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: ATHENS, TX **COOP ID: 410404**

Climate Division: TX 6 **NWS Call Sign:** **Elevation: 448 Feet** **Lat: 32˚10N** **Lon: 95˚50W**

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	56.7	35.2	46.0	85	1971	30	52.7	1990	-5	1982	14	36.1	1978	595	0	.0	.0	22.2	.6	13.7	@
Feb	62.1	39.0	50.6	93	1996	22	58.4	1976	-6	1985	2	39.7	1978	411	6	.0	.1	23.8	.6	7.9	@
Mar	69.3	45.8	57.6	95	1971	14	63.6	1974	15	1980	2	49.1	1996	253	21	.0	.1	30.2	@	3.1	.0
Apr	75.7	54.0	64.9	95+	1963	10	70.4	1981	25	1987	3	61.0	1973	81	75	.0	.4	30.0	.0	.2	.0
May	82.2	62.9	72.6	97+	1998	31	76.7	1998	39	1984	9	69.1	1976	9	243	.0	3.8	31.0	.0	.0	.0
Jun	88.8	70.2	79.5	103	1978	30	83.6	1998	41	1984	1	76.4	1989	0	435	.5	16.9	30.0	.0	.0	.0
Jul	93.4	72.8	83.1	109+	1971	16	87.8	1998	53	1974	1	80.3	1976	0	562	4.6	27.0	31.0	.0	.0	.0
Aug	94.0	71.6	82.8	108+	1984	19	86.1	1980	55+	1986	31	79.1	1971	0	552	5.3	26.9	31.0	.0	.0	.0
Sep	87.9	66.1	77.0	109	2000	5	81.1	1998	38	1983	22	70.3	1974	1	360	1.2	15.2	30.0	.0	.0	.0
Oct	78.4	55.4	66.9	100+	1904	5	69.8	1973	26+	1993	31	60.0	1976	48	107	.0	2.3	31.0	.0	.3	.0
Nov	67.0	44.6	55.8	90	1904	2	62.4	1973	10	1976	29	49.7	1976	298	21	.0	.0	28.2	.0	3.9	.0
Dec	58.7	37.2	48.0	86	1955	24	57.4	1984	-2	1989	23	38.0	1983	532	3	.0	.0	24.9	.5	11.1	@
Ann	76.2	54.6	65.4	109+	Sep 2000	5	87.8	Jul 1998	-6	Feb 1985	2	36.1	Jan 1978	2228	2385	11.6	92.7	343.3	1.7	40.2	@

\+ 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: 1903-2001

(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	2.96	2.29	5.23	1998	6	8.96	1998	.29	1971
Feb	3.37	3.08	4.08	1997	20	10.55	1997	.15	1996
Mar	3.70	3.63	3.72	1990	7	8.58	1990	.61	1971
Apr	3.47	2.61	7.19	1986	5	10.21	1986	.26	1983
May	4.82	4.06	6.90	1968	10	14.37	1989	.03	1998
Jun	3.95	3.25	3.90	1999	25	8.53	1981	.39	1990
Jul	1.74	1.60	2.64	1986	3	4.45	1976	.00+	2000
Aug	2.43	1.37	4.63	1996	29	9.24	1996	.00	1999
Sep	3.07	2.68	4.12	1957	22	9.33	1974	.53	1982
Oct	4.70	3.48	6.04	1954	1	18.53	1994	.27	1995
Nov	3.94	3.88	3.67	1971	18	11.44	2000	.28	1979
Dec	3.88	3.78	3.58	1985	11	9.50	1991	.40	1981
Ann	42.03	40.59	7.19	Apr 1986	5	18.53	Oct 1994	.00+	Jul 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.4	4.7	2.1	.7
Feb	6.3	4.6	2.0	1.1
Mar	7.3	5.1	2.4	1.2
Apr	6.2	4.6	2.6	.9
May	7.2	5.6	2.8	1.6
Jun	6.1	4.8	2.8	1.5
Jul	4.7	3.0	1.4	.5
Aug	4.5	3.2	1.4	1.0
Sep	6.2	4.1	1.8	1.0
Oct	6.6	4.5	2.8	1.5
Nov	6.9	4.7	2.6	1.6
Dec	7.0	5.0	2.6	1.3
Ann	76.4	53.9	27.3	13.9

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	.50	.76	1.19	1.60	2.02	2.47	2.98	3.61	4.44	5.79	7.08
Feb	.57	.87	1.36	1.82	2.30	2.81	3.40	4.11	5.07	6.61	8.08
Mar	1.10	1.45	1.98	2.43	2.87	3.33	3.84	4.44	5.21	6.41	7.53
Apr	.45	.73	1.22	1.71	2.21	2.78	3.43	4.23	5.32	7.11	8.83
May	.46	.81	1.46	2.13	2.86	3.68	4.65	5.87	7.54	10.33	13.05
Jun	.67	1.02	1.59	2.13	2.69	3.29	3.98	4.82	5.93	7.74	9.47
Jul	.00	.40	.76	1.03	1.28	1.55	1.84	2.17	2.61	3.31	3.96
Aug	.02	.12	.36	.67	1.05	1.52	2.10	2.88	3.99	5.94	7.91
Sep	.56	.84	1.29	1.70	2.13	2.59	3.11	3.75	4.59	5.94	7.23
Oct	.64	1.02	1.69	2.35	3.03	3.79	4.66	5.74	7.19	9.56	11.85
Nov	.66	1.00	1.57	2.11	2.67	3.28	3.97	4.81	5.94	7.76	9.50
Dec	.85	1.21	1.78	2.29	2.81	3.35	3.97	4.71	5.67	7.22	8.68
Ann	27.92	30.57	34.01	36.65	39.01	41.31	43.70	46.35	49.59	54.32	58.44

\+ 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: 1903-2001
(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	.6	.0	#	0
Feb	.0	.0	0	0
Mar	.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	.3	.0	#	0
Ann	.9	.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	4.0	1977	31	4.0	1977	2	2000	28	#+	2000
Feb	.0	0	0	.0	0	0	0	0	0	0
Mar	.5	1989	5	.5	1989	1	1989	5	#	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	.0	0	0	.0	0	0	0	0	0	0
Nov	.0	0	0	.0	0	0	0	0	0	0
Dec	2.5	2000	28	3.0	2000	3	2000	28	#+	2000
Ann	4.0	Jan 1977	31	4.0	Jan 1977	3	Dec 2000	28	#+	Dec 2000

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.3	.3	.1	.0	.0
Feb	.0	.0	.0	.0	.0
Mar	.1	.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	.3	.1	.0	.0	.0
Ann	.7	.4	.1	.0	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	@	.0	.0	.0
Feb	.0	.0	.0	.0
Mar	@	.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	.2	@	.0	.0
Ann	.2	@	.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	4/16	4/11	4/07	4/05	4/02	3/30	3/27	3/24	3/19
32	4/07	3/31	3/27	3/23	3/19	3/16	3/12	3/08	3/01
28	3/23	3/15	3/09	3/04	2/28	2/23	2/18	2/13	2/05
24	3/11	3/02	2/24	2/19	2/14	2/09	2/03	1/28	1/20
20	2/27	2/17	2/09	2/02	1/26	1/19	1/10	12/29	0/00
16	2/18	2/07	1/30	1/22	1/14	1/04	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	10/14	10/21	10/25	10/30	11/02	11/06	11/10	11/15	11/22
32	10/23	10/31	11/05	11/10	11/14	11/18	11/22	11/28	12/05
28	10/31	11/08	11/14	11/19	11/23	11/28	12/03	12/09	12/17
24	11/21	11/27	12/02	12/06	12/09	12/13	12/17	12/22	12/28
20	11/24	12/04	12/11	12/17	12/24	12/30	1/08	1/23	0/00
16	12/13	12/26	1/05	1/14	1/24	2/08	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	239	230	224	219	214	209	204	197	189
32	267	258	250	244	239	233	227	220	210
28	299	288	280	274	268	261	255	247	236
24	327	317	310	303	298	292	286	279	269
20	>365	>365	>365	343	330	320	311	300	287
16	>365	>365	>365	>365	>365	357	342	330	317

***** 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	595	411	253	81	9	0	0	0	1	48	298	532	2228
60	451	284	143	25	1	0	0	0	0	12	186	390	1492
57	369	217	94	10	0	0	0	0	0	4	133	310	1137
55	318	178	67	5	0	0	0	0	0	2	104	261	935
50	210	100	24	0	0	0	0	0	0	0	48	162	544
32	15	1	0	0	0	0	0	0	0	0	0	6	22

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	447	521	792	985	1257	1425	1585	1575	1349	1083	713	500	12232
55	37	53	146	299	544	735	872	862	659	372	127	42	4748
57	26	36	111	245	482	675	810	800	599	312	96	29	4221
60	15	19	67	170	390	585	717	707	509	227	59	16	3481
65	0	6	21	75	243	435	562	552	360	107	21	3	2385
70	0	0	5	22	123	286	407	397	223	33	5	0	1501

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	256	362	580	758	1012	1182	1337	1329	1109	837	496	302	256	618	1198	1956	2968	4150	5487	6816	7925	8762	9258	9560
45	152	245	430	608	857	1032	1182	1174	959	682	360	186	152	397	827	1435	2292	3324	4506	5680	6639	7321	7681	7867
50	84	147	294	458	702	882	1027	1019	809	529	237	103	84	231	525	983	1685	2567	3594	4613	5422	5951	6188	6291
55	39	77	180	315	547	732	872	864	660	380	140	54	39	116	296	611	1158	1890	2762	3626	4286	4666	4806	4860
60	15	32	91	188	393	582	717	709	511	243	68	24	15	47	138	326	719	1301	2018	2727	3238	3481	3549	3573
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	167	236	370	491	686	820	897	881	747	549	307	191	167	403	773	1264	1950	2770	3667	4548	5295	5844	6151	6342

(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