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: FREEPORT 2 NW, TX **COOP ID: 413340**

Climate Division: TX 8 **NWS Call Sign:** **Elevation: 8 Feet** **Lat: 28˚59N** **Lon: 95˚23W**

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	62.6	45.4	54.0	83	1965	1	60.2	1998	15	1982	12	44.8	1978	367	16	.0	.0	26.8	@	3.2	.0
Feb	65.4	47.9	56.7	83+	2000	17	64.0	1999	22	1985	2	46.8	1978	255	21	.0	.0	26.0	.2	1.7	.0
Mar	71.5	54.7	63.1	88	1974	30	68.2	2000	25	1980	2	57.3	1996	114	54	.0	.0	30.7	.0	.3	.0
Apr	76.5	61.4	69.0	95	1987	28	73.0+	1999	36+	1980	15	64.9	1983	23	143	.0	.5	30.0	.0	.0	.0
May	82.6	69.2	75.9	98	1984	4	79.5	1998	41	1970	5	70.7	1976	2	340	.0	1.9	31.0	.0	.0	.0
Jun	87.8	75.1	81.5	101	1987	25	84.6	1990	57	1969	5	77.9	1976	0	493	.1	14.4	30.0	.0	.0	.0
Jul	90.2	77.2	83.7	100+	1981	24	86.2	1998	64+	1967	18	80.3	1976	0	580	.1	26.1	31.0	.0	.0	.0
Aug	90.2	76.5	83.4	104	1964	6	86.8	1998	65	1961	24	80.7	1976	0	569	.4	24.7	31.0	.0	.0	.0
Sep	86.7	72.2	79.5	105+	2000	6	83.3	1986	45	1981	19	74.8	1974	0	433	.2	13.7	30.0	.0	.0	.0
Oct	80.2	63.5	71.9	96	1978	2	75.4	1973	34	1993	31	62.5	1976	17	228	.0	1.3	31.0	.0	.0	.0
Nov	72.0	54.1	63.1	90+	1992	1	71.6	1973	26	1959	18	54.0	1976	157	99	.0	.1	29.5	.0	.2	.0
Dec	65.0	47.4	56.2	84	1971	31	64.2	1984	13	1983	26	46.8	1989	299	27	.0	.0	28.8	.1	1.8	.0
Ann	77.6	62.1	69.8	105+	Sep 2000	6	86.8	Aug 1998	13	Dec 1983	26	44.8	Jan 1978	1234	3003	.8	82.7	355.8	.3	7.2	.0

\+ 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: 1931-2001

(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	4.29	3.51	5.26	1992	8	13.75	1992	.48	1971
Feb	2.84	2.19	3.32	1992	3	9.73	1992	.19	1989
Mar	2.87	1.70	4.95	1945	31	9.34	1997	.31	1971
Apr	2.82	2.34	5.75	1968	9	7.47	1973	.15+	1987
May	4.02	4.23	3.83	1959	23	11.70	1974	.00+	1998
Jun	4.65	3.91	8.30	1998	28	12.99	1989	.39	1971
Jul	4.74	3.68	16.72	1979	26	30.95	1979	.21	1998
Aug	4.18	3.35	6.43	1953	31	9.83	1983	1.11	1997
Sep	7.80	7.41	12.34	1979	19	31.61	1979	.93	1975
Oct	4.52	3.29	9.30	1973	13	19.16	1984	.06	1978
Nov	4.42	3.97	8.05	1934	3	13.83	2000	.20	1988
Dec	3.51	2.78	4.39	1969	6	10.11	1976	.72	1977
Ann	50.66	45.52	16.72	Jul 1979	26	31.61	Sep 1979	.00+	May 1998

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.2	6.4	2.9	1.4
Feb	7.7	4.4	1.6	.8
Mar	7.1	4.1	1.7	.9
Apr	5.6	3.4	1.7	1.0
May	7.1	4.8	2.6	1.5
Jun	7.9	5.1	2.8	1.5
Jul	8.3	5.6	2.6	1.3
Aug	9.7	6.8	2.7	1.2
Sep	10.5	7.6	3.8	2.1
Oct	6.9	4.8	2.4	1.3
Nov	8.1	5.5	2.6	1.4
Dec	9.1	5.4	2.3	1.0
Ann	98.2	63.9	29.7	15.4

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	.69	1.06	1.68	2.27	2.88	3.55	4.31	5.23	6.48	8.49	10.42
Feb	.29	.50	.88	1.28	1.71	2.19	2.76	3.47	4.43	6.04	7.62
Mar	.26	.46	.85	1.25	1.68	2.18	2.76	3.49	4.50	6.18	7.83
Apr	.23	.42	.79	1.18	1.61	2.10	2.69	3.43	4.46	6.18	7.88
May	.00	.00	1.48	2.19	2.83	3.50	4.25	5.13	6.22	8.02	9.72
Jun	.61	.99	1.65	2.30	2.98	3.73	4.61	5.68	7.13	9.51	11.81
Jul	.40	.72	1.34	2.00	2.72	3.54	4.53	5.77	7.47	10.34	13.15
Aug	1.09	1.48	2.09	2.62	3.15	3.70	4.31	5.04	5.99	7.49	8.89
Sep	1.41	2.10	3.24	4.30	5.39	6.56	7.89	9.51	11.66	15.12	18.42
Oct	.26	.53	1.08	1.69	2.38	3.20	4.19	5.46	7.23	10.26	13.27
Nov	.57	.93	1.55	2.17	2.82	3.54	4.37	5.40	6.79	9.07	11.27
Dec	.84	1.16	1.68	2.14	2.59	3.07	3.61	4.25	5.09	6.43	7.68
Ann	28.23	32.17	37.43	41.58	45.35	49.08	53.01	57.45	62.94	71.10	78.34

\+ 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: 1931-2001
(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	#	.0	#	0	#	1971	7	#	1971	#	1971	7	#	1971	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	#	0	#	1989	3	#+	1989	#	1980	2	#	1980	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	0	0	.7	1976	29	.7	1976	0	0	0	0	0	.1	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	.7	Nov 1976	29	.7	Nov 1976	#+	Feb 1980	2	#+	Feb 1980	.1	.0	.0	.0	.0	.0	.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	3/24	3/12	3/04	2/24	2/18	2/11	2/04	1/26	1/14
32	3/03	2/21	2/14	2/07	1/31	1/24	1/14	0/00	0/00
28	2/17	2/05	1/27	1/18	1/09	12/28	0/00	0/00	0/00
24	1/18	1/06	12/23	0/00	0/00	0/00	0/00	0/00	0/00
20	1/07	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	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	11/12	11/21	11/27	12/02	12/07	12/12	12/17	12/23	12/31
32	11/28	12/08	12/15	12/21	12/28	1/04	1/15	0/00	0/00
28	12/08	12/19	12/28	1/05	1/14	1/26	0/00	0/00	0/00
24	12/20	12/31	1/12	0/00	0/00	0/00	0/00	0/00	0/00
20	1/03	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
16	0/00	0/00	0/00	0/00	0/00	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	338	320	309	299	290	281	272	261	247
32	>365	>365	>365	>365	340	323	311	300	286
28	>365	>365	>365	>365	>365	347	334	322	307
24	>365	>365	>365	>365	>365	>365	>365	>365	>365
20	>365	>365	>365	>365	>365	>365	>365	>365	>365
16	>365	>365	>365	>365	>365	>365	>365	>365	>365

***** 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	367	255	114	23	2	0	0	0	0	17	157	299	1234
60	247	155	43	3	0	0	0	0	0	4	85	187	724
57	190	109	20	0	0	0	0	0	0	1	54	135	509
55	157	82	11	0	0	0	0	0	0	1	38	104	393
50	84	33	2	0	0	0	0	0	0	0	14	45	178
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	682	690	963	1110	1361	1483	1603	1592	1423	1234	932	751	13824
55	126	128	261	420	648	793	890	879	733	522	280	142	5822
57	97	99	208	360	586	733	828	817	673	461	236	111	5209
60	61	61	138	273	493	643	735	724	583	370	177	70	4328
65	16	21	54	143	340	493	580	569	433	228	99	27	3003
70	10	7	12	54	197	343	425	414	285	113	44	9	1913

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	462	508	732	895	1144	1275	1389	1378	1216	1017	717	533	462	970	1702	2597	3741	5016	6405	7783	8999	10016	10733	11266
45	326	371	580	745	989	1125	1234	1223	1066	862	567	388	326	697	1277	2022	3011	4136	5370	6593	7659	8521	9088	9476
50	209	248	433	595	834	975	1079	1068	916	707	425	257	209	457	890	1485	2319	3294	4373	5441	6357	7064	7489	7746
55	118	149	287	445	679	825	924	913	766	553	296	152	118	267	554	999	1678	2503	3427	4340	5106	5659	5955	6107
60	52	73	162	303	524	675	769	758	616	402	185	81	52	125	287	590	1114	1789	2558	3316	3932	4334	4519	4600
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	259	290	453	596	820	920	987	977	863	698	454	310	259	549	1002	1598	2418	3338	4325	5302	6165	6863	7317	7627

(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