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: MIAMI, TX **COOP ID: 415875**

Climate Division: TX 1 **NWS Call Sign:** **Elevation: 2,755 Feet** **Lat: 35˚42N** **Lon: 100˚38W**

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	46.6	20.6	33.6	83+	1986	21	41.4	1986	-15+	1942	5	22.0	1979	973	0	.0	.0	15.1	5.4	28.8	.8
Feb	51.9	24.6	38.3	89	1962	13	46.6	1976	-12+	1951	2	26.4	1978	749	0	.0	.0	17.1	3.6	22.4	.6
Mar	60.0	32.5	46.3	99	1907	20	51.7	1986	-5	1960	3	40.8	1998	581	0	.0	.1	24.6	1.0	14.9	.0
Apr	69.6	41.1	55.4	99	1913	29	60.0	1978	10	1940	12	49.0	1983	307	17	.0	1.1	28.0	.1	4.6	.0
May	77.8	51.6	64.7	104	1985	30	71.5	1996	22	1909	1	59.5	1976	106	96	.4	4.0	30.8	.0	.1	.0
Jun	86.7	61.6	74.2	114	1917	11	80.2	1994	39+	1947	14	68.8	1982	15	290	1.7	12.5	30.0	.0	.0	.0
Jul	92.4	66.3	79.4	111+	1970	11	85.1	1980	45	1924	5	76.0	1975	0	444	4.4	22.1	31.0	.0	.0	.0
Aug	90.7	64.9	77.8	111	1936	13	82.9	1983	41	1915	31	73.2	1992	1	398	2.3	20.1	31.0	.0	.0	.0
Sep	82.6	56.5	69.6	105+	1970	5	75.8	1998	28	1984	30	62.9	1974	39	176	.7	9.5	29.8	.0	.2	.0
Oct	71.7	43.6	57.7	99+	2000	4	61.5	1979	14	1993	31	50.4	1976	242	14	.0	1.1	29.8	.1	3.2	.0
Nov	57.6	31.1	44.4	90+	1980	9	52.1	1999	5+	1959	15	36.4	1972	620	0	.0	@	22.0	.9	16.9	.0
Dec	48.4	22.7	35.6	87	1929	10	41.2	1994	-11+	1983	23	22.4	1983	913	0	.0	.0	15.8	4.2	27.6	.8
Ann	69.7	43.1	56.4	114	Jun 1917	11	85.1	Jul 1980	-15+	Jan 1942	5	22.0	Jan 1979	4546	1435	9.5	70.5	305.0	15.3	118.7	2.2

\+ 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: 1905-2001

(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	.68	.54	1.93	1990	19	2.62	1999	.00+	1986
Feb	.83	.70	3.02	1911	17	2.80	1990	.00+	1999
Mar	1.74	1.47	3.35	1988	3	4.89	1973	.00	1997
Apr	2.19	1.58	3.66	1997	3	11.41	1997	.00	1996
May	3.77	3.23	5.39	1997	24	10.39	1977	.45	1984
Jun	3.26	3.08	4.27	1961	7	9.11	2000	.35	1998
Jul	2.39	2.38	3.40	1961	7	6.18	1996	.18+	1983
Aug	2.40	1.96	3.88	1921	11	7.85	1996	.10	2000
Sep	2.38	2.23	3.20	1958	20	5.64	1996	.04	1992
Oct	1.64	1.08	5.58	1985	10	6.26	1985	.00	1975
Nov	1.12	.77	2.78	1948	1	4.08	1971	.00+	1999
Dec	.90	.64	2.55	1999	5	2.71	1984	.00	1976
Ann	23.30	22.15	5.58	Oct 1985	10	11.41	Apr 1997	.00+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.1	1.8	.3	.1
Feb	3.6	2.1	.6	.1
Mar	4.8	3.5	1.2	.6
Apr	5.5	3.5	1.5	.6
May	8.1	6.1	2.7	.9
Jun	7.5	5.7	2.3	.9
Jul	5.9	4.1	1.7	.7
Aug	6.9	4.8	1.5	.6
Sep	5.9	4.2	1.7	.7
Oct	4.1	2.9	.9	.5
Nov	4.2	2.6	.6	.2
Dec	3.4	1.8	.5	.2
Ann	63.0	43.1	15.5	6.1

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	.04	.13	.23	.35	.48	.64	.83	1.11	1.58	2.05
Feb	.00	.00	.14	.27	.41	.58	.78	1.03	1.37	1.94	2.52
Mar	.04	.15	.37	.61	.89	1.22	1.61	2.11	2.82	4.01	5.20
Apr	.04	.16	.42	.72	1.07	1.48	1.99	2.65	3.58	5.17	6.76
May	.71	1.05	1.60	2.11	2.63	3.19	3.83	4.60	5.62	7.26	8.82
Jun	.61	.90	1.38	1.82	2.27	2.76	3.31	3.98	4.86	6.29	7.65
Jul	.35	.55	.90	1.23	1.58	1.95	2.39	2.92	3.64	4.80	5.92
Aug	.26	.44	.78	1.11	1.47	1.88	2.35	2.94	3.74	5.06	6.35
Sep	.25	.42	.75	1.08	1.44	1.84	2.31	2.90	3.70	5.03	6.33
Oct	.02	.09	.27	.49	.75	1.06	1.45	1.96	2.69	3.96	5.23
Nov	.00	.08	.26	.43	.61	.83	1.07	1.38	1.81	2.52	3.22
Dec	.01	.06	.16	.28	.42	.59	.80	1.08	1.47	2.14	2.81
Ann	16.08	17.46	19.24	20.60	21.81	22.98	24.19	25.54	27.18	29.56	31.62

\+ 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: 1905-2001
(3) Derived from 1971-2000 serially complete daily data

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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	3.4	1.5	#	#
Feb	3.8	1.0	#	#
Mar	2.6	.0	#	0
Apr	.8	.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
Oct	.1	.0	#	0
Nov	1.2	.0	#	0
Dec	4.5	1.3	#	#
Ann	16.4	3.8	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	8.0	1995	22	12.0	1987	12	1987	19	3	1987
Feb	8.4	1971	20	23.1	1971	21	1971	22	4	1971
Mar	15.0	1988	3	27.0	1988	12	1988	3	2	1988
Apr	9.0	1973	8	14.0	1983	8	1973	8	1	1973
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	#	1985	29	#+	1985	0	0	0	0	0
Oct	1.5	1991	31	1.5	1991	2	1991	31	#+	1997
Nov	6.0	1992	25	15.5	1972	6	1992	25	1	1992
Dec	12.0	1996	1	17.8	1987	13	2000	27	2+	2000
Ann	15.0	Mar 1988	3	27.0	Mar 1988	21	Feb 1971	22	4	Feb 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.3	1.1	.4	.1	.0
Feb	1.3	1.2	.6	.2	.0
Mar	.8	.6	.3	.2	.1
Apr	.1	.1	.1	.1	.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
Nov	.8	.6	.2	@	.0
Dec	1.3	.9	.4	.2	.1
Ann	5.6	4.5	2.0	.8	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	2.7	1.4	.8	.3
Feb	1.9	1.1	.6	.2
Mar	1.1	.6	.4	.2
Apr	.2	.2	.1	.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
Nov	1.0	.4	.1	.0
Dec	2.4	1.3	.7	.2
Ann	9.3	5.0	2.7	.9

+ 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	5/10	5/05	5/01	4/29	4/26	4/23	4/20	4/16	4/12
32	4/29	4/24	4/21	4/18	4/15	4/12	4/09	4/06	4/01
28	4/14	4/10	4/07	4/04	4/01	3/30	3/27	3/24	3/19
24	4/10	4/04	3/30	3/27	3/23	3/19	3/16	3/11	3/05
20	4/04	3/27	3/22	3/17	3/13	3/09	3/04	2/27	2/19
16	3/22	3/13	3/07	3/02	2/25	2/20	2/15	2/09	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	9/23	9/28	10/01	10/04	10/07	10/10	10/13	10/16	10/21
32	9/30	10/06	10/11	10/15	10/19	10/23	10/27	11/01	11/07
28	10/15	10/21	10/25	10/28	10/31	11/04	11/07	11/11	11/17
24	10/21	10/28	11/02	11/06	11/10	11/14	11/19	11/24	12/01
20	11/01	11/07	11/12	11/16	11/19	11/23	11/27	12/01	12/07
16	11/08	11/16	11/22	11/27	12/01	12/06	12/11	12/16	12/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	181	175	171	167	164	160	156	152	146
32	208	200	195	190	186	182	177	172	165
28	230	224	220	216	212	209	205	200	194
24	259	249	243	237	232	226	221	214	205
20	278	268	262	256	250	245	239	232	223
16	311	300	292	285	278	272	265	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	973	749	581	307	106	15	0	1	39	242	620	913	4546
60	818	609	428	190	44	3	0	0	10	126	473	758	3459
57	725	532	343	134	22	0	0	0	4	75	390	665	2890
55	664	480	287	102	13	0	0	0	1	51	336	604	2538
50	518	355	168	43	2	0	0	0	0	15	218	460	1779
32	117	64	5	0	0	0	0	0	0	0	15	86	287

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	167	239	446	700	1013	1265	1467	1420	1127	795	384	196	9219
55	1	11	16	112	313	575	754	707	438	133	16	2	3078
57	0	7	9	83	260	516	692	645	381	95	10	0	2698
60	0	0	2	50	189	428	599	552	297	53	3	0	2173
65	0	0	0	17	96	290	444	398	176	14	0	0	1435
70	0	0	0	4	38	173	292	251	88	2	0	0	848

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	57	128	273	491	787	1037	1229	1183	902	572	219	76	57	185	458	949	1736	2773	4002	5185	6087	6659	6878	6954
45	20	61	165	358	633	887	1074	1028	753	424	130	33	20	81	246	604	1237	2124	3198	4226	4979	5403	5533	5566
50	1	25	89	234	479	737	919	873	606	290	64	9	1	26	115	349	828	1565	2484	3357	3963	4253	4317	4326
55	0	5	40	135	336	587	764	718	464	177	25	0	0	5	45	180	516	1103	1867	2585	3049	3226	3251	3251
60	0	0	13	64	206	437	609	563	329	87	5	0	0	0	13	77	283	720	1329	1892	2221	2308	2313	2313
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	74	123	204	327	490	680	809	779	581	371	170	88	74	197	401	728	1218	1898	2707	3486	4067	4438	4608	4696

(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