

Climatology of the United States

No. 20

1971-2000

Station: DURHAM, NC

COOP ID: 312515

Climate Division: NC 3

NWS Call Sign:

Elevation: 400 Feet

Lat: 36°03N

Lon: 78°58W

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	49.2	27.8	38.5	80	1997	4	49.0	1974	0+	1994	19	28.2	1977	821	0	.0	.0	15.0	1.9	22.5	.2
Feb	53.4	29.5	41.5	83	1930	25	48.4	1990	2	1936	8	33.9	1978	659	0	.0	.0	17.3	.9	19.7	.0
Mar	62.1	37.0	49.6	91	1945	17	55.8	1997	8+	1980	3	44.5	1996	480	1	.0	.0	26.5	.2	11.6	.0
Apr	71.3	45.8	58.6	93+	1976	19	63.0	1985	21+	1923	2	54.9	1983	207	13	.0	.5	29.4	.0	2.6	.0
May	78.6	55.6	67.1	100	1919	31	72.3	1991	28	1989	8	62.7	1992	50	115	.0	1.8	31.0	.0	@	.0
Jun	85.0	65.4	75.2	105	1954	27	78.9	1987	40	1977	9	72.0+	1979	2	306	.0	8.6	30.0	.0	.0	.0
Jul	88.6	70.1	79.4	105	1954	14	83.8	1993	48	1988	1	74.4	2000	0	445	.9	16.4	31.0	.0	.0	.0
Aug	86.8	67.9	77.4	105	1932	30	81.4	1987	45	1976	31	73.7	2000	0	382	.4	12.4	31.0	.0	.0	.0
Sep	81.0	60.3	70.7	105	1954	6	74.0	1973	36+	1951	30	66.8	1999	21	190	.0	4.2	30.0	.0	.0	.0
Oct	71.4	46.6	59.0	99	1951	5	65.0	1984	20	1962	27	52.3	1988	222	37	.0	.2	30.8	.0	2.2	.0
Nov	62.0	37.4	49.7	87	1950	1	57.8	1985	12	1950	26	42.5	1976	460	2	.0	.0	27.3	.0	10.8	.0
Dec	52.7	30.4	41.6	79	1951	9	49.2	1971	3	1935	23	32.1	1989	728	0	.0	.0	19.4	.6	20.0	.0
Ann	70.2	47.8	59.0	105+	Sep 1954	6	83.8	Jul 1993	0+	Jan 1994	19	28.2	Jan 1977	3650	1491	1.3	44.1	318.7	3.6	89.4	.2

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1899-2001

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

028-A

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: DURHAM, NC

COOP ID: 312515

Climate Division: NC 3

NWS Call Sign:

Elevation: 400 Feet Lat: 36°03N

Lon: 78°58W

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	4.44	4.10	2.88	1962	6	10.67	1998	.97	1981	11.2	7.9	3.2	1.3	1.44	1.86	2.48	3.01	3.52	4.05	4.63	5.30	6.17	7.52	8.77
Feb	3.70	3.39	2.92	1998	17	8.23	1979	1.01	1978	9.6	6.8	2.8	1.1	1.24	1.59	2.11	2.54	2.96	3.39	3.86	4.40	5.11	6.20	7.21
Mar	4.68	4.10	3.50	1899	15	9.39	1983	1.14	1985	11.2	8.2	3.5	1.4	1.54	1.99	2.64	3.19	3.73	4.28	4.88	5.59	6.50	7.91	9.21
Apr	3.41	3.42	4.00	1978	26	7.29	1987	.60+	1985	8.9	6.3	2.1	.7	.89	1.21	1.71	2.14	2.57	3.02	3.52	4.11	4.88	6.10	7.24
May	4.59	4.83	5.28	1901	22	7.96	1974	.74	1999	10.6	7.3	3.0	1.3	1.58	2.01	2.64	3.18	3.69	4.21	4.79	5.46	6.32	7.65	8.87
Jun	4.01	3.68	5.25	1964	22	10.03	1982	.52	1990	8.9	6.0	2.6	1.2	.98	1.36	1.94	2.46	2.98	3.52	4.13	4.85	5.79	7.29	8.69
Jul	3.95	3.47	5.07	1959	10	8.65	1975	.74	1983	9.6	7.0	2.6	.8	1.05	1.42	2.00	2.50	2.99	3.51	4.08	4.77	5.66	7.05	8.36
Aug	4.38	4.14	5.70	1986	21	13.84	1986	.72	1997	9.1	6.7	2.9	1.2	1.00	1.41	2.05	2.63	3.20	3.81	4.50	5.31	6.39	8.10	9.70
Sep	4.36	3.04	6.70	1996	6	16.53	1999	.17	1990	7.7	5.3	2.5	1.4	.35	.64	1.22	1.82	2.48	3.24	4.15	5.30	6.88	9.53	12.15
Oct	3.71	3.53	4.98	1954	15	9.39	1971	.16	2000	6.9	5.3	2.5	1.2	.62	.94	1.49	2.00	2.52	3.09	3.74	4.53	5.59	7.30	8.94
Nov	3.38	2.69	4.69	1934	29	13.52	1985	.63	1981	8.0	5.0	2.1	.9	.73	1.04	1.54	1.98	2.44	2.92	3.46	4.11	4.96	6.33	7.62
Dec	3.43	3.57	3.38	1958	28	7.68	1983	.38	1988	10.0	6.7	2.5	.8	.82	1.14	1.64	2.09	2.53	3.00	3.53	4.16	4.98	6.29	7.52
Ann	48.04	49.25	6.70	Sep 1996	6	16.53	Sep 1999	.16	Oct 2000	111.7	78.5	32.3	13.3	35.56	38.01	41.13	43.49	45.57	47.58	49.64	51.91	54.66	58.63	62.04

+ 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: 1899-2001

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

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Station: DURHAM, NC

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Climate Division: NC 3

NWS Call Sign:

Elevation: 400 Feet

Lat: 36°03N

Lon: 78°58W

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	1.8	.0	#	0	4.0	1982	15	6.0+	1996	5	1973	9	1	1973	.7	.6	.5	.0	.0	.6	.3	@	.0
Feb	2.6	1.0	#	0	10.0	1979	19	17.0	1979	5	1980	10	1+	1987	.8	.8	.4	.2	.1	.6	.2	@	.0
Mar	1.7	.0	#	0	12.0	1980	3	15.0	1980	12	1980	3	1	1980	.5	.4	.2	.1	.1	.3	.2	.1	@
Apr	#	.0	0	0	#	1989	11	#	1989	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	.1	.0	0	0	2.0	1975	24	2.0	1975	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Dec	.6	.0	#	0	4.5	1973	17	5.0	1973	5	1973	17	1	1973	.2	.2	.1	.0	.0	.2	.1	@	.0
Ann	6.8	1.0	N/A	N/A	12.0	Mar 1980	3	17.0	Feb 1979	12	Mar 1980	3	1+	Feb 1987	2.3	2.1	1.2	.3	.2	1.7	.8	.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

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	5/09	5/03	4/28	4/25	4/21	4/18	4/14	4/10	4/04
32	4/27	4/21	4/17	4/13	4/09	4/06	4/02	3/28	3/22
28	4/14	4/08	4/04	3/31	3/27	3/24	3/20	3/15	3/09
24	4/03	3/26	3/21	3/16	3/11	3/07	3/02	2/25	2/17
20	3/14	3/07	3/02	2/25	2/21	2/17	2/13	2/08	2/01
16	3/03	2/22	2/15	2/10	2/04	1/30	1/24	1/17	1/06
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	10/07	10/11	10/15	10/18	10/21	10/24	10/27	10/30	11/04
32	10/12	10/17	10/21	10/24	10/27	10/30	11/02	11/06	11/11
28	10/18	10/24	10/28	11/01	11/04	11/08	11/11	11/15	11/21
24	11/01	11/09	11/15	11/19	11/24	11/29	12/03	12/09	12/17
20	11/20	11/28	12/03	12/08	12/13	12/17	12/22	12/28	1/04
16	12/03	12/14	12/21	12/28	1/04	1/10	1/17	1/26	2/08
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	199	193	187	182	176	171	164	155
32	225	216	210	205	200	195	190	184	175
28	246	238	231	226	221	216	211	205	196
24	290	279	271	263	257	250	243	235	224
20	324	314	306	300	294	287	281	273	263
16	>365	>365	344	333	325	318	310	302	292

* 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	821	659	480	207	50	2	0	0	21	222	460	728	3650
60	666	519	334	99	11	0	0	0	4	123	321	574	2651
57	582	436	254	55	4	0	0	0	1	79	244	488	2143
55	523	385	207	34	1	0	0	0	0	56	199	431	1836
50	384	259	111	7	0	0	0	0	0	19	108	298	1186
32	64	18	1	0	0	0	0	0	0	0	1	31	115

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	265	283	545	796	1088	1295	1468	1405	1159	838	533	326	10001
55	12	6	38	141	376	605	755	692	469	181	41	13	3329
57	8	1	23	101	316	545	693	630	410	142	26	9	2904
60	0	0	11	55	231	455	600	537	323	93	13	1	2319
65	0	0	1	13	115	306	445	382	190	37	2	0	1491
70	0	0	0	1	41	170	291	231	86	10	0	0	830

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	98	141	314	551	821	1035	1201	1148	920	600	317	142	98	239	553	1104	1925	2960	4161	5309	6229	6829	7146	7288
45	44	76	198	406	666	885	1046	993	770	446	202	74	44	120	318	724	1390	2275	3321	4314	5084	5530	5732	5806
50	20	35	113	273	511	735	891	838	620	301	114	33	20	55	168	441	952	1687	2578	3416	4036	4337	4451	4484
55	2	9	50	159	361	585	736	683	471	179	50	11	2	11	61	220	581	1166	1902	2585	3056	3235	3285	3296
60	0	1	22	79	224	437	581	528	328	86	13	1	0	1	23	102	326	763	1344	1872	2200	2286	2299	2300
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	70	107	217	352	528	704	820	788	611	383	213	101	70	177	394	746	1274	1978	2798	3586	4197	4580	4793	4894

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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