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: GOLIAD, TX **COOP ID: 413618**

Climate Division: TX 7 **NWS Call Sign:** **Elevation: 142 Feet** **Lat: 28˚40N** **Lon: 97˚24W**

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	68.1	43.3	55.7	90+	1971	30	61.8	2000	7	1962	12	47.4	1977	323	25	.0	@	28.2	@	5.3	.0
Feb	71.9	46.2	59.1	97	1996	21	66.8	2000	13	1951	2	50.0	1978	201	34	.0	.3	27.0	.1	2.8	.0
Mar	78.2	53.1	65.7	99+	1991	6	71.2	2000	21	1980	2	60.5	1987	69	88	.0	1.4	30.8	.0	1.1	.0
Apr	83.0	59.1	71.1	105	1963	9	75.4	1991	32+	1988	12	66.1	1973	13	195	.1	3.9	30.0	.0	.1	.0
May	87.8	67.2	77.5	102+	1998	31	82.9	1998	42	1984	9	72.8	1976	2	389	.3	11.6	31.0	.0	.0	.0
Jun	92.6	71.7	82.2	112	1998	14	87.8	1998	55+	1979	13	79.3	1973	0	515	1.8	23.6	30.0	.0	.0	.0
Jul	95.5	73.1	84.3	112	1939	9	89.2	1998	61	1985	1	80.0	1976	0	598	6.5	29.0	31.0	.0	.0	.0
Aug	96.1	72.8	84.5	112	1962	13	88.7	1988	58	1992	29	81.0	1973	0	603	6.5	29.2	31.0	.0	.0	.0
Sep	92.4	68.9	80.7	111	2000	5	83.3	1998	44	1942	27	75.5	1974	0	470	1.7	22.4	30.0	.0	.0	.0
Oct	85.7	60.4	73.1	102	1938	3	75.7	1996	23	1993	31	64.3	1976	10	259	.1	8.4	31.0	.0	.1	.0
Nov	76.3	51.9	64.1	96+	1988	14	69.9	1988	20	1993	27	55.6	1976	129	102	.0	.5	29.7	.0	1.3	.0
Dec	69.7	45.1	57.4	89	1941	18	66.6	1984	8+	1989	24	47.2	1989	276	40	.0	.0	29.0	.1	4.3	.0
Ann	83.1	59.4	71.3	112+	Jun 1998	14	89.2	Jul 1998	7	Jan 1962	12	47.2	Dec 1989	1023	3318	17.0	130.3	358.7	.2	15.0	.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: 1912-2001

(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	2.34	2.27	5.03	1929	4	5.44	2000	.00	1996
Feb	2.11	1.83	3.27	1958	21	5.80	1992	.05	1974
Mar	2.00	1.76	4.21	1993	12	5.54	1997	.05	1971
Apr	3.19	1.96	7.65	1972	27	14.23	1976	.00	1984
May	4.49	4.26	6.07	1968	8	12.18	1981	.00	1998
Jun	4.96	4.62	7.71	1977	15	12.94	1973	.00	1980
Jul	2.85	1.97	7.06	1942	6	14.23	1990	.00+	1994
Aug	3.49	2.56	6.50	2001	31	10.63	1980	.04	1997
Sep	4.56	3.89	9.16	1967	21	16.19	1971	1.04	1982
Oct	4.26	1.89	8.03	1960	19	14.83	1994	.44	1980
Nov	2.19	2.06	6.51	2001	16	6.34	1998	.26	1999
Dec	2.14	1.75	7.00	1975	24	9.10	1991	.16	1977
Ann	38.58	38.41	9.16	Sep 1967	21	16.19	Sep 1971	.00+	May 1998

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.1	4.4	1.4	.6
Feb	6.0	3.4	1.5	.5
Mar	6.2	3.4	1.2	.6
Apr	5.8	3.4	1.7	1.0
May	6.5	4.6	2.5	1.6
Jun	7.7	5.9	2.8	1.4
Jul	5.8	4.1	1.5	.7
Aug	7.0	4.9	2.1	1.1
Sep	8.2	5.6	2.4	1.3
Oct	6.6	4.6	2.1	1.2
Nov	5.4	3.7	1.5	.5
Dec	6.5	3.4	1.1	.4
Ann	78.8	51.4	21.8	10.9

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	.16	.39	.76	1.11	1.47	1.87	2.33	2.89	3.66	4.91	6.12
Feb	.15	.28	.55	.84	1.17	1.54	1.99	2.56	3.36	4.70	6.02
Mar	.21	.36	.63	.91	1.21	1.55	1.95	2.44	3.12	4.25	5.35
Apr	.06	.23	.62	1.06	1.56	2.17	2.90	3.85	5.19	7.48	9.78
May	.16	.51	1.15	1.80	2.51	3.33	4.29	5.51	7.19	9.99	12.76
Jun	.20	.60	1.32	2.05	2.83	3.72	4.77	6.09	7.90	10.92	13.88
Jul	.00	.15	.54	.97	1.44	1.99	2.66	3.49	4.67	6.66	8.63
Aug	.20	.40	.82	1.29	1.83	2.46	3.23	4.21	5.59	7.93	10.27
Sep	.92	1.33	2.00	2.61	3.23	3.90	4.65	5.55	6.74	8.65	10.46
Oct	.20	.43	.92	1.48	2.14	2.92	3.88	5.12	6.87	9.88	12.89
Nov	.40	.59	.91	1.21	1.51	1.84	2.21	2.67	3.27	4.24	5.16
Dec	.21	.37	.66	.96	1.28	1.65	2.08	2.61	3.34	4.56	5.75
Ann	22.66	25.52	29.31	32.26	34.94	37.57	40.34	43.44	47.27	52.94	57.93

\+ 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: 1912-2001
(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	.3	.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	#	.0	0	0
Ann	.5	.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	4.0	1985	12	4.0	1985	1	1973	11	#	1973
Feb	3.5	1973	9	3.5	1973	4	1973	9	#	1973
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	#	1976	28	#	1976	0	0	0	0	0
Dec	#	1989	22	#+	1989	0	0	0	0	0
Ann	4.0	Jan 1985	12	4.0	Jan 1985	4	Feb 1973	9	#+	Feb 1973

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.1	.1	.1	.0	.0
Feb	.1	.1	.1	.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	.0	.0	.0	.0	.0
Ann	.2	.2	.2	.0	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	@	.0	.0	.0
Feb	@	@	.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	@	@	.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	4/10	4/01	3/26	3/21	3/16	3/10	3/05	2/27	2/18
32	3/31	3/19	3/11	3/04	2/25	2/18	2/11	2/03	1/22
28	3/14	3/02	2/21	2/13	2/06	1/30	1/23	1/13	12/30
24	2/22	2/09	1/30	1/22	1/14	1/05	12/24	12/04	0/00
20	1/14	1/07	1/01	12/24	0/00	0/00	0/00	0/00	0/00
16	12/28	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	10/24	10/31	11/04	11/08	11/12	11/16	11/20	11/25	12/02
32	11/02	11/10	11/16	11/21	11/26	12/01	12/06	12/12	12/21
28	11/17	11/26	12/03	12/09	12/14	12/20	12/26	1/04	1/19
24	11/20	12/05	12/15	12/25	1/04	1/15	1/29	0/00	0/00
20	12/15	12/24	1/01	1/10	0/00	0/00	0/00	0/00	0/00
16	12/27	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	273	262	254	247	241	235	228	220	209
32	316	301	291	282	273	265	256	246	231
28	>365	347	330	318	309	300	290	280	265
24	>365	>365	>365	>365	344	334	326	318	308
20	>365	>365	>365	>365	>365	>365	>365	>365	353
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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	323	201	69	13	2	0	0	0	0	10	129	276	1023
60	213	115	20	1	0	0	0	0	0	2	64	174	589
57	161	75	7	0	0	0	0	0	0	0	38	125	406
55	130	53	4	0	0	0	0	0	0	0	25	96	308
50	64	19	0	0	0	0	0	0	0	0	8	42	133
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	734	758	1043	1171	1410	1505	1621	1626	1460	1272	963	787	14350
55	151	167	333	481	697	815	908	913	770	559	298	171	6263
57	121	132	275	421	635	755	846	851	710	497	251	138	5632
60	79	88	194	332	542	665	753	758	620	406	187	93	4717
65	25	34	88	195	389	515	598	603	470	259	102	40	3318
70	14	11	25	90	246	365	443	448	321	134	44	15	2156

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	500	571	809	940	1173	1270	1379	1388	1226	1033	730	556	500	1071	1880	2820	3993	5263	6642	8030	9256	10289	11019	11575
45	361	433	654	790	1018	1120	1224	1233	1076	879	582	407	361	794	1448	2238	3256	4376	5600	6833	7909	8788	9370	9777
50	241	302	503	641	863	970	1069	1078	926	724	437	280	241	543	1046	1687	2550	3520	4589	5667	6593	7317	7754	8034
55	140	195	355	493	708	820	914	923	776	571	307	171	140	335	690	1183	1891	2711	3625	4548	5324	5895	6202	6373
60	73	107	222	345	553	670	759	768	626	421	196	92	73	180	402	747	1300	1970	2729	3497	4123	4544	4740	4832
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	325	370	536	646	815	867	925	924	828	698	485	360	325	695	1231	1877	2692	3559	4484	5408	6236	6934	7419	7779

(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