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: GUTHRIE, TX **COOP ID: 413828**

Climate Division: TX 2 **NWS Call Sign:** **Elevation: 1,740 Feet** **Lat: 33˚37N** **Lon: 100˚19W**

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	53.7	23.9	38.8	86	1997	4	45.4	1986	0+	1982	11	28.1	1979	813	0	.0	.0	20.5	2.3	25.2	.1
Feb	59.3	28.7	44.0	93	1996	23	51.9	1976	-4	1985	2	33.1	1978	588	0	.0	.1	21.8	1.5	18.7	.2
Mar	67.9	36.1	52.0	103	1971	27	57.2	1974	12+	1996	9	47.6	1996	405	1	.1	1.0	28.5	.2	9.4	.0
Apr	77.4	44.6	61.0	102	1972	13	68.3	1986	19+	1975	4	54.9	1997	172	52	.1	4.6	29.5	.0	2.2	.0
May	85.0	55.2	70.1	113	2000	25	76.9	1996	34	1970	3	66.1	1976	39	197	1.8	11.2	31.0	.0	.0	.0
Jun	92.1	63.8	78.0	119	1994	28	83.2	1998	46	1970	2	74.6	1992	1	390	5.0	21.6	30.0	.0	.0	.0
Jul	96.7	67.9	82.3	111+	1995	29	88.3	1980	56+	1995	2	77.8	1975	0	536	11.9	28.4	31.0	.0	.0	.0
Aug	95.0	66.5	80.8	114	1964	7	85.7	1983	52+	1992	29	75.5	1971	0	489	10.5	26.3	31.0	.0	.0	.0
Sep	87.4	59.1	73.3	109+	2000	6	80.0	1998	34	2000	27	66.5	1974	17	266	2.6	15.9	30.0	.0	.0	.0
Oct	78.0	47.2	62.6	107	1977	1	66.9	1998	16	1993	31	54.7	1976	130	54	.1	3.7	30.7	@	.8	.0
Nov	64.6	34.6	49.6	91+	1996	21	56.3	1999	10	1976	29	42.0	1972	467	4	.0	.1	26.3	.1	11.6	.0
Dec	55.1	25.7	40.4	89	1964	25	45.9	1981	-10	1989	23	28.4	1983	762	0	.0	.0	21.7	1.8	23.9	.2
Ann	76.0	46.1	61.1	119	Jun 1994	28	88.3	Jul 1980	-10	Dec 1989	23	28.1	Jan 1979	3394	1989	32.1	112.9	332.0	5.9	91.8	.5

\+ 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: 1947-2001

(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	1.03	.76	1.72	1990	19	3.79	1973	.00+	1986
Feb	1.28	.99	2.60	1982	10	3.66	1997	.00	1991
Mar	1.26	1.01	4.07	2000	23	4.77	2000	.00+	1997
Apr	1.79	1.55	2.90	1979	18	6.38	1997	.05	1996
May	3.90	2.96	6.20	1954	23	11.46	1987	.61	1976
Jun	3.17	2.96	3.12	1991	3	7.60	1982	.60	1994
Jul	1.94	1.45	8.85	1986	4	11.45	1986	.00	1989
Aug	2.87	1.99	7.50	1995	2	10.31	1995	.00+	2000
Sep	3.25	2.76	6.18	1963	16	9.88	1991	.00	2000
Oct	2.38	1.27	5.50	1983	19	11.86	1983	.00+	1992
Nov	1.12	.84	2.05+	2000	3	4.90	2000	.00+	1999
Dec	1.01	.64	2.50	1959	15	5.18	1991	.00	1996
Ann	25.00	23.96	8.85	Jul 1986	4	11.86	Oct 1983	.00+	Sep 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.1	2.2	.6	.2
Feb	4.0	2.8	.8	.3
Mar	3.8	2.5	.8	.2
Apr	4.8	3.4	1.0	.5
May	6.6	5.4	2.6	1.5
Jun	5.8	4.9	2.3	.9
Jul	3.9	2.7	1.2	.5
Aug	5.7	4.1	1.8	.8
Sep	5.2	4.4	2.2	1.1
Oct	4.6	3.2	1.2	.6
Nov	3.0	2.1	.8	.3
Dec	3.2	2.3	.5	.3
Ann	53.7	40.0	15.8	7.2

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	.00	.00	.13	.36	.57	.78	1.03	1.33	1.73	2.36	3.01
Feb	.02	.07	.21	.38	.59	.83	1.13	1.53	2.10	3.08	4.07
Mar	.00	.10	.31	.51	.72	.95	1.23	1.56	2.02	2.79	3.54
Apr	.15	.28	.51	.76	1.03	1.34	1.71	2.17	2.81	3.88	4.93
May	.61	.95	1.51	2.05	2.61	3.22	3.91	4.76	5.91	7.76	9.54
Jun	.74	1.03	1.50	1.91	2.32	2.76	3.25	3.84	4.61	5.83	6.98
Jul	.01	.06	.23	.46	.76	1.13	1.61	2.26	3.21	4.90	6.62
Aug	.00	.36	.89	1.35	1.82	2.32	2.90	3.59	4.53	6.06	7.53
Sep	.06	.24	.64	1.09	1.60	2.22	2.97	3.93	5.30	7.63	9.96
Oct	.00	.00	.28	.62	1.02	1.51	2.10	2.88	3.97	5.87	7.78
Nov	.00	.06	.22	.39	.57	.79	1.05	1.37	1.83	2.60	3.36
Dec	.01	.03	.12	.24	.40	.59	.84	1.18	1.67	2.54	3.43
Ann	17.27	18.75	20.65	22.10	23.39	24.65	25.94	27.38	29.13	31.67	33.88

\+ 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: 1947-2001
(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	2.8	1.8	#	0
Feb	2.0	.0	#	0
Mar	.1	.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	1.0	.0	#	0
Dec	.8	.0	#	0
Ann	6.7	1.8	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	7.0	1992	18	10.0	1992	5	1977	9	1	1977
Feb	5.0	1978	17	10.1	1978	5	1978	18	1	1978
Mar	.7	1978	4	.9	1978	#	1989	22	#	1989
Apr	.5	1973	8	.5	1973	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	.5	1991	31	.5	1991	0	0	0	0	0
Nov	8.0	1980	16	13.0	1980	6	1980	16	1	1980
Dec	4.3	1983	16	4.3	1983	4	1983	16	#+	1990
Ann	8.0	Nov 1980	16	13.0	Nov 1980	6	Nov 1980	16	1+	Nov 1980

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.6	1.0	.3	.1	.0
Feb	1.0	.8	.1	.1	.0
Mar	.2	.0	.0	.0	.0
Apr	@	.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
Nov	.4	.3	.1	@	.0
Dec	.5	.3	.2	.0	.0
Ann	3.7	2.4	.7	.2	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.3	.2	@	.0
Feb	1.1	.2	.1	.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	.4	.2	@	.0
Dec	.4	@	.0	.0
Ann	3.2	.6	.1	.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	4/26	4/22	4/18	4/16	4/13	4/11	4/08	4/05	3/31
32	4/18	4/14	4/11	4/09	4/06	4/04	4/02	3/30	3/26
28	4/11	4/05	3/31	3/28	3/24	3/21	3/17	3/12	3/06
24	3/27	3/21	3/16	3/12	3/08	3/04	2/28	2/24	2/17
20	3/20	3/11	3/05	2/28	2/22	2/17	2/12	2/06	1/28
16	3/07	2/25	2/18	2/13	2/07	2/02	1/27	1/20	1/11

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	10/02	10/08	10/12	10/15	10/18	10/22	10/25	10/29	11/04
32	10/23	10/27	10/30	11/02	11/04	11/06	11/08	11/11	11/15
28	10/27	11/01	11/04	11/07	11/10	11/12	11/15	11/19	11/23
24	11/03	11/09	11/13	11/16	11/19	11/23	11/26	11/30	12/06
20	11/07	11/16	11/21	11/26	12/01	12/06	12/11	12/16	12/25
16	11/17	11/28	12/06	12/12	12/19	12/25	1/01	1/09	1/20

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	209	202	196	192	188	183	179	174	166
32	228	222	218	214	211	207	204	199	193
28	251	244	239	234	230	226	221	216	208
24	279	271	265	260	255	251	246	240	232
20	311	300	293	287	281	275	269	261	251
16	356	337	327	319	311	304	297	288	277

***** 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	813	588	405	172	39	1	0	0	17	130	467	762	3394
60	659	457	258	86	11	0	0	0	4	54	331	608	2468
57	569	379	181	50	5	0	0	0	0	28	257	517	1986
55	512	330	136	32	2	0	0	0	0	16	214	459	1701
50	372	222	57	8	0	0	0	0	0	3	124	320	1106
32	51	20	0	0	0	0	0	0	0	0	4	28	103

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	261	356	619	869	1181	1379	1559	1512	1238	948	531	289	10742
55	9	22	43	211	470	689	846	799	548	251	51	6	3945
57	4	15	25	169	410	629	784	737	488	201	35	3	3500
60	1	8	10	116	324	539	691	644	402	133	18	0	2886
65	0	0	1	52	197	390	536	489	266	54	4	0	1989
70	0	0	0	17	100	250	382	338	154	15	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	130	217	419	652	968	1170	1345	1297	1027	732	342	153	130	347	766	1418	2386	3556	4901	6198	7225	7957	8299	8452
45	62	126	283	507	813	1020	1190	1142	877	580	219	73	62	188	471	978	1791	2811	4001	5143	6020	6600	6819	6892
50	21	68	168	367	658	870	1035	987	728	430	127	27	21	89	257	624	1282	2152	3187	4174	4902	5332	5459	5486
55	1	27	89	239	504	720	880	832	581	288	59	6	1	28	117	356	860	1580	2460	3292	3873	4161	4220	4226
60	0	5	38	137	356	570	725	677	438	169	20	0	0	5	43	180	536	1106	1831	2508	2946	3115	3135	3135
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	139	196	307	430	612	756	855	831	660	473	257	148	139	335	642	1072	1684	2440	3295	4126	4786	5259	5516	5664

(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