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: PANTHER JUNCTION, TX **COOP ID: 416792**

Climate Division: TX 5 **NWS Call Sign:** **Elevation: 3,740 Feet** **Lat: 29˚20N** **Lon: 103˚12W**

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	62.8	35.2	49.0	83	1974	22	54.8	2000	4	1962	11	42.6	1985	498	0	.0	.0	25.9	.5	11.1	.0
Feb	68.1	39.0	53.6	91	1996	23	60.8	1999	8	1956	5	48.7	1978	327	6	.0	@	26.0	.3	6.0	.0
Mar	76.0	45.5	60.8	95	1998	27	66.1	1974	19+	1989	5	55.0	1996	162	31	.0	.7	30.5	.0	2.0	.0
Apr	83.4	52.3	67.9	99+	1990	30	74.0	1986	30+	1997	13	61.0	1997	62	149	.0	6.2	29.8	.0	.3	.0
May	90.7	60.8	75.8	105+	2000	25	81.9	1996	39	1965	14	68.5	1992	12	345	1.2	16.4	31.0	.0	.0	.0
Jun	95.0	66.2	80.6	109	1994	29	86.4	1998	48	1962	3	77.7	1986	0	468	4.8	23.3	30.0	.0	.0	.0
Jul	94.1	68.3	81.2	108	1956	1	87.2	1980	51	1999	23	76.8	1975	0	502	2.4	22.7	31.0	.0	.0	.0
Aug	92.4	67.0	79.7	105	1980	5	84.6	1977	55	2001	29	74.5	1990	0	456	.6	20.0	31.0	.0	.0	.0
Sep	88.3	62.0	75.2	103	1959	2	81.4	1977	40	1970	28	67.8	1991	9	313	.3	12.5	30.0	.0	.0	.0
Oct	80.6	53.0	66.8	99+	1994	3	71.6	1979	24	1993	30	60.3	1976	58	115	.0	2.6	30.8	.0	.2	.0
Nov	71.0	43.6	57.3	89+	1988	5	62.9	1973	14	1976	29	49.0	1976	265	33	.0	.0	28.3	.1	3.1	.0
Dec	63.3	36.6	50.0	82	1995	14	55.2	1984	4	1983	25	43.0	1989	467	1	.0	.0	26.9	.3	8.8	.0
Ann	80.5	52.5	66.5	109	Jun 1994	29	87.2	Jul 1980	4+	Dec 1983	25	42.6	Jan 1985	1860	2419	9.3	104.4	351.2	1.2	31.5	.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: 1955-2001

(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	.43	.27	1.10	1986	8	1.57	1986	.00+	2000
Feb	.51	.38	1.36	1992	4	2.33	1992	.00+	1984
Mar	.32	.21	.85+	1974	14	1.18	1997	.00+	1996
Apr	.55	.22	1.45	1963	4	2.26+	1997	.00+	1998
May	1.46	1.04	3.19	1988	19	4.63	1976	.00	1998
Jun	1.90	1.54	2.25	1985	26	5.79	1986	.08	1974
Jul	2.26	1.80	2.35	1978	1	5.60	1990	.00	1983
Aug	2.34	1.91	2.74	1987	10	6.34	1996	.30	1976
Sep	1.86	1.30	3.00	1993	14	6.52	1974	.01	2000
Oct	1.53	1.21	3.29	1966	5	6.88	1971	.00+	1999
Nov	.57	.38	1.35	1978	5	2.34	1978	.00+	1999
Dec	.51	.24	1.30	1976	13	2.94	1991	.00+	1999
Ann	14.24	14.09	3.29	Oct 1966	5	6.88	Oct 1971	.00+	Jan 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.3	1.3	.1	@
Feb	2.8	1.3	.3	@
Mar	1.9	.8	.2	.0
Apr	2.6	1.2	.4	@
May	5.2	2.7	.8	.3
Jun	6.4	3.8	1.1	.5
Jul	7.0	4.3	1.7	.5
Aug	7.7	4.6	1.5	.6
Sep	6.4	3.4	1.2	.4
Oct	4.9	2.8	1.1	.4
Nov	3.1	1.6	.3	@
Dec	3.0	1.4	.3	.1
Ann	54.3	29.2	9.0	2.8

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	.03	.09	.16	.25	.36	.51	.73	1.12	1.51
Feb	.00	.00	.05	.12	.21	.31	.44	.61	.85	1.26	1.68
Mar	.00	.00	.00	.06	.12	.19	.28	.39	.55	.82	1.08
Apr	.00	.00	.01	.05	.12	.22	.37	.59	.92	1.53	2.18
May	.04	.15	.35	.55	.79	1.06	1.38	1.79	2.36	3.31	4.26
Jun	.30	.47	.74	1.00	1.27	1.57	1.91	2.32	2.87	3.76	4.62
Jul	.12	.33	.68	1.01	1.36	1.76	2.22	2.79	3.57	4.85	6.10
Aug	.33	.53	.87	1.19	1.53	1.90	2.33	2.86	3.57	4.73	5.84
Sep	.06	.14	.33	.56	.85	1.19	1.63	2.21	3.03	4.48	5.94
Oct	.00	.00	.07	.22	.44	.74	1.15	1.72	2.57	4.13	5.76
Nov	.00	.00	.04	.12	.22	.35	.50	.69	.98	1.46	1.95
Dec	.00	.00	.00	.06	.15	.26	.41	.60	.89	1.39	1.90
Ann	7.09	8.29	9.93	11.24	12.45	13.66	14.94	16.40	18.23	20.97	23.42

\+ 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: 1955-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	1.0	.0	#	0
Feb	#	.0	0	0
Mar	.0	.0	0	0
Apr	.1	.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	.3	.0	#	0
Dec	.2	.0	0	0
Ann	1.6	.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	11.0	1986	8	13.0	1986	11	1986	8	1	1986
Feb	#	1982	26	#	1982	0	0	0	0	0
Mar	.0	0	0	.0	0	0	0	0	0	0
Apr	1.5	1980	13	1.5	1980	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	4.0	1980	17	5.0	1980	4	1980	17	#	1980
Dec	3.0	1975	29	3.0	1975	0	0	0	0	0
Ann	11.0	Jan 1986	8	13.0	Jan 1986	11	Jan 1986	8	1	Jan 1986

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.2	.2	.1	.1	.1
Feb	.0	.0	.0	.0	.0
Mar	.0	.0	.0	.0	.0
Apr	.1	.1	.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	.1	.1	.1	.0	.0
Dec	.1	.1	.1	.0	.0
Ann	.5	.5	.3	.1	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.0	.0	.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	.1	@	.0	.0
Dec	.0	.0	.0	.0
Ann	.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	4/01	3/28	3/24	3/20	3/16	3/11	3/05
32	4/06	3/28	3/22	3/16	3/11	3/06	3/01	2/22	2/14
28	3/24	3/13	3/05	2/27	2/20	2/14	2/07	1/30	1/19
24	3/08	2/25	2/17	2/10	2/03	1/28	1/20	1/11	12/24
20	2/23	2/12	2/03	1/26	1/19	1/10	12/30	0/00	0/00
16	1/29	1/16	1/04	12/21	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	10/20	10/27	11/01	11/06	11/10	11/14	11/18	11/24	12/01
32	10/31	11/06	11/11	11/15	11/19	11/23	11/27	12/01	12/08
28	11/07	11/16	11/22	11/27	12/02	12/07	12/12	12/18	12/27
24	11/20	11/29	12/06	12/12	12/17	12/23	12/29	1/07	1/22
20	12/09	12/21	12/30	1/07	1/16	1/25	2/09	0/00	0/00
16	12/23	1/06	1/20	2/09	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	263	252	244	237	230	224	217	208	197
32	285	273	265	258	252	245	238	230	219
28	324	310	300	292	284	276	268	258	244
24	>365	>365	342	327	316	306	296	285	269
20	>365	>365	>365	>365	>365	354	337	325	311
16	>365	>365	>365	>365	>365	>365	>365	>365	359

***** 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	498	327	162	62	12	0	0	0	9	58	265	467	1860
60	353	203	70	20	2	0	0	0	0	17	163	320	1148
57	272	143	35	9	0	0	0	0	0	7	115	238	819
55	223	110	20	5	0	0	0	0	0	3	88	189	638
50	126	47	3	0	0	0	0	0	0	0	38	94	308
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	527	603	892	1077	1356	1458	1525	1479	1294	1080	758	557	12606
55	37	70	199	391	643	768	812	766	604	370	156	33	4849
57	23	47	152	336	581	708	750	704	544	312	123	20	4300
60	12	22	95	257	491	618	657	611	454	229	81	9	3536
65	0	6	31	149	345	468	502	456	313	115	33	1	2419
70	0	0	6	73	216	319	350	304	188	42	11	0	1509

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	296	393	630	824	1095	1200	1262	1214	1038	818	511	321	296	689	1319	2143	3238	4438	5700	6914	7952	8770	9281	9602
45	180	268	480	674	940	1050	1107	1059	888	666	372	199	180	448	928	1602	2542	3592	4699	5758	6646	7312	7684	7883
50	93	161	337	527	785	900	952	904	739	515	250	101	93	254	591	1118	1903	2803	3755	4659	5398	5913	6163	6264
55	39	80	206	386	630	750	797	749	589	367	140	39	39	119	325	711	1341	2091	2888	3637	4226	4593	4733	4772
60	4	28	103	252	475	600	642	594	443	229	62	7	4	32	135	387	862	1462	2104	2698	3141	3370	3432	3439
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	206	261	405	533	711	782	844	821	694	522	325	211	206	467	872	1405	2116	2898	3742	4563	5257	5779	6104	6315

(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