

Climatology of the United States

No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: GALVESTON, TX

1971-2000

COOP ID: 413430

Climate Division: TX 8

NWS Call Sign: GLS

Elevation: 10 Feet

Lat: 29° 20N

Lon: 94° 47W

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	61.9	49.7	55.8	78+	2000	24	61.3	1999	18+	1962	11	47.0	1978	316	18	.0	.0	26.5	@	1.9	.0
Feb	64.4	51.5	58.0	80+	1993	21	62.7	1995	17	1951	1	48.6	1978	220	23	.0	.0	25.5	.1	.8	.0
Mar	70.0	58.2	64.1	86	2001	31	69.0	2000	26	1980	2	59.1	1996	94	65	.0	.0	30.8	.0	.2	.0
Apr	75.2	64.7	70.0	92	1953	30	73.8	1999	42	1987	3	66.4	1973	15	163	.0	@	30.0	.0	.0	.0
May	81.4	72.3	76.9	94	1984	3	79.9	2000	52	1954	4	73.7	1976	0	367	.0	.1	31.0	.0	.0	.0
Jun	86.6	77.8	82.2	96	1998	27	84.7	1990	60	1955	10	80.4	1973	0	515	.0	3.1	30.0	.0	.0	.0
Jul	88.7	79.8	84.3	100	2001	20	86.6	1996	67	1959	11	81.8	1976	0	596	@	9.1	31.0	.0	.0	.0
Aug	89.3	79.5	84.4	102	1999	14	87.9	1999	67	1966	25	82.4	1973	0	601	.1	11.1	31.0	.0	.0	.0
Sep	86.5	75.6	81.1	100+	2000	14	84.1	1998	54+	2001	28	76.6	1974	0	482	.2	5.6	30.0	.0	.0	.0
Oct	79.7	68.4	74.1	94	1952	2	77.2	1973	39	1993	31	66.3	1976	6	286	.0	.3	31.0	.0	.0	.0
Nov	71.3	59.4	65.4	85	1988	4	71.9	1973	30	1959	18	56.1	1976	112	122	.0	.0	29.3	.0	.6	.0
Dec	64.3	51.8	58.1	81	1998	2	63.9	1984	14+	1989	23	49.4	1989	245	30	.0	.0	28.7	.1	1.4	.0
Ann	76.6	65.7	71.2	102	Aug 1999	14	87.9	Aug 1999	14+	Dec 1989	23	47.0	Jan 1978	1008	3268	.3	29.3	354.8	.2	4.9	.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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1897-2001

(3) Derived from 1971-2000 serially complete daily data

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Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	4.08	3.37	4.10	1993	20	10.75	1991	.18	1971	10.2	6.3	2.5	1.2	.72	1.08	1.68	2.23	2.80	3.42	4.12	4.98	6.11	7.94	9.69
Feb	2.61	1.80	6.29	1952	1	8.34	1992	.17	1989	7.3	3.8	1.8	.7	.27	.46	.81	1.18	1.57	2.01	2.53	3.18	4.07	5.55	6.99
Mar	2.76	2.27	8.00	1973	23	10.52	1997	.38	1978	7.6	3.8	1.8	.8	.28	.49	.87	1.25	1.67	2.13	2.68	3.37	4.31	5.86	7.38
Apr	2.56	1.70	5.09	1977	20	10.41	1973	.00	1984	5.5	3.4	1.5	.8	.07	.25	.59	.95	1.36	1.84	2.40	3.13	4.13	5.83	7.51
May	3.70	3.34	7.14	1975	30	11.03	1991	.00+	1998	6.6	4.5	2.2	1.2	.00	.32	.94	1.52	2.14	2.82	3.62	4.59	5.94	8.17	10.35
Jun	4.04	3.37	10.44	1961	18	13.66	1998	.44	1980	7.7	4.8	2.4	1.4	.53	.86	1.43	2.00	2.59	3.24	4.00	4.93	6.19	8.26	10.26
Jul	3.45	2.52	13.63	1900	13	17.48	1979	.06	1993	7.7	4.6	1.9	.9	.16	.34	.74	1.19	1.73	2.36	3.14	4.15	5.58	8.02	10.48
Aug	4.22	2.98	10.86	1981	31	13.38	1981	.04	2000	8.7	5.4	2.4	1.2	.22	.46	.96	1.52	2.17	2.94	3.88	5.08	6.78	9.67	12.56
Sep	5.76	4.90	6.92	1961	12	14.00	1998	1.29	1982	9.2	6.3	3.5	1.9	1.47	2.01	2.85	3.59	4.32	5.09	5.95	6.96	8.29	10.39	12.35
Oct	3.49	2.90	6.62	1910	6	9.04	1986	.05	1987	6.7	4.8	2.1	1.1	.28	.51	.97	1.45	1.99	2.60	3.33	4.25	5.52	7.66	9.76
Nov	3.64	2.83	7.58	1961	13	9.51	1977	.57	1973	8.7	5.2	2.2	1.0	.77	1.11	1.64	2.13	2.62	3.14	3.72	4.43	5.35	6.84	8.24
Dec	3.53	2.93	6.30	1995	17	9.43	1995	.50	1989	8.8	5.4	2.4	1.1	.99	1.32	1.83	2.27	2.71	3.16	3.66	4.25	5.02	6.23	7.35
Ann	43.84	40.92	13.63	Jul 1900	13	17.48	Jul 1979	.00+	May 1998	94.7	58.3	26.7	13.3	27.25	30.29	34.29	37.38	40.17	42.90	45.76	48.94	52.86	58.61	63.66

+ 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: 1897-2001

(3) Derived from 1971-2000 serially complete daily data

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Lat: 29° 20N

Lon: 94° 47W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	.1	.0	#	0	2.5	1973	11	2.5	1973	2+	1973	12	#	1973	.0	.0	.0	.0	.0	.1	.0	.0	.0
Feb	.1	.0	0	0	1.6	1973	9	1.6	1973	#+	1988	7	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	#	.0	0	0	#	1989	5	#	1989	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	#	1988	.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	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	#	0	1.0	1989	22	1.0	1989	1	1989	22	#	1989	.0	.0	.0	.0	.0	@	.0	.0	.0
Ann	.2	.0	N/A	N/A	2.5	Jan 1973	11	2.5	Jan 1973	2+	Jan 1973	12	#+	Dec 1989	.0	.0	.0	.0	.0	.1	.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	3/04	2/22	2/14	2/07	2/01	1/26	1/19	1/09	12/23
32	2/21	2/10	2/02	1/26	1/19	1/11	1/01	0/00	0/00
28	2/09	1/28	1/17	1/06	12/18	0/00	0/00	0/00	0/00
24	1/20	1/08	12/26	0/00	0/00	0/00	0/00	0/00	0/00
20	12/26	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	11/23	12/02	12/09	12/14	12/20	12/25	12/31	1/08	1/22
32	12/06	12/17	12/25	1/02	1/09	1/18	1/31	0/00	0/00
28	12/19	1/02	1/14	1/27	2/18	0/00	0/00	0/00	0/00
24	12/26	1/07	1/20	0/00	0/00	0/00	0/00	0/00	0/00
20	1/14	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	>365	359	339	328	319	311	303	293	281
32	>365	>365	>365	>365	358	344	335	325	314
28	>365	>365	>365	>365	>365	>365	>365	>365	340
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

Complete documentation available from:

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Climate Division: TX 8 NWS Call Sign: GLS Elevation: 10 Feet Lat: 29° 20N Lon: 94° 47W

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	316	220	94	15	0	0	0	0	0	6	112	245	1008
60	204	125	31	1	0	0	0	0	0	1	53	142	557
57	153	82	13	0	0	0	0	0	0	0	30	94	372
55	121	58	6	0	0	0	0	0	0	0	20	67	272
50	57	20	1	0	0	0	0	0	0	0	6	23	107
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	737	727	994	1138	1390	1505	1619	1624	1472	1304	1000	808	14318
55	146	141	287	448	677	815	906	911	782	591	330	162	6196
57	115	109	232	388	615	755	844	849	722	529	280	127	5565
60	74	68	157	300	522	665	751	756	632	436	213	81	4655
65	18	23	65	163	367	515	596	601	482	286	122	30	3268
70	11	7	15	63	216	365	441	446	332	152	57	9	2114

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	459	498	710	880	1134	1260	1370	1374	1219	1041	706	525	459	957	1667	2547	3681	4941	6311	7685	8904	9945	10651	11176
45	320	359	555	730	979	1110	1215	1219	1069	886	562	380	320	679	1234	1964	2943	4053	5268	6487	7556	8442	9004	9384
50	198	237	404	580	824	960	1060	1064	919	731	418	249	198	435	839	1419	2243	3203	4263	5327	6246	6977	7395	7644
55	104	128	263	430	669	810	905	909	769	577	285	143	104	232	495	925	1594	2404	3309	4218	4987	5564	5849	5992
60	38	54	133	287	514	660	750	754	619	427	173	65	38	92	225	512	1026	1686	2436	3190	3809	4236	4409	4474
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	227	257	419	580	823	945	1020	1017	895	729	433	280	227	484	903	1483	2306	3251	4271	5288	6183	6912	7345	7625

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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