

Climatography of the United States

No. 20

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

Station: GRANDFALLS 3 SSE, TX

1971-2000

COOP ID: 413680

Climate Division: TX 5

NWS Call Sign:

Elevation: 2,440 Feet Lat: 31° 18N

Lon: 102° 50W

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	60.8	26.7	43.8	89	1974	22	49.3	1999	-4	1946	22	38.0	1973	660	0	.0	.0	24.2	.9	25.2	.0
Feb	67.1	31.2	49.2	93	1986	20	56.0	2000	-9	1985	3	43.8	1978	444	0	.0	.3	24.9	.6	17.5	.1
Mar	75.4	39.2	57.3	98+	1971	28	62.5	1974	11+	1971	4	51.7	1996	251	14	.0	2.0	30.2	.0	7.3	.0
Apr	83.6	47.7	65.7	104+	1996	28	71.6	1986	21	1944	3	59.7	1973	88	107	.5	8.9	29.8	.0	1.9	.0
May	91.0	57.9	74.5	110+	1989	25	80.5	1996	33+	1970	3	69.6	1976	10	303	5.0	18.1	31.0	.0	.0	.0
Jun	96.7	67.2	82.0	117	1994	28	89.4	1990	42	1964	1	77.9	1987	0	509	10.0	25.7	30.0	.0	.0	.0
Jul	98.0	70.0	84.0	116	1989	3	88.1	1980	55	1985	1	79.6	1975	0	589	13.5	28.5	31.0	.0	.0	.0
Aug	96.1	68.5	82.3	110+	1980	5	87.2	1977	48	1975	26	77.1	1971	0	536	9.0	27.1	31.0	.0	.0	.0
Sep	90.0	61.8	75.9	107	1984	10	82.6	1977	34	1942	27	69.0	1974	6	334	3.0	18.6	30.0	.0	.0	.0
Oct	81.7	50.0	65.9	107	1977	1	70.3	1998	22	1993	31	59.5	1976	66	93	.4	6.7	30.7	.0	1.1	.0
Nov	70.3	36.8	53.6	95	1942	5	58.3	1999	7	2001	28	46.7	1976	352	9	.0	.2	28.2	@	10.9	.0
Dec	61.6	28.1	44.9	85+	1995	14	49.2	1994	0+	1989	24	38.1	1983	625	0	.0	.0	25.8	.7	23.7	.1
Ann	81.0	48.8	64.9	117	Jun 1994	28	89.4	Jun 1990	-9	Feb 1985	3	38.0	Jan 1973	2502	2494	41.4	136.1	346.8	2.2	87.6	.2

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1909-2001

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

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: GRANDFALLS 3 SSE, TX

COOP ID: 413680

Climate Division: TX 5

NWS Call Sign:

Elevation: 2,440 Feet Lat: 31°18N

Lon: 102°50W

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	.47	.37	1.65	1938	22	1.76	1992	.00+	1996	2.6	1.6	.2	@	.00	.00	.04	.11	.20	.30	.42	.57	.80	1.17	1.55
Feb	.62	.34	2.10	1965	18	2.72	1992	.00+	1999	2.8	1.8	.4	.1	.00	.00	.06	.15	.25	.38	.54	.75	1.04	1.57	2.09
Mar	.37	.18	1.70	1973	10	1.70	1973	.00+	1994	1.8	.8	.2	.1	.00	.00	.00	.04	.11	.19	.30	.44	.64	1.00	1.35
Apr	.77	.35	2.80	1969	12	4.83	1981	.00+	1998	2.2	1.4	.5	.2	.00	.00	.00	.07	.19	.36	.58	.88	1.33	2.12	2.94
May	1.73	1.17	2.60	1947	10	6.06	1992	.02	1998	4.2	3.0	1.1	.5	.14	.25	.48	.72	.98	1.28	1.64	2.10	2.73	3.79	4.83
Jun	1.31	1.01	5.32	1938	26	4.37	1985	.00+	1993	4.0	2.5	1.0	.4	.00	.06	.23	.42	.64	.89	1.20	1.60	2.15	3.10	4.04
Jul	1.25	.86	3.20	1955	20	3.54	1973	.00+	1984	3.3	2.5	.9	.4	.00	.00	.10	.25	.45	.70	1.03	1.47	2.10	3.23	4.38
Aug	1.77	1.46	2.82	1989	7	6.50	1971	.00	1973	4.4	2.9	1.1	.5	.05	.18	.43	.68	.96	1.29	1.68	2.17	2.85	4.00	5.14
Sep	2.48	2.23	5.87	1986	4	7.50	1980	.02	1982	5.1	3.4	1.4	.8	.15	.30	.60	.94	1.32	1.76	2.30	2.99	3.96	5.60	7.23
Oct	1.27	.44	2.50	1926	1	6.44	1986	.00	1996	3.9	2.5	.9	.4	.00	.02	.11	.24	.42	.66	.98	1.43	2.10	3.31	4.58
Nov	.63	.45	2.10	1978	4	3.44	1978	.00+	1993	2.3	1.4	.3	.1	.00	.00	.03	.12	.23	.37	.54	.76	1.07	1.61	2.16
Dec	.67	.31	1.94	1946	11	3.76	1986	.00+	1985	2.6	1.5	.5	.1	.00	.01	.06	.14	.24	.37	.54	.78	1.13	1.74	2.38
Ann	13.34	12.40	5.87	Sep 1986	4	7.50	Sep 1980	.00+	Feb 1999	39.2	25.3	8.5	3.6	6.16	7.33	8.94	10.25	11.46	12.68	13.98	15.47	17.34	20.17	22.72

+ 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: 1909-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: GRANDFALLS 3 SSE, TX

COOP ID: 413680

Climate Division: TX 5

NWS Call Sign:

Elevation: 2,440 Feet

Lat: 31° 18N

Lon: 102° 50W

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	2.1	.0	#	0	6.5	1972	31	7.0	1978	5+	1991	21	#+	1991	.6	.4	.4	.2	.0	.1	.1	.1	.0
Feb	.3	.0	#	0	2.5	1972	1	2.5	1972	4	1985	1	#+	1986	.2	.2	.0	.0	.0	@	.0	.0	.0
Mar	.0	.0	#	0	.0	0	0	.0	0	2	1989	5	#	1989	.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	.5	.0	0	0	6.0	1980	16	9.0	1980	0	0	0	0	0	.2	.2	.1	.1	.0	.0	.0	.0	.0
Dec	.4	.0	#	0	5.0	1986	11	5.0	1986	3	1987	15	#+	1992	.2	.1	.1	.1	.0	@	.0	.0	.0
Ann	3.3	.0	N/A	N/A	6.5	Jan 1972	31	9.0	Nov 1980	5+	Jan 1991	21	#+	Dec 1992	1.2	.9	.6	.4	.0	.1	.1	.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

Complete documentation available from:

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

Climatography of the United States

No. 20 1971-2000

Station: GRANDFALLS 3 SSE, TX

COOP ID: 413680

Climate Division: TX 5

NWS Call Sign:

Elevation: 2,440 Feet

Lat: 31° 18N

Lon: 102° 50W

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	4/19	4/17	4/14	4/12	4/10	4/07	4/03
32	4/18	4/14	4/10	4/07	4/04	4/02	3/30	3/26	3/21
28	4/09	4/03	3/30	3/26	3/22	3/19	3/15	3/11	3/04
24	3/29	3/21	3/15	3/10	3/05	3/01	2/24	2/18	2/09
20	3/16	3/08	3/02	2/24	2/19	2/15	2/09	2/03	1/26
16	3/02	2/19	2/11	2/04	1/28	1/22	1/15	1/07	12/26
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	10/07	10/13	10/18	10/22	10/25	10/29	11/02	11/06	11/13
32	10/19	10/25	10/29	11/02	11/05	11/09	11/12	11/16	11/22
28	10/28	11/02	11/06	11/10	11/13	11/17	11/20	11/24	11/30
24	11/03	11/09	11/14	11/18	11/22	11/26	11/30	12/04	12/11
20	11/12	11/21	11/28	12/03	12/08	12/14	12/19	12/26	1/04
16	11/19	11/30	12/08	12/15	12/21	12/28	1/04	1/12	1/26
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	214	207	202	197	193	189	185	180	173
32	236	228	223	218	214	210	205	200	193
28	260	251	245	240	235	230	225	219	210
24	294	282	274	267	261	254	247	239	228
20	327	315	306	298	291	284	277	268	256
16	>365	357	339	329	321	313	306	297	286

* 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:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

**Climatology
of the United States
No. 20
1971-2000**

Station: GRANDFALLS 3 SSE, TX

COOP ID: 413680

Climate Division: TX 5 NWS Call Sign: Elevation: 2,440 Feet Lat: 31°18N Lon: 102°50W

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	660	444	251	88	10	0	0	0	6	66	352	625	2502
60	505	309	134	33	2	0	0	0	0	20	226	471	1700
57	413	234	82	15	0	0	0	0	0	8	164	381	1297
55	356	188	55	9	0	0	0	0	0	4	128	324	1064
50	218	97	15	1	0	0	0	0	0	0	61	193	585
32	5	0	0	0	0	0	0	0	0	0	0	2	7

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	368	480	786	1009	1316	1499	1612	1559	1318	1050	647	400	12044
55	6	24	127	327	603	809	899	846	628	341	84	9	4703
57	2	14	92	274	541	749	837	784	568	283	60	4	4208
60	0	5	51	201	450	659	744	691	478	202	33	1	3515
65	0	0	14	107	303	509	589	536	334	93	9	0	2494
70	0	0	2	44	178	362	434	382	205	31	1	0	1639

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	176	291	526	749	1055	1251	1354	1306	1078	793	406	198	176	467	993	1742	2797	4048	5402	6708	7786	8579	8985	9183
45	87	179	381	600	900	1101	1199	1151	928	639	277	103	87	266	647	1247	2147	3248	4447	5598	6526	7165	7442	7545
50	30	90	246	452	745	951	1044	996	778	487	167	42	30	120	366	818	1563	2514	3558	4554	5332	5819	5986	6028
55	5	36	135	317	591	801	889	841	628	344	83	11	5	41	176	493	1084	1885	2774	3615	4243	4587	4670	4681
60	0	6	53	199	436	651	734	686	480	210	30	0	0	6	59	258	694	1345	2079	2765	3245	3455	3485	3485
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	202	267	394	491	656	790	860	831	685	511	317	211	202	469	863	1354	2010	2800	3660	4491	5176	5687	6004	6215

(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/normal/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