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: SPRINGFIELD EXP STN, TN **COOP ID: 408562**

Climate Division: TN 3 **NWS Call Sign:** **Elevation: 745 Feet** **Lat: 36˚28N** **Lon: 86˚51W**

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	44.2	24.0	34.1	77+	1943	24	42.2	1990	-18	1963	24	19.2	1977	959	0	.0	.0	10.0	6.4	24.3	1.2
Feb	49.4	26.9	38.2	82	1996	24	45.8	1990	-13	1951	2	24.2	1978	751	0	.0	.0	13.4	4.4	19.5	.4
Mar	59.2	35.5	47.4	85+	1967	14	53.8	1973	1+	1960	5	40.4	1996	549	1	.0	.0	23.5	.5	13.4	.0
Apr	68.8	43.9	56.4	88+	1955	18	62.6	1981	21+	1973	11	49.5	1997	278	18	.0	.0	28.4	.0	4.4	.0
May	76.9	53.2	65.1	96	1952	5	72.2	1987	30	1976	4	59.5	1997	110	111	.0	.3	30.9	.0	.1	.0
Jun	84.9	61.9	73.4	105+	1952	28	76.8	1984	40	1966	1	68.7	1974	6	258	.1	6.5	30.0	.0	.0	.0
Jul	88.8	65.8	77.3	106	1952	28	81.0	1993	47+	1947	23	74.6	1976	0	381	.3	14.5	31.0	.0	.0	.0
Aug	87.9	63.5	75.7	105	1954	16	80.8	1983	42	1946	31	71.3	1976	2	334	.3	11.5	31.0	.0	.0	.0
Sep	81.7	56.7	69.2	104	1954	5	73.1	1980	31	2001	26	64.0	1974	38	163	.2	4.2	30.0	.0	.0	.0
Oct	70.8	45.0	57.9	94	1953	1	65.2	1971	22+	1976	29	51.4	1976	257	36	.0	.0	30.5	.0	4.1	.0
Nov	58.8	36.7	47.8	85	2000	2	54.1	1985	-5	1950	25	38.3	1976	521	3	.0	.0	22.4	.2	12.2	.0
Dec	48.7	27.9	38.3	77	1951	31	47.3	1984	-16+	1989	22	25.5	1989	829	0	.0	.0	13.8	3.1	20.3	.4
Ann	68.3	45.1	56.7	106	Jul 1952	28	81.0	Jul 1993	-18	Jan 1963	24	19.2	Jan 1977	4300	1305	.9	37.0	294.9	14.6	98.3	2.0

\+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1942-2001

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

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: SPRINGFIELD EXP STN, TN **COOP ID: 408562**

Climate Division: TN 3 **NWS Call Sign:** **Elevation: 745 Feet** **Lat: 36˚28N** **Lon: 86˚51W**

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	4.04	3.63	4.37	1999	23	11.23	1999	.87	1986
Feb	3.96	3.56	4.32	1948	13	9.64	1989	.95	1978
Mar	5.12	4.22	4.28	1975	12	15.70	1975	1.95	1982
Apr	4.25	3.61	3.77	1979	2	10.87	1979	1.02	1986
May	5.53	5.01	4.82	1974	22	12.71	1983	1.68	1987
Jun	4.51	4.23	3.54	1998	5	10.59	1998	1.17	2000
Jul	4.17	4.25	3.18	1989	2	7.97	1989	1.14	1991
Aug	3.19	2.51	2.87	1952	30	8.31	1979	1.10	1983
Sep	3.70	3.16	6.24	1979	14	10.13	1979	.40	1978
Oct	3.36	3.46	4.00	1944	5	6.69	1991	.40	2000
Nov	4.43	4.31	4.94	1973	27	10.48	1973	.96	1976
Dec	4.89	3.99	3.50	1949	12	12.97	1990	1.27	1985
Ann	51.15	51.50	6.24	Sep 1979	14	15.70	Mar 1975	.40+	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.4	7.1	2.9	.9
Feb	9.8	6.3	3.0	1.0
Mar	11.4	7.9	3.6	1.4
Apr	10.9	8.0	3.1	.9
May	10.9	8.3	3.5	1.7
Jun	10.0	7.3	3.1	1.3
Jul	9.1	6.7	2.9	1.1
Aug	7.9	5.8	2.1	.8
Sep	8.5	5.5	2.5	1.0
Oct	7.8	5.2	2.2	.9
Nov	9.9	6.9	3.5	1.2
Dec	10.9	7.1	3.1	1.6
Ann	117.5	82.1	35.5	13.8

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	1.03	1.41	1.99	2.51	3.02	3.56	4.16	4.88	5.81	7.28	8.66
Feb	1.35	1.73	2.28	2.74	3.18	3.64	4.14	4.72	5.46	6.62	7.68
Mar	1.62	2.11	2.83	3.44	4.04	4.65	5.33	6.12	7.14	8.73	10.20
Apr	1.26	1.66	2.27	2.79	3.30	3.83	4.41	5.10	5.98	7.37	8.66
May	2.24	2.75	3.46	4.06	4.61	5.18	5.79	6.50	7.39	8.76	10.00
Jun	1.20	1.63	2.28	2.85	3.41	4.00	4.66	5.44	6.45	8.04	9.53
Jul	1.43	1.82	2.40	2.89	3.35	3.83	4.36	4.97	5.75	6.96	8.08
Aug	.92	1.23	1.68	2.08	2.46	2.86	3.31	3.83	4.51	5.57	6.55
Sep	.76	1.10	1.64	2.14	2.64	3.17	3.78	4.50	5.46	7.00	8.45
Oct	.79	1.10	1.60	2.04	2.47	2.94	3.46	4.08	4.89	6.18	7.39
Nov	1.34	1.76	2.39	2.93	3.46	4.00	4.60	5.31	6.22	7.65	8.97
Dec	1.28	1.74	2.45	3.08	3.69	4.34	5.05	5.90	7.01	8.76	10.40
Ann	36.51	39.35	42.98	45.73	48.18	50.54	52.98	55.68	58.95	63.69	67.79

+ 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: 1942-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: SPRINGFIELD EXP STN, TN **COOP ID: 408562**

Climate Division: TN 3 **NWS Call Sign:** **Elevation: 745 Feet** **Lat: 36°28N** **Lon: 86°51W**

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	3.6	1.2	1	#	6.0	1982	13	17.6	1977	8	1978	20	3	1978	2.1	1.2	.6	.1	.0	5.2	3.0	1.0	.0
Feb	4.7	1.5	1	#	8.0	1998	4	20.5	1979	9	1979	10	4	1978	2.0	1.2	.6	.2	.0	3.2	1.9	1.2	.0
Mar	.6	.0	#	0	5.0	1996	19	5.5	1978	11	1996	21	1	1996	.6	.4	.1	@	.0	.5	.2	.1	.0
Apr	.1	.0	#	0	1.5	1983	18	1.5	1983	1	1983	18	#+	1983	@	@	.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	0	.1	1993	31	.1	1993	0	0	0	0	0	@	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	#	0	1.7	1971	24	2.0	1976	1	1976	30	#+	1979	.2	.1	.0	.0	.0	.1	.0	.0	.0
Dec	.7	.1	#	#	1.5	1974	17	2.8	1997	2+	2000	17	#+	2000	.8	.3	.0	.0	.0	.6	.0	.0	.0
Ann	9.8	2.8	N/A	N/A	8.0	Feb 1998	4	20.5	Feb 1979	11	Mar 1996	21	4	Feb 1978	5.7	3.2	1.3	.3	.0	9.6	5.1	2.3	.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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: SPRINGFIELD EXP STN, TN **COOP ID: 408562**

Climate Division: TN 3 **NWS Call Sign:** **Elevation: 745 Feet** **Lat: 36˚28N** **Lon: 86˚51W**

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	5/12	5/07	5/03	4/30	4/27	4/24	4/21	4/17	4/12
32	4/28	4/24	4/20	4/17	4/14	4/11	4/08	4/05	3/31
28	4/19	4/13	4/10	4/07	4/04	4/01	3/29	3/25	3/20
24	4/04	3/30	3/27	3/24	3/21	3/18	3/15	3/11	3/07
20	3/23	3/17	3/12	3/08	3/04	2/28	2/24	2/20	2/13
16	3/08	3/02	2/25	2/21	2/17	2/13	2/09	2/05	1/29

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	9/25	9/30	10/03	10/06	10/09	10/11	10/14	10/17	10/22
32	10/05	10/10	10/13	10/16	10/19	10/22	10/25	10/28	11/02
28	10/18	10/24	10/27	10/31	11/03	11/06	11/09	11/13	11/18
24	10/25	11/01	11/07	11/11	11/15	11/19	11/24	11/29	12/06
20	11/05	11/12	11/17	11/22	11/26	11/30	12/04	12/09	12/17
16	11/19	11/27	12/02	12/07	12/11	12/15	12/20	12/25	1/02

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	184	177	172	168	164	160	156	151	144
32	207	200	195	191	187	183	179	174	167
28	236	228	222	217	212	207	202	196	188
24	264	255	249	244	238	233	228	221	212
20	294	284	277	271	266	260	254	248	238
16	323	314	307	301	296	291	285	278	269

***** 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: SPRINGFIELD EXP STN, TN **COOP ID: 408562**

Climate Division: TN 3 **NWS Call Sign:** **Elevation: 745 Feet** **Lat: 36˚28N** **Lon: 86˚51W**

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	959	751	549	278	110	6	0	2	38	257	521	829	4300
60	804	611	404	165	48	1	0	0	10	154	383	680	3260
57	720	534	322	112	26	0	0	0	4	106	306	593	2723
55	661	480	271	83	16	0	0	0	2	80	259	536	2388
50	520	354	167	31	4	0	0	0	0	33	162	402	1673
32	151	62	7	0	0	0	0	0	0	0	8	85	313

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	215	235	482	731	1024	1243	1404	1355	1115	802	480	279	9365
55	12	10	34	123	327	553	691	642	427	168	41	17	3045
57	9	7	22	93	275	493	629	580	369	132	28	13	2650
60	0	0	11	55	204	403	536	487	285	87	15	6	2089
65	0	0	1	18	111	258	381	334	163	36	3	0	1305
70	0	0	0	4	47	132	229	194	74	11	0	0	691

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	73	124	281	492	777	1007	1160	1112	880	556	276	117	73	197	478	970	1747	2754	3914	5026	5906	6462	6738	6855
45	38	66	182	358	622	857	1005	957	730	413	177	61	38	104	286	644	1266	2123	3128	4085	4815	5228	5405	5466
50	17	30	105	240	470	707	850	802	581	279	104	30	17	47	152	392	862	1569	2419	3221	3802	4081	4185	4215
55	2	6	54	145	322	557	695	647	434	167	52	7	2	8	62	207	529	1086	1781	2428	2862	3029	3081	3088
60	0	0	21	76	198	407	540	492	293	86	16	0	0	0	21	97	295	702	1242	1734	2027	2113	2129	2129
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	48	83	182	315	497	683	796	753	578	358	163	67	48	131	313	628	1125	1808	2604	3357	3935	4293	4456	4523

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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