

Climatography of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: MCALLEN MILLER INTL AP, TX

1971-2000

COOP ID: 415702

Climate Division: TX10

NWS Call Sign: MFE

Elevation: 100 Feet

Lat: 26° 11N

Lon: 98° 14W

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	69.9	50.3	60.1	94	1971	3	68.0	1998	13	1962	12	52.2	1977	232	66	.0	.4	28.7	.0	1.0	.0
Feb	74.1	53.5	63.8	99	1996	20	71.4	2000	24	1996	2	56.2	1978	117	83	.0	1.2	27.3	.0	.4	.0
Mar	81.4	60.2	70.8	105	1984	27	75.4	2000	31	1980	2	65.4	1987	20	198	.3	4.5	31.0	.0	@	.0
Apr	85.9	65.7	75.8	107	1984	26	80.5	1999	42	1973	9	71.8	1997	0	324	.5	9.6	30.0	.0	.0	.0
May	90.0	71.8	80.9	110	1999	4	85.7	1998	52	1970	5	76.7	1992	0	491	.4	18.9	31.0	.0	.0	.0
Jun	94.0	74.9	84.5	107	1980	27	90.1	1998	59	1970	3	81.8	1973	0	582	2.5	26.3	30.0	.0	.0	.0
Jul	96.1	75.7	85.9	106+	1986	26	90.8	1998	68+	1975	15	81.1	1976	0	648	6.8	29.1	31.0	.0	.0	.0
Aug	96.4	75.8	86.1	108	1988	10	89.3	1997	57+	2001	13	82.7	1973	0	655	8.1	29.3	31.0	.0	.0	.0
Sep	92.3	73.1	82.7	107	2000	5	85.6	1997	55+	1975	24	78.6	1984	0	532	2.4	22.5	30.0	.0	.0	.0
Oct	86.3	66.4	76.4	103	1986	2	79.0	1972	44+	2000	10	68.5	1976	2	355	.1	11.0	31.0	.0	.0	.0
Nov	78.1	58.6	68.4	102	1988	4	74.1	1973	32	1992	28	58.7	1976	73	173	@	2.5	29.7	.0	.1	.0
Dec	71.4	51.8	61.6	96	1977	5	68.9	1984	18	1989	23	51.1	1989	180	74	.0	.5	29.8	.0	.7	.0
Ann	84.7	64.8	74.8	110	May 1999	4	90.8	Jul 1998	13	Jan 1962	12	51.1	Dec 1989	624	4181	21.1	155.8	360.5	.0	2.2	.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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1961-2001

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

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Elevation: 100 Feet Lat: 26°11N

Lon: 98°14W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.22	.73	2.53	1978	18	4.63	1973	.00	1996	7.2	2.5	.6	.1	.02	.09	.23	.40	.59	.82	1.11	1.47	1.99	2.88	3.77
Feb	1.33	.96	4.00	1983	25	5.25	1983	.00+	1976	5.4	2.5	.6	.3	.00	.13	.36	.57	.79	1.04	1.32	1.66	2.13	2.90	3.66
Mar	.72	.41	2.60	1972	13	2.88	1972	.00	1971	3.9	1.4	.5	.3	.00	.02	.07	.15	.25	.39	.57	.82	1.19	1.85	2.54
Apr	1.32	.97	3.29	1966	21	5.90	1992	.00+	1984	3.8	1.9	.8	.3	.00	.05	.21	.40	.62	.88	1.20	1.60	2.18	3.17	4.16
May	2.68	2.56	4.30	1981	3	6.77	1992	.00	1989	5.3	3.4	1.4	.8	.05	.20	.53	.90	1.32	1.83	2.45	3.24	4.36	6.28	8.19
Jun	2.59	2.10	4.28	1970	26	10.48	1993	.00	1980	5.0	3.2	1.5	.9	.04	.17	.47	.82	1.23	1.72	2.33	3.11	4.23	6.16	8.09
Jul	1.65	1.06	3.36	1975	13	8.33	1975	.00+	1996	4.3	2.7	1.2	.4	.00	.00	.19	.42	.70	1.03	1.45	2.00	2.77	4.11	5.46
Aug	2.73	2.15	9.42	1980	10	11.38	1980	.13	1974	5.7	3.9	1.6	.6	.21	.39	.74	1.12	1.53	2.01	2.59	3.31	4.32	6.01	7.68
Sep	4.08	3.62	8.85	1973	14	9.74	1990	.44	1989	7.3	5.1	2.3	1.0	.85	1.22	1.82	2.37	2.92	3.50	4.17	4.97	6.02	7.70	9.30
Oct	2.56	2.12	7.30	1966	15	7.41	1998	.03	1979	6.1	3.5	1.3	.7	.19	.36	.68	1.04	1.43	1.88	2.42	3.11	4.06	5.66	7.24
Nov	.87	.71	4.08	2001	16	3.84	1976	.00+	1981	4.9	2.0	.7	.2	.00	.06	.19	.33	.47	.64	.83	1.07	1.41	1.97	2.52
Dec	1.21	1.02	1.95	1989	2	3.60	1986	.00	1977	6.2	2.7	.6	.1	.09	.22	.41	.59	.78	.98	1.21	1.50	1.88	2.50	3.10
Ann	22.96	23.17	9.42	Aug 1980	10	11.38	Aug 1980	.00+	Jul 1996	65.1	34.8	13.1	5.7	13.75	15.42	17.62	19.33	20.88	22.40	24.00	25.78	27.99	31.24	34.10

+ 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: 1961-2001

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

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Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	#	.0	0	0	#	1973	9	#	1973	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Mar	.0	.0	0	0	.0	0	0	.0	0	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	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	#	0	.0	0	0	.0	0	1	1971	8	#	1971	.0	.0	.0	.0	.0	@	.0	.0	.0
Ann	#	.0	N/A	N/A	#	Feb 1973	9	#	Feb 1973	1	Dec 1971	8	#	Dec 1971	.0	.0	.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	3/14	3/01	2/19	2/10	2/01	1/23	1/13	12/27	0/00
32	2/06	1/24	1/14	1/05	12/27	12/14	0/00	0/00	0/00
28	1/22	1/11	12/30	0/00	0/00	0/00	0/00	0/00	0/00
24	1/04	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	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	11/27	12/06	12/13	12/19	12/25	1/01	1/08	1/20	0/00
32	12/08	12/19	12/28	1/05	1/15	1/28	0/00	0/00	0/00
28	12/28	1/06	1/15	0/00	0/00	0/00	0/00	0/00	0/00
24	1/04	0/00	0/00	0/00	0/00	0/00	0/00	0/00	0/00
20	0/00	0/00	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	>365	>365	362	339	327	317	307	297	283
32	>365	>365	>365	>365	>365	>365	>365	343	325
28	>365	>365	>365	>365	>365	>365	>365	>365	>365
24	>365	>365	>365	>365	>365	>365	>365	>365	>365
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

Complete documentation available from:

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Degree Days to Selected Base Temperatures (°F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	232	117	20	0	0	0	0	0	0	2	73	180	624
60	148	55	4	0	0	0	0	0	0	0	30	99	336
57	105	30	1	0	0	0	0	0	0	0	16	61	213
55	79	20	0	0	0	0	0	0	0	0	10	42	151
50	36	6	0	0	0	0	0	0	0	0	2	15	59
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	871	890	1202	1314	1514	1572	1671	1678	1522	1376	1090	917	15617
55	238	266	489	624	801	882	958	965	832	663	410	246	7374
57	201	221	428	564	739	822	896	903	772	601	356	203	6706
60	151	161	337	474	646	732	803	810	682	508	280	148	5732
65	66	83	198	324	491	582	648	655	532	355	173	74	4181
70	37	31	92	185	338	432	493	500	382	210	93	29	2822

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	629	700	959	1083	1280	1348	1434	1445	1286	1133	862	677	629	1329	2288	3371	4651	5999	7433	8878	10164	11297	12159	12836
45	479	561	804	933	1125	1198	1279	1290	1136	978	712	529	479	1040	1844	2777	3902	5100	6379	7669	8805	9783	10495	11024
50	345	421	650	783	970	1048	1124	1135	986	823	564	384	345	766	1416	2199	3169	4217	5341	6476	7462	8285	8849	9233
55	221	295	497	633	815	898	969	980	836	669	422	259	221	516	1013	1646	2461	3359	4328	5308	6144	6813	7235	7494
60	133	184	352	485	660	748	814	825	686	517	291	157	133	317	669	1154	1814	2562	3376	4201	4887	5404	5695	5852
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	378	438	643	740	894	921	961	962	885	781	571	419	378	816	1459	2199	3093	4014	4975	5937	6822	7603	8174	8593

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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