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: RIO GRANDE CITY 1 SE, TX **COOP ID: 417622**

Climate Division: TX 9 **NWS Call Sign:** **Elevation: 172 Feet** **Lat: 26˚23N** **Lon: 98˚49W**

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	69.4	44.5	57.0	97	1997	5	66.7	1998	10	1962	12	50.4	1977	295	39	.0	.7	28.5	.0	3.8	.0
Feb	74.2	48.1	61.2	104	1902	26	68.4	2000	15+	1951	4	52.7	1978	162	54	.1	2.1	26.9	@	2.0	.0
Mar	82.5	55.5	69.0	108+	1954	31	74.3	2000	25+	1987	31	61.0	1987	45	169	.6	7.7	31.0	.0	.4	.0
Apr	88.3	62.4	75.4	112+	1963	10	80.3	1999	30	1900	7	68.4	1987	5	315	2.4	14.0	30.0	.0	.0	.0
May	92.3	69.7	81.0	112+	1955	27	86.3	1998	44+	1944	2	76.1	1976	0	496	3.7	22.0	31.0	.0	.0	.0
Jun	96.7	73.4	85.1	116	1998	14	91.8	1998	53+	1970	4	80.6	1987	0	601	9.4	27.7	30.0	.0	.0	.0
Jul	99.1	74.3	86.7	111	1998	6	91.8	1998	59+	1985	1	81.7	1976	0	673	16.9	29.9	31.0	.0	.0	.0
Aug	99.3	74.1	86.7	115	1947	13	91.3	1998	60+	1967	15	82.5	1973	0	673	17.1	29.9	31.0	.0	.0	.0
Sep	94.1	70.6	82.4	111	2000	6	86.0	1996	45	1942	29	77.7	1975	0	521	6.6	24.4	30.0	.0	.0	.0
Oct	86.8	62.5	74.7	104+	1966	1	77.6	1984	29	1993	31	66.4	1976	6	305	.2	12.8	31.0	.0	@	.0
Nov	78.1	53.9	66.0	99+	1947	2	73.3	1994	22+	1969	22	56.9	1976	103	132	.0	3.3	29.5	.0	1.0	.0
Dec	70.5	46.1	58.3	97	1977	6	65.9	1984	15	1973	21	48.6	1989	250	43	.0	.6	29.3	.1	2.8	.0
Ann	85.9	61.3	73.6	116	Jun 1998	14	91.8+	Jul 1998	10	Jan 1962	12	48.6	Dec 1989	866	4021	57.0	175.1	359.2	.1	10.0	.0

\+ 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: 1897-2001

(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	.97	.63	3.25	1958	5	4.59	1984	.00+	1999
Feb	1.10	.74	3.21	1948	2	5.29	1983	.00+	1999
Mar	.74	.47	2.66	1999	28	2.88	1999	.00	1996
Apr	1.22	1.05	4.34	1968	21	4.42	1997	.00+	1998
May	2.42	1.61	6.30	1904	4	10.30	1985	.00+	1998
Jun	2.94	1.81	6.13	1993	21	13.26	1993	.00+	1996
Jul	1.27	.80	4.32	1938	31	6.27	1976	.00+	1997
Aug	1.97	1.67	4.97	1981	29	10.50	1981	.00+	1997
Sep	4.68	4.02	12.51	1967	22	16.03	1998	.74	1982
Oct	2.48	2.25	4.86	1998	19	8.05	1998	.00	1979
Nov	.90	.55	2.21	1990	8	3.32	1976	.00	1973
Dec	.92	.68	2.09	1986	30	4.71	1986	.05	1990
Ann	21.61	19.62	12.51	Sep 1967	22	16.03	Sep 1998	.00+	Feb 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.4	2.5	.4	.1
Feb	6.0	2.2	.5	.3
Mar	3.9	1.3	.4	.2
Apr	4.8	2.2	.8	.4
May	5.5	3.1	1.6	.7
Jun	5.0	3.5	1.6	.8
Jul	3.6	2.0	.9	.4
Aug	4.6	2.8	1.4	.6
Sep	7.4	4.9	2.5	1.5
Oct	5.6	3.0	1.5	.8
Nov	4.7	2.1	.5	.2
Dec	6.9	2.0	.4	.2
Ann	65.4	31.6	12.5	6.2

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	.00	.08	.20	.36	.56	.81	1.15	1.63	2.49	3.36
Feb	.00	.00	.12	.28	.46	.68	.96	1.33	1.84	2.74	3.64
Mar	.00	.01	.06	.14	.25	.39	.57	.83	1.22	1.92	2.65
Apr	.00	.00	.21	.41	.62	.86	1.15	1.52	2.01	2.85	3.68
May	.00	.21	.61	1.00	1.40	1.84	2.37	3.00	3.89	5.34	6.77
Jun	.00	.10	.45	.87	1.35	1.93	2.64	3.55	4.85	7.09	9.34
Jul	.00	.00	.06	.26	.50	.78	1.12	1.56	2.18	3.23	4.31
Aug	.00	.00	.13	.36	.66	1.06	1.58	2.28	3.31	5.15	7.04
Sep	.86	1.28	1.97	2.60	3.25	3.95	4.75	5.71	6.99	9.05	11.01
Oct	.13	.35	.73	1.09	1.48	1.91	2.42	3.05	3.91	5.33	6.72
Nov	.00	.03	.10	.21	.34	.51	.74	1.04	1.48	2.27	3.09
Dec	.06	.11	.22	.35	.49	.66	.86	1.12	1.48	2.09	2.70
Ann	11.07	12.86	15.28	17.22	19.00	20.77	22.64	24.77	27.43	31.41	34.96

\+ 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: 1897-2001
(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	#	.0	0	0
Feb	#	.0	0	0
Mar	.0	.0	0	0
Apr	.0	.0	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	0
Nov	.0	.0	0	0
Dec	.0	.0	0	0
Ann	#	.0	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	#	1985	14	#	1985	0	0	0	0	0
Feb	#	1973	9	#	1973	0	0	0	0	0
Mar	.0	0	0	.0	0	0	0	0	0	0
Apr	.0	0	0	.0	0	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Nov	.0	0	0	.0	0	0	0	0	0	0
Dec	.0	0	0	.0	0	0	0	0	0	0
Ann	#+	Jan 1985	14	#+	Jan 1985	0	0	0	0	0

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.0	.0	.0	.0	.0
Feb	.0	.0	.0	.0	.0
Mar	.0	.0	.0	.0	.0
Apr	.0	.0	.0	.0	.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	.0	.0	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	.0	.0	.0	.0	.0
Ann	.0	.0	.0	.0	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.0	.0	.0	.0
Feb	.0	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.0	.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	.0
Nov	.0	.0	.0	.0
Dec	.0	.0	.0	.0
Ann	.0	.0	.0	.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	3/30	3/19	3/11	3/05	2/27	2/21	2/14	2/07	1/27
32	3/13	3/02	2/22	2/15	2/09	2/02	1/25	1/16	12/29
28	3/01	2/12	1/30	1/18	1/06	12/22	11/25	0/00	0/00
24	1/22	1/11	1/01	12/20	0/00	0/00	0/00	0/00	0/00
20	12/30	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	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	11/05	11/14	11/21	11/27	12/03	12/08	12/14	12/21	12/31
32	11/14	11/24	12/02	12/08	12/14	12/21	12/28	1/06	1/23
28	12/03	12/12	12/18	12/24	12/30	1/08	0/00	0/00	0/00
24	12/21	12/29	1/06	1/16	0/00	0/00	0/00	0/00	0/00
20	12/24	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00	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	325	309	297	287	278	269	259	247	231
32	>365	349	331	319	309	300	290	279	264
28	>365	>365	>365	>365	>365	348	330	315	298
24	>365	>365	>365	>365	>365	>365	>365	>365	339
20	>365	>365	>365	>365	>365	>365	>365	>365	>365
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

***** 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	295	162	45	5	0	0	0	0	0	6	103	250	866
60	194	87	13	0	0	0	0	0	0	1	47	153	495
57	145	53	5	0	0	0	0	0	0	0	26	106	335
55	115	36	2	0	0	0	0	0	0	0	17	79	249
50	55	12	0	0	0	0	0	0	0	0	5	32	104
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	773	816	1146	1300	1519	1591	1696	1696	1511	1322	1019	816	15205
55	175	207	436	610	806	901	983	983	821	609	346	182	7059
57	143	168	376	550	744	841	921	921	761	547	296	147	6415
60	99	118	291	460	651	751	828	828	671	455	226	101	5479
65	39	54	169	315	496	601	673	673	521	305	132	43	4021
70	19	18	80	185	347	451	518	518	371	172	63	16	2758

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	541	628	908	1069	1282	1362	1458	1457	1280	1081	790	580	541	1169	2077	3146	4428	5790	7248	8705	9985	11066	11856	12436
45	398	487	753	919	1127	1212	1303	1302	1130	926	641	431	398	885	1638	2557	3684	4896	6199	7501	8631	9557	10198	10629
50	272	356	601	769	972	1062	1148	1147	980	772	496	298	272	628	1229	1998	2970	4032	5180	6327	7307	8079	8575	8873
55	168	239	455	619	817	912	993	992	830	618	364	187	168	407	862	1481	2298	3210	4203	5195	6025	6643	7007	7194
60	91	142	318	473	662	762	838	837	680	466	245	103	91	233	551	1024	1686	2448	3286	4123	4803	5269	5514	5617
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	342	404	596	709	860	897	943	938	850	725	521	369	342	746	1342	2051	2911	3808	4751	5689	6539	7264	7785	8154

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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