

Climatology of the United States

No. 20

1971-2000

Station: COPE RANCH, TX

COOP ID: 411974

Climate Division: TX 6

NWS Call Sign:

Elevation: 2,570 Feet Lat: 31° 32N

Lon: 101° 17W

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	57.3	27.2	42.3	84	1974	22	48.4	1998	0+	1979	3	34.0	1979	705	0	.0	.0	22.9	1.7	23.0	.1
Feb	62.9	31.5	47.2	93	1996	22	56.9	2000	-9	1985	2	39.4	1978	499	0	.0	.1	23.9	.9	15.8	.1
Mar	71.0	38.7	54.9	95+	1989	13	62.9	1974	2	1980	2	49.4	1987	324	10	.0	.5	29.5	.2	8.0	.0
Apr	79.6	47.1	63.4	98+	2000	20	69.6	1972	18	1973	9	55.7	1997	132	82	.0	4.9	29.8	.0	1.8	.0
May	87.3	57.4	72.4	111	2000	25	80.6	2000	33	1979	5	66.0	1990	38	266	1.8	12.1	31.0	.0	.0	.0
Jun	92.6	64.9	78.8	115	1994	28	85.2	1998	45	1970	2	75.4	1987	1	414	3.0	20.3	30.0	.0	.0	.0
Jul	95.8	67.3	81.6	110+	1998	12	86.8	1998	48	1985	1	75.4	1976	0	512	6.0	26.8	31.0	.0	.0	.0
Aug	94.4	65.8	80.1	107	1969	18	84.1	1999	49	1989	9	74.4	1971	0	469	3.8	24.7	31.0	.0	.0	.0
Sep	88.1	59.4	73.8	105+	2000	11	79.6	1977	32	1989	23	66.4	1974	15	277	.8	13.9	30.0	.0	@	.0
Oct	79.0	48.6	63.8	102	1977	1	68.9	1998	20	1993	31	56.7	1976	103	66	.1	2.6	30.7	.0	1.3	.0
Nov	67.1	36.7	51.9	89+	1988	5	57.7	1973	10	1979	30	45.3	1976	401	7	.0	.0	27.1	.2	11.0	.0
Dec	59.2	28.8	44.0	84	1981	22	48.5	1984	-7+	1989	24	35.0	1983	653	0	.0	.0	24.4	1.3	21.4	.1
Ann	77.9	47.8	62.9	115	Jun 1994	28	86.8	Jul 1998	-9	Feb 1985	2	34.0	Jan 1979	2871	2103	15.5	105.9	341.3	4.3	82.3	.3

+ 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: 1948-2001

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

075-A

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: COPE RANCH, TX

COOP ID: 411974

Climate Division: TX 6

NWS Call Sign:

Elevation: 2,570 Feet Lat: 31°32N

Lon: 101°17W

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	.68	.38	1.90	1991	18	2.85	1991	.00+	1997	2.8	1.8	.3	.1	.00	.00	.08	.18	.29	.43	.60	.82	1.13	1.67	2.21
Feb	.87	.51	2.30	1997	20	3.55	1997	.00+	1999	3.0	1.8	.6	.1	.00	.00	.10	.23	.38	.55	.77	1.05	1.45	2.14	2.83
Mar	.82	.61	1.99	1968	20	3.10	1999	.00+	1996	2.8	1.8	.5	.2	.00	.00	.00	.13	.28	.46	.69	.99	1.42	2.15	2.88
Apr	1.12	.68	2.72	1969	12	4.75	1990	.00+	1998	3.4	2.3	.8	.2	.00	.06	.21	.38	.56	.78	1.04	1.37	1.83	2.61	3.39
May	2.62	2.26	3.66	1981	25	7.36	1975	.17	1991	5.4	4.2	1.8	.8	.25	.44	.79	1.16	1.55	2.00	2.53	3.20	4.10	5.62	7.10
Jun	2.65	1.98	4.02	1986	3	12.22	1986	.00	1990	4.5	3.4	1.8	1.0	.11	.33	.72	1.11	1.53	2.00	2.56	3.25	4.21	5.80	7.35
Jul	1.82	1.18	3.71	1948	5	8.15	1976	.00	1996	3.7	2.8	1.3	.4	.02	.10	.29	.53	.81	1.16	1.59	2.16	2.98	4.40	5.84
Aug	2.08	2.04	3.20	1998	24	6.23	1996	.00+	2000	4.9	3.5	1.4	.6	.00	.10	.38	.69	1.04	1.44	1.93	2.54	3.41	4.89	6.35
Sep	2.98	2.12	4.40	1996	13	10.22	1974	.00+	2000	4.9	3.8	1.7	.9	.00	.16	.58	1.03	1.53	2.10	2.79	3.65	4.87	6.91	8.94
Oct	1.95	1.26	4.40	1957	13	7.67	1986	.00	1988	4.1	2.8	1.4	.7	.04	.14	.38	.65	.96	1.33	1.78	2.35	3.17	4.56	5.95
Nov	.83	.43	2.40	2001	15	3.83	1996	.00+	1999	2.4	1.5	.7	.1	.00	.00	.07	.18	.31	.48	.69	.98	1.39	2.11	2.85
Dec	.98	.55	2.15	1991	20	5.56	1991	.00+	1999	2.7	1.8	.7	.2	.00	.00	.03	.17	.34	.56	.82	1.17	1.67	2.53	3.43
Ann	19.40+	18.15+	4.40+	Sep 1996	13	12.22	Jun 1986	.00+	Sep 2000	44.6	31.5	13.0	5.3	10.32	11.88	13.99	15.65	17.18	18.69	20.29	22.10	24.35	27.71	30.70

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

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Station: COPE RANCH, TX

COOP ID: 411974

Climate Division: TX 6

NWS Call Sign:

Elevation: 2,570 Feet

Lat: 31°32N

Lon: 101°17W

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	.9	.0	#	0	4.4	1973	26	8.6	1973	6	1994	31	#+	1999	.3	.2	.1	.0	.0	.0	.0	.0	.0
Feb	.3	.0	#	0	3.5	1972	1	3.5	1972	1	1992	25	#+	1992	.2	.1	.1	.0	.0	.0	.0	.0	.0
Mar	#	.0	#	0	#	1993	12	#+	1993	#	1996	6	#	1996	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	#	0	.0	0	0	.0	0	4	1996	6	#	1996	.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	#	1993	30	#	1993	1	1993	30	#	1993	.0	.0	.0	.0	.0	@	.0	.0	.0
Nov	.0	.0	#	0	.0	0	0	.0	0	3	1996	25	#	1996	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.7	.0	#	0	8.0	1998	12	8.0	1998	7	1998	12	#	1998	.2	.1	.1	.1	.0	.1	.1	@	.0
Ann	1.9	.0	N/A	N/A	8.0	Dec 1998	12	8.6	Jan 1973	7	Dec 1998	12	#+	Jan 1999	.7	.4	.3	.1	.0	.1	.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

Complete documentation available from:

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Climate Division: TX 6

NWS Call Sign:

Elevation: 2,570 Feet

Lat: 31° 32N

Lon: 101° 17W

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	5/02	4/27	4/24	4/21	4/18	4/15	4/12	4/08	4/03
32	4/18	4/14	4/10	4/08	4/05	4/03	3/31	3/28	3/24
28	4/11	4/05	4/01	3/28	3/25	3/21	3/17	3/13	3/07
24	4/05	3/28	3/22	3/17	3/12	3/07	3/02	2/24	2/16
20	3/24	3/15	3/08	3/02	2/25	2/19	2/14	2/07	1/28
16	3/07	2/24	2/16	2/10	2/03	1/28	1/21	1/12	12/30
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	10/06	10/11	10/15	10/18	10/22	10/26	10/30	11/06
32	10/12	10/18	10/23	10/27	10/31	11/04	11/08	11/13	11/19
28	10/21	10/28	11/01	11/05	11/09	11/12	11/16	11/21	11/27
24	10/30	11/06	11/11	11/16	11/20	11/24	11/28	12/03	12/10
20	11/07	11/14	11/19	11/24	11/28	12/02	12/07	12/13	12/21
16	11/24	12/01	12/07	12/11	12/16	12/20	12/26	1/01	1/13
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	207	199	193	187	183	178	173	167	159
32	232	224	218	213	208	203	198	192	184
28	251	244	238	233	228	224	219	213	205
24	282	272	264	258	252	246	240	232	222
20	314	299	290	282	275	268	261	252	240
16	>365	350	332	322	313	306	298	290	278

* 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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Climate Division: TX 6 NWS Call Sign: Elevation: 2,570 Feet Lat: 31°32N Lon: 101°17W

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	705	499	324	132	38	1	0	0	15	103	401	653	2871
60	551	367	196	61	13	0	0	0	3	38	270	499	1998
57	461	292	135	32	6	0	0	0	0	18	203	409	1556
55	404	245	102	20	4	0	0	0	0	9	164	352	1300
50	268	148	41	4	0	0	0	0	0	2	87	220	770
32	15	4	0	0	0	0	0	0	0	0	0	7	26

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	333	430	709	940	1251	1403	1535	1492	1252	985	597	377	11304
55	9	26	97	270	542	713	822	779	562	282	70	10	4182
57	4	17	69	222	483	653	760	717	502	228	49	4	3708
60	1	9	37	160	397	563	667	624	415	156	26	1	3056
65	0	0	10	82	266	414	512	469	277	66	7	0	2103
70	0	0	1	33	162	269	361	317	162	20	0	0	1325

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	162	262	479	706	1001	1162	1284	1241	1006	735	373	189	162	424	903	1609	2610	3772	5056	6297	7303	8038	8411	8600
45	82	161	343	559	846	1012	1129	1086	856	581	251	100	82	243	586	1145	1991	3003	4132	5218	6074	6655	6906	7006
50	34	86	216	416	691	862	974	931	708	430	150	40	34	120	336	752	1443	2305	3279	4210	4918	5348	5498	5538
55	4	33	119	282	539	712	819	776	563	291	76	13	4	37	156	438	977	1689	2508	3284	3847	4138	4214	4227
60	0	8	52	170	391	563	664	621	416	167	28	0	0	8	60	230	621	1184	1848	2469	2885	3052	3080	3080
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	160	217	343	469	647	763	833	804	658	487	272	175	160	377	720	1189	1836	2599	3432	4236	4894	5381	5653	5828

(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/normal/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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. 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