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: MAXWELL 3 NW (RATON), NM **COOP ID: 295490**

Climate Division: NM 3 **NWS Call Sign:** **Elevation: 6,019 Feet** **Lat: 36˚34N** **Lon: 104˚34W**

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	45.9	11.9	28.9	83	1953	13	35.8	1986	-35	1963	13	20.6	1979	1120	0	.0	.0	13.5	4.9	30.7	3.2
Feb	51.5	15.4	33.5	78	1986	27	39.9	1995	-26	1982	6	28.8	1985	883	0	.0	.0	16.7	2.5	27.8	1.8
Mar	57.8	22.7	40.3	84+	1971	27	47.1	1989	-22+	1948	11	34.8	1984	768	0	.0	.0	24.0	.7	28.0	.1
Apr	64.7	29.3	47.0	88	1989	21	53.8	1981	-3	1957	8	38.4	1973	541	0	.0	.0	27.0	.2	19.6	.0
May	72.8	38.7	55.8	95	2000	29	62.1	1996	15	1962	1	51.4	1983	294	6	.0	.4	30.6	.0	6.0	.0
Jun	81.6	46.9	64.3	100+	1953	27	68.5	1981	28	1973	5	60.6	1982	84	61	@	4.7	30.0	.0	.3	.0
Jul	85.5	52.4	69.0	100+	1953	4	74.0	1980	39+	1955	1	66.8	1990	10	133	.0	8.1	31.0	.0	.0	.0
Aug	83.4	51.3	67.4	99	1963	2	71.4	1982	36	1956	30	64.5	1990	36	108	.0	4.0	31.0	.0	.0	.0
Sep	77.4	44.3	60.9	95+	1995	3	65.7	1998	16	1970	26	57.3	1971	152	28	.0	1.1	29.7	.0	1.6	.0
Oct	68.0	32.4	50.2	89+	1962	14	52.8	1988	-3	1993	30	45.1	1984	459	0	.0	.0	29.4	.2	15.8	@
Nov	55.0	21.2	38.1	81	1980	8	45.2	1981	-24	1976	28	27.5	1972	807	0	.0	.0	20.7	1.4	27.7	.5
Dec	46.7	13.4	30.1	76	1980	17	39.5	1980	-28	1961	12	22.7	1983	1084	0	.0	.0	13.0	3.7	30.6	2.9
Ann	65.9	31.7	48.8	100+	Jul 1953	4	74.0	Jul 1980	-35	Jan 1963	13	20.6	Jan 1979	6238	336	@	18.3	296.6	13.6	188.1	8.5

\+ 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	.28	.17	.80	2001	16	1.66	1987	.00+	1998
Feb	.23	.11	.69	1987	19	1.70	1987	.00+	1999
Mar	.58	.45	1.20	1973	30	2.50	2000	.00+	1997
Apr	.68	.53	1.50	1949	30	2.70	1999	.00+	1974
May	2.22	1.88	4.16	1955	18	6.15	1994	.19	1973
Jun	2.11	2.05	2.18	1994	3	4.44	1986	.20	1990
Jul	2.38	2.20	2.90	1955	12	5.42	1977	.39	1980
Aug	3.14	2.43	2.63	1987	22	8.51	1981	1.03	1983
Sep	2.03	2.18	2.85	1973	10	4.77	1995	.05+	1992
Oct	1.04	.63	2.29	1957	20	4.06	2000	.00+	1995
Nov	.57	.43	1.56	1978	4	2.39	1978	.00+	1999
Dec	.25	.12	.49	1967	15	.90	1974	.00+	1999
Ann	15.51	15.35	4.16	May 1955	18	8.51	Aug 1981	.00+	Dec 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	1.9	.7	.1	.0
Feb	1.8	.7	.1	.0
Mar	3.3	1.7	.1	.1
Apr	3.3	2.0	.3	.1
May	5.8	4.1	1.4	.5
Jun	6.7	4.4	1.5	.4
Jul	7.1	4.8	1.3	.6
Aug	9.6	6.6	1.7	.6
Sep	5.0	3.2	1.3	.5
Oct	2.8	2.2	.7	.2
Nov	2.3	1.4	.3	.1
Dec	1.9	1.0	.0	.0
Ann	51.5	32.8	8.8	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	.00	.01	.04	.07	.12	.17	.24	.33	.46	.69	.91
Feb	.00	.00	.00	.00	.04	.10	.17	.27	.41	.66	.91
Mar	.00	.00	.15	.25	.35	.46	.58	.73	.92	1.25	1.55
Apr	.00	.06	.18	.29	.40	.52	.67	.84	1.08	1.48	1.87
May	.34	.52	.84	1.15	1.47	1.82	2.22	2.71	3.37	4.44	5.46
Jun	.34	.52	.82	1.11	1.42	1.74	2.12	2.58	3.19	4.19	5.14
Jul	.51	.73	1.08	1.39	1.71	2.05	2.43	2.89	3.50	4.47	5.38
Aug	.89	1.18	1.63	2.03	2.41	2.81	3.26	3.78	4.46	5.53	6.52
Sep	.21	.36	.64	.92	1.23	1.57	1.98	2.48	3.17	4.32	5.44
Oct	.00	.00	.06	.24	.44	.67	.94	1.29	1.78	2.59	3.43
Nov	.00	.03	.11	.20	.29	.40	.53	.70	.93	1.33	1.72
Dec	.00	.00	.00	.03	.09	.15	.22	.31	.43	.64	.85
Ann	10.23	11.22	12.51	13.50	14.38	15.24	16.13	17.13	18.34	20.12	21.66

\+ 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	4.2	2.0	#	0	12.0	1990	19	20.5	1990	8	2000	28	1+	2000	1.8	1.4	.4	.2	@	1.6	.9	.4	.0
Feb	3.0	1.0	#	0	12.0	1989	4	13.7	1987	12+	1990	21	1+	1997	1.3	.9	.4	.2	@	1.7	.8	.5	.2
Mar	2.8	2.1	#	0	14.0	1973	30	14.0	1973	18	1973	30	1	1973	1.4	1.1	.5	.1	@	1.0	.4	.2	@
Apr	.5	.0	#	0	4.0	1998	17	4.0	1998	2+	1998	17	#	1998	.5	.3	@	.0	.0	.3	.0	.0	.0
May	.7	.0	#	0	10.0	1978	3	15.5	1978	3	1982	5	#	2000	.2	.2	.1	@	@	.1	@	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1999	.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	.2	.0	#	0	6.0	1971	18	6.0	1971	6	1971	18	#	1971	.0	.0	@	@	.0	@	@	@	.0
Oct	1.1	.0	#	0	6.0	1991	31	10.0	1984	6	1991	31	#	1999	.5	.5	.1	.1	.0	.2	.1	@	.0
Nov	3.5	2.0	#	0	8.0	1976	26	20.0	1972	10	1976	27	1	1976	1.0	.9	.4	.2	.0	1.2	.4	.1	@
Dec	3.4	1.2	#	0	6.0	1971	8	15.0	1971	6+	1995	22	1+	1992	1.3	1.2	.5	.2	.0	1.5	.7	.3	.0
Ann	19.4	8.3	N/A	N/A	14.0	Mar 1973	30	20.5	Jan 1990	18	Mar 1973	30	1+	Jan 2000	8.0	6.5	2.4	1.0	@	7.6	3.3	1.5	.2

+ 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	6/16	6/11	6/07	6/03	5/31	5/28	5/24	5/20	5/14
32	6/05	5/31	5/27	5/24	5/21	5/19	5/16	5/12	5/07
28	5/22	5/17	5/14	5/11	5/08	5/05	5/03	4/29	4/25
24	5/17	5/11	5/07	5/03	4/29	4/26	4/22	4/18	4/11
20	4/30	4/24	4/20	4/17	4/14	4/10	4/07	4/03	3/28
16	4/19	4/13	4/09	4/06	4/03	3/31	3/27	3/24	3/18

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	9/10	9/14	9/17	9/20	9/22	9/24	9/27	9/30	10/04
32	9/16	9/20	9/22	9/25	9/27	9/29	10/02	10/04	10/08
28	9/26	9/30	10/03	10/06	10/09	10/11	10/14	10/17	10/21
24	10/02	10/07	10/11	10/14	10/17	10/20	10/23	10/27	11/01
20	10/10	10/16	10/19	10/23	10/26	10/29	11/02	11/06	11/11
16	10/19	10/25	10/29	11/01	11/05	11/08	11/12	11/16	11/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	133	126	121	117	113	110	106	101	94
32	145	139	135	131	128	124	121	116	110
28	173	166	161	157	153	149	144	139	132
24	189	183	178	174	170	166	162	157	150
20	217	210	204	199	195	190	185	180	172
16	241	232	226	220	215	210	205	198	190

***** 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	1120	883	768	541	294	84	10	36	152	459	807	1084	6238
60	965	743	613	397	165	26	0	6	61	305	657	929	4867
57	872	659	521	315	106	9	0	1	28	219	569	836	4135
55	810	603	459	263	74	4	0	0	14	168	512	774	3681
50	655	463	312	156	25	0	0	0	1	72	375	620	2679
32	175	70	13	3	0	0	0	0	0	0	58	153	472

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	78	111	267	452	735	966	1146	1095	866	565	241	92	6614
55	0	0	1	23	97	281	433	382	190	20	5	0	1432
57	0	0	0	14	66	226	371	321	143	8	2	0	1151
60	0	0	0	6	32	152	278	232	86	2	0	0	788
65	0	0	0	0	6	61	133	108	28	0	0	0	336
70	0	0	0	0	0	14	37	30	5	0	0	0	86

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	8	33	104	246	500	736	910	857	632	341	93	14	8	41	145	391	891	1627	2537	3394	4026	4367	4460	4474
45	1	6	40	135	348	586	755	702	484	204	36	0	1	7	47	182	530	1116	1871	2573	3057	3261	3297	3297
50	0	0	9	55	208	436	600	547	339	97	5	0	0	0	9	64	272	708	1308	1855	2194	2291	2296	2296
55	0	0	0	13	99	288	445	392	204	27	0	0	0	0	0	13	112	400	845	1237	1441	1468	1468	1468
60	0	0	0	0	28	154	290	237	91	2	0	0	0	0	0	0	28	182	472	709	800	802	802	802
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	52	87	153	239	364	477	572	544	420	295	128	53	52	139	292	531	895	1372	1944	2488	2908	3203	3331	3384

(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

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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