

# Climatology of the United States

No. 20

1971-2000

Station: MATHIS 4 SSW, TX

COOP ID: 415661

Climate Division: TX 9

NWS Call Sign:

Elevation: 138 Feet Lat: 28°02N Lon: 97°52W

## 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	65.3	44.1	54.7	92	1971	4	61.0	2000	18	1982	11	46.7	1977	351	33	.0	.2	27.3	.1	3.6	.0
Feb	69.4	47.2	58.3	97	1996	21	66.4	2000	22	1985	3	48.8	1978	223	35	.0	.4	26.2	.2	1.6	.0
Mar	76.1	54.0	65.1	101	1984	28	69.6	2000	24+	1980	3	60.3	1996	80	82	.1	1.8	30.7	.0	.3	.0
Apr	81.9	60.8	71.4	105	1984	27	76.3	1972	35	1987	1	67.2	1997	12	201	.2	3.7	30.0	.0	.0	.0
May	86.9	67.9	77.4	101	1995	14	82.7	1989	47	1970	2	72.5	1976	2	387	.1	11.0	31.0	.0	.0	.0
Jun	91.9	72.3	82.1	110	1998	15	87.0	1998	56	1984	1	79.5	1993	0	513	.9	23.9	30.0	.0	.0	.0
Jul	94.9	73.0	84.0	105+	2000	16	87.4	1998	62	1974	17	80.0	1976	0	588	4.7	28.8	31.0	.0	.0	.0
Aug	95.2	73.3	84.3	104+	1997	23	86.7	1997	63	1966	25	81.5	1973	0	596	4.8	29.1	31.0	.0	.0	.0
Sep	90.9	70.5	80.7	108	2000	6	84.8	1977	51+	1995	23	75.0	1974	0	470	1.4	20.9	30.0	.0	.0	.0
Oct	84.1	62.2	73.2	102	1977	8	76.5	2000	33	1993	31	64.0	1976	10	263	@	7.5	31.0	.0	.0	.0
Nov	74.6	53.5	64.1	95	1988	5	70.5	1994	27	1976	30	54.0	1976	137	108	.0	.7	29.4	.0	.3	.0
Dec	67.7	46.1	56.9	91	1977	4	63.9	1984	11	1989	25	46.3	1989	287	36	.0	@	28.5	.2	2.4	.0
Ann	81.6	60.4	71.0	110	Jun 1998	15	87.4	Jul 1998	11	Dec 1989	25	46.3	Dec 1989	1102	3312	12.2	128.0	356.1	.5	8.2	.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

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

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## No. 20 1971-2000

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

**Station: MATHIS 4 SSW, TX**

**COOP ID: 415661**

**Climate Division: TX 9**

**NWS Call Sign:**

**Elevation: 138 Feet Lat: 28°02N**

**Lon: 97°52W**

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	1.83	1.64	5.25	1980	21	5.94	1980	.01	1996	8.0	4.1	1.0	.3	.11	.21	.43	.68	.96	1.29	1.70	2.21	2.94	4.17	5.40
Feb	1.72	1.76	6.78	1969	14	4.74	1987	.00	1976	7.0	3.3	1.1	.4	.04	.16	.39	.63	.91	1.22	1.61	2.09	2.77	3.92	5.06
Mar	1.88	1.29	5.45	1992	29	7.94	1992	.00	1971	6.3	2.9	1.0	.5	.03	.13	.35	.60	.90	1.26	1.70	2.27	3.07	4.46	5.84
Apr	2.11	1.47	7.80	1985	11	10.63	1985	.03	1983	6.2	3.2	1.2	.6	.06	.14	.35	.61	.93	1.32	1.82	2.48	3.44	5.11	6.82
May	3.69	3.09	4.70	1987	31	10.69	1981	.00+	1998	7.2	4.6	2.2	1.1	.00	.45	1.14	1.73	2.33	2.98	3.72	4.60	5.81	7.77	9.66
Jun	4.23	3.41	4.53	1983	7	16.76	1973	.00+	1982	6.7	4.7	2.7	1.3	.00	.52	1.31	1.99	2.67	3.42	4.27	5.28	6.67	8.92	11.09
Jul	2.26	1.34	4.25	1968	13	11.85	1976	.00+	2000	4.7	3.2	1.4	.7	.00	.00	.13	.38	.72	1.17	1.77	2.59	3.80	5.99	8.25
Aug	3.00	1.72	7.05	1980	11	9.27	1980	.10	1993	6.3	4.3	1.7	.8	.21	.39	.77	1.19	1.65	2.18	2.82	3.63	4.77	6.68	8.58
Sep	4.25	3.53	11.55	1971	11	21.74	1971	.41	2000	8.7	5.4	2.2	1.1	.41	.72	1.30	1.89	2.53	3.26	4.11	5.18	6.65	9.08	11.47
Oct	4.06	2.94	5.86	1998	19	15.82	1997	.08	1992	7.0	4.4	2.3	1.2	.22	.44	.93	1.47	2.10	2.84	3.74	4.90	6.53	9.32	12.10
Nov	1.86	1.68	4.89	2001	16	6.30	2000	.03	1981	6.5	3.1	1.1	.5	.10	.20	.42	.67	.96	1.30	1.71	2.24	2.98	4.25	5.52
Dec	1.46	1.05	3.82	1991	22	6.86	1991	.14	1973	8.0	2.9	.7	.3	.13	.23	.42	.62	.84	1.10	1.40	1.78	2.30	3.17	4.03
Ann	32.35	29.66	11.55	Sep 1971	11	21.74	Sep 1971	.00+	Jul 2000	82.6	46.1	18.6	8.8	16.16	18.88	22.59	25.55	28.29	31.01	33.91	37.20	41.31	47.49	53.02

+ 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

Complete documentation available from:  
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**Climate Division: TX 9**

**NWS Call Sign:**

**Elevation: 138 Feet**

**Lat: 28°02N**

**Lon: 97°52W**

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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	.1	.0	#	0	1.5	1973	9	1.5	1973	2	1973	9	#	1973	.1	.1	.0	.0	.0	@	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	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	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	.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	#	1989	22	#	1989	#	1989	22	#	1989	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	.1	.0	N/A	N/A	1.5	Feb 1973	9	1.5	Feb 1973	2	Feb 1973	9	#+	Dec 1989	.1	.1	.0	.0	.0	@	.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	3/23	3/13	3/05	2/27	2/21	2/14	2/08	1/30	1/18
32	3/09	2/25	2/16	2/08	2/01	1/24	1/16	1/05	12/17
28	2/14	2/05	1/29	1/22	1/15	1/08	12/27	0/00	0/00
24	1/30	1/15	12/31	0/00	0/00	0/00	0/00	0/00	0/00
20	1/02	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	11/17	11/23	11/27	11/30	12/03	12/07	12/10	12/14	12/21
32	11/26	12/05	12/11	12/16	12/21	12/26	1/01	1/08	1/22
28	12/11	12/20	12/27	1/03	1/10	1/18	2/02	0/00	0/00
24	12/19	12/30	1/10	0/00	0/00	0/00	0/00	0/00	0/00
20	1/07	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	332	312	301	293	285	278	270	261	249
32	>365	>365	350	335	324	314	304	293	278
28	>365	>365	>365	>365	355	342	333	325	314
24	>365	>365	>365	>365	>365	>365	>365	>365	349
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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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	351	223	80	12	2	0	0	0	0	10	137	287	1102
60	237	134	26	1	0	0	0	0	0	2	71	181	652
57	183	92	11	0	0	0	0	0	0	1	43	132	462
55	150	69	6	0	0	0	0	0	0	0	30	102	357
50	80	28	1	0	0	0	0	0	0	0	10	45	164
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	705	736	1024	1180	1408	1503	1611	1619	1460	1276	961	772	14255
55	142	161	317	490	695	813	898	906	770	563	301	160	6216
57	113	129	260	430	633	753	836	844	710	501	254	128	5591
60	74	87	182	340	540	663	743	751	620	410	192	85	4687
65	33	35	82	201	387	513	588	596	470	263	108	36	3312
70	13	12	23	94	243	363	433	441	322	139	49	13	2145

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	471	549	796	941	1167	1266	1375	1383	1229	1037	730	534	471	1020	1816	2757	3924	5190	6565	7948	9177	10214	10944	11478
45	337	413	642	791	1012	1116	1220	1228	1079	882	581	392	337	750	1392	2183	3195	4311	5531	6759	7838	8720	9301	9693
50	217	284	489	641	857	966	1065	1073	929	728	439	264	217	501	990	1631	2488	3454	4519	5592	6521	7249	7688	7952
55	128	178	343	491	702	816	910	918	779	574	307	159	128	306	649	1140	1842	2658	3568	4486	5265	5839	6146	6305
60	63	96	216	350	547	666	755	763	629	425	192	87	63	159	375	725	1272	1938	2693	3456	4085	4510	4702	4789
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	287	337	509	632	813	867	923	926	837	702	464	323	287	624	1133	1765	2578	3445	4368	5294	6131	6833	7297	7620

(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](http://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](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 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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## 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)