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: STAMFORD 1, TX **COOP ID: 418583**

Climate Division: TX 2 **NWS Call Sign:** **Elevation: 1,640 Feet** **Lat: 32˚56N** **Lon: 99˚48W**

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	55.0	27.7	41.4	86	2000	20	48.4	1990	-1+	1912	12	32.0	1979	733	0	.0	.0	21.6	2.2	20.4	.0
Feb	60.4	32.8	46.6	96	1996	22	54.9	1976	-7	1985	2	34.5	1989	523	7	.0	.1	22.1	1.2	14.0	@
Mar	69.6	39.7	54.7	97	1989	13	61.0	1974	11	1989	5	50.1	1987	328	7	@	.8	29.1	.1	5.6	.0
Apr	78.2	49.2	63.7	98+	2000	19	68.6	1972	24	1987	3	57.1	1997	106	67	@	4.2	29.7	.0	.8	.0
May	86.0	58.8	72.4	113	2000	25	80.0	1996	38+	1994	4	66.7	1992	26	254	2.0	11.8	31.0	.0	.0	.0
Jun	93.0	67.1	80.1	118	1994	28	85.4+	1998	50+	1992	12	73.7	1989	1	453	4.9	22.7	30.0	.0	.0	.0
Jul	96.9	71.1	84.0	113	1995	29	89.5	1998	50	1913	26	79.2	1992	0	590	11.3	27.9	31.0	.0	.0	.0
Aug	95.9	70.0	83.0	108+	1994	20	88.3	1999	52+	1992	28	77.5	1992	0	556	8.8	26.9	31.0	.0	.0	.0
Sep	88.3	62.9	75.6	109	2000	6	81.8	1977	38	1984	30	68.2	1974	9	328	2.2	16.4	30.0	.0	.0	.0
Oct	78.7	52.2	65.5	103	2000	2	69.4	1979	23	1993	31	58.3	1976	78	92	.1	3.4	30.7	.0	.3	.0
Nov	65.7	39.2	52.5	92	1980	8	59.2	1999	10	1911	29	45.5	1976	386	10	.0	.1	26.5	.1	7.2	.0
Dec	56.7	29.9	43.3	85	1995	3	47.9	1993	-6	1989	23	32.4	1983	672	0	.0	.0	23.6	1.3	18.1	.1
Ann	77.0	50.1	63.6	118	Jun 1994	28	89.5	Jul 1998	-7	Feb 1985	2	32.0	Jan 1979	2862	2364	29.3	114.3	336.3	4.9	66.4	.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: 1911-2001

(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	.94	.69	1.41	1991	10	3.69	1991	.00+	1974
Feb	1.64	1.07	3.05	1911	17	7.34	1992	.00+	1999
Mar	1.28	1.26	2.45	1943	25	3.23	1999	.00	1971
Apr	1.90	1.46	3.31	1985	22	7.24	1985	.22	1980
May	3.41	3.48	3.50	1939	16	9.68	1982	.05	1998
Jun	3.18	2.69	3.98	1992	10	9.40	2000	.15	1984
Jul	1.87	1.47	5.13	1953	18	5.15	1991	.00	1980
Aug	2.44	2.07	8.22	1978	4	10.50	1971	.00+	2000
Sep	3.60	2.86	5.88	1990	22	14.12	1980	.06	1998
Oct	2.82	2.14	5.95	1941	15	8.26	1976	.05	1987
Nov	1.41	1.04	2.10	1968	26	4.23	1992	.00+	1999
Dec	1.33	.91	2.55	1946	11	5.33	1991	.00+	1996
Ann	25.82	25.17	8.22	Aug 1978	4	14.12	Sep 1980	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.3	2.4	.5	.1
Feb	4.8	3.1	1.0	.4
Mar	4.4	2.7	.9	.3
Apr	5.0	3.4	1.2	.5
May	7.0	5.4	2.5	1.1
Jun	6.1	4.5	2.1	1.0
Jul	4.4	3.1	1.2	.6
Aug	5.1	3.3	1.2	.7
Sep	6.0	4.2	2.2	.9
Oct	5.8	4.2	2.2	.9
Nov	3.8	2.5	.8	.5
Dec	4.5	2.7	.7	.3
Ann	61.2	41.5	16.5	7.3

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	.11	.25	.41	.60	.84	1.15	1.58	2.33	3.08
Feb	.00	.09	.33	.57	.85	1.16	1.54	2.01	2.67	3.79	4.89
Mar	.11	.25	.46	.65	.84	1.05	1.29	1.59	1.97	2.61	3.21
Apr	.18	.31	.57	.83	1.12	1.44	1.83	2.31	2.98	4.09	5.17
May	.46	.73	1.22	1.69	2.19	2.74	3.38	4.16	5.22	6.95	8.63
Jun	.31	.55	.98	1.42	1.90	2.45	3.08	3.88	4.98	6.80	8.58
Jul	.05	.18	.43	.69	.99	1.34	1.75	2.28	3.01	4.25	5.48
Aug	.00	.00	.42	.81	1.23	1.71	2.29	3.03	4.02	5.71	7.38
Sep	.16	.34	.74	1.22	1.77	2.43	3.25	4.31	5.82	8.41	11.01
Oct	.22	.41	.78	1.17	1.60	2.09	2.68	3.43	4.46	6.19	7.90
Nov	.00	.16	.42	.64	.87	1.12	1.41	1.76	2.23	3.00	3.74
Dec	.00	.03	.17	.35	.56	.83	1.16	1.58	2.20	3.27	4.36
Ann	16.02	17.81	20.17	21.99	23.64	25.25	26.93	28.81	31.12	34.52	37.50

\+ 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: 1911-2001
(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	1.1	.0	#	0
Feb	.7	.0	#	0
Mar	.1	.0	#	0
Apr	.3	.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	.3	.0	#	0
Dec	.4	.0	#	0
Ann	2.9	.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	5.0	1983	2	10.0	1983	6	1992	18	1	1992
Feb	4.5	1985	1	5.5	1985	6	1985	2	#+	1996
Mar	1.0	1996	28	1.0+	1998	#+	1996	28	#+	1996
Apr	8.0	1996	6	8.0	1996	3	1996	6	#	1996
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	1.0	1993	30	1.0	1993	#+	1993	31	#+	1993
Nov	3.0	2000	8	3.0	2000	2+	1995	28	#+	1995
Dec	3.0	2000	13	4.0	1990	2	1990	22	#+	1994
Ann	8.0	Apr 1996	6	10.0	Jan 1983	6+	Jan 1992	18	1	Jan 1992

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.7	.4	.2	@	.0
Feb	.5	.3	.1	.0	.0
Mar	.1	.1	.0	.0	.0
Apr	@	@	@	@	.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	.1	@	.0	.0	.0
Nov	.1	.1	@	.0	.0
Dec	.4	.2	@	.0	.0
Ann	1.9	1.1	.3	@	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.4	.2	.0	.0
Feb	.2	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	@	@	.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	.1	.0	.0	.0
Ann	.8	.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	4/18	4/14	4/11	4/08	4/06	4/03	4/01	3/29	3/25
32	4/12	4/07	4/03	3/31	3/28	3/25	3/22	3/18	3/12
28	4/07	3/29	3/23	3/18	3/13	3/08	3/03	2/25	2/17
24	3/23	3/14	3/08	3/02	2/25	2/20	2/15	2/09	1/31
20	3/10	2/28	2/21	2/15	2/09	2/03	1/28	1/20	1/08
16	3/02	2/19	2/11	2/04	1/28	1/20	1/10	12/24	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	10/15	10/21	10/25	10/28	11/01	11/04	11/08	11/12	11/18
32	10/26	10/31	11/04	11/07	11/10	11/13	11/17	11/20	11/26
28	11/04	11/09	11/13	11/16	11/19	11/22	11/26	11/29	12/05
24	11/10	11/17	11/22	11/27	12/01	12/05	12/10	12/15	12/22
20	11/10	11/22	11/30	12/07	12/14	12/21	12/28	1/06	1/20
16	11/23	12/05	12/14	12/22	12/30	1/08	1/21	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	226	220	216	212	208	205	201	196	190
32	248	241	235	231	227	223	218	213	206
28	277	268	261	255	250	245	239	233	224
24	313	301	292	285	278	271	263	255	242
20	>365	344	326	314	304	295	286	275	260
16	>365	>365	>365	>365	343	328	316	303	287

***** 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	733	523	328	106	26	1	0	0	9	78	386	672	2862
60	581	395	197	38	7	0	0	0	0	27	259	519	2023
57	493	324	135	17	2	0	0	0	0	11	195	431	1608
55	436	280	102	9	0	0	0	0	0	6	157	374	1364
50	302	189	43	0	0	0	0	0	0	1	84	244	863
32	29	17	0	0	0	0	0	0	0	0	1	13	60

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	319	425	702	951	1251	1443	1613	1579	1309	1037	614	365	11608
55	14	44	90	270	538	753	900	866	619	330	81	13	4518
57	8	32	62	218	478	693	838	804	559	273	58	7	4030
60	3	19	31	150	390	603	745	711	469	196	33	2	3352
65	0	7	7	67	254	453	590	556	328	92	10	0	2364
70	0	0	0	21	146	310	435	402	202	32	1	0	1549

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	170	270	487	725	1024	1216	1381	1338	1081	801	402	195	170	440	927	1652	2676	3892	5273	6611	7692	8493	8895	9090
45	90	169	344	579	869	1066	1226	1183	931	648	277	105	90	259	603	1182	2051	3117	4343	5526	6457	7105	7382	7487
50	37	93	221	435	714	916	1071	1028	781	496	173	45	37	130	351	786	1500	2416	3487	4515	5296	5792	5965	6010
55	9	45	123	297	561	766	916	873	634	351	91	17	9	54	177	474	1035	1801	2717	3590	4224	4575	4666	4683
60	0	11	53	182	407	616	761	718	488	218	36	0	0	11	64	246	653	1269	2030	2748	3236	3454	3490	3490
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	141	201	327	464	663	797	892	868	705	516	263	152	141	342	669	1133	1796	2593	3485	4353	5058	5574	5837	5989

(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