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: HENDERSON, TX **COOP ID: 414081**

Climate Division: TX 4 **NWS Call Sign:** **Elevation: 420 Feet** **Lat: 32˚11N** **Lon: 94˚48W**

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	55.6	33.1	44.4	86	1943	23	51.3	1990	4+	1982	12	33.8	1978	647	0	.0	.0	20.5	1.3	15.2	.0
Feb	61.0	36.6	48.8	93	1986	21	56.4	2000	2	1951	2	38.0	1978	461	8	.0	.1	22.3	.8	9.6	.0
Mar	68.5	43.2	55.9	92	1946	30	61.0	1974	13	1943	3	50.2	1983	296	11	.0	.0	29.5	@	3.6	.0
Apr	75.5	50.1	62.8	93	1987	20	68.0	1981	25	1987	1	54.7	1983	129	63	.0	.4	29.9	.0	.5	.0
May	82.3	59.4	70.9	101	1998	31	77.3	1998	38+	1996	1	65.0	1976	31	212	.1	3.2	31.0	.0	.0	.0
Jun	89.1	66.9	78.0	104	1998	2	85.2	1998	51+	1984	1	72.6	1983	1	391	.6	15.9	30.0	.0	.0	.0
Jul	93.1	70.6	81.9	108+	1998	18	90.0	1998	52	1967	15	77.5	1972	0	522	2.8	24.7	31.0	.0	.0	.0
Aug	93.3	69.5	81.4	110	1998	3	87.7	2000	50	1967	13	76.9	1992	0	508	3.2	24.6	31.0	.0	.0	.0
Sep	87.1	63.4	75.3	111+	2000	2	80.6	1998	37	1967	29	68.0	1974	5	312	.4	12.8	30.0	.0	.0	.0
Oct	77.9	52.2	65.1	96	1998	1	68.5	1971	24	1993	31	57.4	1976	83	85	.0	1.3	30.9	.0	.3	.0
Nov	66.6	42.4	54.5	87+	1972	1	60.0	1985	17+	1976	30	47.1	1972	329	14	.0	.0	27.8	.0	4.6	.0
Dec	58.4	35.1	46.8	84	1955	25	57.0	1984	-1	1989	23	36.7	1983	567	2	.0	.0	24.1	.7	12.1	@
Ann	75.7	51.9	63.8	111+	Sep 2000	2	90.0	Jul 1998	-1	Dec 1989	23	33.8	Jan 1978	2549	2128	7.1	83.0	338.0	2.8	45.9	@

\+ 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: 1908-2001

(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	4.08	3.79	3.93	1932	4	9.49	1979	.12	1971
Feb	3.78	3.34	3.30	1932	18	9.67	1983	.46	1996
Mar	4.00	3.49	11.05	1989	29	13.47	1989	.85	1986
Apr	3.91	3.57	4.26	1995	23	11.58	1991	.71	1983
May	4.73	4.49	10.12	1959	3	10.23	1990	.23	1988
Jun	4.87	3.37	7.52	1993	20	16.88	1993	.17	1971
Jul	2.81	2.82	4.50	1911	15	6.84	1979	.00	1986
Aug	2.75	2.24	5.65	1942	22	7.46	1971	.22	1984
Sep	3.71	2.87	6.25	1998	16	12.13	1998	.58	1975
Oct	4.68	4.19	7.47	1957	15	13.47	1984	.83	1995
Nov	4.67	4.35	7.95	1940	22	13.21	1985	.80	1999
Dec	4.23	4.08	4.39	1954	12	9.33	1994	.64	1981
Ann	48.22	47.43	11.05	Mar 1989	29	16.88	Jun 1993	.00	Jul 1986

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.3	6.4	2.7	1.2
Feb	6.9	5.1	2.5	1.3
Mar	7.7	5.6	2.8	1.3
Apr	6.8	5.2	3.0	1.3
May	8.2	6.1	3.2	1.7
Jun	7.5	5.6	2.8	1.5
Jul	6.2	4.7	2.0	.9
Aug	5.8	4.2	1.8	.8
Sep	6.8	4.9	2.2	1.2
Oct	6.8	5.0	2.9	1.8
Nov	7.8	5.9	3.3	1.7
Dec	8.1	5.8	3.1	1.5
Ann	86.9	64.5	32.3	16.2

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	.54	.88	1.46	2.03	2.62	3.28	4.05	4.99	6.26	8.34	10.35
Feb	.87	1.22	1.78	2.27	2.77	3.29	3.88	4.58	5.51	6.97	8.35
Mar	1.12	1.49	2.07	2.57	3.06	3.57	4.14	4.81	5.68	7.05	8.32
Apr	.85	1.21	1.78	2.30	2.82	3.38	4.00	4.75	5.73	7.30	8.78
May	.74	1.14	1.82	2.47	3.15	3.89	4.74	5.77	7.16	9.41	11.58
Jun	.51	.87	1.54	2.22	2.95	3.77	4.74	5.94	7.58	10.30	12.96
Jul	.33	.68	1.15	1.56	1.96	2.39	2.88	3.46	4.23	5.46	6.63
Aug	.28	.49	.86	1.25	1.66	2.12	2.67	3.35	4.28	5.83	7.34
Sep	.76	1.09	1.64	2.13	2.64	3.17	3.78	4.51	5.47	7.01	8.47
Oct	1.02	1.45	2.13	2.76	3.38	4.04	4.79	5.69	6.87	8.76	10.54
Nov	1.23	1.67	2.35	2.94	3.53	4.14	4.82	5.63	6.69	8.35	9.90
Dec	1.01	1.40	2.02	2.57	3.12	3.70	4.35	5.12	6.13	7.74	9.25
Ann	32.17	35.20	39.12	42.12	44.81	47.42	50.13	53.14	56.82	62.19	66.86

\+ 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: 1908-2001
(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	1.0	.0	#	0
Feb	.3	.0	#	0
Mar	.1	.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	#	.0	0	0
Ann	1.4	.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	6.0	1982	13	6.0	1982	4	1977	31	#+	2000
Feb	5.0	1985	2	5.0	1985	2	1996	2	#+	1996
Mar	1.0	1971	3	1.0	1971	#	1978	4	#	1978
Apr	.0	0	0	.0	0	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Oct	.0	0	0	.0	0	0	0	0	0	0
Nov	.1	2000	13	.1	2000	0	0	0	0	0
Dec	#	1998	23	#	1998	0	0	0	0	0
Ann	6.0	Jan 1982	13	6.0	Jan 1982	4	Jan 1977	31	#+	Jan 2000

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.3	.3	.2	.1	.0
Feb	.2	.2	.1	.1	.0
Mar	.1	.1	.0	.0	.0
Apr	.0	.0	.0	.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	.0	.0
Nov	.1	.0	.0	.0	.0
Dec	.0	.0	.0	.0	.0
Ann	.7	.6	.3	.2	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.2	@	.0	.0
Feb	.1	.0	.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	.0	.0	.0	.0
Ann	.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	4/17	4/12	4/08	4/05	4/02	3/30	3/27	3/23	3/18
32	4/08	4/01	3/28	3/23	3/20	3/16	3/12	3/07	2/28
28	3/23	3/16	3/10	3/06	3/02	2/25	2/21	2/15	2/08
24	3/12	3/02	2/24	2/18	2/13	2/08	2/02	1/27	1/17
20	2/27	2/16	2/09	2/02	1/26	1/18	1/09	12/23	0/00
16	2/11	2/01	1/23	1/15	1/06	12/24	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	10/21	10/26	10/29	11/01	11/04	11/07	11/10	11/14	11/19
32	10/29	11/04	11/08	11/11	11/15	11/18	11/21	11/26	12/01
28	11/05	11/13	11/19	11/23	11/28	12/02	12/07	12/13	12/21
24	11/14	11/25	12/03	12/10	12/16	12/22	12/29	1/06	1/17
20	12/06	12/14	12/20	12/25	12/31	1/06	1/14	0/00	0/00
16	12/19	12/31	1/09	1/18	1/29	2/16	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	238	230	225	220	216	211	206	201	193
32	266	257	250	245	239	234	229	222	213
28	302	291	283	277	271	264	258	250	239
24	344	328	319	310	303	296	288	279	266
20	>365	>365	>365	357	338	327	318	308	296
16	>365	>365	>365	>365	>365	>365	353	340	326

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	647	461	296	129	31	1	0	0	5	83	329	567	2549
60	503	334	172	55	8	0	0	0	0	29	208	424	1733
57	421	265	116	27	3	0	0	0	0	12	151	342	1337
55	369	225	85	16	1	0	0	0	0	7	118	292	1113
50	257	141	31	3	0	0	0	0	0	1	56	187	676
32	29	7	0	0	0	0	0	0	0	0	0	10	46

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	411	478	738	924	1205	1381	1545	1531	1297	1025	675	468	11678
55	38	51	110	250	493	691	832	818	607	318	103	36	4347
57	28	36	79	202	432	631	770	756	547	262	76	25	3844
60	17	20	42	139	344	541	677	663	457	186	43	14	3143
65	0	8	11	63	212	391	522	508	312	85	14	2	2128
70	0	0	1	20	111	249	367	355	183	27	2	0	1315

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	228	319	523	711	985	1169	1321	1306	1079	802	462	277	228	547	1070	1781	2766	3935	5256	6562	7641	8443	8905	9182
45	136	208	378	561	830	1019	1166	1151	929	647	332	166	136	344	722	1283	2113	3132	4298	5449	6378	7025	7357	7523
50	73	128	250	419	675	869	1011	996	779	495	216	92	73	201	451	870	1545	2414	3425	4421	5200	5695	5911	6003
55	36	66	145	282	520	719	856	841	629	347	125	47	36	102	247	529	1049	1768	2624	3465	4094	4441	4566	4613
60	13	29	71	164	368	569	701	686	480	222	64	19	13	42	113	277	645	1214	1915	2601	3081	3303	3367	3386
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	148	208	327	455	667	808	898	879	732	522	293	177	148	356	683	1138	1805	2613	3511	4390	5122	5644	5937	6114

(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