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: SAN ANGELO MATHIS AP, TX **COOP ID: 417943**

Climate Division: TX 6 **NWS Call Sign: SJT** **Elevation: 1,916 Feet** **Lat: 31˚21N** **Lon: 100˚30W**

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	57.9	31.8	44.9	90	1969	8	50.8	2000	1	1947	5	35.3	1979	617	0	.0	.0	23.0	1.3	16.4	.0
Feb	63.5	36.0	49.7	97	1996	22	57.6	2000	-1	1985	2	42.6	1978	427	4	.0	.1	24.2	.6	9.7	@
Mar	71.1	43.3	57.2	97+	1974	31	63.0	2000	8	1980	2	51.2	1987	258	30	.0	.8	29.9	@	4.0	.0
Apr	79.0	51.0	65.0	103	1972	13	70.8	1986	25	1973	9	58.0	1973	93	107	.1	4.7	29.9	.0	.8	.0
May	85.6	60.6	73.1	109	2000	24	81.1	2000	35	1967	2	67.5	1976	13	277	1.3	11.4	31.0	.0	.0	.0
Jun	90.8	67.6	79.2	110+	1994	28	84.7	1990	48	1964	1	76.2	1987	0	442	2.8	20.0	30.0	.0	.0	.0
Jul	94.4	70.4	82.4	111	1960	29	87.4	1998	56	1990	14	75.1	1976	0	554	5.8	26.8	31.0	.0	.0	.0
Aug	93.1	69.4	81.3	109	1986	20	85.8	2000	54+	1992	28	72.8	1971	0	519	3.6	25.5	31.0	.0	.0	.0
Sep	86.6	63.0	74.8	107	1952	1	82.3	1977	37	1989	25	66.6	1974	12	321	1.0	13.2	30.0	.0	.0	.0
Oct	77.8	53.0	65.4	100+	1951	3	70.1	1983	26+	1997	27	57.4	1976	84	112	.0	2.7	30.8	.0	.3	.0
Nov	66.5	41.4	54.0	93	1980	8	59.1	1999	13	1979	30	46.5	1976	330	16	.0	.1	27.5	.1	5.8	.0
Dec	59.3	33.5	46.4	91	1954	4	51.4	1977	-4	1989	23	36.4	1983	562	1	.0	.0	25.3	.7	14.2	.1
Ann	77.1	51.8	64.5	111	Jul 1960	29	87.4	Jul 1998	-4	Dec 1989	23	35.3	Jan 1979	2396	2383	14.6	105.3	343.6	2.7	51.2	.1

\+ 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: 1946-2001

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

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: SAN ANGELO MATHIS AP, TX **COOP ID: 417943**

Climate Division: TX 6 **NWS Call Sign: SJT** **Elevation: 1,916 Feet** **Lat: 31˚21N** **Lon: 100˚30W**

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	.82	.63	2.16	1961	7	2.38	1984	.00	1971
Feb	1.18	.60	3.16	1987	5	4.54	1997	.01+	1999
Mar	.99	.74	3.87	1953	8	2.81	1981	.00+	1972
Apr	1.60	1.19	3.06	1971	16	5.10	1977	.00	1998
May	3.09	2.32	2.56	1975	10	11.24	1987	.52	1983
Jun	2.52	2.66	2.82	1999	6	6.01	1982	.05	1990
Jul	1.10	.74	2.31+	1990	15	4.09	1990	.02	2000
Aug	2.05	1.60	2.77	1966	24	8.13	1971	.00	2000
Sep	2.95	2.77	6.24	1980	9	11.00	1980	.00	1983
Oct	2.57	2.24	4.97	1959	3	8.68	1981	.00	1988
Nov	1.10	.88	2.19	2001	14	3.35	1996	.00+	1999
Dec	.94	.58	1.52	1991	19	3.98	1991	.00	1973
Ann	20.91	21.09	6.24	Sep 1980	9	11.24	May 1987	.00+	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.1	1.9	.5	.1
Feb	4.6	2.3	.6	.3
Mar	4.6	2.2	.6	.1
Apr	4.6	2.7	1.1	.4
May	7.1	4.6	2.1	1.0
Jun	6.2	3.9	1.7	.7
Jul	4.3	2.4	.6	.2
Aug	5.2	3.3	1.4	.5
Sep	5.4	3.7	2.0	1.1
Oct	5.6	4.0	1.9	.8
Nov	4.2	2.2	.7	.3
Dec	4.7	2.3	.5	.2
Ann	61.6	35.5	13.7	5.7

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	.01	.06	.15	.27	.40	.55	.74	.98	1.33	1.92	2.52
Feb	.03	.07	.18	.33	.50	.72	1.01	1.38	1.93	2.89	3.88
Mar	.00	.08	.25	.41	.57	.75	.97	1.23	1.59	2.19	2.77
Apr	.08	.23	.48	.71	.96	1.24	1.57	1.98	2.53	3.44	4.33
May	.53	.81	1.26	1.68	2.11	2.58	3.12	3.77	4.63	6.04	7.37
Jun	.31	.51	.87	1.22	1.59	2.00	2.48	3.08	3.88	5.20	6.48
Jul	.07	.14	.27	.42	.59	.79	1.03	1.33	1.76	2.48	3.19
Aug	.02	.12	.34	.61	.94	1.33	1.82	2.46	3.37	4.95	6.54
Sep	.04	.19	.53	.93	1.39	1.95	2.65	3.54	4.82	7.01	9.21
Oct	.08	.26	.61	.98	1.39	1.86	2.42	3.14	4.14	5.81	7.47
Nov	.00	.00	.14	.33	.53	.76	1.03	1.37	1.85	2.63	3.40
Dec	.00	.02	.09	.19	.33	.51	.74	1.07	1.55	2.43	3.33
Ann	12.26	13.81	15.87	17.47	18.92	20.35	21.85	23.53	25.61	28.69	31.40

\+ 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: 1946-2001
(3) Derived from 1971-2000 serially complete daily data

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

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: SAN ANGELO MATHIS AP, TX **COOP ID: 417943**

Climate Division: TX 6 **NWS Call Sign: SJT** **Elevation: 1,916 Feet** **Lat: 31°21N** **Lon: 100°30W**

Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	2.0	.4	#	0	7.4	1978	21	9.0	1978	6+	1985	14	#	1994	1.0	.7	.2	.1	.0	1.0	.2	.2	.0
Feb	.4	.0	#	0	3.2	1973	8	5.8	1973	3+	1973	9	#	1994	.4	.2	@	.0	.0	.2	.1	.0	.0
Mar	.1	.0	#	0	1.0	1989	4	2.6	1989	2	1989	5	#	1989	.2	.0	.0	.0	.0	.1	.0	.0	.0
Apr	#	.0	0	0	#	1980	13	#	1980	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	#	1994	.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	#	1997	.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	#	1993	30	#+	1993	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.4	.0	#	0	3.0	1996	24	3.0+	2000	3+	2000	8	#	2000	.2	.2	.1	.0	.0	.2	.1	.0	.0
Dec	.2	.0	#	0	3.3	1986	10	3.7	1986	3	1986	11	#	1986	.3	.1	@	.0	.0	.1	@	.0	.0
Ann	3.1	.4	N/A	N/A	7.4	Jan 1978	21	9.0	Jan 1978	6+	Jan 1985	14	#+	Nov 2000	2.1	1.2	.3	.1	.0	1.6	.4	.2	.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

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: SAN ANGELO MATHIS AP, TX **COOP ID: 417943**

Climate Division: TX 6 **NWS Call Sign: SJT** **Elevation: 1,916 Feet** **Lat: 31˚21N** **Lon: 100˚30W**

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	4/17	4/14	4/11	4/08	4/06	4/04	4/02	3/30	3/26
32	4/14	4/08	4/04	3/31	3/28	3/25	3/21	3/17	3/11
28	4/03	3/26	3/20	3/15	3/10	3/06	3/01	2/23	2/15
24	3/18	3/10	3/04	2/27	2/23	2/18	2/13	2/07	1/30
20	3/07	2/24	2/16	2/09	2/03	1/27	1/20	1/11	12/29
16	2/16	2/05	1/28	1/20	1/13	1/03	12/17	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	10/19	10/24	10/27	10/30	11/02	11/04	11/07	11/10	11/15
32	10/29	11/03	11/07	11/10	11/13	11/16	11/20	11/23	11/29
28	11/01	11/07	11/11	11/15	11/18	11/21	11/25	11/29	12/05
24	11/10	11/18	11/23	11/28	12/02	12/06	12/11	12/16	12/24
20	11/15	11/26	12/04	12/11	12/17	12/24	1/01	1/10	1/28
16	12/10	12/20	12/27	1/03	1/10	1/19	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	229	222	217	213	209	205	200	195	188
32	252	244	239	234	230	225	221	215	208
28	281	271	264	258	252	246	240	233	223
24	316	304	296	288	281	275	267	258	246
20	>365	>365	338	324	314	305	296	285	272
16	>365	>365	>365	>365	>365	361	339	324	309

***** 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/normals/usnormals.html

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: SAN ANGELO MATHIS AP, TX **COOP ID: 417943**

Climate Division: TX 6 **NWS Call Sign: SJT** **Elevation: 1,916 Feet** **Lat: 31˚21N** **Lon: 100˚30W**

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	617	427	258	93	13	0	0	0	12	84	330	562	2396
60	479	300	138	33	9	0	0	0	2	25	217	427	1630
57	393	229	86	14	4	0	0	0	0	10	156	340	1232
55	339	187	59	8	1	0	0	0	0	5	121	286	1006
50	222	105	18	0	0	0	0	0	0	1	57	171	574
32	14	1	0	0	0	0	0	0	0	0	0	4	19

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	430	519	801	1010	1295	1436	1582	1546	1302	1055	676	474	12126
55	24	54	167	336	583	746	869	833	614	355	110	29	4720
57	15	37	131	283	521	686	807	771	555	299	83	18	4206
60	6	20	84	211	430	596	714	678	467	221	50	8	3485
65	0	4	30	107	277	442	554	519	321	112	16	1	2383
70	0	0	8	45	158	299	404	369	196	44	2	0	1525

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	236	337	568	782	1056	1206	1343	1309	1069	818	453	267	236	573	1141	1923	2979	4185	5528	6837	7906	8724	9177	9444
45	137	220	422	633	901	1056	1188	1154	919	663	319	156	137	357	779	1412	2313	3369	4557	5711	6630	7293	7612	7768
50	68	126	288	485	746	906	1033	999	769	509	207	76	68	194	482	967	1713	2619	3652	4651	5420	5929	6136	6212
55	29	61	173	342	591	756	878	844	621	363	115	32	29	90	263	605	1196	1952	2830	3674	4295	4658	4773	4805
60	2	24	90	217	436	606	723	689	472	227	53	5	2	26	116	333	769	1375	2098	2787	3259	3486	3539	3544
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	177	238	371	508	697	812	891	867	718	531	294	189	177	415	786	1294	1991	2803	3694	4561	5279	5810	6104	6293

(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.
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