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: WHITNEY DAM, TX **COOP ID: 419715**

Climate Division: TX 3 **NWS Call Sign:** **Elevation: 574 Feet** **Lat: 31˚51N** **Lon: 97˚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	56.3	32.7	44.5	90	1951	19	51.7	1990	4	1982	14	35.7	1979	635	0	.0	.0	21.3	1.0	16.2	.0
Feb	61.5	36.8	49.2	97+	1996	23	56.2	1976	-3	1951	2	38.7	1978	448	4	.0	.1	22.4	1.0	9.4	.0
Mar	69.4	45.0	57.2	97	1991	6	62.6	1982	15	1980	2	52.4	1996	257	16	.0	.2	29.6	.1	2.9	.0
Apr	76.8	52.6	64.7	100	1963	11	69.1	1981	29	1989	11	60.1	1997	84	75	.0	1.2	29.9	.0	.2	.0
May	83.9	61.9	72.9	101	1998	30	79.5	1996	42+	1992	8	67.7	1976	11	256	.2	6.5	31.0	.0	.0	.0
Jun	91.2	68.8	80.0	110	1980	28	84.7	1998	51	1964	2	76.5	1983	0	450	1.6	20.3	30.0	.0	.0	.0
Jul	96.2	71.6	83.9	111	1954	26	88.8	1998	57	1967	17	78.4	1976	0	586	8.3	28.2	31.0	.0	.0	.0
Aug	96.2	70.9	83.6	109+	1952	7	88.3	1999	56+	1992	29	78.8	1971	0	575	8.7	27.5	31.0	.0	.0	.0
Sep	89.6	65.3	77.5	113	2000	5	82.8	1977	38	1983	22	69.9	1974	3	376	1.8	17.4	30.0	.0	.0	.0
Oct	79.8	54.4	67.1	101	1979	4	69.7	2000	26	1993	31	58.6	1976	50	115	@	4.0	30.9	.0	.1	.0
Nov	67.3	44.2	55.8	93	1955	2	60.7	1973	16+	1976	29	48.5	1976	294	16	.0	@	27.8	.0	4.0	.0
Dec	58.8	35.6	47.2	91	1955	25	53.9	1984	-3	1989	23	36.9	1983	553	1	.0	.0	23.9	.7	12.1	@
Ann	77.3	53.3	65.3	113	Sep 2000	5	88.8	Jul 1998	-3+	Dec 1989	23	35.7	Jan 1979	2335	2470	20.6	105.4	338.8	2.8	44.9	@

+ 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: 1949-2001

(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	1.93	1.88	2.77	1961	8	5.54	1998	.03	1976
Feb	2.39	2.19	2.70	1997	13	6.61	1997	.04	1999
Mar	2.87	3.06	2.64	1977	27	6.92	1990	.08	1972
Apr	3.18	2.66	4.79	1952	22	7.62	1995	.26	1983
May	4.29	4.08	3.79	1959	11	8.94	1994	.79	1998
Jun	3.96	2.74	5.65	2000	5	13.37	1981	.26	1978
Jul	2.03	1.51	3.31	1973	16	8.30	1973	.00	1993
Aug	2.37	1.76	5.00	1974	27	9.82	1974	.00+	2000
Sep	2.76	2.91	4.00	1988	30	6.62	1988	.06	1977
Oct	3.95	3.79	6.22	1971	19	10.31	1971	.16	1995
Nov	2.67	2.58	5.01	1964	4	8.08	2000	.26	1979
Dec	2.67	2.12	5.15	1997	21	9.47	1991	.20	1973
Ann	35.07	35.28	6.22	Oct 1971	19	13.37	Jun 1981	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.6	4.4	1.2	.4
Feb	6.9	4.2	1.7	.5
Mar	8.5	5.0	2.1	.8
Apr	6.8	4.6	2.0	1.2
May	9.3	6.0	3.0	1.4
Jun	7.4	5.1	2.5	1.1
Jul	4.6	2.9	1.2	.7
Aug	5.0	3.4	1.4	.7
Sep	6.4	4.1	1.7	.8
Oct	7.2	4.9	2.6	1.3
Nov	7.8	4.5	2.0	.7
Dec	7.3	4.2	1.7	.7
Ann	84.8	53.3	23.1	10.3

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	.17	.30	.56	.83	1.12	1.45	1.85	2.35	3.04	4.19	5.32
Feb	.26	.44	.77	1.10	1.46	1.86	2.33	2.91	3.71	5.03	6.31
Mar	.44	.68	1.10	1.49	1.90	2.35	2.87	3.50	4.35	5.73	7.05
Apr	.48	.75	1.21	1.65	2.10	2.60	3.18	3.88	4.83	6.36	7.84
May	1.28	1.69	2.30	2.83	3.34	3.87	4.46	5.15	6.04	7.43	8.73
Jun	.39	.68	1.22	1.77	2.37	3.04	3.83	4.83	6.18	8.44	10.64
Jul	.04	.15	.39	.67	.99	1.38	1.85	2.45	3.31	4.77	6.23
Aug	.00	.00	.34	.70	1.11	1.59	2.17	2.92	3.94	5.71	7.46
Sep	.30	.51	.89	1.27	1.69	2.15	2.69	3.36	4.28	5.80	7.29
Oct	.39	.68	1.22	1.77	2.37	3.04	3.83	4.82	6.18	8.44	10.64
Nov	.42	.65	1.04	1.41	1.79	2.20	2.68	3.26	4.04	5.30	6.52
Dec	.25	.44	.80	1.17	1.57	2.03	2.58	3.26	4.19	5.75	7.28
Ann	24.50	26.53	29.14	31.12	32.89	34.60	36.37	38.33	40.72	44.18	47.17

\+ 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: 1949-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	.3	.0	#	0	2.0	1973	11	2.0	1973	12	1982	14	1	1982	-9.9	-9.9	-9.9	-9.9	-9.9	@	.0	.0	.0
Feb	#	.0	0	0	#	1989	5	#	1989	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Nov	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Dec	.2	.0	#	0	1.5	1983	16	1.5	1983	2	1983	16	#	1983	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Ann	.5	.0	N/A	N/A	2.0	Jan 1973	11	2.0	Jan 1973	12	Jan 1982	14	1	Jan 1982	-9.9	-9.9	-9.9	-9.9	-9.9	@	.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

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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	4/15	4/09	4/06	4/02	3/30	3/27	3/24	3/20	3/15
32	4/04	3/28	3/23	3/19	3/15	3/10	3/06	3/01	2/22
28	3/16	3/08	3/03	2/27	2/22	2/18	2/14	2/09	2/01
24	3/06	2/25	2/18	2/13	2/08	2/02	1/28	1/21	1/10
20	2/22	2/12	2/05	1/30	1/24	1/17	1/10	12/29	0/00
16	2/10	1/30	1/22	1/13	1/03	0/00	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	10/26	10/31	11/04	11/07	11/10	11/13	11/16	11/20	11/25
32	10/31	11/06	11/10	11/14	11/17	11/20	11/24	11/28	12/04
28	11/07	11/14	11/19	11/23	11/27	12/01	12/05	12/10	12/17
24	11/20	11/27	12/02	12/07	12/11	12/15	12/20	12/26	1/04
20	12/08	12/17	12/23	12/28	1/03	1/09	1/16	1/30	0/00
16	12/16	12/29	1/09	1/20	2/05	0/00	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	246	239	233	228	224	219	215	209	201
32	276	266	259	252	247	241	235	228	218
28	305	296	289	283	277	272	266	259	249
24	>365	332	321	313	306	299	292	284	273
20	>365	>365	>365	>365	351	336	324	313	299
16	>365	>365	>365	>365	>365	>365	>365	347	329

***** 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	635	448	257	84	11	0	0	0	3	50	294	553	2335
60	491	319	142	27	1	0	0	0	0	13	179	409	1581
57	407	249	92	10	0	0	0	0	0	4	125	326	1213
55	353	208	65	5	0	0	0	0	0	2	96	275	1004
50	237	123	22	0	0	0	0	0	0	0	42	170	594
32	19	4	0	0	0	0	0	0	0	0	0	6	29

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	407	484	782	981	1268	1440	1609	1598	1363	1088	713	477	12210
55	28	44	133	296	555	750	896	885	673	377	119	33	4789
57	20	29	98	242	493	690	834	823	613	318	88	22	4270
60	11	15	56	168	401	600	741	730	523	233	52	12	3542
65	0	4	16	75	256	450	586	575	376	115	16	1	2470
70	0	0	2	23	136	302	431	420	240	40	3	0	1597

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	219	312	553	755	1031	1206	1366	1358	1130	845	484	270	219	531	1084	1839	2870	4076	5442	6800	7930	8775	9259	9529
45	125	204	406	605	876	1056	1211	1203	980	691	346	160	125	329	735	1340	2216	3272	4483	5686	6666	7357	7703	7863
50	63	118	275	456	721	906	1056	1048	830	537	232	81	63	181	456	912	1633	2539	3595	4643	5473	6010	6242	6323
55	28	56	160	320	567	756	901	893	680	391	133	41	28	84	244	564	1131	1887	2788	3681	4361	4752	4885	4926
60	6	20	80	190	413	606	746	738	532	254	67	14	6	26	106	296	709	1315	2061	2799	3331	3585	3652	3666
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	156	205	343	485	698	821	896	885	749	549	299	177	156	361	704	1189	1887	2708	3604	4489	5238	5787	6086	6263

(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