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: NORRIS, TN **COOP ID: 406619**

Climate Division: TN 1 **NWS Call Sign:** **Elevation: 1,110 Feet** **Lat: 36˚13N** **Lon: 84˚04W**

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	44.1	23.5	33.8	76	1999	23	43.3	1974	-19	1985	20	20.7	1977	967	0	.0	.0	11.3	2.9	23.0	.6
Feb	49.8	25.3	37.6	80	1977	26	45.1	1990	-17	1996	5	27.6	1978	770	0	.0	.0	15.9	1.8	19.8	.2
Mar	59.9	32.4	46.2	84+	1963	31	51.5	1997	-3	1980	3	40.3	1971	585	0	.0	.0	26.2	.2	14.0	@
Apr	69.5	39.4	54.5	92+	1986	27	59.3	1981	20	1982	10	51.0	1983	318	2	.0	.2	29.0	.0	5.9	.0
May	76.5	49.0	62.8	93	1962	20	69.4	1987	28	1971	4	58.5	1976	139	69	.0	.2	31.0	.0	.3	.0
Jun	82.7	58.3	70.5	104	1964	23	74.1	1984	35	1972	1	66.0	1972	15	179	@	3.2	30.0	.0	.0	.0
Jul	86.1	62.6	74.4	105	1964	25	78.8	1993	45+	1988	2	69.8	1979	2	292	.1	9.9	31.0	.0	.0	.0
Aug	84.9	61.7	73.3	100+	1957	14	77.6	1995	44+	1986	29	70.7	1976	1	258	@	6.5	31.0	.0	.0	.0
Sep	79.9	55.1	67.5	102+	1954	6	72.8	1998	30	1967	30	63.2	1976	42	117	.1	3.3	30.0	.0	.0	.0
Oct	69.7	42.0	55.9	90	1954	6	62.3	1984	21+	1961	27	49.2	1976	302	18	.0	.0	30.7	.0	3.1	.0
Nov	58.3	33.4	45.9	88	1985	19	54.3	1985	6	1976	30	37.4	1976	574	0	.0	.0	24.6	@	12.4	.0
Dec	47.9	26.4	37.2	73	1966	9	44.2	1971	-6	1962	13	28.7	1989	864	0	.0	.0	15.9	1.7	21.7	.2
Ann	67.4	42.4	55.0	105	Jul 1964	25	78.8	Jul 1993	-19	Jan 1985	20	20.7	Jan 1977	4579	935	.2	23.3	306.6	6.6	100.2	1.0

\+ 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: 1948-2001

(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	4.91	4.94	2.69+	1954	21	9.40	1974	1.22	1981
Feb	4.18	4.00	3.72	1994	11	11.36	1994	1.37	1978
Mar	5.64	4.66	4.70	1973	16	15.64	1975	1.04	1984
Apr	4.69	4.10	6.70	1977	4	14.76	1998	1.37	1986
May	5.19	4.54	4.65	1995	10	9.99	1979	2.16	1988
Jun	4.98	5.00	3.63	1999	25	12.53	1989	.50	1988
Jul	4.37	4.12	5.34	1967	6	9.48	1979	2.11	1974
Aug	4.09	3.58	4.55	1970	10	8.80	1978	.86	1972
Sep	3.51	3.56	4.52	1962	17	8.86	1977	.14	1998
Oct	2.97	2.86	2.07	1976	25	6.43	1984	.02	2000
Nov	4.70	4.52	5.79	1973	27	12.30	1973	1.88	1976
Dec	5.09	4.55	5.13	1990	23	13.19	1990	.95	1985
Ann	54.32	53.80	6.70	Apr 1977	4	15.64	Mar 1975	.02	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.8	8.6	3.9	1.3
Feb	10.1	7.3	2.9	1.0
Mar	11.5	9.2	3.9	1.6
Apr	10.1	7.3	3.0	.9
May	11.0	8.3	3.0	1.4
Jun	10.9	7.7	3.2	1.5
Jul	11.4	8.2	3.0	1.1
Aug	9.3	6.6	2.9	1.1
Sep	8.0	6.0	2.3	.9
Oct	7.5	5.0	2.2	.9
Nov	9.7	7.0	3.6	1.3
Dec	10.8	8.1	3.2	1.2
Ann	122.1	89.3	37.1	14.2

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	1.72	2.18	2.85	3.42	3.96	4.52	5.13	5.83	6.74	8.14	9.43
Feb	1.52	1.91	2.48	2.95	3.41	3.87	4.37	4.96	5.70	6.86	7.91
Mar	1.69	2.23	3.03	3.72	4.39	5.09	5.86	6.76	7.93	9.76	11.46
Apr	1.35	1.80	2.47	3.05	3.62	4.21	4.86	5.63	6.63	8.19	9.65
May	2.02	2.50	3.19	3.76	4.29	4.84	5.43	6.12	6.99	8.32	9.54
Jun	1.13	1.60	2.32	2.98	3.63	4.33	5.10	6.03	7.26	9.20	11.03
Jul	2.04	2.42	2.95	3.37	3.77	4.16	4.59	5.07	5.68	6.59	7.42
Aug	1.49	1.87	2.42	2.89	3.33	3.78	4.27	4.84	5.57	6.69	7.72
Sep	.60	.91	1.42	1.90	2.40	2.93	3.54	4.29	5.28	6.88	8.41
Oct	.41	.65	1.08	1.49	1.92	2.40	2.95	3.63	4.54	6.02	7.46
Nov	1.85	2.28	2.90	3.41	3.89	4.39	4.92	5.53	6.31	7.51	8.60
Dec	1.39	1.88	2.61	3.25	3.88	4.54	5.27	6.13	7.26	9.02	10.67
Ann	39.51	42.40	46.09	48.88	51.35	53.73	56.19	58.90	62.18	66.93	71.02

\+ 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

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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	2.3	.0	#	#
Feb	1.1	.0	#	0
Mar	.9	.0	#	0
Apr	.4	.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
Nov	#	.0	#	0
Dec	.5	.0	#	0
Ann	5.2	.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	1981	30	11.5	1978	6	1973	8	1	1996
Feb	7.0	1986	15	7.0	1986	12	1996	2	4	1979
Mar	9.5	1993	13	14.5	1993	10	1993	13	#+	1999
Apr	6.0	1987	3	6.0	1987	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	#	1989	20	#	1989	0	0	0	0	0
Nov	#	1996	10	#+	1996	#	1996	10	#	1996
Dec	3.0	1971	3	3.0+	1997	3	1997	31	#+	2000
Ann	9.5	Mar 1993	13	14.5	Mar 1993	12	Feb 1996	2	4	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.9	.8	.3	.1	.0
Feb	.2	.2	.1	.1	.0
Mar	.3	.2	.1	.1	.0
Apr	.1	.1	.1	@	.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	.0	.0	.0	.0	.0
Dec	.3	.2	.1	.0	.0
Ann	1.8	1.5	.7	.3	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.8	.3	.1	.0
Feb	.1	.0	.0	.0
Mar	.1	@	@	@
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	.1	.1	.0	.0
Ann	1.1	.4	.1	@

+ 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	5/20	5/15	5/11	5/08	5/05	5/01	4/28	4/24	4/19
32	5/09	5/03	4/29	4/25	4/21	4/18	4/14	4/10	4/04
28	4/21	4/16	4/12	4/09	4/05	4/02	3/30	3/26	3/21
24	4/11	4/05	4/01	3/28	3/25	3/22	3/18	3/14	3/08
20	3/27	3/19	3/14	3/09	3/05	3/01	2/24	2/19	2/12
16	3/14	3/06	3/01	2/24	2/20	2/15	2/10	2/05	1/28

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	10/01	10/05	10/08	10/10	10/13	10/15	10/18	10/21	10/25
32	10/08	10/13	10/16	10/19	10/22	10/25	10/28	10/31	11/04
28	10/15	10/21	10/26	10/30	11/03	11/06	11/10	11/15	11/21
24	11/04	11/09	11/13	11/16	11/20	11/23	11/26	11/30	12/05
20	11/08	11/15	11/21	11/25	11/29	12/04	12/08	12/13	12/20
16	11/27	12/05	12/10	12/15	12/19	12/24	12/28	1/03	1/11

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	180	173	169	164	160	157	152	147	141
32	208	199	193	188	183	178	173	166	158
28	235	226	220	215	210	206	201	195	186
24	264	255	249	244	239	234	229	222	214
20	297	287	280	274	268	263	257	250	240
16	330	318	311	305	300	294	289	282	273

***** 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	967	770	585	318	139	15	2	1	42	302	574	864	4579
60	812	630	433	183	63	2	0	0	11	184	429	709	3456
57	725	546	347	116	34	0	0	0	4	128	346	616	2862
55	667	495	292	80	20	0	0	0	2	98	293	557	2504
50	524	365	175	22	5	0	0	0	0	43	180	414	1728
32	148	57	6	0	0	0	0	0	0	0	5	68	284

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	204	212	444	674	953	1155	1313	1280	1065	740	421	227	8688
55	10	5	17	64	260	465	600	567	376	124	19	3	2510
57	6	0	10	40	212	405	538	505	318	93	12	0	2139
60	0	0	3	17	148	317	445	412	235	56	4	0	1637
65	0	0	0	2	69	179	292	258	117	18	0	0	935
70	0	0	0	0	23	74	154	122	39	4	0	0	416

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	66	112	288	497	758	961	1113	1080	880	550	260	99	66	178	466	963	1721	2682	3795	4875	5755	6305	6565	6664
45	30	56	174	357	603	811	958	925	730	400	158	48	30	86	260	617	1220	2031	2989	3914	4644	5044	5202	5250
50	7	22	90	229	448	661	803	770	580	261	78	19	7	29	119	348	796	1457	2260	3030	3610	3871	3949	3968
55	0	5	38	126	305	511	648	615	430	143	33	1	0	5	43	169	474	985	1633	2248	2678	2821	2854	2855
60	0	0	7	57	169	361	493	460	286	62	5	0	0	0	7	64	233	594	1087	1547	1833	1895	1900	1900
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	44	88	202	338	494	652	763	744	575	357	168	62	44	132	334	672	1166	1818	2581	3325	3900	4257	4425	4487

(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