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: MC MINNVILLE, TN **COOP ID: 405882**

Climate Division: TN 2 **NWS Call Sign:** **Elevation: 940 Feet** **Lat: 35˚41N** **Lon: 85˚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	48.2	29.3	38.8	79	1943	24	47.6	1974	-19+	1940	26	24.8	1977	814	0	.0	.0	14.7	3.5	19.1	.5
Feb	53.3	32.0	42.7	80	1996	23	51.4	1990	-17	1996	5	31.0	1978	626	0	.0	.0	17.6	2.0	15.6	.1
Mar	62.2	39.3	50.8	87+	1929	24	56.7	1973	1	1980	3	45.1	1971	447	4	.0	.0	26.7	.2	9.4	.0
Apr	71.0	46.1	58.6	90	1995	10	64.1	1981	22	1992	3	53.6	1983	213	19	.0	@	29.5	.0	2.7	.0
May	77.5	54.5	66.0	96	1941	22	71.6	1987	31+	1963	1	61.3	1976	84	115	.0	.2	31.0	.0	.1	.0
Jun	84.4	62.5	73.5	104	1931	28	76.2	1998	38	1966	1	68.7	1974	3	256	@	5.9	30.0	.0	.0	.0
Jul	87.3	66.6	77.0	106+	1930	28	80.4	1980	48	1967	15	73.0	1976	0	371	.2	12.7	31.0	.0	.0	.0
Aug	86.5	65.2	75.9	106	1930	9	79.8	1983	46	1964	13	72.1	1992	0	337	.1	9.2	31.0	.0	.0	.0
Sep	80.7	59.2	70.0	103	1954	5	74.3	1998	32	1967	30	65.5	1974	28	177	.0	3.2	30.0	.0	.0	.0
Oct	71.4	46.9	59.2	93+	1931	6	66.1	1984	22	1974	21	52.8	1988	224	42	.0	.0	30.8	.0	2.6	.0
Nov	60.6	39.1	49.9	83+	1946	2	58.1	1985	-1	1950	25	40.5	1976	458	3	.0	.0	25.0	@	9.7	.0
Dec	51.8	32.4	42.1	77	1956	8	51.4	1984	-10	1962	13	31.9	1989	709	0	.0	.0	18.8	1.7	16.8	.1
Ann	69.6	47.8	58.7	106+	Aug 1930	9	80.4	Jul 1980	-19+	Jan 1940	26	24.8	Jan 1977	3606	1324	.3	31.2	316.1	7.4	76.0	.7

\+ 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: 1927-2001

(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	4.55	4.14	4.08	1949	5	11.57	1974	.74	1986
Feb	4.16	3.84	4.18	1948	13	9.42	1994	.91	1978
Mar	5.84	4.94	6.56	1929	23	14.89	1975	1.84	1983
Apr	4.22	3.75	4.95	1977	4	8.96	1998	.63	1976
May	5.08	4.57	6.78	1973	27	12.04	1984	.84	1982
Jun	4.52	4.32	5.37	1946	14	10.69	1997	.12	1988
Jul	4.51	4.75	7.37	1936	3	9.74	1984	.43	1993
Aug	3.52	3.53	3.70	1933	30	7.59	1978	.46	1999
Sep	3.94	3.88	4.45	1944	29	8.82	1989	.24	1984
Oct	3.25	3.23	3.21	1983	13	7.52	1984	.12	2000
Nov	4.83	4.48	3.61	1996	30	8.58	1977	1.52	1998
Dec	5.23	4.26	6.02	1990	22	14.92	1990	1.67	1985
Ann	53.65	53.78	7.37	Jul 1936	3	14.92	Dec 1990	.12+	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.1	8.2	3.4	1.1
Feb	11.2	7.6	3.0	1.1
Mar	13.2	9.0	3.6	1.7
Apr	10.7	7.5	3.0	.9
May	11.7	7.9	3.3	1.4
Jun	11.2	7.5	3.2	1.3
Jul	11.8	7.9	3.2	1.2
Aug	9.1	6.5	2.7	.8
Sep	9.5	6.1	2.5	1.0
Oct	8.0	4.6	2.4	.9
Nov	10.4	7.5	3.5	1.5
Dec	12.2	8.4	3.7	1.4
Ann	132.1	88.7	37.5	14.3

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	1.60	2.03	2.65	3.17	3.67	4.19	4.75	5.40	6.24	7.53	8.72
Feb	1.51	1.90	2.47	2.94	3.39	3.85	4.35	4.93	5.68	6.82	7.87
Mar	1.92	2.48	3.29	3.98	4.65	5.33	6.08	6.96	8.09	9.85	11.46
Apr	1.35	1.75	2.34	2.85	3.34	3.84	4.40	5.05	5.88	7.19	8.39
May	1.52	2.00	2.72	3.35	3.95	4.58	5.28	6.09	7.15	8.80	10.33
Jun	.90	1.31	1.98	2.58	3.20	3.85	4.60	5.50	6.68	8.58	10.38
Jul	1.27	1.70	2.35	2.91	3.46	4.04	4.68	5.43	6.41	7.95	9.38
Aug	1.04	1.38	1.88	2.32	2.74	3.18	3.66	4.23	4.97	6.12	7.19
Sep	.76	1.12	1.70	2.23	2.77	3.35	4.01	4.80	5.85	7.54	9.14
Oct	.61	.90	1.38	1.82	2.27	2.75	3.30	3.96	4.84	6.25	7.60
Nov	2.15	2.58	3.18	3.67	4.12	4.58	5.07	5.63	6.33	7.40	8.37
Dec	1.46	1.95	2.70	3.36	4.00	4.67	5.41	6.29	7.43	9.22	10.89
Ann	39.26	42.08	45.67	48.38	50.78	53.10	55.49	58.12	61.30	65.90	69.87

\+ 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: 1927-2001
(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	2.6	1.0	#	#	6.0	1996	7	10.0	1978	6	1996	7	1	1988	1.7	.8	.4	.1	.0	1.9	.6	.1	.0
Feb	2.3	.5	#	#	9.5	1996	2	12.8	1979	10	1996	3	2	1996	1.4	.9	.2	.1	.0	1.0	.2	@	.0
Mar	.3	.0	#	0	7.5	1993	13	7.5	1993	9	1993	13	1	1993	.5	.2	@	@	.0	.2	.1	@	.0
Apr	.1	.0	#	0	1.3	1987	3	1.3	1987	#	1987	2	#	1987	@	@	.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	1.8	1996	10	1.8	1996	#+	1989	16	#+	1989	.1	@	.0	.0	.0	.0	.0	.0	.0
Dec	.6	.0	#	#	2.3	1982	12	3.0	1997	6	2000	13	1	2000	.5	.3	.0	.0	.0	.2	.0	.0	.0
Ann	6.0	1.5	N/A	N/A	9.5	Feb 1996	2	12.8	Feb 1979	10	Feb 1996	3	2	Feb 1996	4.2	2.2	.6	.2	.0	3.3	.9	.1	.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	5/09	5/04	4/30	4/27	4/24	4/20	4/17	4/13	4/08
32	4/28	4/23	4/19	4/16	4/13	4/10	4/07	4/03	3/29
28	4/13	4/08	4/05	4/02	3/30	3/27	3/24	3/21	3/16
24	4/04	3/28	3/23	3/18	3/14	3/10	3/06	3/01	2/22
20	3/15	3/09	3/05	3/01	2/25	2/22	2/18	2/14	2/08
16	3/07	2/27	2/21	2/16	2/12	2/08	2/03	1/28	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	10/01	10/05	10/08	10/10	10/12	10/14	10/16	10/19	10/23
32	10/06	10/11	10/15	10/19	10/22	10/25	10/28	11/01	11/06
28	10/19	10/25	10/29	11/02	11/05	11/09	11/13	11/17	11/23
24	10/31	11/06	11/10	11/14	11/17	11/21	11/25	11/29	12/05
20	11/09	11/18	11/24	11/29	12/04	12/09	12/15	12/21	12/30
16	11/24	12/03	12/09	12/15	12/20	12/25	12/30	1/06	1/14

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	190	183	178	174	171	167	163	158	151
32	210	204	199	195	191	188	184	179	173
28	241	234	228	224	220	215	211	205	198
24	273	264	258	252	247	242	237	230	222
20	306	298	291	286	281	276	271	265	256
16	346	332	323	316	309	302	295	287	276

***** 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	814	626	447	213	84	3	0	0	28	224	458	709	3606
60	671	492	306	108	30	0	0	0	6	127	321	563	2624
57	585	412	232	63	14	0	0	0	2	83	246	476	2113
55	529	361	189	41	8	0	0	0	1	60	202	420	1811
50	399	246	103	10	1	0	0	0	0	22	113	294	1188
32	90	24	1	0	0	0	0	0	0	0	2	37	154

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	299	322	582	796	1055	1243	1394	1360	1139	841	537	350	9918
55	25	15	56	147	350	553	681	647	450	188	47	21	3180
57	19	10	37	109	294	493	619	585	391	150	31	14	2752
60	12	6	19	64	217	403	526	492	305	100	16	8	2168
65	0	0	4	19	115	256	371	337	177	42	3	0	1324
70	0	0	0	3	47	125	219	190	79	13	0	0	676

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	124	183	362	568	827	1024	1173	1132	916	613	329	177	124	307	669	1237	2064	3088	4261	5393	6309	6922	7251	7428
45	67	105	244	423	672	874	1018	977	766	459	215	101	67	172	416	839	1511	2385	3403	4380	5146	5605	5820	5921
50	32	55	144	287	517	724	863	822	616	316	126	49	32	87	231	518	1035	1759	2622	3444	4060	4376	4502	4551
55	7	24	72	178	365	574	708	667	467	192	64	23	7	31	103	281	646	1220	1928	2595	3062	3254	3318	3341
60	0	5	36	91	229	426	553	512	325	100	24	2	0	5	41	132	361	787	1340	1852	2177	2277	2301	2303
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	72	117	228	365	545	700	812	784	616	394	205	103	72	189	417	782	1327	2027	2839	3623	4239	4633	4838	4941

(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