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: AMARILLO INTL AP, TX **COOP ID: 410211**

Climate Division: TX 1 **NWS Call Sign: AMA** **Elevation: 3,586 Feet** **Lat: 35˚13N** **Lon: 101˚42W**

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	48.9	22.6	35.8	81	1950	21	43.2	1986	-11+	1984	18	25.6	1979	920	0	.0	.0	16.5	4.6	27.5	.5
Feb	54.1	27.0	40.6	88	1963	1	48.1	1976	-14	1951	1	30.4	1978	699	0	.0	.0	18.4	2.7	21.4	.5
Mar	62.2	33.6	47.9	94	1971	27	53.4	1974	-3	1948	11	43.5	1998	542	2	.0	.1	26.2	.7	14.4	.0
Apr	70.6	41.7	56.2	98+	1989	22	63.6	1981	17+	1997	12	48.9	1997	291	18	.0	.7	28.4	.1	4.3	.0
May	78.6	51.7	65.2	103	1996	16	72.5	1996	28	1954	3	60.4	1976	94	90	.3	4.0	30.8	.0	.1	.0
Jun	87.4	61.1	74.3	108+	1998	28	81.3	1990	41	1998	6	69.4	1989	7	285	2.2	12.8	30.0	.0	.0	.0
Jul	91.0	65.3	78.2	105+	1994	1	83.1	1980	51	1990	14	74.3	1972	1	405	1.7	19.9	31.0	.0	.0	.0
Aug	88.7	63.8	76.3	104+	1994	18	81.8	2000	49	1956	21	71.9	1971	1	345	.7	16.5	31.0	.0	.0	.0
Sep	81.8	56.3	69.1	103	1995	5	75.8	1998	30	1984	30	62.5	1974	56	173	.3	7.0	29.8	.0	.2	.0
Oct	71.8	44.6	58.2	99	2000	3	61.7	1973	12	1993	30	49.6	1976	239	26	.0	.8	29.9	.1	2.3	.0
Nov	58.4	31.8	45.1	87	1980	8	52.3	1999	0	1976	28	36.8	1972	594	0	.0	.0	22.6	.9	15.9	@
Dec	49.8	24.1	37.0	81	1955	24	42.0	1980	-8	1989	22	25.3	1983	874	0	.0	.0	17.0	3.6	27.0	.7
Ann	70.3	43.6	57.0	108+	Jun 1998	28	83.1	Jul 1980	-14	Feb 1951	1	25.3	Dec 1983	4318	1344	5.2	61.8	311.6	12.7	113.1	1.7

\+ 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: 1948-2001

(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	.63	.56	1.57	1999	29	2.67	1999	.00+	1986
Feb	.55	.38	1.25	1971	21	2.08	1998	.00+	1999
Mar	1.13	.94	1.84	2000	22	4.14	2000	.01	1997
Apr	1.33	.87	2.65	1999	30	6.45	1997	.00	1996
May	2.50	2.32	3.95	1951	15	6.02	1988	.04	1984
Jun	3.28	3.14	4.92	1984	10	7.57	1992	.12	1998
Jul	2.68	2.66	3.47	1997	29	6.23	1982	.16	2000
Aug	2.94	2.30	3.58	1979	26	7.55	1974	.28	1983
Sep	1.88	1.60	2.33	1990	29	4.96	1985	.03+	2000
Oct	1.50	.91	2.38	1998	30	6.48	1998	.26	1977
Nov	.68	.51	2.01	1948	1	2.08	1971	.00+	1999
Dec	.61	.42	1.64	1959	15	2.24	1991	.00	1976
Ann	19.71	19.36	4.92	Jun 1984	10	7.57	Jun 1992	.00+	Nov 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.4	1.8	.3	@
Feb	4.4	1.4	.2	.1
Mar	5.4	2.7	.6	.2
Apr	5.4	3.1	.7	.2
May	8.3	4.7	1.8	.6
Jun	8.3	5.4	2.6	.8
Jul	7.8	4.5	1.7	.7
Aug	8.4	5.4	2.0	.7
Sep	6.4	3.6	1.3	.5
Oct	5.0	3.1	1.0	.2
Nov	4.1	2.1	.3	@
Dec	4.2	1.7	.3	@
Ann	72.1	39.5	12.8	4.0

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	.06	.17	.26	.37	.48	.62	.78	1.01	1.38	1.74
Feb	.00	.00	.09	.18	.27	.38	.52	.68	.91	1.31	1.70
Mar	.07	.14	.28	.43	.60	.80	1.05	1.36	1.80	2.54	3.28
Apr	.02	.08	.23	.41	.62	.87	1.19	1.60	2.18	3.20	4.21
May	.35	.56	.92	1.27	1.63	2.03	2.49	3.06	3.82	5.06	6.26
Jun	.50	.78	1.25	1.71	2.18	2.69	3.28	4.01	4.98	6.56	8.08
Jul	.54	.78	1.17	1.53	1.90	2.29	2.73	3.26	3.97	5.10	6.17
Aug	.48	.73	1.16	1.56	1.98	2.43	2.95	3.58	4.43	5.80	7.12
Sep	.14	.26	.50	.76	1.05	1.38	1.78	2.28	2.98	4.15	5.31
Oct	.15	.25	.46	.67	.89	1.15	1.45	1.83	2.34	3.20	4.05
Nov	.00	.09	.21	.32	.43	.55	.69	.85	1.07	1.42	1.76
Dec	.02	.06	.14	.23	.33	.44	.58	.75	.99	1.39	1.79
Ann	14.54	15.56	16.85	17.82	18.69	19.52	20.37	21.32	22.45	24.10	25.52

\+ 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: 1948-2001
(3) Derived from 1971-2000 serially complete daily data

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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	4.8	3.8	#	0	9.2	1994	31	14.5	1983	10+	1994	31	2+	1987	3.1	1.7	.4	.2	.0	4.5	2.1	.9	.1
Feb	4.1	2.6	1	0	11.4	1971	21	17.3	1971	14+	1983	5	3+	1984	2.7	1.2	.4	.2	@	3.2	1.7	.9	.2
Mar	1.7	1.0	#	0	6.0	1983	19	8.5	1988	4+	1998	17	#	1998	1.5	.6	.2	@	.0	.7	.2	.0	.0
Apr	.8	.0	#	0	6.5	1997	25	6.5	1997	6	1973	8	#	1997	.4	.3	.1	@	.0	.3	.1	@	.0
May	.0	.0	#	0	.5	1978	3	.5	1978	#+	1988	31	#	2000	.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	.3	1984	29	.3	1984	#	1984	29	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.4	.0	#	0	3.0	1976	28	3.9	1976	3	1991	31	#	1991	.3	.1	@	.0	.0	@	@	.0	.0
Nov	2.4	.4	#	0	8.9	2000	7	9.9	1972	7	2000	7	1+	2000	1.4	.8	.3	.1	.0	1.4	.4	.1	.0
Dec	3.7	2.0	#	0	16.8	2000	26	21.2	2000	15	2000	27	2+	2000	2.6	1.0	.3	.2	@	3.0	1.1	.6	.2
Ann	17.9	9.8	N/A	N/A	16.8	Dec 2000	26	21.2	Dec 2000	15	Dec 2000	27	3+	Feb 1984	12.0	5.7	1.7	.7	@	13.1	5.6	2.5	.5

+ 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	5/12	5/07	5/03	4/29	4/26	4/23	4/20	4/16	4/11
32	5/01	4/26	4/23	4/20	4/18	4/15	4/13	4/10	4/05
28	4/15	4/11	4/08	4/05	4/02	3/31	3/28	3/25	3/20
24	4/08	4/03	3/30	3/27	3/23	3/20	3/17	3/13	3/07
20	4/06	3/28	3/22	3/16	3/11	3/06	2/28	2/22	2/13
16	3/22	3/13	3/07	3/02	2/26	2/21	2/16	2/10	2/01

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	9/27	10/02	10/05	10/09	10/12	10/15	10/18	10/22	10/27
32	10/03	10/09	10/13	10/17	10/20	10/24	10/27	11/01	11/07
28	10/20	10/25	10/28	10/31	11/03	11/06	11/09	11/12	11/17
24	10/30	11/04	11/08	11/11	11/14	11/17	11/20	11/24	11/29
20	11/03	11/09	11/13	11/16	11/20	11/23	11/26	12/01	12/06
16	11/10	11/16	11/21	11/25	11/29	12/03	12/07	12/12	12/19

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	187	180	175	171	168	164	160	155	148
32	206	199	194	189	185	181	176	171	163
28	233	227	222	218	214	210	206	202	195
24	257	249	244	239	235	231	226	220	213
20	285	274	266	259	253	246	240	232	220
16	305	295	288	282	276	270	264	257	246

***** 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	920	699	542	291	94	7	1	1	56	239	594	874	4318
60	752	545	378	177	43	2	0	0	14	116	454	716	3197
57	659	466	292	124	23	0	0	0	5	69	372	623	2633
55	598	414	238	94	13	0	0	0	2	47	321	562	2289
50	451	291	127	38	3	0	0	0	0	14	209	417	1550
32	73	33	1	0	0	0	0	0	0	0	15	55	177

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	198	282	496	719	1023	1266	1429	1373	1111	813	407	217	9334
55	1	6	36	126	323	576	716	660	432	166	21	2	3065
57	0	3	23	94	268	516	654	598	376	127	12	1	2672
60	0	1	11	56	194	427	562	505	297	79	4	0	2136
65	0	0	2	18	90	285	405	345	173	26	0	0	1344
70	0	0	0	3	34	156	256	205	83	5	0	0	742

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	71	136	287	494	785	1031	1192	1132	876	577	221	80	71	207	494	988	1773	2804	3996	5128	6004	6581	6802	6882
45	27	68	178	354	631	881	1037	977	728	428	131	34	27	95	273	627	1258	2139	3176	4153	4881	5309	5440	5474
50	4	27	92	230	479	731	882	822	580	292	62	6	4	31	123	353	832	1563	2445	3267	3847	4139	4201	4207
55	0	6	40	130	331	581	727	667	437	174	23	0	0	6	46	176	507	1088	1815	2482	2919	3093	3116	3116
60	0	0	12	58	204	432	572	512	303	84	3	0	0	0	12	70	274	706	1278	1790	2093	2177	2180	2180
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	87	129	222	331	488	674	786	756	566	365	171	88	87	216	438	769	1257	1931	2717	3473	4039	4404	4575	4663

(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