

Climatography of the United States

No. 20

1971-2000

Station: SONORA, TX

COOP ID: 418449

Climate Division: TX 6

NWS Call Sign:

Elevation: 2,138 Feet Lat: 30° 35N

Lon: 100° 39W

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	58.9	27.2	43.1	87+	2000	20	49.1	1998	1+	1963	24	36.8	1984	681	0	.0	.0	25.8	.4	19.5	.0
Feb	64.2	32.3	48.3	96+	1986	19	54.9	1986	-8	1951	2	41.9	1978	470	0	.0	.2	25.7	.5	12.7	@
Mar	71.3	39.6	55.5	97+	1967	28	62.5	1974	13+	1966	5	48.2	1987	310	14	.0	.6	30.4	@	5.5	.0
Apr	79.4	49.3	64.4	102	1996	26	73.0	1986	20	1987	3	58.4	1987	109	91	@	5.0	30.0	.0	1.6	.0
May	86.5	59.1	72.8	107	1984	22	79.3	1996	32	1903	1	68.4	1987	19	260	.9	13.8	31.0	.0	.0	.0
Jun	91.4	66.2	78.8	109	1980	28	83.2	1998	42	1970	3	74.5	1987	0	415	3.1	22.5	30.0	.0	.0	.0
Jul	94.7	68.0	81.4	108+	1995	30	86.7	1998	46	1905	10	75.5	1976	0	506	6.7	27.6	31.0	.0	.0	.0
Aug	93.8	66.9	80.4	108	1986	20	84.0	1977	45	1915	31	74.0	1971	0	476	5.3	26.6	31.0	.0	.0	.0
Sep	87.6	60.7	74.2	107	2000	5	81.3	1977	35	2000	26	68.2	1974	10	284	1.1	15.6	30.0	.0	.0	.0
Oct	78.3	50.1	64.2	102	1951	3	68.4	1979	18	1989	19	56.5	1976	101	77	.0	3.1	30.8	.0	1.3	.0
Nov	67.3	39.4	53.4	91	1980	8	58.0	1998	9	1950	11	45.6	1976	356	5	.0	@	28.7	.0	7.2	.0
Dec	59.4	29.7	44.6	90	1955	24	50.8	1984	3+	1983	30	35.1	1983	635	0	.0	.0	27.4	.4	17.4	@
Ann	77.7	49.0	63.4	109	Jun 1980	28	86.7	Jul 1998	-8	Feb 1951	2	35.1	Dec 1983	2691	2128	17.1	115.0	351.8	1.3	65.2	.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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1902-2001

(3) Derived from 1971-2000 serially complete daily data

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No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: SONORA, TX

COOP ID: 418449

Climate Division: TX 6

NWS Call Sign:

Elevation: 2,138 Feet Lat: 30°35N

Lon: 100°39W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.84	.50	2.35	1994	19	3.41	1994	.00+	1996	3.4	2.2	.5	.1	.00	.04	.16	.28	.42	.58	.78	1.03	1.37	1.97	2.56
Feb	1.16	.85	2.52	1958	22	4.60	1989	.00	1974	3.4	2.4	.8	.3	.02	.09	.23	.39	.58	.80	1.06	1.41	1.90	2.73	3.56
Mar	1.18	1.14	1.83	1997	10	2.99	1999	.00+	1994	2.9	2.1	.8	.3	.00	.00	.35	.56	.76	.97	1.21	1.50	1.87	2.48	3.07
Apr	1.57	1.35	3.30	1912	6	5.52	1977	.00+	1988	3.7	2.7	1.1	.4	.00	.16	.44	.69	.94	1.23	1.56	1.95	2.49	3.39	4.25
May	2.57	2.48	3.84	1957	27	8.02	1995	.41	1984	5.1	4.1	1.9	.5	.42	.64	1.01	1.36	1.73	2.12	2.58	3.13	3.87	5.08	6.23
Jun	2.54	2.34	4.23	2000	18	7.80	2000	.00	1990	4.7	3.9	1.9	.9	.33	.65	1.08	1.44	1.80	2.19	2.61	3.13	3.80	4.87	5.89
Jul	1.93	1.23	4.50	1990	15	9.81	1990	.03	1998	3.8	2.9	1.0	.5	.03	.08	.23	.44	.72	1.08	1.56	2.21	3.18	4.92	6.73
Aug	2.93	1.62	6.20	1972	12	12.50	1972	.00	2000	4.3	3.8	1.7	.9	.02	.11	.38	.74	1.19	1.75	2.47	3.44	4.85	7.33	9.86
Sep	3.07	2.55	7.92	1976	1	11.50	1976	.10	1982	4.6	3.7	1.8	.9	.16	.32	.68	1.09	1.56	2.12	2.81	3.70	4.95	7.09	9.23
Oct	2.53	1.51	5.15	1957	13	8.26	1986	.00	1988	5.0	3.6	1.7	.7	.07	.24	.58	.94	1.35	1.81	2.38	3.09	4.08	5.75	7.41
Nov	1.26	.98	2.75	1913	4	4.52	2000	.00+	1999	3.2	2.1	.7	.3	.00	.16	.40	.60	.81	1.03	1.28	1.58	1.99	2.65	3.29
Dec	.82	.43	2.45	1911	9	4.38	1984	.00+	1983	2.6	1.8	.4	.2	.00	.01	.09	.19	.31	.48	.68	.96	1.37	2.09	2.83
Ann	22.40	21.92	7.92	Sep 1976	1	12.50	Aug 1972	.00+	Aug 2000	46.7	35.3	14.3	6.0	13.50	15.11	17.24	18.90	20.39	21.86	23.40	25.13	27.25	30.38	33.14

+ 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: 1902-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: SONORA, TX

COOP ID: 418449

Climate Division: TX 6

NWS Call Sign:

Elevation: 2,138 Feet

Lat: 30°35N

Lon: 100°39W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	#	.0	0	0	#	1989	13	#+	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1989	3	#+	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	0	0	1.0	2000	8	1.0	2000	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	.1	.0	N/A	N/A	1.0	Nov 2000	8	1.0	Nov 2000	0	0	0	0	0	.1	.1	.0	.0	.0	.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

Complete documentation available from:

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NWS Call Sign:

Elevation: 2,138 Feet

Lat: 30° 35N

Lon: 100° 39W

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	4/26	4/20	4/16	4/13	4/10	4/07	4/03	3/30	3/25
32	4/20	4/14	4/10	4/07	4/04	4/01	3/28	3/24	3/19
28	4/11	4/05	3/31	3/27	3/23	3/19	3/15	3/11	3/04
24	3/30	3/22	3/16	3/10	3/06	3/01	2/24	2/17	2/09
20	3/15	3/06	2/28	2/23	2/18	2/13	2/07	1/31	1/21
16	2/27	2/17	2/10	2/04	1/29	1/23	1/17	1/09	12/28
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	10/03	10/09	10/14	10/18	10/22	10/25	10/29	11/03	11/10
32	10/16	10/22	10/27	10/31	11/03	11/07	11/11	11/16	11/22
28	10/20	10/27	11/01	11/06	11/10	11/14	11/18	11/24	12/01
24	10/29	11/06	11/12	11/17	11/21	11/26	12/01	12/06	12/14
20	11/03	11/15	11/24	12/01	12/08	12/15	12/23	1/01	1/16
16	11/24	12/05	12/13	12/20	12/27	1/03	1/10	1/20	2/07
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	223	213	206	200	194	189	182	175	166
32	239	230	223	218	213	208	202	196	187
28	259	249	242	236	231	225	219	212	202
24	295	283	274	267	260	253	245	237	225
20	>365	327	312	301	292	282	273	262	247
16	>365	>365	347	335	326	318	310	301	289

* 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)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	681	470	310	109	19	0	0	0	10	101	356	635	2691
60	527	338	188	46	4	0	0	0	1	38	226	483	1851
57	441	262	130	23	1	0	0	0	0	17	161	397	1432
55	384	216	98	14	0	0	0	0	0	9	124	341	1186
50	253	124	39	3	0	0	0	0	0	1	56	218	694
32	16	1	0	0	0	0	0	0	0	0	0	11	28

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	358	455	727	971	1265	1405	1529	1499	1264	999	639	399	11510
55	13	27	111	295	552	715	816	786	574	295	73	16	4273
57	8	17	82	245	491	655	754	724	514	241	50	10	3791
60	1	8	47	177	401	565	661	631	426	169	25	3	3114
65	0	0	14	91	260	415	506	476	284	77	5	0	2128
70	0	0	2	35	145	267	351	324	163	26	0	0	1313

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	230	331	575	779	1060	1197	1302	1274	1057	801	455	255	230	561	1136	1915	2975	4172	5474	6748	7805	8606	9061	9316
45	127	207	425	629	905	1047	1147	1119	907	647	321	141	127	334	759	1388	2293	3340	4487	5606	6513	7160	7481	7622
50	56	114	289	483	750	897	992	964	757	496	202	67	56	170	459	942	1692	2589	3581	4545	5302	5798	6000	6067
55	22	55	170	341	595	747	837	809	607	347	108	23	22	77	247	588	1183	1930	2767	3576	4183	4530	4638	4661
60	1	16	79	212	442	597	682	654	458	211	40	2	1	17	96	308	750	1347	2029	2683	3141	3352	3392	3394
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	205	262	401	520	700	791	838	824	697	537	311	212	205	467	868	1388	2088	2879	3717	4541	5238	5775	6086	6298

(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/normal/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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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