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: UNION CITY, TN **COOP ID: 409219**

Climate Division: TN 4 **NWS Call Sign:** **Elevation: 350 Feet** **Lat: 36˚24N** **Lon: 89˚02W**

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	42.5	24.6	33.6	78+	1943	25	43.3	1998	-22	1942	9	19.7	1977	975	0	.0	.0	9.1	6.5	23.4	.9
Feb	48.4	28.2	38.3	81	1962	14	45.7	1990	-19	1951	2	23.7	1978	749	0	.0	.0	13.5	3.9	18.9	.3
Mar	58.3	37.0	47.7	87	1939	24	53.7	1973	-7+	1960	5	41.5	1980	539	0	.0	.0	23.8	.5	11.1	.0
Apr	68.5	45.7	57.1	91	1987	28	63.7	1981	22	1960	10	50.6	1983	257	20	.0	@	28.9	.0	2.3	.0
May	77.4	55.5	66.5	98	1937	31	72.7	1987	32	1954	4	60.9	1976	86	131	.0	.9	31.0	.0	.0	.0
Jun	85.9	64.0	75.0	105+	1936	20	78.0	1984	43+	1956	2	70.6	1974	2	301	.1	9.3	30.0	.0	.0	.0
Jul	89.4	67.8	78.6	109+	1930	29	82.3	1993	45	1947	23	75.7	1971	0	420	.6	16.7	31.0	.0	.0	.0
Aug	88.1	64.8	76.5	111	1930	10	82.0	1983	44	1946	31	72.2	1992	2	356	.3	13.3	31.0	.0	.0	.0
Sep	81.8	57.2	69.5	104	1954	6	75.1	1998	33+	1942	29	64.6	1974	36	170	.0	5.0	30.0	.0	.0	.0
Oct	71.3	45.0	58.2	96+	1941	1	64.9	1971	15	1952	29	52.5	1987	245	32	.0	.1	30.7	.0	2.8	.0
Nov	58.2	36.8	47.5	86+	1933	1	53.2+	1999	1	1950	25	38.4	1976	526	1	.0	.0	22.4	.1	11.0	.0
Dec	47.2	28.7	38.0	78	1982	3	46.1	1984	-12	1963	24	27.0	1989	839	0	.0	.0	13.3	3.2	20.2	.2
Ann	68.1	46.3	57.2	111	Aug 1930	10	82.3	Jul 1993	-22	Jan 1942	9	19.7	Jan 1977	4256	1431	1.0	45.3	294.7	14.2	89.7	1.4

\+ 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: 1930-2001

(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	3.71	3.61	4.75	1930	8	8.10	1999	1.18	1981
Feb	4.05	3.36	4.13	1976	18	12.71	1989	1.23	1981
Mar	4.94	4.54	5.30	1975	12	15.82	1975	1.82	1995
Apr	4.86	4.66	4.05	1933	11	9.44	1973	1.67	1992
May	5.08	4.90	4.92	1962	1	10.65	1983	1.35	1994
Jun	4.80	4.19	5.70	1970	14	12.32	1998	.43	1988
Jul	4.17	3.66	4.82	1975	20	11.66	1972	.49	1993
Aug	3.19	2.48	4.75	1971	22	9.13	1971	.30	1999
Sep	3.25	2.92	5.00	1932	20	8.61	1996	.09	1998
Oct	3.81	3.31	4.91	1999	9	13.76	1984	.57	2000
Nov	4.98	4.27	5.60	1988	19	13.32	1973	1.87	1998
Dec	4.97	4.45	3.50	2001	17	12.72	1990	.99	1976
Ann	51.81	50.44	5.70	Jun 1970	14	15.82	Mar 1975	.09	Sep 1998

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.8	6.7	2.6	1.0
Feb	10.1	6.2	2.6	1.0
Mar	12.7	8.1	3.1	1.3
Apr	11.8	7.6	3.3	1.5
May	12.0	8.2	3.8	1.5
Jun	10.2	6.6	3.3	1.3
Jul	9.3	6.0	2.7	1.2
Aug	7.5	4.6	2.1	1.0
Sep	8.2	5.0	2.1	1.1
Oct	7.9	5.2	2.6	1.0
Nov	11.2	7.0	3.4	1.4
Dec	11.6	7.1	3.5	1.4
Ann	124.3	78.3	35.1	14.7

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	1.29	1.64	2.15	2.58	2.99	3.41	3.88	4.41	5.11	6.17	7.16
Feb	1.19	1.58	2.16	2.65	3.14	3.65	4.20	4.86	5.71	7.04	8.27
Mar	1.72	2.19	2.86	3.44	3.98	4.55	5.16	5.88	6.79	8.21	9.52
Apr	1.88	2.33	2.97	3.51	4.02	4.53	5.09	5.74	6.56	7.82	8.98
May	1.68	2.17	2.87	3.47	4.05	4.65	5.30	6.06	7.04	8.56	9.97
Jun	1.24	1.69	2.39	3.00	3.61	4.24	4.95	5.79	6.89	8.62	10.25
Jul	.72	1.09	1.70	2.27	2.85	3.48	4.21	5.08	6.25	8.14	9.95
Aug	.36	.61	1.05	1.50	1.97	2.51	3.13	3.90	4.95	6.68	8.37
Sep	.46	.73	1.19	1.64	2.11	2.63	3.23	3.97	4.96	6.58	8.14
Oct	.89	1.24	1.80	2.30	2.80	3.32	3.91	4.62	5.54	7.01	8.39
Nov	1.55	2.03	2.73	3.33	3.92	4.52	5.19	5.97	6.97	8.54	9.99
Dec	1.26	1.73	2.45	3.09	3.72	4.39	5.13	6.00	7.15	8.96	10.66
Ann	39.21	41.71	44.88	47.26	49.37	51.39	53.46	55.74	58.49	62.45	65.85

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	3.6	1.0	1	#
Feb	3.9	2.5	#	#
Mar	1.2	.0	#	0
Apr	#	.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	.1	.0	#	0
Nov	.4	.0	#	0
Dec	.9	.0	#	#
Ann	10.1	3.5	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	1985	4	18.8	1978	11	1978	20	4	1978
Feb	9.0	1979	7	14.5	1978	9	1979	7	3	1979
Mar	6.0	1994	9	7.5	1994	3	1975	10	#+	1998
Apr	#	1977	6	#+	1977	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	1.5	1993	30	1.5	1993	1	1993	30	#	1993
Nov	3.0	1976	12	5.5	1976	2	1976	12	#+	1997
Dec	4.0	1992	26	4.2	1992	4	1992	26	1	2000
Ann	9.0	Feb 1979	7	18.8	Jan 1978	11	Jan 1978	20	4	Jan 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.2	1.2	.5	.2	.0
Feb	1.7	1.2	.5	.2	.0
Mar	.6	.4	.2	.1	.0
Apr	.0	.0	.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	@	@	.0	.0	.0
Nov	.2	.1	@	.0	.0
Dec	.9	.3	@	.0	.0
Ann	5.6	3.2	1.2	.5	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	4.4	2.4	1.0	.1
Feb	3.0	1.0	.5	.0
Mar	.4	@	.0	.0
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
Nov	.1	.0	.0	.0
Dec	.8	@	.0	.0
Ann	8.7	3.4	1.5	.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	4/30	4/25	4/22	4/19	4/16	4/14	4/11	4/08	4/03
32	4/18	4/13	4/10	4/07	4/05	4/02	3/30	3/27	3/23
28	4/10	4/05	4/01	3/29	3/26	3/23	3/20	3/16	3/11
24	3/22	3/16	3/12	3/09	3/05	3/02	2/27	2/23	2/17
20	3/13	3/06	3/01	2/24	2/20	2/15	2/11	2/05	1/29
16	3/05	2/26	2/20	2/15	2/10	2/06	2/01	1/26	1/16

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	10/07	10/10	10/12	10/14	10/17	10/19	10/23
32	10/07	10/12	10/16	10/20	10/23	10/26	10/30	11/03	11/08
28	10/23	10/28	11/01	11/04	11/07	11/10	11/13	11/17	11/23
24	11/06	11/12	11/16	11/19	11/22	11/26	11/29	12/03	12/09
20	11/16	11/23	11/28	12/02	12/06	12/10	12/15	12/20	12/27
16	11/21	12/01	12/09	12/16	12/22	12/29	1/05	1/13	1/26

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	184	181	178	175	172	168	163
32	219	213	208	204	201	197	193	189	182
28	246	239	234	229	225	221	217	211	204
24	283	275	270	265	261	257	252	247	240
20	320	310	302	295	289	283	276	268	258
16	>365	343	330	321	313	305	297	288	275

***** 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)

Base — Heating Degree Days (1)

Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	975	749	539	257	86	2	0	2	36	245	526	839	4256
60	820	613	394	146	34	0	0	0	9	140	385	685	3226
57	736	535	311	96	17	0	0	0	3	93	305	600	2696
55	677	483	261	68	10	0	0	0	1	68	256	542	2366
50	535	360	157	23	2	0	0	0	0	25	155	403	1660
32	162	74	7	0	0	0	0	0	0	0	5	80	328

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	211	249	491	753	1068	1289	1443	1377	1125	810	471	264	9551
55	13	14	33	132	365	599	730	664	436	165	32	13	3196
57	9	10	21	99	310	539	668	602	378	128	20	9	2793
60	0	4	10	60	234	449	575	509	294	82	10	1	2228
65	0	0	0	20	131	301	420	356	170	32	1	0	1431
70	0	0	0	4	59	165	266	214	79	8	0	0	795

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	67	124	294	530	842	1064	1210	1149	899	579	274	111	67	191	485	1015	1857	2921	4131	5280	6179	6758	7032	7143
45	32	66	186	387	687	914	1055	994	749	426	178	55	32	98	284	671	1358	2272	3327	4321	5070	5496	5674	5729
50	13	28	103	264	532	764	900	839	599	290	99	26	13	41	144	408	940	1704	2604	3443	4042	4332	4431	4457
55	0	7	49	156	380	614	745	684	452	176	49	7	0	7	56	212	592	1206	1951	2635	3087	3263	3312	3319
60	0	0	17	82	242	464	590	529	314	90	15	0	0	0	17	99	341	805	1395	1924	2238	2328	2343	2343
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	41	81	180	326	538	732	835	783	597	378	167	64	41	122	302	628	1166	1898	2733	3516	4113	4491	4658	4722

(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