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: BROWNSVILLE, TN **COOP ID: 401145**

Climate Division: TN 4 **NWS Call Sign:** **Elevation: 330 Feet** **Lat: 35˚35N** **Lon: 89˚15W**

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	46.0	28.3	37.2	79+	1950	25	44.4	1990	-10+	1963	24	25.1	1977	864	0	.0	.0	12.7	4.6	20.6	.3
Feb	52.0	32.1	42.1	83	1962	13	50.0	1976	-9	1951	2	29.2	1978	644	0	.0	.0	16.6	2.5	14.9	.0
Mar	61.2	40.9	51.1	87	1982	19	57.3	1974	9+	1943	3	45.2	1996	439	6	.0	.0	25.6	.3	7.1	.0
Apr	71.0	49.3	60.2	92+	1987	22	66.7	1981	26+	1954	1	53.6	1983	184	38	.0	.1	29.3	.0	1.1	.0
May	79.0	58.8	68.9	98+	1934	30	74.3	1987	35+	1954	4	63.4	1976	47	168	.0	1.5	31.0	.0	.0	.0
Jun	86.8	67.1	77.0	108	1936	19	80.4	1998	45	1956	2	72.7	1974	1	359	@	11.7	30.0	.0	.0	.0
Jul	90.3	70.8	80.6	109	1930	12	85.2	1980	50	1947	23	78.3	1972	0	483	.7	19.3	31.0	.0	.0	.0
Aug	89.3	68.5	78.9	108	1930	9	83.5	1983	48	1968	28	74.1	1992	0	431	.6	15.9	31.0	.0	.0	.0
Sep	83.3	61.2	72.3	106	1954	5	77.4	1998	33	1942	29	66.7	1974	18	236	.1	7.1	30.0	.0	.0	.0
Oct	73.3	48.7	61.0	97	1953	1	68.6	1971	26+	1952	29	55.5	1987	178	54	.0	.5	30.8	.0	.7	.0
Nov	60.5	40.2	50.4	86	1984	1	56.4	1985	4	1950	25	42.1	1976	444	5	.0	.0	24.1	.1	7.8	.0
Dec	50.2	31.9	41.1	80+	1951	31	50.4	1984	-8	1989	22	30.3	1989	742	0	.0	.0	16.7	2.3	17.0	.2
Ann	70.2	49.8	60.1	109	Jul 1930	12	85.2	Jul 1980	-10+	Jan 1963	24	25.1	Jan 1977	3561	1780	1.4	56.1	308.8	9.8	69.2	.5

\+ 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: 1930-2001

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

Issue Date: February 2004

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Precipitation (inches)

Precipitation Totals

	Means/ Medians(1)		Extremes							Mean Number of Days (3)				Precipitation Probabilities (1)									
										Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution									
Month	Mean	Median	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	4.25	4.41	6.70	1956	29	8.94	1989	.61	1986	10.6	7.2	3.3	1.1	1.19	1.60	2.21	2.74	3.26	3.80	4.40	5.11	6.03	7.48	8.82
Feb	4.32	3.84	4.59	1965	11	10.67	1989	1.20	1978	8.9	6.6	3.2	1.3	1.33	1.74	2.35	2.88	3.39	3.92	4.50	5.18	6.06	7.44	8.71
Mar	5.38	4.67	4.04	1975	12	12.18	1975	1.62	1986	11.0	7.9	3.9	1.6	2.06	2.56	3.27	3.87	4.43	5.01	5.63	6.36	7.28	8.69	9.98
Apr	4.87	4.66	4.09	1969	5	11.05	1991	1.25	1978	10.0	7.2	3.5	1.4	1.46	1.92	2.61	3.21	3.79	4.39	5.06	5.84	6.85	8.44	9.90
May	5.61	4.74	5.85	1983	15	18.01	1983	1.14	1977	10.6	7.9	3.7	1.8	1.81	2.34	3.12	3.80	4.44	5.11	5.85	6.71	7.81	9.53	11.12
Jun	4.29	4.17	4.46	1949	15	9.51	1995	.10	1988	8.9	6.2	3.0	1.4	.94	1.34	1.97	2.54	3.11	3.72	4.40	5.21	6.29	8.00	9.62
Jul	4.35	3.77	5.58	1936	3	12.82	1998	.41	1983	7.9	6.0	3.0	1.3	.99	1.40	2.04	2.61	3.18	3.79	4.47	5.28	6.35	8.04	9.64
Aug	2.77	1.92	4.34	1937	23	10.42	1974	.46	1996	6.2	4.3	1.9	.7	.34	.56	.95	1.33	1.74	2.20	2.73	3.39	4.28	5.74	7.16
Sep	3.56	3.54	3.75	1932	20	7.61	1977	.33	1999	7.7	4.9	2.4	1.1	.68	1.00	1.52	2.00	2.49	3.02	3.61	4.33	5.28	6.82	8.27
Oct	3.13	2.80	3.12	1942	31	7.54	1984	.14	1971	7.0	4.8	2.1	.8	.67	.96	1.41	1.83	2.25	2.70	3.20	3.80	4.60	5.87	7.08
Nov	4.95	4.59	6.00	2001	29	11.14	1988	1.14	1971	9.5	6.7	3.3	1.4	1.44	1.91	2.61	3.23	3.83	4.45	5.14	5.95	7.00	8.64	10.17
Dec	5.77	4.41	7.30	1987	25	14.12	1990	1.12	1976	10.5	7.3	3.6	1.7	1.48	2.02	2.86	3.60	4.33	5.10	5.96	6.97	8.30	10.39	12.35
Ann	53.25	55.26	7.30	Dec 1987	25	18.01	May 1983	.10	Jun 1988	108.8	77.0	36.9	15.6	38.46	41.34	45.02	47.81	50.29	52.68	55.14	57.86	61.15	65.92	70.04

\+ 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: 1930-2001
(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	2.7	1.5	#	#	7.0	1988	7	11.0	1978	8	1988	8	1	1988	1.5	1.0	.4	.2	.0	3.8	.9	.3	.0
Feb	2.2	.0	#	#	6.0	1979	7	12.0+	1985	8	1985	2	2	1985	1.1	.9	.3	.1	.0	2.3	.7	.2	.0
Mar	.5	.0	#	0	4.0	1987	31	4.5	1987	2	1987	31	#+	1994	.3	.2	@	.0	.0	.3	.0	.0	.0
Apr	#	.0	0	0	#	1973	9	#+	1973	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	#	1993	31	#	1993	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	#	0	1.5	1971	23	1.5	1971	#+	1989	16	#+	1989	@	@	.0	.0	.0	.0	.0	.0	.0
Dec	.3	.0	#	0	1.5	1983	27	2.5	1983	2	1983	27	#+	2000	.5	.1	.0	.0	.0	.3	.0	.0	.0
Ann	5.8	1.5	N/A	N/A	7.0	Jan 1988	7	12.0+	Feb 1985	8+	Jan 1988	8	2	Feb 1985	3.4	2.2	.7	.3	.0	6.7	1.6	.5	.0

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	4/21	4/17	4/15	4/13	4/11	4/08	4/06	4/04	3/31
32	4/14	4/10	4/07	4/04	4/02	3/30	3/28	3/24	3/20
28	3/31	3/26	3/22	3/19	3/16	3/12	3/09	3/05	2/28
24	3/16	3/09	3/05	3/01	2/25	2/22	2/18	2/13	2/07
20	3/10	3/02	2/25	2/20	2/15	2/11	2/06	1/31	1/23
16	2/27	2/19	2/13	2/08	2/02	1/28	1/22	1/15	1/01

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	10/07	10/11	10/15	10/18	10/21	10/24	10/27	10/31	11/04
32	10/20	10/25	10/28	10/31	11/03	11/05	11/08	11/12	11/16
28	10/31	11/05	11/09	11/12	11/15	11/18	11/21	11/25	11/30
24	11/08	11/14	11/19	11/23	11/27	11/30	12/04	12/09	12/15
20	11/17	11/25	12/02	12/07	12/12	12/17	12/23	12/29	1/07
16	12/04	12/13	12/19	12/24	12/29	1/04	1/09	1/17	1/31

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	208	203	199	196	193	190	186	182	177
32	232	226	221	218	214	211	207	203	197
28	268	259	253	248	244	239	234	228	220
24	298	290	284	278	274	269	263	257	249
20	335	321	312	305	298	291	284	276	264
16	>365	>365	348	335	327	319	312	304	293

***** 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	864	644	439	184	47	1	0	0	18	178	444	742	3561
60	710	512	300	93	14	0	0	0	4	91	309	595	2628
57	626	434	228	55	6	0	0	0	1	55	238	508	2151
55	567	384	186	36	3	0	0	0	0	37	196	452	1861
50	429	271	102	9	0	0	0	0	0	11	111	324	1257
32	93	36	2	0	0	0	0	0	0	0	3	48	182

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	252	316	592	844	1144	1348	1506	1454	1208	899	553	328	10444
55	14	20	63	189	434	658	793	741	518	224	56	20	3730
57	10	14	43	148	375	598	731	679	459	179	38	14	3288
60	1	8	22	97	290	508	638	586	372	122	20	8	2672
65	0	0	6	38	168	359	483	431	236	54	5	0	1780
70	0	0	0	10	79	215	328	280	126	18	0	0	1056

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	108	188	379	618	908	1117	1267	1216	975	662	344	155	108	296	675	1293	2201	3318	4585	5801	6776	7438	7782	7937
45	55	114	259	473	753	967	1112	1061	825	508	228	86	55	169	428	901	1654	2621	3733	4794	5619	6127	6355	6441
50	24	59	158	335	598	817	957	906	675	361	139	41	24	83	241	576	1174	1991	2948	3854	4529	4890	5029	5070
55	9	21	87	213	443	667	802	751	525	236	77	15	9	30	117	330	773	1440	2242	2993	3518	3754	3831	3846
60	0	3	37	123	302	517	647	596	381	133	34	2	0	3	40	163	465	982	1629	2225	2606	2739	2773	2775
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	59	117	221	379	599	773	877	837	655	423	203	90	59	176	397	776	1375	2148	3025	3862	4517	4940	5143	5233

(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