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: HORDS CREEK DAM, TX **COOP ID: 414278**

Climate Division: TX 2 **NWS Call Sign:** **Elevation: 1,942 Feet** **Lat: 31˚51N** **Lon: 99˚34W**

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	55.9	29.1	42.5	87	1969	9	48.4	2000	3	1982	11	34.1	1979	697	0	.0	.0	21.3	1.9	19.5	.0
Feb	61.2	33.7	47.5	98	1996	23	55.7	1976	-1	1996	5	38.3	1978	494	2	.0	.1	22.4	1.1	12.6	.1
Mar	69.3	41.4	55.4	94	1994	20	61.3	1974	8	1980	2	49.0	1996	314	14	.0	.5	28.9	.2	5.3	.0
Apr	77.2	49.5	63.4	98	1972	14	68.5	1986	21	1997	12	57.4	1997	116	67	.0	2.7	29.8	.0	1.0	.0
May	84.0	58.2	71.1	109	2000	25	77.9	2000	36+	2001	22	66.0	1997	27	216	.6	7.4	31.0	.0	.0	.0
Jun	89.8	65.5	77.7	107	1994	29	82.4	1990	46	1998	6	73.9	1995	0	379	1.1	16.8	30.0	.0	.0	.0
Jul	93.7	68.7	81.2	109	1954	27	86.1	1978	53+	1997	4	76.3	1976	0	501	3.5	25.5	31.0	.0	.0	.0
Aug	93.1	67.8	80.5	107	1986	21	85.8	1999	49	1992	28	74.7	1971	0	479	2.7	24.2	31.0	.0	.0	.0
Sep	86.9	61.0	74.0	109	2000	6	80.7	1977	35	1996	28	66.7	1974	11	279	.8	12.9	30.0	.0	.0	.0
Oct	78.2	50.9	64.6	100+	1997	1	69.1	1979	18	1993	31	57.1	1976	88	75	.1	2.4	30.7	.0	.7	.0
Nov	65.9	39.8	52.9	89+	1992	1	58.7	1999	14	1997	16	46.4	1976	373	9	.0	.0	26.9	.2	7.3	.0
Dec	57.8	31.2	44.5	89	1954	5	49.4	1984	-9	1989	23	34.6	1983	635	0	.0	.0	23.4	1.3	16.8	.1
Ann	76.1	49.7	62.9	109+	Sep 2000	6	86.1	Jul 1978	-9	Dec 1989	23	34.1	Jan 1979	2755	2021	8.8	92.5	336.4	4.7	63.2	.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: 1953-2001

(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	.97	.84	2.48	1968	20	2.83	1991	.00	1986
Feb	1.48	.98	2.05	1989	17	5.81	1992	.00	1999
Mar	1.58	1.13	3.26	1992	4	4.27	1979	.00	1971
Apr	1.97	1.35	3.53	1990	26	5.68	1979	.00	1998
May	3.49	2.66	6.06	1956	1	10.00	1994	.75	1984
Jun	3.64	3.62	5.20	1997	23	10.26	1997	.03	1994
Jul	1.70	1.41	2.99	1959	19	5.78	1976	.00+	1997
Aug	2.17	1.55	4.23	1978	3	7.84	1971	.00+	2000
Sep	2.99	2.25	3.50	1958	16	10.76	1980	.22	1999
Oct	2.76	2.26	3.80	1974	14	9.33	1974	.00	1988
Nov	1.50	.94	2.30	2000	3	6.10	2000	.00	1988
Dec	1.28	.81	4.92	1991	20	9.52	1991	.00+	1996
Ann	25.53	25.94	6.06	May 1956	1	10.76	Sep 1980	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.6	2.3	.5	.1
Feb	4.3	3.0	.9	.3
Mar	4.6	2.9	1.1	.4
Apr	5.0	3.2	1.5	.6
May	7.2	5.1	2.2	.8
Jun	5.6	4.4	2.2	1.2
Jul	4.3	2.9	1.2	.4
Aug	4.9	3.4	1.4	.7
Sep	5.6	4.1	1.7	1.0
Oct	5.6	3.9	1.8	.9
Nov	4.6	2.9	1.1	.5
Dec	4.8	2.6	.6	.2
Ann	61.1	40.7	16.2	7.1

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	.02	.07	.19	.33	.48	.66	.89	1.18	1.59	2.28	2.98
Feb	.04	.15	.35	.56	.80	1.07	1.40	1.81	2.39	3.35	4.31
Mar	.05	.16	.37	.60	.85	1.14	1.49	1.93	2.54	3.56	4.57
Apr	.11	.30	.60	.89	1.20	1.54	1.94	2.43	3.09	4.19	5.25
May	.72	1.04	1.55	2.02	2.49	2.99	3.56	4.25	5.15	6.59	7.96
Jun	.28	.51	.99	1.49	2.04	2.68	3.45	4.42	5.76	8.02	10.25
Jul	.00	.12	.38	.64	.93	1.25	1.63	2.09	2.75	3.84	4.91
Aug	.00	.12	.44	.77	1.13	1.55	2.05	2.67	3.55	5.02	6.48
Sep	.29	.50	.91	1.32	1.78	2.29	2.89	3.65	4.68	6.41	8.10
Oct	.03	.16	.47	.84	1.28	1.80	2.46	3.31	4.53	6.63	8.75
Nov	.05	.15	.36	.58	.82	1.09	1.42	1.84	2.42	3.39	4.35
Dec	.00	.00	.09	.24	.44	.70	1.03	1.49	2.15	3.33	4.54
Ann	16.18	17.91	20.17	21.92	23.49	25.02	26.62	28.41	30.60	33.81	36.62

\+ 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: 1953-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Feb	#	.0	0	0	#	1975	23	#	1975	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Mar	#	.0	0	0	#	1995	3	#+	1995	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Nov	#	.0	0	0	#	1972	30	#	1972	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Dec	#	.0	0	0	#	1989	22	#	1989	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Ann	#	.0	N/A	N/A	#+	Mar 1995	3	#+	Mar 1995	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.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	4/27	4/21	4/18	4/14	4/11	4/08	4/05	4/01	3/26
32	4/17	4/10	4/05	4/01	3/29	3/25	3/21	3/16	3/10
28	4/12	4/03	3/28	3/22	3/17	3/12	3/07	3/01	2/20
24	3/25	3/16	3/10	3/05	2/28	2/23	2/18	2/12	2/03
20	3/17	3/05	2/24	2/17	2/10	2/04	1/27	1/19	1/07
16	3/01	2/19	2/11	2/04	1/29	1/22	1/14	1/03	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	10/05	10/12	10/17	10/22	10/26	10/31	11/04	11/09	11/17
32	10/18	10/25	10/29	11/02	11/06	11/09	11/13	11/18	11/24
28	10/28	11/03	11/07	11/10	11/14	11/17	11/20	11/24	11/30
24	11/02	11/10	11/16	11/21	11/26	12/01	12/06	12/11	12/19
20	11/10	11/18	11/23	11/28	12/03	12/07	12/12	12/18	12/26
16	11/28	12/08	12/15	12/22	12/28	1/03	1/10	1/20	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	227	217	210	203	198	192	185	178	168
32	248	239	232	227	221	216	211	204	195
28	272	261	253	247	241	234	228	220	209
24	308	295	285	277	270	263	255	245	232
20	334	320	311	302	295	287	279	269	256
16	>365	>365	>365	348	335	324	314	302	287

***** 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	697	494	314	116	27	0	0	0	11	88	373	635	2755
60	544	364	192	47	6	0	0	0	1	31	246	484	1915
57	457	290	135	22	2	0	0	0	0	13	182	398	1499
55	400	245	102	13	0	0	0	0	0	7	145	342	1254
50	267	152	44	2	0	0	0	0	0	1	74	218	758
32	19	6	0	0	0	0	0	0	0	0	0	10	35

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	345	439	723	941	1212	1369	1524	1502	1259	1009	625	398	11346
55	13	34	112	264	499	679	811	789	569	303	80	17	4170
57	8	23	82	213	439	619	749	727	509	247	57	11	3684
60	2	12	46	147	350	529	656	634	419	172	31	3	3001
65	0	2	14	67	216	379	501	479	279	75	9	0	2021
70	0	0	2	21	112	234	346	327	160	23	1	0	1226

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	185	285	496	704	972	1136	1286	1261	1027	778	410	219	185	470	966	1670	2642	3778	5064	6325	7352	8130	8540	8759
45	102	179	361	558	817	986	1131	1106	877	625	286	123	102	281	642	1200	2017	3003	4134	5240	6117	6742	7028	7151
50	47	105	234	414	662	836	976	951	728	475	178	58	47	152	386	800	1462	2298	3274	4225	4953	5428	5606	5664
55	15	47	138	280	511	686	821	796	580	329	98	19	15	62	200	480	991	1677	2498	3294	3874	4203	4301	4320
60	0	14	64	167	362	536	666	641	436	198	43	0	0	14	78	245	607	1143	1809	2450	2886	3084	3127	3127
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	150	205	326	454	635	765	851	833	680	504	266	168	150	355	681	1135	1770	2535	3386	4219	4899	5403	5669	5837

(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