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: LEVELLAND, TX **COOP ID: 415183**

Climate Division: TX 1 **NWS Call Sign:** **Elevation: 3,550 Feet** **Lat: 33˚34N** **Lon: 102˚23W**

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	53.4	23.7	38.6	82+	1970	25	44.0	1999	-16	1963	13	30.8	1979	820	0	.0	.0	19.9	3.0	27.7	.2
Feb	59.1	27.2	43.2	87	1989	26	49.7	2000	-8	1951	2	34.2	1978	613	0	.0	.0	21.6	1.6	21.4	.0
Mar	67.2	33.1	50.2	95+	1989	12	56.2	1974	3	1948	11	46.3	1987	460	0	.0	.2	28.1	.3	13.7	.0
Apr	75.5	42.0	58.8	100+	1996	28	63.6	1978	20	1973	9	52.8	1973	215	28	.1	2.0	29.0	.0	3.5	.0
May	83.9	52.3	68.1	111	2000	25	75.4	1996	30	1970	1	64.4	1976	53	150	1.5	9.1	30.9	.0	.0	.0
Jun	91.2	61.1	76.2	115	1994	28	82.7	1990	43	1947	14	72.9	1979	4	337	4.3	18.7	30.0	.0	.0	.0
Jul	92.7	64.5	78.6	111	1995	28	83.6	1998	48	1951	2	74.1	1975	0	422	4.4	22.8	31.0	.0	.0	.0
Aug	90.4	63.1	76.8	106	1994	19	80.7	1999	50	1979	12	71.9	1971	1	365	1.9	19.0	31.0	.0	.0	.0
Sep	84.0	56.5	70.3	105+	2000	7	76.1	1998	33+	1983	22	62.7	1974	31	188	.5	9.3	29.8	.0	.0	.0
Oct	75.7	44.8	60.3	103	2000	4	63.7	1998	18+	1993	31	52.9	1976	172	24	.1	1.7	30.1	@	2.0	.0
Nov	63.2	32.9	48.1	94	1942	20	53.9	1999	0	1976	14	41.1	1972	510	1	.0	.0	25.0	.4	15.0	@
Dec	54.9	25.4	40.2	81	1958	4	44.8	1994	-3	1982	30	31.3	1983	771	0	.0	.0	21.3	2.1	26.0	.4
Ann	74.3	43.9	59.1	115	Jun 1994	28	83.6	Jul 1998	-16	Jan 1963	13	30.8	Jan 1979	3650	1515	12.8	82.8	327.7	7.4	109.3	.6

\+ 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: 1926-2001

(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	.59	.43	2.12	1939	9	2.12	1993	.00+	1986
Feb	.63	.38	1.82	1961	20	1.97	1997	.00	1999
Mar	.58	.40	1.33	1941	25	2.26	1999	.01+	1996
Apr	1.03	.85	2.00	1997	25	4.34	1997	.00	1991
May	2.35	2.15	3.57	1997	9	6.49	1999	.23	2000
Jun	2.78	2.71	4.23	1999	12	6.86	1999	.28	1973
Jul	2.22	1.86	3.85	1960	6	9.32	1975	.12	1995
Aug	2.87	2.47	2.68	1974	26	8.09	1974	.15	1976
Sep	3.24	3.28	3.92	1972	15	9.58	1986	.00	2000
Oct	1.62	.86	2.89	1953	22	6.06	1981	.00+	1992
Nov	.85	.68	1.60	1986	4	2.52	1986	.00+	1999
Dec	.82	.38	1.94	1946	11	3.12	1991	.00+	1996
Ann	19.58	18.62	4.23	Jun 1999	12	9.58	Sep 1986	.00+	Sep 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.7	1.5	.2	.1
Feb	4.4	2.4	.2	@
Mar	4.0	1.5	.3	.1
Apr	4.5	2.7	.6	@
May	6.6	4.2	1.4	.5
Jun	7.2	4.8	1.9	.7
Jul	6.6	4.2	1.6	.5
Aug	8.2	4.7	2.1	.9
Sep	6.9	4.1	2.0	1.0
Oct	5.1	2.8	.9	.4
Nov	4.2	1.9	.5	.1
Dec	4.6	2.0	.5	.1
Ann	67.0	36.8	12.2	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	.06	.15	.25	.37	.52	.71	.99	1.47	1.95
Feb	.01	.05	.13	.22	.32	.43	.58	.76	1.01	1.45	1.88
Mar	.02	.04	.10	.17	.26	.37	.51	.68	.94	1.39	1.85
Apr	.02	.08	.20	.35	.51	.70	.94	1.24	1.67	2.40	3.14
May	.37	.57	.91	1.23	1.57	1.93	2.35	2.87	3.55	4.67	5.74
Jun	.39	.62	1.02	1.40	1.81	2.25	2.76	3.40	4.25	5.64	6.98
Jul	.16	.30	.58	.89	1.23	1.62	2.09	2.69	3.52	4.92	6.31
Aug	.34	.56	.97	1.37	1.79	2.27	2.82	3.51	4.44	5.97	7.47
Sep	.04	.19	.54	.97	1.48	2.10	2.87	3.87	5.31	7.79	10.29
Oct	.00	.02	.13	.31	.55	.86	1.28	1.85	2.70	4.22	5.80
Nov	.00	.00	.17	.32	.47	.63	.83	1.07	1.39	1.94	2.48
Dec	.00	.02	.11	.22	.36	.52	.72	.99	1.37	2.02	2.69
Ann	11.39	12.85	14.79	16.30	17.68	19.03	20.45	22.05	24.02	26.95	29.52

\+ 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: 1926-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	2.5	.8	#	#
Feb	2.7	.9	#	#
Mar	.5	.0	#	0
Apr	.2	.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	.4	.0	#	0
Nov	.9	.0	#	0
Dec	3.0	.0	#	#
Ann	10.2	1.7	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	8.0	1983	21	15.5	1983	10	1983	22	3	1983
Feb	11.0	1979	17	15.5	1979	11	1979	17	1	1997
Mar	3.0	1991	31	3.0	1991	3	1971	3	#+	1999
Apr	2.5	1983	5	5.5	1983	3	1983	5	#+	1999
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	7.0	1976	29	12.0	1976	1	1999	18	#+	1999
Nov	5.5	1976	13	11.0	1976	6	1976	13	1	1976
Dec	7.5	1979	14	11.4	1982	7+	2000	27	1+	2000
Ann	11.0	Feb 1979	17	15.5+	Jan 1983	11	Feb 1979	17	3	Jan 1983

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.4	.9	.3	.2	.0
Feb	1.0	.7	.3	.1	@
Mar	.5	.2	@	.0	.0
Apr	.1	.1	.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	.1	.1	.1	@	.0
Nov	.4	.3	.1	.1	.0
Dec	1.4	.8	.4	.2	.0
Ann	4.9	3.1	1.2	.6	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.9	.8	.4	@
Feb	1.2	.6	.2	@
Mar	.3	.0	.0	.0
Apr	.1	@	.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	.4	.2	@	.0
Dec	1.5	.8	.3	.0
Ann	5.4	2.4	.9	@

+ 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	5/04	4/29	4/26	4/22	4/20	4/17	4/14	4/10	4/05
32	4/21	4/16	4/13	4/11	4/08	4/06	4/03	3/31	3/26
28	4/12	4/07	4/04	4/01	3/30	3/27	3/24	3/21	3/16
24	4/07	4/01	3/27	3/23	3/19	3/15	3/11	3/06	2/27
20	3/28	3/19	3/13	3/08	3/03	2/26	2/21	2/15	2/07
16	3/17	3/07	2/28	2/22	2/17	2/12	2/06	1/30	1/20

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	10/04	10/08	10/11	10/13	10/16	10/19	10/23	10/27
32	10/14	10/18	10/22	10/25	10/27	10/30	11/02	11/05	11/09
28	10/20	10/26	10/31	11/03	11/07	11/10	11/14	11/19	11/25
24	11/01	11/07	11/11	11/14	11/17	11/20	11/24	11/27	12/03
20	11/06	11/13	11/18	11/23	11/27	12/01	12/05	12/10	12/17
16	11/16	11/25	12/03	12/09	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	193	188	183	180	176	173	169	165	159
32	215	210	207	204	201	199	196	192	187
28	242	235	230	226	222	218	213	208	201
24	268	259	253	248	243	238	233	226	218
20	298	288	280	274	268	262	255	248	237
16	336	322	312	305	298	291	284	275	264

***** 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	820	613	460	215	53	4	0	1	31	172	510	771	3650
60	665	473	309	115	16	0	0	0	7	73	369	616	2643
57	572	394	227	70	6	0	0	0	2	38	290	523	2122
55	512	342	177	47	3	0	0	0	0	23	242	463	1809
50	366	222	81	13	0	0	0	0	0	5	143	318	1148
32	33	12	0	0	0	0	0	0	0	0	4	17	66

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	235	323	563	803	1120	1323	1445	1387	1147	875	485	269	9975
55	1	9	27	160	410	633	732	674	457	185	33	2	3323
57	0	5	15	123	351	573	670	612	399	138	21	1	2908
60	0	0	4	77	268	483	577	519	314	80	10	0	2332
65	0	0	0	28	150	337	422	365	188	24	1	0	1515
70	0	0	0	7	68	203	270	218	95	4	0	0	865

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	103	180	349	574	878	1083	1196	1133	901	629	280	126	103	283	632	1206	2084	3167	4363	5496	6397	7026	7306	7432
45	37	98	222	428	724	933	1041	978	751	478	170	54	37	135	357	785	1509	2442	3483	4461	5212	5690	5860	5914
50	10	45	119	295	570	783	886	823	605	332	91	18	10	55	174	469	1039	1822	2708	3531	4136	4468	4559	4577
55	0	10	52	182	416	633	731	668	461	200	34	0	0	10	62	244	660	1293	2024	2692	3153	3353	3387	3387
60	0	0	14	92	276	484	576	513	319	102	5	0	0	0	14	106	382	866	1442	1955	2274	2376	2381	2381
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	129	182	284	390	554	687	768	737	579	418	232	137	129	311	595	985	1539	2226	2994	3731	4310	4728	4960	5097

(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