **NWS Call Sign: CNM** **Elevation: 3,232 Feet** **Lat: 32˚20N** **Lon: 104˚16W**

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	56.7	28.1	42.4	86+	1999	24	48.6	1999	-18	1962	11	36.4	1979	700	0	.0	.0	23.1	1.3	21.6	.2
Feb	62.8	32.5	47.7	87+	1986	26	55.4	2000	-4	1951	1	42.8	1985	486	0	.0	.0	24.3	.8	14.3	@
Mar	70.6	38.8	54.7	95	1971	26	60.8	1974	11	1971	3	49.1	1987	325	6	.0	.5	30.0	.1	6.5	.0
Apr	78.7	46.7	62.7	101	1965	21	70.6	1978	20	1983	8	56.2	1983	142	73	.1	3.7	29.7	.0	1.3	.0
May	87.2	56.6	71.9	110	2000	24	79.3	1996	34+	1967	2	67.8	1992	30	244	2.0	14.6	31.0	.0	.0	.0
Jun	94.8	64.4	79.6	113+	1994	27	85.7	1990	45	1970	2	75.2	1987	0	439	8.7	24.1	30.0	.0	.0	.0
Jul	94.9	68.0	81.5	113	1995	27	85.9	1998	53	1955	17	77.9	1975	0	511	7.7	26.3	31.0	.0	.0	.0
Aug	92.8	66.5	79.7	108+	1994	18	84.6	1977	55	1987	31	74.3	1971	0	454	4.3	23.8	31.0	.0	.0	.0
Sep	85.9	59.7	72.8	105	1948	5	80.2	1977	40	1971	20	66.5	1974	18	252	1.0	13.0	30.0	.0	.0	.0
Oct	77.1	48.1	62.6	99	1979	7	66.2	1979	22	1991	31	57.7	1976	121	47	.0	3.3	30.5	.0	.9	.0
Nov	65.4	35.9	50.7	90	1996	20	56.5	1999	-1	1976	29	43.9	1976	435	5	.0	@	27.1	.3	9.3	@
Dec	57.6	28.7	43.2	83	1970	8	50.0	1977	-4+	1983	29	38.0	1989	678	0	.0	.0	23.8	1.0	21.5	.1
Ann	77.0	47.8	62.5	113+	Jul 1995	27	85.9	Jul 1998	-18	Jan 1962	11	36.4	Jan 1979	2935	2031	23.8	109.3	341.5	3.5	75.4	.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

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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	.41	.35	.93	1968	21	1.43	1991	.02+	2000
Feb	.42	.32	1.20	1997	12	1.91	1997	.00+	1999
Mar	.25	.13	1.55	1998	16	1.57	1998	.00+	1991
Apr	.52	.32	1.91	1977	14	2.18	1977	.00+	1998
May	1.45	1.36	3.94	1987	22	5.33	1992	.02	1998
Jun	1.56	1.06	3.74	1986	23	8.98	1986	.00+	1990
Jul	1.83	1.42	2.90	1988	20	5.41	1991	.01	1995
Aug	2.38	2.05	3.21	1984	10	6.41	1984	.26	1999
Sep	2.87	2.13	3.33	1988	20	9.23	1974	.05	2000
Oct	1.15	.77	2.81	1950	3	3.43	1974	.00	1979
Nov	.65	.39	1.52	1978	4	3.42	1978	.00+	1999
Dec	.63	.28	1.03	1987	13	3.60	1991	.00+	1996
Ann	14.12	12.81	3.94	May 1987	22	9.23	Sep 1974	.00+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.4	1.4	.0	.0
Feb	3.0	1.3	.1	@
Mar	2.4	.7	.1	@
Apr	2.8	1.4	.2	.1
May	5.4	3.2	.9	.3
Jun	5.1	2.7	1.0	.3
Jul	6.4	3.3	1.2	.4
Aug	7.8	4.0	1.4	.6
Sep	7.0	4.1	1.7	.8
Oct	4.9	2.7	.7	.1
Nov	3.4	1.5	.4	.1
Dec	3.7	1.6	.3	@
Ann	56.3	27.9	8.0	2.7

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	.06	.11	.17	.23	.30	.39	.49	.64	.89	1.14
Feb	.00	.00	.02	.07	.14	.23	.35	.50	.72	1.11	1.51
Mar	.00	.00	.02	.05	.09	.14	.21	.29	.42	.64	.86
Apr	.00	.00	.06	.15	.24	.35	.48	.65	.88	1.26	1.65
May	.06	.13	.29	.48	.71	.97	1.30	1.73	2.34	3.39	4.45
Jun	.00	.03	.18	.37	.62	.93	1.32	1.84	2.60	3.92	5.27
Jul	.08	.17	.38	.62	.90	1.24	1.66	2.19	2.96	4.27	5.59
Aug	.40	.61	.96	1.28	1.62	1.98	2.40	2.91	3.59	4.68	5.73
Sep	.10	.23	.54	.91	1.34	1.88	2.54	3.42	4.66	6.82	9.01
Oct	.01	.04	.15	.28	.46	.68	.96	1.34	1.89	2.87	3.87
Nov	.00	.00	.03	.10	.21	.34	.52	.76	1.11	1.73	2.37
Dec	.00	.00	.02	.09	.19	.32	.49	.72	1.07	1.69	2.34
Ann	6.94	8.14	9.78	11.09	12.30	13.52	14.81	16.28	18.11	20.87	23.35

\+ 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	1.8	1.1	#	0
Feb	1.4	.0	#	0
Mar	.5	.0	#	0
Apr	.5	.0	#	0
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.1	.0	#	0
Nov	.8	.0	#	0
Dec	2.7	.3	#	0
Ann	7.8	1.4	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	4.7	1997	6	6.7	1997	5+	1997	7	1	1983
Feb	4.4	1973	22	9.5	1973	6	1986	10	#	1997
Mar	4.5	1977	5	6.0	1989	5	1989	21	#	1989
Apr	5.4	1983	7	11.7	1983	4+	1983	7	#	1983
May	.0	0	0	.0	0	0	0	0	#	1997
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	.0	0	0	.0	0	0	0	0	0	0
Oct	1.0	1976	29	1.0	1976	1	1991	31	#	1991
Nov	6.0	1976	12	8.3	1976	4	1980	17	#	1982
Dec	11.3	1987	13	15.5	1997	6	1997	26	1	1997
Ann	11.3	Dec 1987	13	15.5	Dec 1997	6+	Dec 1997	26	1+	Dec 1997

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.6	.7	.1	.0	.0
Feb	.8	.5	.2	.0	.0
Mar	.3	.2	.1	.0	.0
Apr	.2	.2	.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	.0	.0	.0	.0	.0
Oct	.1	.0	.0	.0	.0
Nov	.4	.3	.1	.1	.0
Dec	1.2	.7	.3	.2	@
Ann	4.6	2.6	.9	.3	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.2	.4	.1	.0
Feb	.6	.1	@	.0
Mar	.1	.1	@	.0
Apr	.1	.1	.0	.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	@	.0	.0	.0
Nov	.3	.1	.0	.0
Dec	.7	.2	.1	.0
Ann	3.0	1.0	.2	.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

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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	4/24	4/19	4/16	4/13	4/10	4/07	4/04	4/01	3/27
32	4/17	4/11	4/07	4/03	3/31	3/28	3/24	3/20	3/14
28	4/04	3/29	3/25	3/21	3/17	3/14	3/10	3/05	2/27
24	3/27	3/19	3/13	3/08	3/04	2/27	2/22	2/16	2/08
20	3/20	3/10	3/03	2/25	2/19	2/13	2/07	1/30	1/19
16	2/18	2/08	1/31	1/25	1/18	1/12	1/05	12/27	12/09

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	10/14	10/18	10/22	10/24	10/27	10/29	11/01	11/04	11/09
32	10/20	10/24	10/28	10/31	11/02	11/05	11/08	11/11	11/16
28	10/31	11/05	11/09	11/12	11/15	11/17	11/20	11/24	11/29
24	11/06	11/12	11/17	11/20	11/24	11/27	12/01	12/05	12/11
20	11/16	11/23	11/28	12/03	12/07	12/11	12/15	12/21	12/29
16	11/28	12/06	12/12	12/17	12/22	12/27	1/02	1/10	0/00

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	217	211	207	203	199	196	192	188	182
32	238	230	225	220	215	211	206	200	193
28	266	258	252	246	242	237	232	225	217
24	297	286	278	271	265	258	251	243	232
20	337	317	306	298	290	283	275	267	255
16	>365	>365	354	342	334	326	318	309	297

***** 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	700	486	325	142	30	0	0	0	18	121	435	678	2935
60	545	350	193	68	9	0	0	0	4	46	300	523	2038
57	454	273	129	37	3	0	0	0	0	22	228	431	1577
55	396	224	94	24	1	0	0	0	0	12	186	372	1309
50	257	126	33	6	0	0	0	0	0	2	102	234	760
32	10	1	0	0	0	0	0	0	0	0	1	6	18

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	333	440	704	921	1237	1428	1534	1477	1224	949	560	352	11159
55	6	19	85	254	526	738	821	764	534	248	55	4	4054
57	2	11	58	208	466	678	759	702	474	195	37	2	3592
60	0	4	29	148	378	588	666	609	387	126	19	0	2954
65	0	0	6	73	244	439	511	454	252	47	5	0	2031
70	0	0	0	27	138	295	356	305	143	10	0	0	1274

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	172	280	491	703	1010	1207	1307	1247	1002	721	359	180	172	452	943	1646	2656	3863	5170	6417	7419	8140	8499	8679
45	85	170	345	555	855	1057	1152	1092	852	568	233	87	85	255	600	1155	2010	3067	4219	5311	6163	6731	6964	7051
50	36	83	216	411	700	907	997	937	702	420	128	36	36	119	335	746	1446	2353	3350	4287	4989	5409	5537	5573
55	7	33	107	278	545	757	842	782	552	279	55	8	7	40	147	425	970	1727	2569	3351	3903	4182	4237	4245
60	0	9	44	161	394	607	687	627	409	152	14	0	0	9	53	214	608	1215	1902	2529	2938	3090	3104	3104
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	157	223	345	464	640	760	845	814	648	457	255	159	157	380	725	1189	1829	2589	3434	4248	4896	5353	5608	5767

(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