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: CUERO, TX **COOP ID: 412173**

Climate Division: TX 8 **NWS Call Sign:** **Elevation: 178 Feet** **Lat: 29˚05N** **Lon: 97˚19W**

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	65.6	41.3	53.5	92	1921	7	59.8	1989	9	1930	18	44.4	1977	384	25	.0	.0	27.6	.1	6.4	.0
Feb	69.8	44.8	57.3	98	1986	19	66.3	2000	15+	1933	8	48.2	1978	244	28	.0	.3	26.6	.1	3.3	.0
Mar	76.0	51.4	63.7	99	1928	25	69.1	2000	20	1980	2	58.4	1987	104	64	.0	.9	30.7	.0	1.4	.0
Apr	81.3	57.2	69.3	99	1963	10	73.6	1986	31+	1987	3	64.8	1973	25	153	.0	1.9	30.0	.0	.1	.0
May	86.9	65.3	76.1	101	1928	27	82.9	1996	41	1984	9	70.7	1976	5	348	@	9.7	31.0	.0	.0	.0
Jun	92.2	70.5	81.4	108	1998	14	86.7	1998	50	1984	1	78.9	1995	0	490	1.2	23.4	30.0	.0	.0	.0
Jul	95.1	71.5	83.3	110	1954	27	87.7	1980	58	1967	16	80.1	1972	0	568	4.6	29.2	31.0	.0	.0	.0
Aug	95.9	71.0	83.5	109+	1954	31	86.0	1985	54	1992	29	80.5	1973	0	572	4.9	29.3	31.0	.0	.0	.0
Sep	91.4	66.8	79.1	113	2000	5	82.1	1988	42+	1942	27	73.5	1974	0	423	1.2	20.1	30.0	.0	.0	.0
Oct	84.6	58.3	71.5	101	1928	16	74.2	1975	24	1993	31	62.5	1976	16	216	.0	7.2	31.0	.0	.1	.0
Nov	74.7	49.3	62.0	96	1902	9	67.7	1973	17	1911	30	54.0	1976	173	83	.0	.2	29.8	.0	1.8	.0
Dec	67.1	42.9	55.0	92	1925	13	65.0	1984	7	1989	23	45.2	1989	337	26	.0	.0	28.7	.2	5.2	.0
Ann	81.7	57.5	69.6	113	Sep 2000	5	87.7	Jul 1980	7	Dec 1989	23	44.4	Jan 1977	1288	2996	11.9	122.2	357.4	.4	18.3	.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: 1901-2001

(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	2.30	2.12	4.09	1932	4	5.55	2000	.00	1996
Feb	1.95	1.81	2.80	1958	22	6.56	1992	.00+	1988
Mar	2.32	1.74	4.08	1923	27	5.50	1973	.00	1975
Apr	2.96	2.38	4.85	1985	21	9.43	1985	.00+	1987
May	4.74	3.72	6.01	1972	8	18.06	1972	.18	1996
Jun	4.51	3.99	12.40	1940	30	10.36	1973	.00	1980
Jul	2.18	1.41	11.96	1919	23	6.57	1990	.00+	2000
Aug	2.25	1.78	4.53	1946	30	8.05	1998	.08	1985
Sep	4.31	4.22	10.90	1967	21	14.51	1978	.00	1992
Oct	3.67	2.64	5.36	1914	12	11.55	1994	.51	1988
Nov	2.66	2.20	6.71	1940	25	6.05	2000	.34	1994
Dec	2.23	1.90	4.38	1991	22	7.08	1991	.21	1977
Ann	36.08	34.45	12.40	Jun 1940	30	18.06	May 1972	.00+	Jul 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.9	4.0	1.6	.5
Feb	5.0	3.7	1.4	.6
Mar	5.5	3.6	1.5	.6
Apr	5.5	3.5	1.7	1.1
May	6.5	5.3	2.9	1.6
Jun	6.5	5.2	2.7	1.5
Jul	3.9	3.0	1.3	.9
Aug	6.0	4.3	1.5	.6
Sep	6.1	4.5	2.4	1.4
Oct	5.1	4.4	2.6	1.5
Nov	5.0	3.8	1.6	.9
Dec	5.2	4.0	1.5	.5
Ann	66.2	49.3	22.7	11.7

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	.14	.36	.72	1.06	1.42	1.82	2.28	2.84	3.61	4.88	6.10
Feb	.00	.36	.75	1.06	1.36	1.68	2.04	2.44	2.99	3.87	4.70
Mar	.28	.56	.96	1.29	1.62	1.98	2.38	2.87	3.50	4.52	5.49
Apr	.00	.00	.65	1.16	1.67	2.24	2.91	3.73	4.82	6.65	8.44
May	.34	.65	1.25	1.90	2.63	3.47	4.47	5.75	7.52	10.50	13.45
Jun	.22	.62	1.30	1.96	2.67	3.46	4.40	5.56	7.14	9.76	12.32
Jul	.00	.00	.34	.69	1.06	1.50	2.03	2.70	3.61	5.18	6.73
Aug	.20	.35	.65	.96	1.31	1.70	2.16	2.74	3.54	4.88	6.20
Sep	.09	.35	.89	1.50	2.18	2.99	3.97	5.23	6.99	9.99	12.99
Oct	.43	.72	1.23	1.74	2.29	2.90	3.61	4.48	5.68	7.64	9.56
Nov	.48	.72	1.10	1.47	1.84	2.24	2.69	3.24	3.97	5.15	6.28
Dec	.41	.61	.94	1.24	1.55	1.88	2.26	2.71	3.32	4.30	5.22
Ann	21.64	24.26	27.71	30.39	32.82	35.21	37.70	40.51	43.95	49.05	53.53

\+ 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: 1901-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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
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	.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	1.5	1973	10	1.5	1973	6	1985	12	#+	1985
Feb	#	1989	5	#	1989	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	1.5	Jan 1973	10	1.5	Jan 1973	6	Jan 1985	12	#+	Jan 1985

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
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

+ 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	4/12	4/04	3/29	3/25	3/20	3/16	3/11	3/05	2/25
32	3/24	3/15	3/09	3/04	2/28	2/23	2/18	2/12	2/04
28	3/15	3/04	2/24	2/17	2/10	2/04	1/28	1/20	1/09
24	2/22	2/10	1/31	1/23	1/15	1/06	12/27	12/12	0/00
20	2/04	1/24	1/15	1/06	12/28	12/10	0/00	0/00	0/00
16	1/04	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	10/24	10/31	11/05	11/10	11/14	11/18	11/23	11/28	12/05
32	11/04	11/11	11/17	11/21	11/25	11/30	12/04	12/09	12/17
28	11/16	11/25	12/01	12/06	12/11	12/16	12/21	12/27	1/04
24	11/23	12/03	12/11	12/17	12/24	12/31	1/09	1/25	0/00
20	12/16	12/27	1/05	1/13	1/22	2/08	0/00	0/00	0/00
16	1/02	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	268	258	250	244	238	232	226	219	208
32	301	290	283	276	270	264	258	250	240
28	341	328	318	310	303	295	287	278	264
24	>365	>365	>365	>365	341	331	324	316	307
20	>365	>365	>365	>365	>365	>365	>365	>365	344
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	384	244	104	25	5	0	0	0	0	16	173	337	1288
60	263	149	38	4	0	0	0	0	0	3	97	221	775
57	205	105	17	0	0	0	0	0	0	1	63	165	556
55	171	79	9	0	0	0	0	0	0	0	45	133	437
50	96	33	1	0	0	0	0	0	0	0	17	65	212
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	664	708	983	1118	1367	1480	1591	1595	1413	1223	900	712	13754
55	122	143	279	428	654	790	878	882	723	510	255	133	5797
57	94	112	225	368	592	730	816	820	663	449	213	103	5185
60	60	73	152	282	499	640	723	727	573	358	157	65	4309
65	25	28	64	153	348	490	568	572	423	216	83	26	2996
70	10	9	16	64	211	340	413	417	276	101	34	10	1901

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	443	527	756	895	1136	1261	1366	1370	1196	996	677	491	443	970	1726	2621	3757	5018	6384	7754	8950	9946	10623	11114
45	313	389	602	745	981	1111	1211	1215	1046	841	530	352	313	702	1304	2049	3030	4141	5352	6567	7613	8454	8984	9336
50	202	267	451	595	826	961	1056	1060	896	686	391	230	202	469	920	1515	2341	3302	4358	5418	6314	7000	7391	7621
55	113	165	310	448	671	811	901	905	746	532	267	137	113	278	588	1036	1707	2518	3419	4324	5070	5602	5869	6006
60	58	89	186	306	516	661	746	750	596	382	162	73	58	147	333	639	1155	1816	2562	3312	3908	4290	4452	4525
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	287	338	493	606	790	863	906	907	805	671	444	316	287	625	1118	1724	2514	3377	4283	5190	5995	6666	7110	7426

(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