

# Climatography of the United States

No. 20

1971-2000

Station: SMITHFIELD, NC

COOP ID: 317994

Climate Division: NC 7

NWS Call Sign:

Elevation: 150 Feet Lat: 35° 31N Lon: 78° 21W

## 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	51.4	29.5	40.5	80+	1952	27	51.6	1974	-4	1985	21	29.5	1977	760	0	.0	.0	17.6	.9	18.7	@
Feb	55.2	31.3	43.3	83+	1997	28	50.6	1990	5+	1996	6	33.5	1978	609	0	.0	.0	19.6	.4	15.4	.0
Mar	63.7	39.0	51.4	89	1990	13	55.8	1976	10	1980	4	46.2	1996	425	1	.0	.0	28.2	.1	8.3	.0
Apr	72.4	45.9	59.2	95+	1990	28	63.3	1994	25+	1985	10	55.0	1983	191	15	.0	.9	29.8	.0	1.4	.0
May	79.8	54.7	67.3	99	1953	31	71.5	1991	32	1966	11	62.8	1992	42	111	.0	3.3	31.0	.0	.0	.0
Jun	86.3	62.7	74.5	105+	1959	30	78.3	1998	41	1977	8	69.6	1972	4	289	@	11.2	30.0	.0	.0	.0
Jul	89.9	67.2	78.6	106+	1952	29	82.4	1993	48+	1988	2	75.1	1979	0	419	1.0	18.4	31.0	.0	.0	.0
Aug	87.9	65.6	76.8	105	1983	22	80.5	1988	45	1976	31	72.4	1981	0	364	.4	13.9	31.0	.0	.0	.0
Sep	82.5	59.3	70.9	106	1954	6	74.1	1998	37	1982	24	66.3	1982	12	190	@	5.3	30.0	.0	.0	.0
Oct	72.7	46.6	59.7	100	1954	4	65.9	1971	20	2001	29	55.2	1988	208	41	.0	.3	30.9	.0	2.1	.0
Nov	63.6	37.7	50.7	88	1950	1	59.7	1985	14	1970	25	42.8	1976	433	3	.0	.0	27.7	.0	10.1	.0
Dec	54.8	31.6	43.2	81+	1998	9	51.9	1971	-1	1989	25	32.3	1989	675	0	.0	.0	21.5	.5	16.8	@
Ann	71.7	47.6	59.7	106+	Sep 1954	6	82.4	Jul 1993	-4	Jan 1985	21	29.5	Jan 1977	3359	1433	1.4	53.3	328.3	1.9	72.8	.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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(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

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# 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: SMITHFIELD, NC**

**COOP ID: 317994**

**Climate Division: NC 7**

**NWS Call Sign:**

**Elevation: 150 Feet Lat: 35°31N**

**Lon: 78°21W**

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	4.24	4.05	2.84	1961	15	7.71	1987	.94	1981	10.9	7.8	3.0	1.0	1.84	2.22	2.75	3.18	3.59	4.00	4.44	4.95	5.59	6.56	7.44
Feb	3.66	3.77	2.98	1959	5	6.52	1995	.78	1991	9.4	6.4	2.6	.9	1.16	1.50	2.02	2.46	2.88	3.32	3.81	4.37	5.10	6.24	7.29
Mar	4.57	4.52	3.30	1964	15	7.61	1989	1.37	1985	10.1	7.5	3.3	1.3	1.90	2.32	2.90	3.38	3.84	4.29	4.79	5.36	6.07	7.17	8.17
Apr	3.24	3.03	3.01	1953	13	8.75	1989	.50	1981	8.1	5.7	2.1	.9	.72	1.02	1.50	1.93	2.35	2.81	3.32	3.93	4.74	6.02	7.23
May	4.16	4.06	6.41	1981	28	9.17	1984	1.32	2000	10.0	7.4	2.9	.9	1.36	1.75	2.34	2.83	3.31	3.80	4.34	4.97	5.78	7.04	8.21
Jun	4.14	3.47	5.10	1949	30	14.89	1995	1.04	1990	9.6	6.5	3.0	1.2	1.11	1.51	2.10	2.63	3.15	3.69	4.29	5.00	5.93	7.38	8.74
Jul	5.14	5.03	5.65	1965	28	10.90	1996	1.26	1976	11.1	8.2	3.8	1.6	1.52	2.00	2.74	3.37	3.98	4.63	5.33	6.17	7.24	8.93	10.49
Aug	4.58	4.42	8.02	1955	24	8.44	1986	.97	1983	9.7	6.8	3.2	1.3	1.30	1.74	2.39	2.97	3.52	4.11	4.75	5.51	6.50	8.05	9.49
Sep	4.54	4.02	8.90	1999	16	18.13	1999	.15	1990	8.1	5.9	2.7	1.2	.53	.88	1.51	2.15	2.82	3.57	4.45	5.54	7.03	9.47	11.85
Oct	3.16	2.85	5.77	1964	5	8.32	1971	.00	2000	6.8	4.6	2.1	.8	.38	.77	1.30	1.75	2.21	2.69	3.24	3.89	4.76	6.14	7.45
Nov	2.95	2.60	3.27	1963	7	6.39	1992	.30	1999	7.7	5.3	2.1	.9	.72	1.00	1.43	1.81	2.19	2.59	3.03	3.57	4.26	5.37	6.40
Dec	3.05	2.78	2.95	1964	27	7.32	1983	.42	1988	9.8	6.4	2.3	.6	.86	1.15	1.58	1.96	2.34	2.73	3.16	3.67	4.33	5.36	6.33
Ann	47.43	46.43	8.90	Sep 1999	16	18.13	Sep 1999	.00	Oct 2000	111.3	78.5	33.1	12.6	35.72	38.04	40.97	43.18	45.14	47.01	48.94	51.06	53.62	57.30	60.47

+ 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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Station: SMITHFIELD, NC

COOP ID: 317994

Climate Division: NC 7

NWS Call Sign:

Elevation: 150 Feet

Lat: 35°31N

Lon: 78°21W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	1.4	.0	0	0	8.0	1973	9	8.0+	1988	0	0	0	0	0	.4	.2	.1	.1	.0	.0	.0	.0	.0
Feb	2.7	.5	#	0	10.0	1979	19	15.0	1979	7	1973	11	1	1973	.8	.8	.5	.1	.1	.1	.1	.0	.0
Mar	1.4	.0	0	0	11.0	1980	2	11.0	1980	0	0	0	0	0	.2	.2	.2	.1	.1	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.1	.0	#	0	1.0	1989	24	1.0	1989	5	2000	4	#	2000	.1	.1	.0	.0	.0	.0	.0	.0	.0
Ann	5.6	.5	N/A	N/A	11.0	Mar 1980	2	15.0	Feb 1979	7	Feb 1973	11	1	Feb 1973	1.5	1.3	.8	.3	.2	.1	.1	.0	.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:

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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	5/04	4/28	4/24	4/20	4/17	4/13	4/10	4/05	3/30
32	4/22	4/16	4/12	4/08	4/05	4/01	3/29	3/24	3/18
28	4/05	3/30	3/25	3/21	3/18	3/14	3/10	3/06	2/27
24	3/23	3/15	3/09	3/04	2/27	2/22	2/17	2/11	2/03
20	3/06	2/26	2/21	2/17	2/12	2/08	2/03	1/29	1/22
16	2/23	2/14	2/07	2/01	1/26	1/20	1/13	1/02	0/00
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	10/03	10/08	10/11	10/14	10/17	10/20	10/23	10/27	11/01
32	10/10	10/15	10/19	10/22	10/25	10/28	10/31	11/03	11/08
28	10/17	10/24	10/29	11/03	11/07	11/11	11/15	11/21	11/28
24	11/05	11/12	11/18	11/22	11/26	11/30	12/04	12/09	12/17
20	11/18	11/27	12/03	12/09	12/14	12/19	12/25	12/31	1/10
16	12/08	12/17	12/24	12/30	1/05	1/12	1/19	1/31	0/00
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	208	200	193	188	183	178	173	166	157
32	228	219	213	207	202	197	192	185	176
28	265	254	246	240	233	227	220	212	201
24	306	294	286	278	271	265	257	249	237
20	341	324	315	308	301	295	288	280	270
16	>365	>365	>365	357	343	332	323	313	301

\* 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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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No. 20  
1971-2000**

**Station: SMITHFIELD, NC**

**COOP ID: 317994**

**Climate Division: NC 7      NWS Call Sign:      Elevation: 150 Feet    Lat: 35°31N    Lon: 78°21W**

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	760	609	425	191	42	4	0	0	12	208	433	675	3359
60	613	469	280	88	7	0	0	0	2	114	296	528	2397
57	525	392	202	47	2	0	0	0	0	73	222	442	1905
55	469	340	157	28	0	0	0	0	0	52	179	387	1612
50	338	222	73	5	0	0	0	0	0	17	94	263	1012
32	50	14	0	0	0	0	0	0	0	0	0	26	90

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	313	329	599	815	1093	1275	1442	1387	1168	857	560	374	10212
55	19	11	43	152	380	585	729	674	478	195	49	22	3337
57	13	7	26	111	319	525	667	612	418	154	31	15	2898
60	8	0	11	62	232	435	574	519	330	102	15	8	2296
65	0	0	1	15	111	289	419	364	190	41	3	0	1433
70	0	0	0	1	37	160	268	214	78	12	0	0	770

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	145	202	393	613	868	1060	1211	1162	952	631	362	197	145	347	740	1353	2221	3281	4492	5654	6606	7237	7599	7796
45	77	117	262	463	713	910	1056	1007	802	476	240	111	77	194	456	919	1632	2542	3598	4605	5407	5883	6123	6234
50	36	59	157	321	558	760	901	852	652	329	145	59	36	95	252	573	1131	1891	2792	3644	4296	4625	4770	4829
55	13	24	82	197	407	610	746	697	502	203	73	28	13	37	119	316	723	1333	2079	2776	3278	3481	3554	3582
60	0	5	37	110	264	460	591	542	352	101	33	7	0	5	42	152	416	876	1467	2009	2361	2462	2495	2502
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	96	142	257	395	567	712	823	795	636	409	241	131	96	238	495	890	1457	2169	2992	3787	4423	4832	5073	5204

(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](http://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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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 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.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
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## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)