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: MORTON, TX **COOP ID: 416074**

Climate Division: TX 1 **NWS Call Sign:** **Elevation: 3,760 Feet** **Lat: 33˚43N** **Lon: 102˚46W**

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	52.5	23.1	37.8	82	1975	27	44.3	1999	-12	1963	13	31.0	1979	843	0	.0	.0	19.5	2.9	27.7	.2
Feb	57.8	26.5	42.2	85	1989	26	49.3	2000	0+	1985	3	34.5	1978	639	0	.0	.0	21.3	1.7	22.0	.1
Mar	65.7	33.2	49.5	92+	1989	13	55.7	1974	7	1965	20	44.9	1987	483	0	.0	.2	27.9	.3	14.9	.0
Apr	73.7	41.4	57.6	98+	1989	22	61.9	1989	21+	1997	12	51.0	1983	244	21	.0	.9	29.0	.0	4.8	.0
May	82.2	52.0	67.1	107	2000	25	74.3	1996	29	1967	2	63.3	1976	69	132	.5	6.6	30.8	.0	@	.0
Jun	89.9	60.7	75.3	110+	1994	28	81.9	1990	40	1975	1	71.5	1983	5	313	3.2	16.5	30.0	.0	.0	.0
Jul	91.4	64.2	77.8	107+	1998	12	82.5	1998	53	1990	15	73.5	1976	0	395	2.0	20.6	31.0	.0	.0	.0
Aug	89.0	62.3	75.7	104+	1994	19	79.1	2000	49	1976	29	70.6	1971	1	332	.5	16.0	31.0	.0	.0	.0
Sep	82.9	55.5	69.2	102	2000	7	75.0	1998	32+	1983	22	62.7	1974	38	164	.3	7.7	29.7	.0	.1	.0
Oct	74.3	44.3	59.3	99	2000	4	62.9	1998	16	1991	31	52.2	1976	197	20	.0	1.0	30.0	@	2.0	.0
Nov	62.1	32.7	47.4	86	2001	1	54.0	1999	5	1976	14	40.4	1972	528	0	.0	.0	24.7	.5	15.2	.0
Dec	53.7	24.7	39.2	79	1970	1	44.8	1994	-6	1983	26	30.1	1983	800	0	.0	.0	20.8	2.4	25.8	.5
Ann	72.9	43.4	58.2	110+	Jun 1994	28	82.5	Jul 1998	-12	Jan 1963	13	30.1	Dec 1983	3847	1377	6.5	69.5	325.7	7.8	112.5	.8

\+ 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: 1935-2001

(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	.50	.28	1.00	1993	11	1.95	1993	.00+	2000
Feb	.58	.44	2.00	1938	28	1.94	1998	.00+	2000
Mar	.64	.39	1.93	1999	18	3.47	1999	.00	1971
Apr	.89	.62	2.35	1966	25	3.95	1997	.00+	1996
May	1.92	1.49	3.50	1937	23	6.00	1992	.04	2000
Jun	2.52	1.93	3.85	1985	5	7.38	1985	.11	1990
Jul	2.61	2.45	4.69	1960	7	6.23	1981	.00	1978
Aug	2.97	2.74	4.10	1987	24	6.62	1972	.22	1975
Sep	2.66	2.32	4.15	1970	14	6.12	1974	.00+	2000
Oct	1.64	1.11	3.15	1955	2	5.28	1981	.00+	1992
Nov	.79	.61	1.42	1978	4	2.56	2000	.00+	1999
Dec	.62	.36	1.22	1991	21	2.83	1991	.00+	2000
Ann	18.34	18.30	4.69	Jul 1960	7	7.38	Jun 1985	.00+	Dec 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.0	1.5	.3	@
Feb	3.1	2.0	.2	@
Mar	3.1	1.5	.4	.2
Apr	3.7	2.3	.4	.1
May	5.8	4.0	1.4	.3
Jun	6.6	4.7	1.6	.6
Jul	6.5	4.6	1.5	.8
Aug	8.0	5.3	1.8	.8
Sep	5.7	4.1	1.9	1.0
Oct	4.8	3.2	.9	.4
Nov	3.0	2.0	.4	.1
Dec	3.2	2.0	.3	.1
Ann	56.5	37.2	11.1	4.4

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	.00	.06	.15	.27	.41	.60	.87	1.33	1.79
Feb	.00	.00	.00	.14	.26	.39	.55	.74	1.00	1.45	1.88
Mar	.00	.02	.07	.14	.24	.36	.52	.74	1.06	1.63	2.22
Apr	.00	.00	.08	.20	.35	.53	.76	1.06	1.50	2.26	3.04
May	.23	.38	.65	.92	1.21	1.52	1.89	2.35	2.97	3.99	4.98
Jun	.24	.42	.76	1.11	1.49	1.92	2.43	3.07	3.95	5.41	6.85
Jul	.26	.57	1.00	1.38	1.77	2.18	2.65	3.23	3.98	5.21	6.38
Aug	.28	.49	.90	1.31	1.76	2.26	2.86	3.62	4.65	6.36	8.04
Sep	.00	.33	.83	1.25	1.68	2.15	2.69	3.32	4.18	5.59	6.95
Oct	.00	.00	.22	.46	.74	1.07	1.48	2.00	2.73	3.98	5.23
Nov	.00	.04	.16	.28	.41	.56	.74	.97	1.29	1.82	2.35
Dec	.00	.00	.03	.12	.23	.37	.53	.75	1.06	1.58	2.12
Ann	11.04	12.36	14.10	15.46	16.68	17.88	19.14	20.56	22.29	24.86	27.11

\+ 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: 1935-2001
(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	2.1	1.0	#	0
Feb	1.5	.5	#	0
Mar	.1	.0	#	0
Apr	.2	.0	0	0
May	#	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.1	.0	0	0
Nov	1.0	.0	0	0
Dec	2.5	.5	#	0
Ann	7.5	2.0	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	7.0	1983	21	14.0	1983	3	1992	13	#+	1996
Feb	7.0	1986	10	8.0	1986	4	1971	22	1	1978
Mar	1.0	1989	21	1.5	1989	1	1998	8	#+	2000
Apr	3.0	1983	6	6.5	1983	0	0	0	0	0
May	#	1978	3	#	1978	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	1.5	1991	30	1.5	1991	0	0	0	0	0
Nov	5.5	1980	26	12.5	1980	0	0	0	0	0
Dec	10.0	1987	14	12.0	1987	3	1975	24	#+	1999
Ann	10.0	Dec 1987	14	14.0	Jan 1983	4	Feb 1971	22	1	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.1	.7	.2	.1	.0
Feb	.9	.6	.1	@	.0
Mar	.2	@	.0	.0	.0
Apr	.1	.1	@	.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
Nov	.4	.4	.1	.1	.0
Dec	1.1	.7	.3	.1	@
Ann	3.8	2.5	.7	.3	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.4	.1	.0	.0
Feb	.2	.1	.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	.2	.1	.0	.0
Ann	.8	.3	.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	5/10	5/05	5/02	4/29	4/26	4/23	4/20	4/17	4/12
32	4/27	4/22	4/19	4/16	4/14	4/11	4/09	4/05	4/01
28	4/15	4/10	4/06	4/03	3/31	3/28	3/25	3/21	3/16
24	4/07	4/01	3/27	3/24	3/20	3/17	3/13	3/09	3/03
20	3/26	3/18	3/13	3/09	3/05	2/28	2/24	2/19	2/12
16	3/19	3/10	3/03	2/25	2/20	2/15	2/09	2/02	1/24

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	9/30	10/05	10/09	10/12	10/15	10/18	10/22	10/26	10/31
32	10/08	10/13	10/18	10/21	10/24	10/27	10/31	11/04	11/09
28	10/24	10/29	11/02	11/06	11/09	11/12	11/16	11/20	11/25
24	11/02	11/07	11/11	11/14	11/17	11/19	11/22	11/26	12/01
20	11/08	11/14	11/19	11/23	11/27	12/01	12/05	12/10	12/17
16	11/15	11/25	12/02	12/08	12/14	12/20	12/26	1/02	1/12

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	190	184	179	175	172	168	164	159	153
32	210	204	200	196	193	189	185	181	175
28	243	236	230	226	222	218	213	208	201
24	262	255	249	245	241	236	232	226	219
20	297	287	279	273	267	261	255	247	237
16	335	320	310	302	294	287	279	270	257

***** 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	843	639	483	244	69	5	0	1	38	197	528	800	3847
60	688	499	332	137	23	0	0	0	9	91	386	645	2810
57	595	418	249	88	10	0	0	0	3	50	306	553	2272
55	533	366	199	62	5	0	0	0	1	32	257	492	1947
50	387	242	98	20	1	0	0	0	0	7	154	347	1256
32	40	14	0	0	0	0	0	0	0	0	5	27	86

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	221	299	540	767	1087	1298	1418	1354	1116	846	468	250	9664
55	1	7	26	139	379	608	705	641	427	165	29	2	3129
57	0	3	15	105	322	548	643	579	369	121	19	1	2725
60	0	0	5	64	242	458	550	486	285	69	8	0	2167
65	0	0	0	21	132	313	395	332	164	20	0	0	1377
70	0	0	0	5	57	182	245	188	78	3	0	0	758

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	98	166	324	532	838	1061	1169	1104	873	607	266	111	98	264	588	1120	1958	3019	4188	5292	6165	6772	7038	7149
45	38	86	201	389	684	911	1014	949	724	456	159	47	38	124	325	714	1398	2309	3323	4272	4996	5452	5611	5658
50	6	36	105	259	530	761	859	794	579	313	80	13	6	42	147	406	936	1697	2556	3350	3929	4242	4322	4335
55	0	6	45	152	379	611	704	639	433	186	30	0	0	6	51	203	582	1193	1897	2536	2969	3155	3185	3185
60	0	0	11	68	243	461	549	484	296	90	3	0	0	0	11	79	322	783	1332	1816	2112	2202	2205	2205
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	118	166	270	374	533	679	768	730	564	395	214	127	118	284	554	928	1461	2140	2908	3638	4202	4597	4811	4938

(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