

# Climatology of the United States

## No. 20 1971-2000

Station: PAMPA 2, TX

COOP ID: 416776

Climate Division: TX 1

NWS Call Sign:

Elevation: 3,150 Feet Lat: 35° 34N

Lon: 100° 58W

### 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	47.9	21.9	34.9	82	1986	21	43.1	1986	-6	1966	22	22.5	1979	934	0	.0	.0	15.0	5.4	27.5	.6
Feb	53.0	26.0	39.5	86	1979	15	47.0	1976	-7+	1996	4	27.6	1978	714	0	.0	.0	17.3	3.5	21.2	.6
Mar	61.1	32.6	46.9	93	1971	28	52.6	1972	3+	1996	8	41.5	1996	563	0	.0	.1	24.6	1.1	15.4	.0
Apr	70.2	41.3	55.8	98	1989	23	61.3	1978	17	1997	13	48.6	1997	296	17	.0	.7	27.8	.1	4.2	.0
May	78.3	51.6	65.0	103	2000	24	71.3	1996	30+	1978	5	60.0	1995	99	97	.2	3.6	30.7	.0	.2	.0
Jun	87.1	61.1	74.1	111	1980	25	81.1	1980	42	1964	2	68.7	1982	17	290	1.7	11.4	30.0	.0	.0	.0
Jul	92.0	66.1	79.1	108	1980	2	86.3	1980	51	1990	13	75.8	1972	0	435	2.7	20.8	31.0	.0	.0	.0
Aug	89.9	64.9	77.4	105	1966	2	83.7	1983	50+	1988	30	72.7	1992	3	386	1.3	18.4	31.0	.0	.0	.0
Sep	82.2	57.0	69.6	104+	1995	6	76.3	1998	31+	2000	26	62.9	1974	42	180	.4	8.1	29.7	.0	.1	.0
Oct	72.0	45.1	58.6	99+	2000	4	63.0	1979	12+	1993	31	51.4	1976	219	20	.0	1.0	29.7	@	2.1	.0
Nov	58.1	32.4	45.3	88	1980	9	54.0	1999	5+	1976	29	37.4	1972	592	0	.0	.0	21.6	1.1	15.5	.0
Dec	49.2	24.2	36.7	80	1996	10	42.1	1994	-8	1989	23	24.4	1983	878	0	.0	.0	15.5	4.3	26.2	.8
Ann	70.1	43.7	56.9	111	Jun 1980	25	86.3	Jul 1980	-8	Dec 1989	23	22.5	Jan 1979	4357	1425	6.3	64.1	303.9	15.5	112.4	2.0

+ 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](http://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: 1964-2001

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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	.57	.51	1.88	2001	28	1.87	1999	.00+	1996	3.9	1.7	.2	@	.00	.00	.16	.26	.36	.46	.58	.72	.91	1.21	1.50	
Feb	.83	.63	1.40	1971	21	2.90	1971	.00	1991	4.7	2.2	.4	.1	.01	.04	.13	.24	.37	.53	.73	.99	1.37	2.02	2.68	
Mar	1.50	1.35	1.78	1987	24	4.63	1973	.00	1997	5.8	3.3	.9	.3	.04	.14	.34	.56	.80	1.07	1.41	1.83	2.42	3.42	4.41	
Apr	1.95	1.53	2.62	1997	4	11.71	1997	.00	1996	6.2	3.9	1.1	.4	.04	.16	.40	.67	.98	1.35	1.79	2.36	3.16	4.53	5.89	
May	3.37	2.91	3.24	2000	26	8.59	1977	.41	1971	9.2	6.3	2.1	.9	.58	.87	1.37	1.83	2.30	2.81	3.40	4.11	5.06	6.60	8.06	
Jun	3.52	3.25	3.39	2000	2	11.16	2000	.08	1973	8.8	5.7	2.4	1.0	.43	.70	1.20	1.69	2.21	2.79	3.47	4.30	5.43	7.29	9.10	
Jul	2.85	2.55	3.54	1982	30	7.63	1996	.08	1983	7.2	4.8	1.9	.8	.33	.54	.94	1.34	1.76	2.24	2.79	3.47	4.41	5.95	7.45	
Aug	2.38	2.21	2.07	1965	20	6.86	1977	.36	2000	8.1	4.8	1.5	.6	.53	.75	1.10	1.41	1.73	2.06	2.44	2.89	3.48	4.42	5.31	
Sep	2.29	2.34	2.17+	1990	19	5.31	1990	.03	2000	6.6	4.3	1.6	.6	.26	.44	.76	1.08	1.42	1.80	2.25	2.80	3.55	4.79	5.99	
Oct	1.58	1.10	2.79	1985	10	5.82	2000	.00	1975	5.0	2.7	1.0	.3	.05	.16	.38	.60	.86	1.14	1.49	1.93	2.54	3.56	4.57	
Nov	1.20	.80	3.50	1971	17	5.65	1971	.00+	1999	4.7	2.7	.4	.2	.00	.07	.25	.43	.63	.86	1.13	1.47	1.95	2.75	3.54	
Dec	.70	.58	.83	1999	5	2.44	1991	.00	1976	4.6	1.9	.5	.0	.03	.09	.20	.30	.41	.54	.68	.86	1.11	1.52	1.93	
Ann	22.74	22.54	3.54	Jul 1982	30	11.71	Apr 1997	.00+	Nov 1999	74.8	44.3	14.0	5.2	15.85	17.18	18.87	20.17	21.32	22.44	23.59	24.87	26.42	28.68	30.63	

+ 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: 1964-2001

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

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Lat: 35° 34N

Lon: 100° 58W

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	4.2	4.0	#	#	7.6	1987	18	16.0	1987	13	1987	19	3	1987	2.6	1.4	.6	.1	.0	4.2	1.9	.9	.1
Feb	5.3	2.4	1	#	12.0	1971	21	25.1	1971	22	1971	22	4	1983	2.3	1.5	.6	.4	.1	3.7	2.2	1.3	.3
Mar	3.0	.8	#	#	20.0	1987	24	22.4	1988	20	1987	24	2	1988	1.2	.8	.3	.1	.1	1.3	.5	.2	.1
Apr	.7	.0	#	0	5.2	1973	8	11.0	1983	5	1973	8	#+	1997	.4	.3	.1	@	.0	.2	.1	@	.0
May	#	.0	0	0	#	1978	4	#	1978	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	#	1985	30	#+	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.1	.0	#	0	3.3	1991	31	3.3	1991	3	1991	31	#+	2000	.1	@	@	.0	.0	@	@	.0	.0
Nov	2.2	.0	#	#	9.0	1992	25	15.0	1992	13	1992	25	2	1992	1.0	.7	.3	.1	.0	1.4	.6	.3	.1
Dec	4.7	2.3	1	#	14.0	1987	14	19.7	1987	15+	2000	28	4	1987	2.5	1.4	.5	.2	.1	4.2	2.1	1.2	.4
Ann	20.2	9.5	N/A	N/A	20.0	Mar 1987	24	25.1	Feb 1971	22	Feb 1971	22	4+	Dec 1987	10.1	6.1	2.4	.9	.3	15.0	7.4	3.9	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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<b>Freeze Data</b>									
<b>Spring Freeze Dates (Month/Day)</b>									
<b>Temp (F)</b>	<b>Probability of later date in spring (thru Jul 31) than indicated(*)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	5/10	5/05	5/01	4/28	4/25	4/22	4/19	4/15	4/10
<b>32</b>	4/25	4/21	4/18	4/15	4/13	4/10	4/07	4/04	3/31
<b>28</b>	4/14	4/10	4/07	4/04	4/02	3/30	3/28	3/25	3/21
<b>24</b>	4/08	4/03	3/30	3/26	3/23	3/20	3/17	3/13	3/07
<b>20</b>	4/01	3/25	3/20	3/15	3/11	3/07	3/02	2/25	2/17
<b>16</b>	3/22	3/13	3/07	3/01	2/24	2/19	2/13	2/07	1/29
<b>Fall Freeze Dates (Month/Day)</b>									
<b>Temp (F)</b>	<b>Probability of earlier date in fall (beginning Aug 1) than indicated(*)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	9/29	10/05	10/09	10/12	10/15	10/18	10/22	10/26	10/31
<b>32</b>	10/09	10/14	10/18	10/22	10/25	10/28	11/01	11/05	11/10
<b>28</b>	10/24	10/29	11/01	11/04	11/07	11/10	11/13	11/16	11/21
<b>24</b>	10/28	11/04	11/08	11/12	11/16	11/20	11/23	11/28	12/04
<b>20</b>	11/06	11/12	11/17	11/22	11/25	11/29	12/04	12/09	12/15
<b>16</b>	11/11	11/20	11/27	12/03	12/08	12/13	12/19	12/26	1/04
<b>Freeze Free Period</b>									
<b>Temp (F)</b>	<b>Probability of longer than indicated freeze free period (Days)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	192	185	180	176	172	168	164	159	153
<b>32</b>	212	206	202	198	195	191	188	184	178
<b>28</b>	238	231	227	222	218	214	210	205	198
<b>24</b>	261	253	247	242	237	232	227	221	213
<b>20</b>	285	276	270	264	259	254	248	242	233
<b>16</b>	324	311	302	294	286	279	271	261	248

\* 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)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Below 65	934	714	563	296	99	17	0	3	42	219	592	878	4357
60	779	578	410	181	39	4	0	0	12	110	448	723	3284
57	686	500	325	126	19	1	0	0	4	65	366	630	2722
55	626	448	270	95	10	0	0	0	2	44	314	570	2379
50	480	326	156	39	2	0	0	0	0	12	202	426	1643
32	97	54	4	0	0	0	0	0	0	0	13	67	235

### Cooling Degree Days (1)

Base	Cooling Degree Days (1)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Above 32	186	264	464	711	1021	1263	1458	1407	1128	824	411	212	9349
55	2	14	18	117	318	573	745	694	439	154	22	2	3098
57	1	10	10	87	265	514	683	632	382	114	14	1	2713
60	0	4	3	52	192	427	590	539	299	66	6	0	2178
65	0	0	0	17	97	290	435	386	180	20	0	0	1425
70	0	0	0	4	38	175	285	243	92	3	0	0	840

### 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	69	137	267	478	769	1023	1211	1161	892	587	227	87	69	206	473	951	1720	2743	3954	5115	6007	6594	6821	6908
45	27	72	162	343	614	873	1056	1006	742	442	135	37	27	99	261	604	1218	2091	3147	4153	4895	5337	5472	5509
50	2	28	87	222	465	723	901	851	597	303	67	10	2	30	117	339	804	1527	2428	3279	3876	4179	4246	4256
55	0	6	37	125	320	574	746	696	455	182	27	0	0	6	43	168	488	1062	1808	2504	2959	3141	3168	3168
60	0	0	11	57	193	424	591	541	322	95	6	0	0	0	11	68	261	685	1276	1817	2139	2234	2240	2240
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	75	126	204	314	478	664	804	772	578	368	168	82	75	201	405	719	1197	1861	2665	3437	4015	4383	4551	4633

(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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://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 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/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)