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: PANHANDLE, TX **COOP ID: 416785**

Climate Division: TX 1 **NWS Call Sign:** **Elevation: 3,532 Feet** **Lat: 35˚25N** **Lon: 101˚22W**

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	47.5	19.3	33.4	80	1986	20	39.8	1986	-10+	1963	12	23.1	1979	979	0	.0	.0	17.3	3.9	27.7	.5
Feb	52.9	23.1	38.0	87+	1962	12	45.0	1976	-9	1996	4	25.9	1978	755	0	.0	.0	19.5	2.3	21.0	.5
Mar	61.7	29.4	45.6	92+	1989	11	51.0	1972	2+	1996	8	41.0	1998	603	0	.0	.1	27.3	.6	14.6	.0
Apr	70.5	38.4	54.5	98	1989	22	59.4	1981	16+	1997	13	47.7	1997	328	11	.0	.8	28.7	.1	5.4	.0
May	78.4	48.3	63.4	103	1962	11	70.5	1996	29	1970	1	59.4	1995	127	76	.3	4.5	30.9	.0	.2	.0
Jun	86.9	57.8	72.4	108	1981	21	78.5	1990	40	1998	6	67.4	1989	17	237	2.1	13.4	30.0	.0	.0	.0
Jul	90.8	62.4	76.6	107	1978	18	81.8	1980	51	1990	14	73.3	1975	0	360	3.2	21.4	31.0	.0	.0	.0
Aug	88.8	61.5	75.2	109	1964	6	79.9	1983	51	1966	23	70.8	1971	4	318	1.5	18.7	31.0	.0	.0	.0
Sep	81.8	54.0	67.9	103+	2000	6	74.2	1998	27	1995	21	61.2	1974	56	143	.6	8.8	29.9	.0	.2	.0
Oct	71.4	42.0	56.7	98	2000	4	60.3	1979	15	1991	31	50.7	1976	264	8	.0	1.2	30.1	.1	2.3	.0
Nov	57.5	29.5	43.5	88	1980	8	51.4	1999	4	1976	28	37.7	1972	646	0	.0	.0	23.4	.6	15.2	.0
Dec	47.9	21.2	34.6	78+	1996	10	39.9	1980	-8+	1989	22	23.6	1983	944	0	.0	.0	17.5	3.3	26.3	.7
Ann	69.7	40.6	55.2	109	Aug 1964	6	81.8	Jul 1980	-10+	Jan 1963	12	23.1	Jan 1979	4723	1153	7.7	68.9	316.6	10.9	112.9	1.7

\+ 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	.62	.56	1.24	1968	22	1.88	1999	.00+	1996
Feb	.73	.64	1.30	1964	4	2.03	1983	.00+	2000
Mar	1.43	1.39	2.40	1923	11	4.83	1973	.00	1997
Apr	1.80	1.22	2.51	1997	25	8.97	1997	.02	1996
May	3.10	2.74	8.05	1951	16	6.76	1987	.00	1984
Jun	3.54	3.66	3.85	1962	18	8.44	2000	.05	1998
Jul	2.67	2.39	3.58	1914	3	7.10	1996	.19	1974
Aug	2.78	2.40	3.73	1915	23	5.94	1986	.33	1983
Sep	2.21	1.98	3.00	1916	11	4.92	1987	.03	2000
Oct	1.71	1.20	4.55	1978	8	4.92	1971	.00+	1999
Nov	.98	.74	3.05	1948	1	3.49	1971	.00+	1999
Dec	.64	.39	2.00	1923	10	3.19	1991	.00	1976
Ann	22.21	21.80	8.05	May 1951	16	8.97	Apr 1997	.00+	Feb 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.3	2.1	.3	.1
Feb	4.6	1.9	.4	.0
Mar	5.6	3.0	.9	.3
Apr	5.8	3.3	1.0	.4
May	8.7	5.4	2.2	.9
Jun	8.6	5.6	2.3	.8
Jul	7.6	4.6	1.6	.7
Aug	8.0	5.5	2.0	.7
Sep	6.3	3.9	1.5	.6
Oct	5.0	3.0	1.1	.4
Nov	4.7	2.4	.5	.1
Dec	4.3	1.7	.4	.1
Ann	73.5	42.4	14.2	5.1

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	.16	.27	.37	.49	.62	.79	1.00	1.36	1.71
Feb	.00	.04	.15	.26	.38	.52	.69	.89	1.18	1.67	2.15
Mar	.07	.20	.42	.62	.85	1.10	1.39	1.76	2.25	3.08	3.88
Apr	.09	.18	.39	.63	.91	1.24	1.64	2.16	2.89	4.15	5.41
May	.64	1.08	1.60	2.02	2.41	2.82	3.27	3.79	4.47	5.52	6.50
Jun	.45	.73	1.24	1.73	2.25	2.82	3.50	4.32	5.44	7.28	9.06
Jul	.41	.64	1.03	1.39	1.78	2.19	2.67	3.26	4.04	5.31	6.53
Aug	.55	.80	1.21	1.59	1.96	2.37	2.83	3.38	4.12	5.29	6.40
Sep	.19	.34	.64	.95	1.28	1.67	2.12	2.69	3.48	4.80	6.09
Oct	.00	.12	.39	.66	.94	1.26	1.64	2.11	2.76	3.84	4.91
Nov	.00	.13	.32	.47	.63	.80	1.00	1.23	1.54	2.06	2.55
Dec	.03	.08	.18	.27	.38	.49	.62	.79	1.02	1.40	1.77
Ann	16.03	17.23	18.76	19.93	20.96	21.96	22.98	24.12	25.49	27.48	29.20

\+ 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	4.8	4.1	1	#
Feb	5.5	2.5	1	#
Mar	2.3	1.4	#	#
Apr	.8	.0	#	0
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.8	.0	#	0
Nov	1.8	.8	#	#
Dec	4.0	3.0	1	#
Ann	20.0	11.8	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	1983	21	16.2	1987	12	1987	18	3	1987
Feb	9.5	1983	20	22.5	1983	18	1983	5	5	1983
Mar	10.0	1987	23	10.1	1987	10	1987	23	1	1988
Apr	5.5	1973	8	9.0	1983	5	1973	8	#+	2000
May	1.0	1978	4	1.0	1978	#	1978	3	#	1978
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	6.0	1979	31	8.0	1991	6	1991	31	#+	1991
Nov	6.2	1992	21	8.8	1980	6+	2000	8	1	1992
Dec	14.0	2000	27	15.0	2000	14	2000	28	2+	2000
Ann	14.0	Dec 2000	27	22.5	Feb 1983	18	Feb 1983	5	5	Feb 1983

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.8	1.7	.6	.2	.0
Feb	2.4	1.6	.6	.3	.0
Mar	1.1	.6	.3	.1	@
Apr	.5	.4	.1	@	.0
May	@	@	.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	.2	.2	.2	.1	.0
Nov	1.1	.7	.2	.1	.0
Dec	2.2	1.4	.4	.2	.1
Ann	10.3	6.6	2.4	1.0	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	5.3	2.0	.9	.1
Feb	3.8	2.2	1.3	.3
Mar	1.0	.3	@	@
Apr	.3	.1	@	.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	.1	.1	@	.0
Nov	1.5	.5	.2	.0
Dec	3.5	1.2	.7	.2
Ann	15.5	6.4	3.1	.6

+ 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	5/14	5/08	5/05	5/01	4/29	4/26	4/22	4/19	4/13
32	5/02	4/28	4/24	4/21	4/18	4/15	4/12	4/09	4/04
28	4/17	4/13	4/09	4/07	4/04	4/01	3/29	3/26	3/21
24	4/09	4/04	3/31	3/28	3/24	3/21	3/18	3/14	3/09
20	4/04	3/28	3/22	3/18	3/14	3/10	3/06	2/28	2/21
16	3/28	3/19	3/12	3/06	3/01	2/24	2/18	2/11	2/02

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	9/25	9/30	10/03	10/06	10/09	10/12	10/15	10/18	10/23
32	10/03	10/10	10/14	10/18	10/22	10/25	10/29	11/03	11/09
28	10/16	10/21	10/25	10/29	11/01	11/04	11/07	11/11	11/17
24	10/30	11/04	11/07	11/10	11/13	11/16	11/19	11/22	11/27
20	11/02	11/09	11/14	11/18	11/22	11/26	11/30	12/05	12/12
16	11/06	11/15	11/22	11/28	12/03	12/09	12/14	12/21	12/31

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	183	176	171	167	163	159	155	150	143
32	206	199	194	190	186	182	177	172	166
28	234	226	220	215	210	206	201	195	187
24	252	245	241	237	233	229	225	220	214
20	277	269	263	257	253	248	243	237	228
16	315	302	292	284	277	269	261	251	238

***** 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	979	755	603	328	127	17	0	4	56	264	646	944	4723
60	824	615	448	204	56	3	0	0	17	139	498	789	3593
57	731	536	359	144	30	1	0	0	7	83	412	696	2999
55	669	483	302	110	18	0	0	0	3	56	358	634	2633
50	519	356	176	46	4	0	0	0	0	16	235	483	1835
32	107	59	4	0	0	0	0	0	0	0	16	82	268

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	151	227	424	673	972	1210	1382	1337	1077	767	361	162	8743
55	0	8	10	93	277	520	669	624	390	110	13	0	2714
57	0	4	4	67	227	461	607	562	334	75	7	0	2348
60	0	0	1	37	160	373	514	469	254	38	2	0	1848
65	0	0	0	11	76	237	360	318	143	8	0	0	1153
70	0	0	0	2	27	128	214	181	67	1	0	0	620

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	72	151	305	513	796	1039	1194	1146	903	604	236	88	72	223	528	1041	1837	2876	4070	5216	6119	6723	6959	7047
45	27	78	186	372	641	889	1039	991	753	455	135	35	27	105	291	663	1304	2193	3232	4223	4976	5431	5566	5601
50	2	31	98	249	489	739	884	836	604	313	63	8	2	33	131	380	869	1608	2492	3328	3932	4245	4308	4316
55	0	5	44	145	342	589	729	681	462	189	20	0	0	5	49	194	536	1125	1854	2535	2997	3186	3206	3206
60	0	0	13	67	210	440	574	526	323	92	4	0	0	0	13	80	290	730	1304	1830	2153	2245	2249	2249
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	90	147	239	349	503	670	781	751	583	397	179	92	90	237	476	825	1328	1998	2779	3530	4113	4510	4689	4781

(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