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: BIG SPRING, TX **COOP ID: 410786**

Climate Division: TX 1 **NWS Call Sign:** **Elevation: 2,500 Feet** **Lat: 32˚14N** **Lon: 101˚27W**

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	55.8	29.6	42.7	84+	2000	20	49.1	1998	-2	1962	12	34.4	1979	692	0	.0	.0	21.5	1.7	20.2	.0
Feb	61.3	34.1	47.7	90	1996	22	55.4	2000	-5+	1985	3	39.0	1978	486	2	.0	@	23.1	1.1	12.2	.1
Mar	69.7	41.2	55.5	97	1971	28	61.3	1974	9	1948	11	50.4	1996	304	8	.0	.5	29.0	.1	4.6	.0
Apr	78.2	49.6	63.9	100	1959	26	70.6	1978	25	1973	9	57.1	1973	115	82	.0	4.1	29.6	.0	.6	.0
May	85.7	59.4	72.6	109	2000	25	80.7	1996	31	1971	14	67.7	1976	26	261	1.5	11.1	31.0	.0	@	.0
Jun	91.6	66.9	79.3	114	1994	28	86.0	1990	48	1964	1	75.8	1982	1	428	3.8	19.5	30.0	.0	.0	.0
Jul	94.3	71.1	82.7	108+	1994	8	88.4	1998	51+	1995	2	76.5	1976	0	549	5.1	25.7	31.0	.0	.0	.0
Aug	92.9	70.0	81.5	107+	1977	24	85.8	1999	50	1989	8	75.6	1971	0	509	2.9	23.5	31.0	.0	.0	.0
Sep	86.4	63.0	74.7	108	2000	2	81.3	1977	39+	1989	25	66.1	1974	13	305	.8	12.2	30.0	.0	.0	.0
Oct	77.7	52.7	65.2	101+	2000	4	69.1+	1998	27+	1993	31	56.8	1976	83	89	.1	2.7	30.6	.0	.3	.0
Nov	65.8	40.0	52.9	92	1980	9	59.3	1999	15+	1976	30	45.9	1976	373	10	.0	.1	26.8	.2	6.8	.0
Dec	57.6	31.7	44.7	86	1954	4	50.6	1981	1	1989	23	34.7	1983	631	0	.0	.0	23.7	1.4	17.4	.0
Ann	76.4	50.8	63.6	114	Jun 1994	28	88.4	Jul 1998	-5+	Feb 1985	3	34.4	Jan 1979	2724	2243	14.2	99.4	337.3	4.5	62.1	.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: 1948-2001

(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	.72	.46	1.10	1983	20	3.44	1983	.00+	1987
Feb	.81	.55	2.30	1992	24	4.56	1992	.00+	1999
Mar	.73	.44	4.20	2000	23	4.36	2000	.00+	1984
Apr	1.34	.92	2.36	1960	27	3.86	1976	.00+	1991
May	3.05	2.01	4.84	1994	11	9.11	1975	.09	1990
Jun	2.58	2.24	2.35	1986	3	5.96	1997	.02	1990
Jul	1.78	1.34	3.15	1948	23	5.92	1991	.10	1980
Aug	2.38	2.19	3.00	1980	17	7.16	1996	.00	1994
Sep	3.51	3.15	3.79	1988	2	14.22	1980	.00+	2000
Oct	1.78	1.47	3.43	1953	3	6.16	1986	.00+	1992
Nov	.77	.42	1.98	1968	26	2.78	1984	.00+	1999
Dec	.67	.51	1.60	1980	8	3.55	1991	.00+	1999
Ann	20.12	19.60	4.84	May 1994	11	14.22	Sep 1980	.00+	Sep 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.9	1.7	.5	.1
Feb	3.2	2.0	.7	.1
Mar	2.6	1.7	.4	.1
Apr	3.5	2.4	.9	.4
May	5.7	4.4	1.9	.9
Jun	5.2	3.8	1.7	.8
Jul	4.6	3.2	1.3	.5
Aug	5.2	3.8	1.7	.8
Sep	5.8	4.4	2.2	1.2
Oct	4.2	2.8	1.2	.5
Nov	2.6	1.5	.4	.2
Dec	2.6	1.6	.5	.1
Ann	48.1	33.3	13.4	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	.00	.00	.08	.18	.30	.45	.63	.87	1.20	1.78	2.36
Feb	.00	.00	.05	.15	.28	.45	.67	.96	1.38	2.11	2.85
Mar	.00	.00	.08	.19	.32	.48	.66	.90	1.23	1.79	2.35
Apr	.00	.00	.13	.31	.54	.81	1.15	1.60	2.24	3.36	4.50
May	.37	.61	1.04	1.47	1.92	2.42	3.00	3.72	4.70	6.31	7.87
Jun	.16	.31	.63	.98	1.37	1.84	2.40	3.12	4.12	5.83	7.53
Jul	.11	.22	.44	.68	.95	1.27	1.66	2.15	2.84	4.01	5.17
Aug	.26	.55	.95	1.29	1.64	2.01	2.43	2.94	3.61	4.70	5.73
Sep	.00	.00	.74	1.33	1.94	2.63	3.42	4.42	5.73	7.96	10.12
Oct	.00	.00	.10	.39	.73	1.12	1.59	2.20	3.05	4.49	5.97
Nov	.00	.00	.01	.10	.22	.38	.59	.88	1.31	2.07	2.86
Dec	.00	.00	.00	.12	.28	.44	.63	.86	1.17	1.70	2.21
Ann	12.54	13.93	15.75	17.16	18.43	19.68	20.98	22.43	24.21	26.83	29.13

\+ 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

Complete documentation available from:
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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	1.1	.0	#	0
Feb	.4	.0	#	0
Mar	.2	.0	#	0
Apr	#	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.0	.0	0	0
Nov	.8	.0	#	0
Dec	.8	.0	#	0
Ann	3.3	.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	5.0	1974	24	7.5	1973	5	1974	24	#+	1993
Feb	3.0	1979	6	3.0+	1988	4	1985	2	#+	1996
Mar	3.0	1989	5	4.0	1989	#+	1998	8	#+	1998
Apr	#	1983	8	#	1983	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	.0	0	0	.0	0	0	0	0	0	0
Nov	6.0	1980	17	10.0	1980	#	1997	15	#	1997
Dec	7.0	1998	12	7.0	1998	7	1998	12	#+	1998
Ann	7.0	Dec 1998	12	10.0	Nov 1980	7	Dec 1998	12	#+	Dec 1998

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.5	.3	.2	.1	.0
Feb	.3	.2	.1	.0	.0
Mar	.1	.1	.1	.0	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.2	.2	.2	.1	.0
Dec	.3	.2	.1	.1	.0
Ann	1.4	1.0	.7	.3	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.4	.1	@	.0
Feb	.1	.0	.0	.0
Mar	.0	.0	.0	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.0	.0	.0	.0
Dec	.1	@	@	.0
Ann	.6	.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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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	4/20	4/15	4/11	4/07	4/04	4/01	3/29	3/25	3/19
32	4/14	4/06	4/01	3/27	3/23	3/18	3/14	3/08	2/28
28	4/04	3/27	3/22	3/17	3/13	3/08	3/04	2/26	2/19
24	3/17	3/08	3/02	2/25	2/20	2/15	2/09	2/03	1/25
20	3/05	2/23	2/16	2/10	2/04	1/29	1/23	1/14	12/30
16	2/20	2/11	2/04	1/29	1/23	1/17	1/09	12/29	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	10/21	10/26	10/30	11/02	11/05	11/08	11/11	11/15	11/21
32	10/30	11/04	11/08	11/10	11/13	11/16	11/19	11/22	11/27
28	11/07	11/13	11/17	11/20	11/23	11/27	11/30	12/04	12/09
24	11/09	11/19	11/26	12/01	12/07	12/13	12/19	12/26	1/04
20	11/25	12/04	12/10	12/15	12/20	12/26	1/01	1/08	1/22
16	12/01	12/12	12/21	12/29	1/05	1/13	1/24	2/11	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	236	229	223	218	214	210	205	199	192
32	258	250	244	239	235	230	225	220	212
28	284	274	267	261	255	249	243	236	226
24	321	309	301	294	288	282	276	269	258
20	>365	>365	342	328	318	308	299	289	275
16	>365	>365	>365	360	346	337	328	319	308

***** 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	692	486	304	115	26	1	0	0	13	83	373	631	2724
60	539	357	175	48	7	0	0	0	2	29	246	478	1881
57	453	283	115	23	2	0	0	0	0	12	183	391	1462
55	395	239	83	14	1	0	0	0	0	6	146	334	1218
50	264	147	29	2	0	0	0	0	0	1	75	208	726
32	18	6	0	0	0	0	0	0	0	0	0	7	31

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	350	446	727	957	1258	1418	1572	1532	1282	1029	627	399	11597
55	14	34	97	281	546	728	859	819	592	323	83	13	4389
57	9	23	67	230	485	668	797	757	532	266	60	8	3902
60	3	12	34	165	397	578	704	664	444	190	33	2	3226
65	0	2	8	82	261	428	549	509	305	89	10	0	2243
70	0	0	0	31	152	286	394	356	186	31	1	0	1437

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	179	285	494	725	1015	1185	1328	1288	1044	787	408	214	179	464	958	1683	2698	3883	5211	6499	7543	8330	8738	8952
45	96	180	355	577	860	1035	1173	1133	894	633	280	120	96	276	631	1208	2068	3103	4276	5409	6303	6936	7216	7336
50	38	96	227	433	705	885	1018	978	744	482	173	52	38	134	361	794	1499	2384	3402	4380	5124	5606	5779	5831
55	11	47	127	299	551	735	863	823	595	339	87	16	11	58	185	484	1035	1770	2633	3456	4051	4390	4477	4493
60	0	15	58	183	399	585	708	668	453	209	36	0	0	15	73	256	655	1240	1948	2616	3069	3278	3314	3314
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	145	206	329	466	655	788	881	862	694	498	266	168	145	351	680	1146	1801	2589	3470	4332	5026	5524	5790	5958

(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