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: NASHVILLE INTL AP, TN **COOP ID: 406402**

Climate Division: TN 3 **NWS Call Sign: BNA** **Elevation: 580 Feet** **Lat: 36˚07N** **Lon: 86˚41W**

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	45.6	27.9	36.8	78+	1950	25	45.1	1990	-17	1985	21	23.4	1977	859	0	.0	.0	13.2	4.5	20.6	.5
Feb	51.4	31.2	41.3	84	1962	13	49.6	1976	-13	1951	2	28.3	1978	664	0	.0	.0	16.3	2.3	15.6	.2
Mar	60.7	39.4	50.1	86+	1963	31	56.1	1973	2	1980	3	44.6	1996	462	9	.0	.0	25.7	.2	8.4	.0
Apr	69.8	47.1	58.5	91+	1989	26	63.3	1981	23	1982	7	53.8	1983	217	37	.0	.1	29.3	.0	1.9	.0
May	77.5	56.7	67.1	95+	1962	18	73.4	1991	34+	1963	1	62.9	1971	56	136	.0	1.0	31.0	.0	.0	.0
Jun	85.1	65.0	75.1	106	1952	30	77.6	1998	42	1966	1	70.6	1974	2	321	.2	8.8	30.0	.0	.0	.0
Jul	88.7	69.5	79.1	107+	1952	27	82.5	1993	54+	1961	10	75.3	1984	0	453	.6	17.1	31.0	.0	.0	.0
Aug	87.8	68.0	77.9	104	1954	16	82.5	1995	49	1986	29	73.7	1976	0	416	.5	13.1	31.0	.0	.0	.0
Sep	81.5	61.0	71.3	105	1954	5	77.1	1998	36+	1949	30	65.9	1976	24	229	.1	5.7	30.0	.0	.0	.0
Oct	71.1	48.6	59.9	94	1953	1	66.2	1971	26+	1952	30	52.9	1976	189	46	.0	.1	30.7	.0	1.1	.0
Nov	59.0	39.5	49.3	84+	1950	1	56.1	1985	-1	1950	25	39.7	1976	460	5	.0	.0	23.8	.1	8.1	.0
Dec	49.4	31.5	40.5	79	1982	3	48.9	1984	-10	1989	22	28.8	1989	744	0	.0	.0	17.0	2.2	17.0	.2
Ann	69.0	48.8	58.9	107+	Jul 1952	27	82.5+	Aug 1995	-17	Jan 1985	21	23.4	Jan 1977	3677	1652	1.4	45.9	309.0	9.3	72.7	.9

\+ 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	3.97	3.60	3.83	1951	31	9.45	1974	.19	1986
Feb	3.69	3.39	4.73	1989	14	9.36	1989	1.38	1980
Mar	4.87	4.42	4.66	1975	12	12.35	1975	1.18	1987
Apr	3.93	3.57	2.39	2000	24	8.41	1984	.52	1986
May	5.07	4.49	3.95	1984	6	11.04	1983	1.65	1977
Jun	4.08	3.62	3.42	1960	16	11.95	1998	.45	1988
Jul	3.77	3.51	3.33	1950	5	7.67	1973	.77	1986
Aug	3.28	3.32	4.10	1963	28	8.05	1976	.73	1987
Sep	3.59	2.71	6.60	1979	13	11.44	1979	.45	1983
Oct	2.87	2.74	2.93	1959	8	6.00	1984	.21	1987
Nov	4.45	4.03	4.20	1997	30	7.78	1973	1.18	1971
Dec	4.54	3.70	4.46	1978	8	13.63	1978	.98	1985
Ann	48.11	49.14	6.60	Sep 1979	13	13.63	Dec 1978	.19	Jan 1986

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.1	6.6	2.9	.9
Feb	10.1	6.5	2.4	.7
Mar	12.1	8.4	3.1	1.0
Apr	10.7	7.1	2.6	1.2
May	11.3	7.3	3.4	1.5
Jun	9.7	6.5	2.6	1.1
Jul	10.0	6.7	2.4	1.1
Aug	8.4	5.4	2.2	1.0
Sep	8.3	5.4	2.4	.9
Oct	7.4	4.8	2.2	.8
Nov	10.1	6.9	3.1	1.2
Dec	11.0	7.2	2.8	1.5
Ann	120.2	78.8	32.1	12.9

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	1.02	1.39	1.97	2.48	2.98	3.51	4.10	4.79	5.70	7.14	8.48
Feb	1.50	1.84	2.31	2.71	3.08	3.46	3.86	4.33	4.93	5.84	6.66
Mar	1.73	2.19	2.85	3.41	3.94	4.49	5.09	5.78	6.67	8.04	9.30
Apr	.93	1.30	1.87	2.39	2.90	3.44	4.04	4.76	5.71	7.21	8.62
May	1.96	2.43	3.10	3.66	4.19	4.72	5.31	5.98	6.84	8.16	9.36
Jun	.94	1.32	1.92	2.45	2.99	3.55	4.19	4.95	5.94	7.53	9.02
Jul	1.32	1.67	2.19	2.62	3.04	3.47	3.93	4.48	5.17	6.24	7.23
Aug	1.10	1.41	1.86	2.25	2.62	3.00	3.42	3.91	4.54	5.52	6.42
Sep	.66	.97	1.50	1.99	2.49	3.03	3.64	4.38	5.36	6.95	8.46
Oct	.60	.87	1.29	1.67	2.06	2.47	2.94	3.49	4.23	5.41	6.53
Nov	1.64	2.06	2.66	3.16	3.64	4.13	4.66	5.27	6.06	7.27	8.38
Dec	1.12	1.55	2.21	2.80	3.38	3.99	4.68	5.49	6.55	8.24	9.81
Ann	31.86	34.92	38.88	41.93	44.65	47.31	50.06	53.12	56.87	62.33	67.10

+ 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

Complete documentation available from:
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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	3.9	1.3	#	0
Feb	3.4	1.6	#	0
Mar	1.1	.2	#	0
Apr	.1	.0	0	0
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	#	0
Sep	.0	.0	0	0
Oct	.0	.0	0	0
Nov	.1	.0	#	0
Dec	.5	.3	#	0
Ann	9.1	3.4	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	8.1	1988	7	18.5	1977	7+	1988	9	1+	1988
Feb	6.7	1985	1	18.9	1979	8	1979	9	2	1979
Mar	8.7	1996	19	9.3	1996	3+	1996	19	#	1999
Apr	1.1	1971	6	1.1	1971	#	1973	10	0	0
May	.0	0	0	.0	0	0	0	0	#	1996
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	#	1997
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	.4	1993	31	.4	1993	0	0	0	0	0
Nov	.7	1976	11	1.2	1976	1	1976	12	#	1976
Dec	2.4	1973	20	2.4	1973	2	1988	9	#	1988
Ann	8.7	Mar 1996	19	18.9	Feb 1979	8	Feb 1979	9	2	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.6	1.0	.6	.2	.0
Feb	2.4	1.2	.4	.1	.0
Mar	.8	.4	.1	@	.0
Apr	.1	.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	.0	.0
Nov	.2	.0	.0	.0	.0
Dec	1.0	.2	.0	.0	.0
Ann	7.1	2.8	1.1	.3	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	3.2	1.4	.5	.0
Feb	2.6	1.0	.4	.0
Mar	.3	.1	.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	.0
Nov	@	.0	.0	.0
Dec	.1	.0	.0	.0
Ann	6.2	2.5	.9	.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

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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	4/28	4/23	4/20	4/17	4/14	4/11	4/08	4/05	3/31
32	4/21	4/16	4/12	4/09	4/06	4/04	3/31	3/28	3/23
28	4/15	4/08	4/04	3/31	3/27	3/23	3/19	3/15	3/08
24	3/28	3/21	3/16	3/11	3/07	3/03	2/26	2/21	2/13
20	3/13	3/06	3/02	2/26	2/22	2/19	2/15	2/10	2/04
16	3/06	2/26	2/20	2/15	2/10	2/06	2/01	1/26	1/18

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	10/04	10/09	10/13	10/16	10/19	10/22	10/25	10/28	11/02
32	10/10	10/16	10/21	10/24	10/28	10/31	11/04	11/08	11/14
28	10/30	11/04	11/08	11/11	11/14	11/17	11/20	11/23	11/28
24	11/08	11/14	11/18	11/21	11/24	11/27	12/01	12/05	12/10
20	11/16	11/25	12/02	12/07	12/12	12/17	12/23	12/29	1/07
16	11/30	12/10	12/17	12/24	12/29	1/04	1/10	1/18	1/28

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	206	200	195	191	187	183	179	174	168
32	226	218	213	208	204	199	195	189	181
28	251	244	239	235	231	227	223	218	211
24	286	277	272	266	262	257	252	246	238
20	320	311	304	298	292	287	281	274	264
16	>365	339	329	322	316	310	304	297	287

***** 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	859	664	462	217	56	2	0	0	24	189	460	744	3677
60	729	530	324	112	29	0	0	0	8	118	339	615	2804
57	641	451	246	66	14	0	0	0	3	77	263	528	2289
55	584	400	202	43	8	0	0	0	1	55	218	471	1982
50	448	282	112	11	1	0	0	0	0	20	126	341	1341
32	113	37	2	0	0	0	0	0	0	0	3	56	211

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	244	311	577	808	1105	1310	1479	1440	1195	883	539	322	10213
55	8	16	69	175	394	620	766	727	506	210	60	15	3566
57	5	10	50	138	336	560	704	665	447	167	42	10	3134
60	2	4	29	92	253	470	611	572	362	111	23	5	2534
65	0	0	9	37	136	321	453	416	229	46	5	0	1652
70	0	0	2	7	54	184	301	264	120	12	1	0	945

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	106	171	354	574	867	1078	1239	1200	964	646	326	159	106	277	631	1205	2072	3150	4389	5589	6553	7199	7525	7684
45	56	97	238	433	712	928	1084	1045	814	493	212	85	56	153	391	824	1536	2464	3548	4593	5407	5900	6112	6197
50	23	49	143	296	557	778	929	890	664	345	125	43	23	72	215	511	1068	1846	2775	3665	4329	4674	4799	4842
55	7	20	75	181	404	628	774	735	515	218	61	16	7	27	102	283	687	1315	2089	2824	3339	3557	3618	3634
60	0	3	38	98	262	478	619	580	369	118	24	3	0	3	41	139	401	879	1498	2078	2447	2565	2589	2592
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	64	105	219	358	565	745	862	834	647	406	191	91	64	169	388	746	1311	2056	2918	3752	4399	4805	4996	5087

(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