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: EASTLAND, TX **COOP ID: 412715**

Climate Division: TX 5 **NWS Call Sign:** **Elevation: 1,433 Feet** **Lat: 32˚24N** **Lon: 98˚49W**

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	54.6	26.7	40.7	90+	1969	9	47.5	1990	-6+	1973	13	27.9	1979	755	0	.0	.0	20.4	2.3	20.2	.1
Feb	59.9	31.5	45.7	95+	1996	23	52.9	1999	-3+	1985	2	34.7	1978	541	0	.0	.1	21.5	1.2	13.0	@
Mar	68.7	39.6	54.2	99	1916	21	59.6	1974	7	1943	7	50.1	1996	341	3	.0	.5	28.9	.2	5.8	.0
Apr	76.7	48.0	62.4	103	1925	17	68.3	1978	21+	1938	8	56.3	1973	140	59	@	2.0	29.7	.0	1.2	.0
May	83.9	57.3	70.6	108	1927	28	76.6	1996	33	1945	4	65.8	1976	32	206	.4	7.6	31.0	.0	.0	.0
Jun	90.4	65.3	77.9	109+	1980	29	82.5	1990	44	1964	1	72.9	1983	1	386	1.9	17.5	30.0	.0	.0	.0
Jul	94.9	68.3	81.6	113	1954	26	86.5	1980	52+	1915	26	76.9	1976	0	514	6.9	26.6	31.0	.0	.0	.0
Aug	94.7	66.7	80.7	115+	1943	10	85.9	1999	46	1915	31	74.7	1971	0	487	6.2	25.8	31.0	.0	.0	.0
Sep	87.7	59.6	73.7	110+	2000	5	81.8	1977	34	1984	30	64.7	1974	20	279	1.3	14.3	30.0	.0	.0	.0
Oct	78.4	48.4	63.4	105	1951	4	68.0	1998	12	1917	30	54.3	1976	119	69	.1	3.3	30.7	.0	.6	.0
Nov	65.8	37.1	51.5	93	1980	10	56.9	1977	10	1911	30	43.3	1976	416	8	.0	.1	26.6	.2	7.7	.0
Dec	56.8	28.8	42.8	90	1955	25	48.2	1977	-1	1983	22	30.3	1983	689	0	.0	.0	22.6	1.4	17.8	.1
Ann	76.0	48.1	62.1	115+	Aug 1943	10	86.5	Jul 1980	-6+	Jan 1973	13	27.9	Jan 1979	3054	2011	16.8	97.8	333.4	5.3	66.3	.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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1904-2001

(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	1.20	1.23	1.99	1990	19	3.66	1973	.00+	1986
Feb	1.73	1.20	3.25	1912	13	7.51	1997	.00	1999
Mar	1.93	1.45	4.62	1977	27	5.52	1979	.00	1971
Apr	2.27	1.81	4.30	1940	6	6.11	1973	.34	1980
May	3.72	3.09	6.20	1971	29	10.10	1971	.85	1973
Jun	3.40	3.06	5.10	1997	23	10.68	1997	.25	1976
Jul	1.73	1.68	2.75	1936	6	4.08	1990	.00	1993
Aug	2.29	1.50	6.77	1995	1	9.60	1995	.00	2000
Sep	2.67	2.64	5.45	1992	1	7.47	1992	.00	1979
Oct	3.25	2.99	7.00	1957	13	8.14	1984	.18	1987
Nov	1.72	1.43	2.70	1963	9	4.63	1996	.00	1999
Dec	1.62	1.38	2.63	1991	20	8.04	1991	.00+	1996
Ann	27.53	27.14	7.00	Oct 1957	13	10.68	Jun 1997	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.9	2.7	.8	.2
Feb	4.6	3.1	1.3	.4
Mar	5.1	3.6	1.4	.4
Apr	5.2	3.8	1.6	.7
May	7.3	5.3	2.6	1.2
Jun	5.5	4.6	2.1	1.1
Jul	4.1	3.2	1.3	.5
Aug	4.9	3.6	1.4	.5
Sep	5.4	4.1	1.7	.9
Oct	5.7	4.6	2.4	1.1
Nov	4.1	3.0	1.4	.4
Dec	4.7	3.0	1.0	.3
Ann	60.5	44.6	19.0	7.7

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	.00	.12	.33	.52	.72	.94	1.19	1.49	1.91	2.60	3.26
Feb	.08	.22	.48	.73	1.01	1.31	1.68	2.13	2.75	3.77	4.78
Mar	.14	.34	.65	.93	1.23	1.55	1.93	2.39	3.01	4.02	4.99
Apr	.38	.57	.90	1.22	1.54	1.88	2.28	2.77	3.42	4.47	5.47
May	1.03	1.38	1.92	2.38	2.84	3.32	3.85	4.48	5.29	6.57	7.77
Jun	.35	.60	1.07	1.54	2.05	2.63	3.31	4.15	5.31	7.23	9.11
Jul	.04	.14	.36	.60	.87	1.19	1.59	2.09	2.80	4.01	5.21
Aug	.13	.36	.71	1.05	1.40	1.80	2.25	2.82	3.59	4.85	6.08
Sep	.10	.30	.68	1.07	1.50	1.98	2.55	3.27	4.27	5.93	7.57
Oct	.29	.51	.94	1.39	1.89	2.45	3.12	3.95	5.11	7.03	8.92
Nov	.11	.28	.55	.80	1.06	1.36	1.70	2.12	2.68	3.61	4.52
Dec	.00	.05	.24	.47	.73	1.05	1.44	1.95	2.68	3.92	5.18
Ann	17.75	19.57	21.94	23.76	25.40	27.00	28.66	30.52	32.79	36.11	39.02

\+ 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: 1904-2001
(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	1.4	.5	#	0
Feb	.7	.0	#	0
Mar	.1	.0	#	0
Apr	.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	.6	.0	#	0
Dec	.8	.0	#	0
Ann	3.6	.5	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	1973	11	5.0+	1983	4	1972	31	#+	1998
Feb	4.0	1972	1	4.0	1972	4	1972	1	#+	1996
Mar	1.5	1978	4	1.5	1978	7	1989	6	1	1989
Apr	1.0	1996	6	1.0	1996	1	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	#	1993	30	#+	1993	0	0	0	0	0
Nov	5.0	1976	14	9.0	1976	2	1996	25	#+	1996
Dec	7.5	2000	27	7.5	2000	8	2000	27	1	2000
Ann	7.5	Dec 2000	27	9.0	Nov 1976	8	Dec 2000	27	1+	Dec 2000

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.8	.6	.1	@	.0
Feb	.6	.3	.1	.0	.0
Mar	.1	@	.0	.0	.0
Apr	@	@	.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	.3	.2	.1	@	.0
Dec	.4	.2	.1	@	.0
Ann	2.2	1.3	.4	@	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.5	@	.0	.0
Feb	.6	.1	.0	.0
Mar	@	.0	.0	.0
Apr	@	.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
Dec	.4	.2	.2	.0
Ann	1.5	.3	.2	.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	4/20	4/15	4/12	4/10	4/07	4/05	4/02	3/30	3/26
32	4/16	4/11	4/07	4/04	4/01	3/29	3/25	3/21	3/16
28	4/07	3/31	3/25	3/21	3/16	3/12	3/07	3/02	2/22
24	3/21	3/13	3/07	3/02	2/26	2/21	2/16	2/10	2/02
20	3/10	3/02	2/24	2/19	2/14	2/09	2/04	1/29	1/21
16	2/24	2/14	2/06	1/31	1/24	1/17	1/09	12/28	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	10/13	10/19	10/23	10/27	10/30	11/03	11/06	11/11	11/17
32	10/23	10/28	11/01	11/05	11/08	11/11	11/15	11/19	11/24
28	11/02	11/08	11/12	11/16	11/19	11/22	11/26	11/30	12/05
24	11/08	11/14	11/19	11/23	11/27	11/30	12/04	12/09	12/16
20	11/06	11/18	11/27	12/04	12/11	12/18	12/26	1/03	1/15
16	12/03	12/11	12/17	12/23	12/28	1/03	1/09	1/19	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	225	218	213	209	206	202	198	193	186
32	243	235	230	225	221	216	212	206	198
28	275	265	258	252	247	241	235	228	219
24	302	292	285	279	273	268	261	254	244
20	329	314	306	300	295	289	284	277	268
16	>365	>365	>365	358	342	331	321	310	296

***** 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	755	541	341	140	32	1	0	0	20	119	416	689	3054
60	607	413	205	63	8	0	0	0	5	49	285	537	2172
57	521	338	139	32	3	0	0	0	1	25	218	452	1729
55	465	292	103	19	1	0	0	0	0	14	178	395	1467
50	334	193	40	4	0	0	0	0	0	3	99	266	939
32	48	16	0	0	0	0	0	0	0	0	2	21	87

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	316	399	685	909	1197	1375	1537	1510	1250	972	585	355	11090
55	19	31	75	239	485	685	824	797	560	274	71	15	4075
57	14	21	50	192	425	625	762	735	500	223	50	10	3607
60	7	12	23	132	337	535	669	642	414	154	28	3	2956
65	0	0	3	59	206	386	514	487	279	69	8	0	2011
70	0	0	0	19	106	245	359	336	168	23	0	0	1256

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	171	266	483	698	971	1159	1318	1304	1058	775	408	205	171	437	920	1618	2589	3748	5066	6370	7428	8203	8611	8816
45	90	169	344	551	816	1009	1163	1149	908	624	283	114	90	259	603	1154	1970	2979	4142	5291	6199	6823	7106	7220
50	43	95	224	407	661	859	1008	994	758	475	176	54	43	138	362	769	1430	2289	3297	4291	5049	5524	5700	5754
55	15	44	123	272	508	709	853	839	608	335	98	18	15	59	182	454	962	1671	2524	3363	3971	4306	4404	4422
60	1	13	57	160	358	559	698	684	463	204	46	1	1	14	71	231	589	1148	1846	2530	2993	3197	3243	3244
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	142	191	314	450	636	782	868	855	697	501	267	153	142	333	647	1097	1733	2515	3383	4238	4935	5436	5703	5856

(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