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: FRANKLIN, TX **COOP ID: 413321**

Climate Division: TX 4 **NWS Call Sign:** **Elevation: 469 Feet** **Lat: 31˚02N** **Lon: 96˚29W**

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	59.5	38.2	48.9	86+	1972	23	56.1	1998	4	1982	14	39.1	1978	512	4	.0	.0	24.0	.5	10.1	.0
Feb	64.1	42.3	53.2	97	1996	21	60.3	1976	7	1985	2	44.5	1978	341	11	.0	.1	24.5	.4	5.4	.0
Mar	71.7	49.1	60.4	93	1971	28	66.7	1974	16	1980	2	54.5	1996	178	35	.0	.2	30.1	@	1.9	.0
Apr	77.9	55.9	66.9	97	1963	8	71.3	1999	30	1973	10	62.9	1973	48	104	.0	.8	30.0	.0	.2	.0
May	84.2	64.0	74.1	100	1998	31	80.3	1996	41	1984	9	70.1	1976	5	287	@	4.6	31.0	.0	.0	.0
Jun	90.4	69.9	80.2	108	1998	14	86.1	1998	50	1970	3	77.3	1973	0	454	1.1	18.4	30.0	.0	.0	.0
Jul	95.1	72.2	83.7	107+	2000	16	89.1	1998	55	1988	22	79.7	1976	0	577	6.0	27.7	31.0	.0	.0	.0
Aug	95.5	71.5	83.5	110+	2000	31	87.4	1985	56+	1992	28	79.2	1992	0	573	7.2	27.5	31.0	.0	.0	.0
Sep	89.3	66.5	77.9	112	2000	4	82.4	1977	43	1994	23	72.0	1974	2	389	1.1	16.0	30.0	.0	.0	.0
Oct	80.5	57.1	68.8	96+	1989	3	71.6	2000	25	1993	31	60.6	1976	32	151	.0	3.0	30.9	.0	.1	.0
Nov	69.2	47.5	58.4	89	1980	9	64.4	1973	16	1976	29	51.0	1976	233	33	.0	.0	28.9	.0	2.9	.0
Dec	61.5	40.2	50.9	85	1982	2	59.9	1984	-1	1989	23	41.6	1989	449	10	.0	.0	26.1	.4	7.7	@
Ann	78.2	56.2	67.2	112	Sep 2000	4	89.1	Jul 1998	-1	Dec 1989	23	39.1	Jan 1978	1800	2628	15.4	98.3	347.5	1.3	28.3	@

\+ 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: 1962-2001

(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	3.03	2.66	2.71	1990	18	7.74	1991	.06	1971
Feb	2.86	2.60	2.92	1983	5	8.45	1992	.08	1999
Mar	2.90	2.63	2.67	1988	17	8.40	1979	.11	1971
Apr	3.03	2.85	3.55	1966	24	7.69	1976	.07	1984
May	4.81	4.22	5.02	1965	17	10.48	1979	.16	1996
Jun	2.95	2.54	2.90	1978	7	7.24	1973	.12	1980
Jul	2.04	1.77	7.48	1979	27	10.31	1979	.00+	2000
Aug	2.60	1.99	3.40	1995	1	7.79	1983	.04	1985
Sep	3.65	3.18	4.04	1974	13	9.47	1974	.47	1999
Oct	4.38	3.59	5.42	1970	23	13.37	1984	.00	1987
Nov	3.26	3.06	2.92	1990	8	8.03	2000	.13	1999
Dec	3.52	2.85	5.20	1991	21	11.26	1991	.35	1981
Ann	39.03	38.92	7.48	Jul 1979	27	13.37	Oct 1984	.00+	Jul 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.7	5.0	2.2	.8
Feb	6.7	4.8	1.9	1.0
Mar	7.3	5.0	2.0	.8
Apr	7.1	4.8	2.1	1.0
May	7.8	6.1	3.4	1.6
Jun	6.8	5.6	1.8	.9
Jul	4.6	3.3	1.4	.7
Aug	4.6	3.6	1.7	.9
Sep	6.1	4.7	2.6	1.2
Oct	6.5	5.6	2.6	1.3
Nov	6.6	4.9	2.2	1.0
Dec	7.6	5.1	2.3	1.0
Ann	79.4	58.5	26.2	12.2

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	.27	.48	.89	1.31	1.77	2.29	2.92	3.70	4.77	6.56	8.32
Feb	.30	.51	.91	1.31	1.73	2.22	2.78	3.49	4.45	6.05	7.60
Mar	.57	.84	1.26	1.65	2.05	2.47	2.95	3.53	4.30	5.53	6.70
Apr	.44	.69	1.13	1.55	1.99	2.47	3.02	3.70	4.62	6.10	7.54
May	.71	1.11	1.81	2.47	3.17	3.93	4.80	5.88	7.32	9.67	11.93
Jun	.30	.52	.92	1.33	1.77	2.27	2.86	3.60	4.60	6.27	7.90
Jul	.00	.00	.50	.86	1.21	1.59	2.04	2.58	3.29	4.47	5.62
Aug	.09	.21	.49	.82	1.22	1.70	2.30	3.09	4.22	6.18	8.16
Sep	.79	1.12	1.66	2.14	2.63	3.15	3.73	4.43	5.35	6.82	8.21
Oct	.24	.64	1.31	1.96	2.64	3.41	4.30	5.40	6.90	9.38	11.79
Nov	.59	.87	1.35	1.80	2.25	2.74	3.30	3.98	4.88	6.33	7.72
Dec	.53	.82	1.33	1.82	2.33	2.88	3.52	4.30	5.35	7.06	8.70
Ann	25.29	27.85	31.19	33.76	36.07	38.32	40.66	43.26	46.45	51.13	55.21

\+ 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: 1962-2001
(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	.7	.0	#	0
Feb	.2	.0	#	0
Mar	.0	.0	0	0
Apr	.0	.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	.1	.0	0	0
Ann	1.0	.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	1997	12	5.0	1997	6	1982	13	1	1982
Feb	2.0	1973	9	2.0+	1981	5	1985	2	#+	1998
Mar	.0	0	0	.0	0	0	0	0	0	0
Apr	.0	0	0	.0	0	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Nov	#	1980	26	#+	1980	0	0	0	0	0
Dec	1.0	1989	22	1.0	1989	0	0	0	0	0
Ann	5.0	Jan 1997	12	5.0	Jan 1997	6	Jan 1982	13	1	Jan 1982

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.1	.1	.1	.1	.0
Feb	.2	.2	.0	.0	.0
Mar	.0	.0	.0	.0	.0
Apr	.0	.0	.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	.0	.0	.0	.0	.0
Dec	.1	.1	.0	.0	.0
Ann	.4	.4	.1	.1	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.1	.1	.0	.0
Feb	.0	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.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	.0
Dec	.0	.0	.0	.0
Ann	.1	.1	.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	4/12	4/06	4/02	3/30	3/27	3/24	3/20	3/16	3/11
32	4/04	3/26	3/20	3/14	3/09	3/04	2/26	2/20	2/11
28	3/17	3/08	3/02	2/25	2/20	2/16	2/11	2/05	1/27
24	3/06	2/25	2/18	2/12	2/06	1/31	1/24	1/14	0/00
20	2/19	2/08	1/31	1/24	1/17	1/10	12/31	12/14	0/00
16	2/07	1/27	1/18	1/09	12/28	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	11/08	11/11	11/14	11/17	11/21	11/27
32	10/28	11/04	11/10	11/14	11/19	11/23	11/27	12/03	12/10
28	11/12	11/19	11/25	11/29	12/03	12/07	12/11	12/16	12/23
24	11/20	11/29	12/05	12/11	12/16	12/22	12/28	1/05	0/00
20	11/29	12/09	12/16	12/22	12/28	1/04	1/14	0/00	0/00
16	12/15	12/28	1/08	1/19	2/02	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	251	243	238	233	228	224	219	213	206
32	287	275	267	260	254	247	240	232	221
28	316	305	297	291	285	279	272	264	254
24	>365	>365	338	325	315	306	297	288	274
20	>365	>365	>365	>365	350	336	324	313	299
16	>365	>365	>365	>365	>365	>365	>365	344	328

***** 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	512	341	178	48	5	0	0	0	2	32	233	449	1800
60	374	223	87	10	0	0	0	0	0	7	136	311	1148
57	300	165	49	3	0	0	0	0	0	2	92	239	850
55	256	133	31	1	0	0	0	0	0	1	68	198	688
50	166	67	8	0	0	0	0	0	0	0	26	114	381
32	11	0	0	0	0	0	0	0	0	0	0	2	13

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	534	593	880	1046	1305	1444	1600	1596	1377	1142	790	586	12893
55	66	82	198	357	592	754	887	883	687	430	168	69	5173
57	48	58	154	299	530	694	825	821	627	369	132	49	4606
60	29	32	99	217	437	604	732	728	537	280	86	27	3808
65	4	11	35	104	287	454	577	573	389	151	33	10	2628
70	0	0	8	34	156	305	422	418	250	59	10	0	1662

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	320	408	631	806	1056	1208	1358	1352	1144	896	555	366	320	728	1359	2165	3221	4429	5787	7139	8283	9179	9734	10100
45	207	283	482	656	901	1058	1203	1197	994	741	412	242	207	490	972	1628	2529	3587	4790	5987	6981	7722	8134	8376
50	123	179	340	507	746	908	1048	1042	844	587	286	144	123	302	642	1149	1895	2803	3851	4893	5737	6324	6610	6754
55	62	97	214	364	591	758	893	887	694	437	177	74	62	159	373	737	1328	2086	2979	3866	4560	4997	5174	5248
60	27	47	114	228	437	608	738	732	544	295	99	35	27	74	188	416	853	1461	2199	2931	3475	3770	3869	3904
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	200	253	404	530	729	834	900	893	773	595	348	221	200	453	857	1387	2116	2950	3850	4743	5516	6111	6459	6680

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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