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: WATERVILLE 2, NC **COOP ID: 319123**

Climate Division: NC 1 **NWS Call Sign:** **Elevation: 1,440 Feet** **Lat: 35˚46N** **Lon: 83˚06W**

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	47.6	27.5	37.6	77	1957	29	49.1	1974	-17	1985	21	25.4	1977	851	0	.0	.0	14.0	2.9	20.8	.3
Feb	51.9	29.9	40.9	84	1996	23	47.7	1990	-5	1996	5	32.1	1978	675	0	.0	.0	16.9	1.7	16.8	.1
Mar	60.5	36.8	48.7	88	1998	30	55.0	1973	5	1978	5	42.4	1981	507	0	.0	.0	25.6	.3	10.0	.0
Apr	69.5	43.9	56.7	90+	1988	22	61.0	1999	20	1960	10	51.9	1983	258	9	.0	@	28.8	@	2.8	.0
May	76.4	52.5	64.5	93	1982	31	69.9	1991	31+	1989	8	60.4	1989	104	87	.0	.3	30.9	.0	.1	.0
Jun	83.2	60.3	71.8	98	1983	26	74.3	1981	39	1966	1	68.0	1972	4	206	.0	3.7	30.0	.0	.0	.0
Jul	86.2	64.3	75.3	100	1980	17	78.1	1980	49	1963	10	72.4	1972	0	318	@	8.5	31.0	.0	.0	.0
Aug	84.4	63.5	74.0	98+	1988	18	77.5	1995	47	1986	29	70.7	1992	0	277	.0	4.3	31.0	.0	.0	.0
Sep	78.3	57.8	68.1	99	1975	5	73.2	1998	33	1967	30	64.7	1981	34	125	.0	.8	30.0	.0	.0	.0
Oct	68.5	45.9	57.2	89	1954	5	63.2	1984	21	1954	31	51.2	1988	262	21	.0	.0	30.8	.0	1.4	.0
Nov	58.9	37.2	48.1	81	1961	2	56.4	1985	9	1969	15	40.3	1976	509	1	.0	.0	24.4	@	10.3	.0
Dec	50.4	30.5	40.5	76+	1998	8	48.9	1971	-9	1962	13	31.4	1989	761	0	.0	.0	17.1	1.6	18.5	.1
Ann	68.0	45.8	57.0	100	Jul 1980	17	78.1	Jul 1980	-17	Jan 1985	21	25.4	Jan 1977	3965	1044	@	17.6	310.5	6.5	80.7	.5

\+ 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: 1954-2001

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

Issue Date: February 2004

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: WATERVILLE 2, NC

COOP ID: 319123

Climate Division: NC 1 **NWS Call Sign:** **Elevation: 1,440 Feet** **Lat: 35˚46N** **Lon: 83˚06W**

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	3.96	3.85	3.65	1996	26	8.09	1996	.86	1986
Feb	3.81	4.16	2.37	1966	13	6.20	1989	.84	1978
Mar	4.75	4.15	3.98	1994	27	9.91	1994	2.21	1988
Apr	4.06	3.80	3.70	1972	12	8.32	1998	.11	1976
May	4.99	4.91	2.12	1984	7	9.36	1984	2.75	1985
Jun	5.45	5.31	2.86	1971	8	11.44	1997	1.20	1990
Jul	5.26	4.71	2.99	1971	19	11.41	1971	2.23	1977
Aug	4.22	4.17	4.65	1964	30	8.28	1992	1.02	1997
Sep	3.88	3.87	3.31	1997	24	8.65	1989	1.18	1983
Oct	2.43	2.19	3.17	1964	16	6.29	1972	.17	2000
Nov	3.16	2.93	1.87	1961	1	5.71	1974	1.53	1990
Dec	3.63	3.37	2.32	1958	28	6.32	1993	1.33	1985
Ann	49.60	49.57	4.65	Aug 1964	30	11.44	Jun 1997	.11	Apr 1976

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.8	8.4	2.7	.6
Feb	12.5	8.0	2.5	.8
Mar	14.1	9.5	3.4	.8
Apr	11.6	8.2	2.9	.7
May	13.7	9.9	3.9	1.1
Jun	12.9	9.5	3.9	1.5
Jul	13.7	9.9	3.8	1.3
Aug	12.6	8.4	2.8	1.0
Sep	10.4	6.9	2.7	.9
Oct	8.3	5.3	1.4	.5
Nov	10.6	6.8	2.2	.6
Dec	12.4	7.6	2.5	.7
Ann	146.6	98.4	34.7	10.5

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	1.96	2.48	2.90	3.30	3.71	4.15	4.65	5.29	6.28	7.17
Feb	1.47	1.82	2.33	2.75	3.14	3.55	3.99	4.50	5.15	6.14	7.05
Mar	2.16	2.58	3.16	3.63	4.07	4.51	4.99	5.53	6.21	7.24	8.17
Apr	1.05	1.44	2.03	2.55	3.06	3.60	4.20	4.91	5.83	7.30	8.66
May	2.84	3.22	3.73	4.12	4.49	4.84	5.22	5.64	6.16	6.94	7.62
Jun	1.92	2.44	3.18	3.81	4.41	5.03	5.70	6.48	7.48	9.02	10.45
Jul	2.21	2.69	3.36	3.91	4.43	4.95	5.52	6.16	6.98	8.23	9.37
Aug	1.37	1.77	2.36	2.86	3.35	3.85	4.40	5.04	5.87	7.15	8.33
Sep	1.31	1.68	2.22	2.67	3.11	3.56	4.05	4.63	5.37	6.51	7.57
Oct	.55	.78	1.13	1.46	1.78	2.12	2.50	2.95	3.55	4.50	5.40
Nov	1.47	1.75	2.13	2.44	2.72	3.01	3.32	3.67	4.11	4.77	5.37
Dec	1.34	1.68	2.17	2.58	2.97	3.37	3.80	4.30	4.94	5.92	6.82
Ann	38.96	41.10	43.80	45.83	47.60	49.30	51.04	52.95	55.24	58.53	61.34

+ 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: 1954-2001
(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: WATERVILLE 2, NC **COOP ID: 319123**

Climate Division: NC 1 **NWS Call Sign:** **Elevation: 1,440 Feet** **Lat: 35°46N** **Lon: 83°06W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	.6	.0	#	0
Feb	2.5	.0	#	0
Mar	2.9	.0	#	0
Apr	2.0	.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	.1	.0	0	0
Dec	1.4	.0	#	0
Ann	9.5	.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	5.0	1997	10	5.0	1997	8	1998	27	1	1998
Feb	6.0	1979	9	14.5	1979	8	1995	8	1	1995
Mar	21.0	1993	13	26.0	1993	24	1993	13	2	1993
Apr	16.0	1987	3	26.0	1987	18	1987	4	2	1987
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	.0	0	0	.0	0	0	0	0	0	0
Nov	1.5	2000	19	1.5	2000	0	0	0	0	0
Dec	5.0	1997	30	7.5	1997	7	1997	31	#+	2000
Ann	21.0	Mar 1993	13	26.0+	Mar 1993	24	Mar 1993	13	2+	Mar 1993

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.2	.1	.1	.1	.0
Feb	1.0	.7	.4	.1	.0
Mar	.5	.5	.2	.1	.1
Apr	.2	.2	.2	.2	.1
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	.1	.1	.0	.0	.0
Dec	.5	.4	.2	.1	.0
Ann	2.5	2.0	1.1	.6	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.3	.1	.1	.0
Feb	1.0	.5	.1	.0
Mar	.2	.1	.1	.1
Apr	.1	.1	.1	.1
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	.1	.0
Ann	1.7	.9	.5	.2

+ 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: WATERVILLE 2, NC **COOP ID: 319123**

Climate Division: NC 1 **NWS Call Sign:** **Elevation: 1,440 Feet** **Lat: 35˚46N** **Lon: 83˚06W**

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	5/13	5/07	5/03	4/30	4/26	4/23	4/20	4/16	4/10
32	4/30	4/24	4/20	4/17	4/14	4/11	4/08	4/04	3/30
28	4/10	4/04	4/01	3/28	3/25	3/22	3/19	3/15	3/09
24	3/25	3/19	3/14	3/10	3/06	3/03	2/27	2/22	2/15
20	3/12	3/06	3/02	2/26	2/22	2/19	2/15	2/10	2/04
16	3/10	3/01	2/23	2/17	2/12	2/07	2/02	1/27	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	10/05	10/09	10/11	10/14	10/16	10/18	10/20	10/23	10/27
32	10/09	10/15	10/19	10/23	10/26	10/30	11/02	11/07	11/13
28	10/29	11/03	11/07	11/10	11/13	11/15	11/19	11/22	11/27
24	11/07	11/13	11/18	11/22	11/26	11/29	12/03	12/08	12/14
20	11/23	12/01	12/07	12/12	12/17	12/22	12/27	1/01	1/10
16	12/06	12/15	12/21	12/27	1/01	1/06	1/12	1/18	1/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	192	185	180	176	172	168	163	158	151
32	216	208	203	199	194	190	186	180	173
28	252	245	240	236	232	228	223	218	211
24	291	281	275	269	264	258	253	246	237
20	323	313	306	300	295	290	284	278	269
16	361	343	334	326	320	313	306	298	288

***** 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: WATERVILLE 2, NC **COOP ID: 319123**

Climate Division: NC 1 **NWS Call Sign:** **Elevation: 1,440 Feet** **Lat: 35˚46N** **Lon: 83˚06W**

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	851	675	507	258	104	4	0	0	34	262	509	761	3965
60	703	535	362	138	41	0	0	0	7	150	368	606	2910
57	616	453	281	85	20	0	0	0	2	99	288	521	2365
55	558	402	232	57	11	0	0	0	1	73	239	463	2036
50	422	275	132	15	2	0	0	0	0	27	139	327	1339
32	95	24	2	0	0	0	0	0	0	0	3	41	165

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	267	273	518	741	1005	1192	1341	1300	1082	782	484	303	9288
55	17	7	34	107	303	502	628	587	392	141	30	12	2760
57	13	2	22	75	250	442	566	525	334	106	19	8	2362
60	7	0	10	39	178	352	473	432	249	64	9	0	1813
65	0	0	0	9	87	206	318	277	125	21	1	0	1044
70	0	0	0	1	30	83	170	135	42	4	0	0	465

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	96	138	308	516	772	964	1107	1067	854	555	278	135	96	234	542	1058	1830	2794	3901	4968	5822	6377	6655	6790
45	41	68	196	375	617	814	952	912	704	400	169	70	41	109	305	680	1297	2111	3063	3975	4679	5079	5248	5318
50	16	28	104	245	463	664	797	757	554	259	92	30	16	44	148	393	856	1520	2317	3074	3628	3887	3979	4009
55	0	7	47	138	311	514	642	602	405	143	41	6	0	7	54	192	503	1017	1659	2261	2666	2809	2850	2856
60	0	0	10	64	181	364	487	447	261	58	9	0	0	0	10	74	255	619	1106	1553	1814	1872	1881	1881
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	57	93	195	321	488	651	763	737	557	325	168	78	57	150	345	666	1154	1805	2568	3305	3862	4187	4355	4433

(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