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: ARANSAS WILDLIFE REF, TX **COOP ID: 410305**

Climate Division: TX 7 **NWS Call Sign:** **Elevation: 15 Feet** **Lat: 28˚19N** **Lon: 96˚48W**

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	62.0	44.5	53.3	82	1971	30	59.5	2000	17	1982	11	45.5	1979	384	12	.0	.0	27.9	.0	3.4	.0
Feb	65.0	48.0	56.5	87	1973	6	63.2	2000	20	1985	2	47.9	1978	256	17	.0	.0	26.6	.1	1.5	.0
Mar	71.5	55.1	63.3	93	1974	30	68.8	2000	22	1980	2	56.9	1996	115	62	.0	.2	30.9	.0	.4	.0
Apr	76.6	63.6	70.1	94	1982	5	74.4	1991	33	1987	3	66.1	1997	18	171	.0	.3	30.0	.0	.0	.0
May	82.2	71.5	76.9	102+	1984	4	80.7	1989	46	1973	16	73.8	1993	0	368	.1	1.0	31.0	.0	.0	.0
Jun	87.7	76.6	82.2	98+	1977	8	85.6	1980	60	1996	9	79.8	1995	0	515	.0	8.6	30.0	.0	.0	.0
Jul	90.0	77.6	83.8	98	1984	18	87.1	1980	54	1976	9	81.2	1976	0	583	.0	19.6	31.0	.0	.0	.0
Aug	89.9	77.5	83.7	99	1985	15	85.8	1977	64	1974	6	80.9	1975	0	579	.0	21.3	31.0	.0	.0	.0
Sep	87.3	73.3	80.3	102	2000	6	84.1	1977	48	1975	26	74.1	1974	0	459	.1	10.4	30.0	.0	.0	.0
Oct	80.8	65.1	73.0	97	1977	2	76.2	1973	28	1993	31	65.7	1976	11	256	.0	.7	31.0	.0	@	.0
Nov	71.6	54.9	63.3	96	1988	4	69.8	1973	26	1976	29	54.3	1976	150	97	.0	.1	29.8	.0	.6	.0
Dec	64.9	46.8	55.9	83	1977	5	62.8	1984	9	1989	23	45.0	1989	312	27	.0	.0	29.0	.1	2.2	.0
Ann	77.5	62.9	70.2	102+	Sep 2000	6	87.1	Jul 1980	9	Dec 1989	23	45.0	Dec 1989	1246	3146	.2	62.2	358.2	.2	8.1	.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: 1971-2001

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

Issue Date: February 2004

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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	2.87	2.58	4.27	1979	11	9.01	1979	.04	1996
Feb	2.71	1.84	10.73	1993	10	12.55	1993	.00	1974
Mar	2.42	1.45	4.74	1993	12	13.86	1997	.00	1971
Apr	2.17	1.96	4.20	1991	5	5.57	1985	.00+	1984
May	4.70	3.81	8.80	2000	20	17.00	2000	.00+	1998
Jun	3.96	3.03	7.31	1989	30	13.36	1989	.00+	1998
Jul	2.84	1.70	6.45	1990	16	12.56	1990	.07	1986
Aug	3.65	2.92	4.75	1980	9	12.15	1980	.00	1999
Sep	5.48	4.22	8.90	1979	19	19.08	1979	.77	1982
Oct	4.12	3.31	7.00	1995	30	12.28	1997	.45	1988
Nov	3.52	2.89	14.25	1974	1	17.24	1974	.15	1988
Dec	2.39	1.52	5.55	1971	5	10.03	1971	.16	1977
Ann	40.83	39.05	14.25	Nov 1974	1	19.08	Sep 1979	.00+	Aug 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.8	4.4	1.7	.8
Feb	6.4	3.6	1.3	.6
Mar	5.3	3.0	1.1	.6
Apr	4.3	3.1	1.4	.7
May	5.9	4.3	2.3	1.6
Jun	5.8	4.0	2.2	1.3
Jul	4.9	2.9	1.5	.8
Aug	6.7	4.7	2.2	1.1
Sep	8.5	6.2	3.0	1.4
Oct	6.1	4.4	2.1	1.2
Nov	6.2	3.9	2.1	1.0
Dec	6.9	4.1	1.3	.6
Ann	74.8	48.6	22.2	11.7

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	.30	.51	.90	1.30	1.74	2.22	2.79	3.51	4.48	6.10	7.68
Feb	.08	.27	.64	1.03	1.46	1.96	2.56	3.31	4.37	6.13	7.89
Mar	.02	.12	.37	.68	1.05	1.52	2.10	2.88	3.99	5.93	7.89
Apr	.00	.16	.51	.85	1.21	1.62	2.10	2.69	3.51	4.88	6.22
May	.00	.15	.69	1.34	2.11	3.04	4.19	5.67	7.78	11.43	15.10
Jun	.00	.10	.51	1.04	1.68	2.46	3.44	4.72	6.58	9.80	13.06
Jul	.04	.11	.33	.64	1.05	1.59	2.29	3.25	4.67	7.23	9.88
Aug	.31	.71	1.30	1.84	2.39	2.99	3.67	4.51	5.62	7.44	9.18
Sep	.73	1.18	1.96	2.72	3.52	4.41	5.43	6.69	8.39	11.18	13.87
Oct	.32	.60	1.13	1.70	2.33	3.06	3.92	5.01	6.52	9.06	11.57
Nov	.37	.63	1.11	1.60	2.13	2.72	3.42	4.29	5.48	7.46	9.38
Dec	.18	.33	.64	.97	1.34	1.76	2.26	2.90	3.79	5.28	6.75
Ann	20.86	24.25	28.85	32.52	35.89	39.25	42.81	46.85	51.89	59.44	66.19

\+ 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: 1971-2001
(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	#	.0	0	0	#	1984	21	#+	1984	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	.0	.0	0	0	1.0	1973	9	1.0	1973	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Mar	#	.0	0	0	#	1989	5	#	1989	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	#	1976	28	#	1976	#	1976	28	#	1976	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	1.0	Feb 1973	9	1.0	Feb 1973	#	Nov 1976	28	#	Nov 1976	@	@	.0	.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	3/14	3/08	3/03	2/26	2/20	2/15	2/09	1/31
32	3/07	2/24	2/15	2/08	2/02	1/26	1/19	1/10	12/30
28	2/25	2/12	2/03	1/26	1/17	1/07	12/23	0/00	0/00
24	2/07	1/27	1/17	1/07	12/24	0/00	0/00	0/00	0/00
20	1/09	12/21	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	11/08	11/15	11/20	11/24	11/28	12/02	12/06	12/11	12/18
32	11/20	11/27	12/01	12/05	12/09	12/12	12/16	12/21	12/28
28	11/28	12/09	12/18	12/26	1/03	1/13	1/31	0/00	0/00
24	12/20	1/02	1/13	1/25	2/13	0/00	0/00	0/00	0/00
20	12/31	1/16	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	305	294	287	281	275	269	262	255	244
32	349	334	324	316	309	301	294	285	272
28	>365	>365	>365	>365	345	333	324	315	304
24	>365	>365	>365	>365	>365	>365	>365	358	333
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

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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	384	256	115	18	0	0	0	0	0	11	150	312	1246
60	258	152	45	2	0	0	0	0	0	2	80	199	738
57	197	105	21	0	0	0	0	0	0	1	50	145	519
55	163	78	12	0	0	0	0	0	0	0	35	114	402
50	87	30	2	0	0	0	0	0	0	0	13	52	184
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	658	686	970	1143	1391	1505	1606	1602	1449	1268	938	739	13955
55	108	119	269	453	678	815	893	889	759	555	282	140	5960
57	80	90	217	393	616	755	831	827	699	494	237	109	5348
60	48	53	147	306	523	665	738	734	609	402	177	69	4471
65	12	17	62	171	368	515	583	579	459	256	97	27	3146
70	7	5	17	72	218	365	428	424	311	132	42	10	2031

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	481	547	786	925	1156	1262	1350	1351	1211	1036	744	543	481	1028	1814	2739	3895	5157	6507	7858	9069	10105	10849	11392
45	339	408	631	775	1001	1112	1195	1196	1061	881	594	395	339	747	1378	2153	3154	4266	5461	6657	7718	8599	9193	9588
50	219	279	477	625	846	962	1040	1041	911	726	451	267	219	498	975	1600	2446	3408	4448	5489	6400	7126	7577	7844
55	119	168	332	476	691	812	885	886	761	572	316	159	119	287	619	1095	1786	2598	3483	4369	5130	5702	6018	6177
60	53	87	195	328	536	662	730	731	611	419	200	78	53	140	335	663	1199	1861	2591	3322	3933	4352	4552	4630
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	276	324	496	628	838	924	972	969	871	726	472	318	276	600	1096	1724	2562	3486	4458	5427	6298	7024	7496	7814

(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