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, NM **COOP ID: 291469**

Climate Division: NM 7 **NWS Call Sign:** **Elevation: 3,120 Feet** **Lat: 32˚26N** **Lon: 104˚15W**

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	57.9	27.5	42.7	86	1999	24	48.5	1999	-16	1962	11	37.2	1979	691	0	.0	.0	23.7	1.1	23.4	@
Feb	64.1	31.9	48.0	88+	1957	11	55.6	2000	-6	1951	1	43.2	1978	477	0	.0	.0	24.4	.8	15.4	.0
Mar	72.0	37.9	55.0	95+	1989	13	59.6	1974	12	1967	9	50.8	1987	315	4	.0	.3	30.0	@	6.5	.0
Apr	79.3	46.2	62.8	99+	1948	18	67.5	1978	25	1983	8	57.4	1973	130	62	.0	3.5	29.6	.0	1.3	.0
May	87.1	55.9	71.5	109	2000	25	78.2	2000	32	1976	7	65.6	1976	25	228	1.3	13.1	31.0	.0	@	.0
Jun	94.9	64.1	79.5	114	1994	28	85.2	1990	43	1975	1	74.9	1979	0	435	7.6	24.1	30.0	.0	.0	.0
Jul	95.8	67.6	81.7	111+	1995	28	86.2	1998	54+	1952	8	77.6	1975	0	517	6.8	26.1	31.0	.0	.0	.0
Aug	93.8	66.3	80.1	106+	1980	3	83.5	1977	50	1963	31	76.1	1971	0	466	2.9	24.2	31.0	.0	.0	.0
Sep	87.7	58.9	73.3	106	1948	7	78.9	1998	40	1951	18	66.5	1974	14	262	.9	13.7	30.0	.0	.0	.0
Oct	79.4	46.8	63.1	100	2000	3	65.7	1998	21	1991	31	56.0	1976	108	49	@	3.3	30.6	.0	1.1	.0
Nov	67.9	35.3	51.6	90	1996	21	57.4	1999	-1	1957	23	42.8	1976	408	6	.0	@	27.9	.2	10.4	@
Dec	59.2	28.5	43.9	85	1958	5	50.0	1981	-4	1953	24	38.0	1989	655	0	.0	.0	24.5	.6	22.3	@
Ann	78.3	47.2	62.8	114	Jun 1994	28	86.2	Jul 1998	-16	Jan 1962	11	37.2	Jan 1979	2823	2029	19.5	108.3	343.7	2.7	80.4	@

\+ 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	.44	.34	.79	1980	22	1.42	1991	.00	1998
Feb	.51	.22	1.25	1997	12	2.26	1997	.00+	1999
Mar	.25	.17	.80	1961	19	1.17	1977	.00+	1996
Apr	.57	.28	2.23	1977	14	3.55	1981	.00+	1998
May	1.26	.97	3.41	1959	8	4.21	1992	.00+	2000
Jun	1.65	.96	3.80	1972	12	5.69	1986	.02+	1976
Jul	1.77	1.23	2.68	1991	15	7.48	1991	.05	1989
Aug	2.05	1.45	4.00	1966	23	7.70	1984	.03	1973
Sep	2.90	2.02	4.60	1980	26	12.27	1980	.00	2000
Oct	1.37	.89	3.03	1960	17	5.78	1974	.00+	1988
Nov	.74	.42	2.00	2000	3	4.51	1978	.00+	1999
Dec	.64	.29	1.62	1991	23	3.79	1991	.00+	1996
Ann	14.15	12.68	4.60	Sep 1980	26	12.27	Sep 1980	.00+	Sep 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.9	1.4	.1	.0
Feb	2.4	1.4	.2	@
Mar	1.9	.9	@	.0
Apr	2.2	1.4	.3	.1
May	4.0	2.3	.9	.3
Jun	4.4	2.8	1.0	.5
Jul	4.6	2.9	1.2	.4
Aug	5.8	3.7	1.3	.5
Sep	5.6	3.8	1.7	.9
Oct	4.4	2.8	.9	.2
Nov	2.3	1.4	.3	.1
Dec	2.6	1.5	.4	.1
Ann	43.1	26.3	8.3	3.1

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	.01	.05	.11	.17	.24	.32	.42	.54	.71	1.00	1.28
Feb	.00	.00	.05	.12	.20	.31	.44	.61	.85	1.28	1.71
Mar	.00	.00	.02	.05	.09	.14	.21	.30	.42	.63	.85
Apr	.00	.00	.00	.07	.18	.32	.48	.70	1.00	1.52	2.04
May	.00	.00	.12	.29	.49	.75	1.07	1.50	2.11	3.18	4.26
Jun	.04	.11	.27	.47	.72	1.03	1.42	1.94	2.70	4.02	5.36
Jul	.06	.14	.33	.55	.82	1.15	1.56	2.10	2.87	4.21	5.56
Aug	.16	.29	.55	.83	1.15	1.51	1.94	2.49	3.25	4.52	5.78
Sep	.07	.26	.64	1.05	1.51	2.05	2.70	3.53	4.69	6.65	8.60
Oct	.00	.03	.15	.32	.54	.81	1.16	1.62	2.29	3.47	4.67
Nov	.00	.00	.00	.06	.19	.36	.58	.87	1.29	2.03	2.77
Dec	.00	.00	.00	.05	.15	.28	.47	.72	1.10	1.78	2.49
Ann	6.54	7.78	9.49	10.87	12.15	13.45	14.83	16.40	18.38	21.38	24.08

\+ 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)

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	1.5	.0	#	0	5.0	1999	29	5.0	1999	5	1974	24	#+	1990	.6	.6	.1	.1	.0	.2	.1	.1	.0
Feb	1.6	.0	#	0	8.0	1975	22	11.0	1975	4	1973	9	1	1973	.4	.3	.3	.1	.0	.1	.1	.0	.0
Mar	.4	.0	#	0	2.7	1977	6	4.6	1977	1	1971	3	#	1971	.2	.1	.0	.0	.0	@	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.1	.0	#	0	8.4	1976	13	10.3	1976	3	1990	8	#	1990	.3	.3	.2	.1	.0	@	@	.0	.0
Dec	.7	.0	#	0	3.0	1989	30	4.4	1989	2+	1989	31	#+	1989	.4	.2	.1	.0	.0	.2	.0	.0	.0
Ann	5.3	.0	N/A	N/A	8.4	Nov 1976	13	11.0	Feb 1975	5	Jan 1974	24	1	Feb 1973	1.9	1.5	.7	.3	.0	.5	.2	.1	.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	4/27	4/22	4/19	4/16	4/14	4/11	4/09	4/05	4/01
32	4/20	4/14	4/10	4/06	4/03	3/30	3/27	3/22	3/17
28	4/05	3/29	3/24	3/20	3/16	3/12	3/08	3/03	2/24
24	3/23	3/15	3/08	3/03	2/26	2/21	2/15	2/09	1/31
20	3/14	3/02	2/21	2/14	2/07	1/31	1/23	1/14	12/30
16	2/18	2/08	1/31	1/24	1/18	1/12	1/04	12/25	0/00

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	10/12	10/16	10/19	10/22	10/25	10/27	10/30	11/02	11/07
32	10/19	10/24	10/28	10/31	11/03	11/06	11/09	11/13	11/18
28	10/29	11/04	11/08	11/12	11/15	11/18	11/22	11/26	12/02
24	11/09	11/14	11/18	11/21	11/23	11/26	11/29	12/02	12/07
20	11/14	11/23	11/30	12/06	12/11	12/17	12/23	12/31	1/16
16	11/29	12/08	12/15	12/20	12/26	1/01	1/08	1/18	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	213	206	201	197	193	189	185	180	173
32	238	229	223	218	214	209	204	198	190
28	271	262	255	249	243	238	232	225	216
24	299	289	282	276	270	264	258	251	241
20	>365	341	326	315	306	297	287	277	262
16	>365	>365	>365	352	337	327	318	308	296

***** 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	691	477	315	130	25	0	0	0	14	108	408	655	2823
60	536	341	181	56	6	0	0	0	2	38	275	501	1936
57	444	265	116	28	2	0	0	0	0	17	207	410	1489
55	385	217	82	16	0	0	0	0	0	9	167	351	1227
50	246	121	26	3	0	0	0	0	0	1	89	216	702
32	8	1	0	0	0	0	0	0	0	0	0	5	14

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	340	448	712	923	1226	1425	1540	1489	1238	964	589	372	11266
55	4	21	81	249	513	735	827	776	548	260	66	6	4086
57	1	12	53	200	453	675	765	714	488	206	45	3	3615
60	0	5	24	138	364	585	672	621	400	134	24	1	2968
65	0	0	4	62	228	435	517	466	262	49	6	0	2029
70	0	0	0	20	120	289	362	313	148	11	0	0	1263

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	164	272	478	691	989	1191	1294	1238	1002	722	363	181	164	436	914	1605	2594	3785	5079	6317	7319	8041	8404	8585
45	77	167	338	541	834	1041	1139	1083	852	567	236	88	77	244	582	1123	1957	2998	4137	5220	6072	6639	6875	6963
50	27	80	205	397	679	891	984	928	702	418	125	33	27	107	312	709	1388	2279	3263	4191	4893	5311	5436	5469
55	4	31	105	265	524	741	829	773	554	275	52	5	4	35	140	405	929	1670	2499	3272	3826	4101	4153	4158
60	0	7	41	151	372	591	674	618	410	152	15	0	0	7	48	199	571	1162	1836	2454	2864	3016	3031	3031
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	160	230	347	455	631	754	835	809	650	466	272	171	160	390	737	1192	1823	2577	3412	4221	4871	5337	5609	5780

(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