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: CANDELARIA, TX **COOP ID: 411416**

Climate Division: TX 5 **NWS Call Sign:** **Elevation: 2,875 Feet** **Lat: 30˚08N** **Lon: 104˚41W**

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	66.6	31.5	49.1	86	1974	21	53.2	2000	9	1989	14	45.3	1973	495	0	.0	.0	29.7	.0	18.2	.0
Feb	73.4	35.0	54.2	92+	1996	23	59.5	2000	9	1965	14	50.3	1973	304	2	.0	.3	27.8	.2	11.2	.0
Mar	81.0	40.5	60.8	98	1986	31	66.4	1974	14	1965	4	57.3	1973	157	26	.0	3.1	31.0	.0	4.6	.0
Apr	88.9	47.0	68.0	105	1972	12	73.4	1986	21+	1980	14	62.7	1973	41	130	.8	15.1	29.9	.0	1.0	.0
May	96.1	55.9	76.0	109+	2000	25	82.1	2000	34+	1970	3	71.5	1976	3	345	8.8	26.6	31.0	.0	.0	.0
Jun	101.6	64.7	83.2	115+	1998	29	90.2	1980	46	1976	1	79.7	1979	0	545	20.7	28.9	30.0	.0	.0	.0
Jul	99.9	67.6	83.8	114	1989	2	88.5	1980	56	1985	4	80.2	1975	0	580	16.6	28.6	31.0	.0	.0	.0
Aug	97.3	65.7	81.5	111	1969	17	84.0	2000	47	1973	24	78.0	1973	0	511	13.0	27.7	31.0	.0	.0	.0
Sep	93.1	61.1	77.1	109	1983	6	82.7	1997	33	1969	9	73.0	1974	2	364	4.3	22.1	30.0	.0	.0	.0
Oct	85.6	50.0	67.8	103	2000	3	70.6	1983	22	1993	31	62.5	1976	36	123	.3	9.4	31.0	.0	.6	.0
Nov	74.2	37.5	55.9	93	1996	1	60.6	1998	15+	1994	30	49.9	1992	284	10	.0	.3	29.6	.0	8.2	.0
Dec	66.8	31.8	49.3	86+	1993	12	53.4	1984	6	1989	23	44.9	1989	487	0	.0	.0	30.0	.0	16.9	.0
Ann	85.4	49.0	67.2	115+	Jun 1998	29	90.2	Jun 1980	6	Dec 1989	23	44.9	Dec 1989	1809	2636	64.5	162.1	362.0	.2	60.7	.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

Issue Date: February 2004

(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	.32	.13	.90	1994	21	1.31	1992	.00+	2000
Feb	.32	.21	1.12	1997	20	1.37	1989	.00+	2000
Mar	.20	.09	.99	1960	25	.83	1994	.00+	2000
Apr	.38	.09	1.42	1981	23	3.28	1981	.00+	2000
May	.74	.50	1.83	1985	16	2.52	1984	.00+	2000
Jun	1.97	1.29	2.70	1979	1	7.63	2000	.08	1974
Jul	2.13	1.55	1.80	1993	2	5.01	1993	.13	1996
Aug	2.46	2.15	2.62	1984	11	5.02	1984	.68	2000
Sep	2.41	2.22	2.77	1975	12	6.55	1978	.00	1998
Oct	1.20	.77	1.75	1983	2	4.61	1983	.00+	1997
Nov	.40	.22	1.01	1979	16	1.46	1992	.00+	1999
Dec	.52	.23	1.06	1982	10	2.66	1986	.00+	1999
Ann	13.05	12.54	2.77	Sep 1975	12	7.63	Jun 2000	.00+	May 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.8	.9	.1	.0
Feb	2.0	1.0	.1	@
Mar	2.0	.8	.1	.0
Apr	1.8	.9	.2	.1
May	3.2	1.8	.4	.1
Jun	5.4	3.3	1.3	.5
Jul	7.7	4.8	1.5	.3
Aug	8.3	4.6	1.7	.5
Sep	6.7	4.3	1.5	.6
Oct	3.6	2.5	.8	.4
Nov	2.2	1.0	.2	@
Dec	2.3	1.3	.3	.1
Ann	48.0	27.2	8.2	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	.00	.00	.00	.02	.07	.13	.22	.35	.54	.89	1.26
Feb	.00	.00	.00	.02	.09	.16	.26	.38	.56	.86	1.16
Mar	.00	.00	.01	.04	.07	.12	.17	.24	.35	.52	.71
Apr	.00	.00	.00	.00	.03	.09	.20	.36	.63	1.14	1.70
May	.00	.05	.17	.29	.41	.55	.71	.92	1.19	1.66	2.12
Jun	.12	.23	.47	.74	1.04	1.40	1.83	2.38	3.15	4.46	5.76
Jul	.45	.64	.95	1.24	1.52	1.83	2.17	2.59	3.14	4.01	4.84
Aug	.71	.94	1.29	1.60	1.90	2.21	2.55	2.96	3.49	4.31	5.08
Sep	.11	.32	.67	1.03	1.41	1.83	2.33	2.96	3.82	5.24	6.64
Oct	.00	.00	.06	.25	.47	.73	1.05	1.47	2.05	3.03	4.05
Nov	.00	.00	.00	.00	.10	.20	.33	.49	.72	1.09	1.47
Dec	.00	.00	.01	.06	.13	.24	.38	.58	.88	1.41	1.97
Ann	7.25	8.26	9.62	10.69	11.66	12.63	13.64	14.78	16.20	18.31	20.18

\+ 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	.0	0	0
Feb	#	.0	0	0
Mar	.0	.0	0	0
Apr	#	.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
Dec	.0	.0	0	0
Ann	.1	.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	2.0	1985	13	2.0	1985	0	0	0	0	0
Feb	#	1979	5	#	1979	0	0	0	0	0
Mar	.0	0	0	.0	0	0	0	0	0	0
Apr	#	1983	7	#	1983	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	#	1980	16	#+	1980	0	0	0	0	0
Dec	.0	0	0	.0	0	0	0	0	0	0
Ann	2.0	Jan 1985	13	2.0	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
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

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	4/28	4/22	4/18	4/14	4/11	4/07	4/03	3/30	3/24
32	4/16	4/09	4/03	3/29	3/25	3/20	3/16	3/10	3/02
28	4/09	3/30	3/23	3/16	3/10	3/05	2/26	2/19	2/08
24	3/25	3/14	3/06	2/27	2/21	2/15	2/08	1/31	1/20
20	3/05	2/23	2/16	2/09	2/04	1/29	1/22	1/14	1/02
16	2/04	1/21	1/10	12/30	12/16	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	10/10	10/16	10/21	10/25	10/29	11/02	11/06	11/11	11/17
32	10/18	10/25	10/29	11/02	11/06	11/10	11/14	11/19	11/26
28	11/02	11/07	11/11	11/15	11/18	11/21	11/24	11/28	12/03
24	11/11	11/17	11/21	11/25	11/28	12/02	12/05	12/10	12/16
20	11/23	12/01	12/07	12/13	12/18	12/23	12/28	1/04	1/14
16	12/08	12/17	12/25	1/02	1/13	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	227	218	211	206	201	195	190	183	174
32	260	248	240	232	226	219	212	203	191
28	288	276	266	259	251	244	236	227	215
24	318	305	295	287	279	272	264	254	241
20	>365	346	332	323	316	309	301	293	281
16	>365	>365	>365	>365	>365	>365	356	332	313

***** 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	495	304	157	41	3	0	0	0	2	36	284	487	1809
60	341	178	64	9	0	0	0	0	0	7	165	334	1098
57	253	116	30	2	0	0	0	0	0	2	109	245	757
55	197	83	16	1	0	0	0	0	0	1	79	190	567
50	87	26	2	0	0	0	0	0	0	0	28	80	223
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	528	622	892	1079	1365	1535	1603	1534	1352	1109	716	536	12871
55	12	61	195	390	652	845	890	821	662	397	105	12	5042
57	6	38	146	332	590	785	828	759	602	336	75	5	4502
60	1	16	88	248	497	695	735	666	512	249	41	1	3749
65	0	2	26	130	345	545	580	511	364	123	10	0	2636
70	0	0	4	52	206	395	425	356	226	41	1	0	1706

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	296	423	646	839	1122	1299	1358	1298	1116	864	485	302	296	719	1365	2204	3326	4625	5983	7281	8397	9261	9746	10048
45	166	284	492	689	967	1149	1203	1143	966	709	341	165	166	450	942	1631	2598	3747	4950	6093	7059	7768	8109	8274
50	65	162	343	541	812	999	1048	988	816	556	209	70	65	227	570	1111	1923	2922	3970	4958	5774	6330	6539	6609
55	18	72	202	395	657	849	893	833	666	404	104	20	18	90	292	687	1344	2193	3086	3919	4585	4989	5093	5113
60	0	23	91	253	502	699	738	678	516	260	33	0	0	23	114	367	869	1568	2306	2984	3500	3760	3793	3793
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	267	349	473	548	671	768	838	811	700	559	374	268	267	616	1089	1637	2308	3076	3914	4725	5425	5984	6358	6626

(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