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: ROSCOE, TX **COOP ID: 417743**

Climate Division: TX 2 **NWS Call Sign:** **Elevation: 2,380 Feet** **Lat: 32˚27N** **Lon: 100˚32W**

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	54.9	28.9	41.9	88	1952	25	47.8	1998	-11	1947	5	33.3	1979	717	0	.0	.0	21.6	1.7	18.5	@
Feb	61.4	32.6	47.0	91+	1996	22	54.8	1976	-9	1985	2	36.9	1978	505	1	.0	.1	23.3	.9	11.5	@
Mar	69.4	38.9	54.2	98	1974	31	60.5	1974	5	1948	11	48.2	1996	344	8	.0	.6	29.7	.1	5.3	.0
Apr	78.0	48.5	63.3	100	1959	25	68.9	1978	22+	1973	9	57.1	1973	119	67	.0	3.8	29.8	.0	.9	.0
May	84.7	58.4	71.6	110	2000	25	78.4	1998	34	1942	15	66.9	1992	31	234	1.1	9.6	31.0	.0	.0	.0
Jun	90.5	66.5	78.5	113	1994	27	84.8	1980	43	1983	1	74.7	1997	1	406	2.8	18.2	30.0	.0	.0	.0
Jul	93.8	69.8	81.8	109	1954	26	87.5	1980	54	1952	9	76.6	1976	0	521	3.7	25.6	31.0	.0	.0	.0
Aug	92.4	68.7	80.6	110	1943	3	85.8	1999	53	1962	26	74.6	1971	0	482	1.8	23.3	31.0	.0	.0	.0
Sep	85.1	61.8	73.5	107	1953	27	78.9	1977	35	1989	24	66.2	1974	11	265	.7	10.3	30.0	.0	.0	.0
Oct	76.3	51.4	63.9	102	1979	8	68.0	1998	26+	1997	27	55.9	1976	103	68	.1	1.9	30.6	.0	.4	.0
Nov	64.8	39.6	52.2	90+	1996	20	58.4	1973	11	1938	24	44.4	1976	394	9	.0	.1	27.0	.1	6.3	.0
Dec	56.2	30.9	43.6	88	1954	4	47.3	1996	-6	1989	23	33.7	1983	665	0	.0	.0	23.9	1.2	15.8	.1
Ann	75.6	49.7	62.7	113	Jun 1994	27	87.5	Jul 1980	-11	Jan 1947	5	33.3	Jan 1979	2890	2061	10.2	93.5	338.9	4.0	58.7	.1

\+ 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: 1935-2001

(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	1.03	.84	2.20	1973	11	4.82	1973	.00+	1997
Feb	1.18	.60	2.45	1985	20	4.17	1997	.00+	1999
Mar	1.11	.80	2.70	1979	21	4.30	1973	.00	1971
Apr	1.52	1.11	3.00	1957	25	5.90	1981	.00	1991
May	3.04	2.63	3.90	1994	10	10.92	1982	.14	1996
Jun	3.09	2.20	3.86	1991	3	8.30	1997	.35+	1990
Jul	1.89	1.20	4.15	1991	27	7.05	1991	.05	2000
Aug	2.59	2.07	6.20	1971	1	12.60	1971	.00	2000
Sep	3.58	2.85	8.28	1980	9	17.62	1980	.13	1982
Oct	2.53	1.72	7.50	1947	25	10.21	1986	.00	1992
Nov	.99	.65	2.90	1975	2	3.25	1975	.00+	1999
Dec	.99	.71	1.80	1980	8	4.60	1991	.00+	2000
Ann	23.54	21.83	8.28	Sep 1980	9	17.62	Sep 1980	.00+	Dec 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.2	2.4	.8	.1
Feb	3.7	2.4	.8	.2
Mar	3.8	2.4	.8	.2
Apr	3.3	2.7	1.1	.4
May	5.7	4.5	2.2	1.0
Jun	4.8	4.0	1.9	1.0
Jul	4.2	3.3	1.4	.4
Aug	4.5	3.5	1.8	.8
Sep	5.4	4.4	2.4	1.3
Oct	5.0	3.9	1.7	.8
Nov	2.8	1.9	.7	.2
Dec	3.2	2.2	.6	.2
Ann	49.6	37.6	16.2	6.6

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	.12	.29	.48	.70	.96	1.28	1.74	2.49	3.25
Feb	.00	.00	.13	.30	.50	.74	1.04	1.43	1.98	2.94	3.91
Mar	.03	.11	.26	.42	.60	.80	1.05	1.36	1.79	2.52	3.24
Apr	.06	.18	.39	.62	.86	1.13	1.46	1.87	2.44	3.38	4.31
May	.30	.53	.94	1.37	1.82	2.34	2.95	3.71	4.75	6.48	8.17
Jun	.31	.53	.96	1.39	1.85	2.38	3.00	3.77	4.83	6.59	8.31
Jul	.15	.27	.52	.78	1.07	1.40	1.80	2.30	3.00	4.17	5.32
Aug	.08	.26	.61	.98	1.40	1.87	2.44	3.17	4.18	5.87	7.54
Sep	.19	.39	.81	1.29	1.84	2.49	3.29	4.31	5.75	8.20	10.66
Oct	.09	.29	.65	1.01	1.42	1.87	2.42	3.10	4.04	5.62	7.17
Nov	.00	.04	.17	.31	.48	.67	.91	1.21	1.64	2.37	3.10
Dec	.00	.00	.07	.21	.38	.59	.85	1.19	1.69	2.53	3.39
Ann	13.12	14.96	17.41	19.34	21.10	22.83	24.67	26.73	29.29	33.10	36.47

\+ 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: 1935-2001
(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	2.7	1.0	#	0
Feb	1.2	.0	#	0
Mar	.4	.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
Nov	1.3	.0	#	0
Dec	1.0	.0	#	0
Ann	6.6	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	8.0	1982	13	14.0	1973	5	1973	11	1	1973
Feb	5.5	1987	20	8.0	1973	2	1988	5	#+	1996
Mar	4.0	1989	4	6.0	1989	4	1989	4	#+	1989
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	#	1980	28	#	1980	0	0	0	0	0
Nov	10.0	1980	16	14.0	1980	1	1972	29	#	1972
Dec	8.0	1998	12	8.0	1998	2	1978	31	#	1978
Ann	10.0	Nov 1980	16	14.0+	Nov 1980	5	Jan 1973	11	1	Jan 1973

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.9	.7	.3	.2	.0
Feb	.7	.5	.2	.1	.0
Mar	.2	.2	@	.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	.2	.2	.2	.1	@
Dec	.3	.3	.1	.1	.0
Ann	2.3	1.9	.8	.5	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.6	.2	.1	.0
Feb	.4	.0	.0	.0
Mar	.2	.1	.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	.1	.0	.0	.0
Dec	.0	.0	.0	.0
Ann	1.3	.3	.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	4/25	4/20	4/17	4/14	4/11	4/09	4/06	4/02	3/28
32	4/15	4/10	4/06	4/03	3/31	3/28	3/25	3/22	3/17
28	4/09	4/03	3/29	3/25	3/21	3/17	3/13	3/08	3/02
24	3/29	3/20	3/14	3/09	3/04	2/27	2/22	2/16	2/07
20	3/20	3/10	3/03	2/25	2/20	2/14	2/09	2/02	1/23
16	3/05	2/24	2/16	2/10	2/05	1/30	1/23	1/16	1/04

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	10/07	10/14	10/19	10/24	10/28	11/01	11/06	11/11	11/19
32	10/24	10/30	11/03	11/06	11/10	11/13	11/16	11/20	11/26
28	10/31	11/06	11/10	11/13	11/16	11/19	11/23	11/26	12/02
24	11/10	11/16	11/21	11/24	11/28	12/02	12/06	12/10	12/17
20	11/14	11/24	12/01	12/07	12/12	12/18	12/24	12/31	1/10
16	11/26	12/06	12/13	12/20	12/26	1/01	1/07	1/15	1/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	221	214	208	204	199	195	190	185	177
32	244	237	231	227	223	218	214	209	201
28	262	254	249	244	239	235	230	224	216
24	297	287	280	274	269	263	257	250	240
20	332	318	308	300	293	286	279	270	258
16	>365	365	343	331	321	312	303	293	279

***** 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	717	505	344	119	31	1	0	0	11	103	394	665	2890
60	565	376	211	49	9	0	0	0	1	40	266	512	2029
57	479	301	147	23	3	0	0	0	0	19	200	424	1596
55	422	256	112	13	1	0	0	0	0	10	162	367	1343
50	290	161	47	2	0	0	0	0	0	2	87	236	825
32	27	8	0	0	0	0	0	0	0	0	1	11	47

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	332	428	687	938	1226	1395	1544	1505	1244	987	606	369	11261
55	15	32	85	261	514	705	831	792	554	285	77	11	4162
57	10	21	59	211	454	645	769	730	494	231	55	6	3685
60	3	11	30	146	366	555	676	637	405	159	31	2	3021
65	0	1	8	67	234	406	521	482	265	68	9	0	2061
70	0	0	0	22	131	265	366	329	148	20	1	0	1282

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	191	293	516	733	1010	1170	1310	1267	1021	781	421	220	191	484	1000	1733	2743	3913	5223	6490	7511	8292	8713	8933
45	108	184	375	583	855	1020	1155	1112	871	628	292	124	108	292	667	1250	2105	3125	4280	5392	6263	6891	7183	7307
50	54	103	245	441	700	870	1000	957	721	478	183	60	54	157	402	843	1543	2413	3413	4370	5091	5569	5752	5812
55	17	48	144	304	545	720	845	802	575	332	100	21	17	65	209	513	1058	1778	2623	3425	4000	4332	4432	4453
60	0	17	69	190	395	570	690	647	430	203	43	2	0	17	86	276	671	1241	1931	2578	3008	3211	3254	3256
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	145	206	339	476	658	783	873	850	684	499	266	157	145	351	690	1166	1824	2607	3480	4330	5014	5513	5779	5936

(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