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: WILLIAMSTON 1 E, NC **COOP ID: 319440**

Climate Division: NC 8 **NWS Call Sign:** **Elevation: 20 Feet** **Lat: 35˚51N** **Lon: 77˚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	52.0	31.9	42.0	80	1970	29	52.9	1974	6+	1994	20	31.5	1977	715	0	.0	.0	17.5	1.0	17.0	@
Feb	55.0	33.6	44.3	86	1962	24	52.1	1990	8	1996	5	33.6	1978	580	0	.0	.0	18.9	.6	13.6	.0
Mar	63.0	41.0	52.0	89	1974	8	56.3	1976	7	1980	4	47.1	1996	405	2	.0	.0	27.6	@	5.8	.0
Apr	71.2	47.6	59.4	95	1990	28	63.4	1994	24	1966	1	54.8	1983	185	17	.0	.7	29.7	.0	.7	.0
May	78.2	56.4	67.3	97	1963	10	72.8	1991	34	1966	11	63.7	1992	45	115	.0	1.9	31.0	.0	.0	.0
Jun	84.9	64.3	74.6	101+	1959	30	78.3	1989	45+	1977	8	70.3	1972	3	290	.0	8.2	30.0	.0	.0	.0
Jul	88.4	69.1	78.8	101	1977	20	82.3	1991	51	1988	2	76.1	1984	0	426	.2	15.3	31.0	.0	.0	.0
Aug	86.9	67.7	77.3	101+	1988	19	80.3	1988	49	1965	30	73.5	1981	0	382	.3	11.4	31.0	.0	.0	.0
Sep	81.9	61.8	71.9	100	1954	7	75.1	1980	40	1981	24	68.4	1981	8	214	.0	3.1	30.0	.0	.0	.0
Oct	72.9	49.7	61.3	97	1954	6	67.3	1984	22	1962	27	55.2	1988	172	57	.0	.3	31.0	.0	.7	.0
Nov	64.3	41.2	52.8	86	1974	3	62.6	1985	20+	1976	9	44.6	1976	378	12	.0	.0	27.8	.0	6.2	.0
Dec	55.5	34.4	45.0	82+	1991	4	53.3	1971	4	1989	25	34.5	1989	622	1	.0	.0	21.7	.5	14.4	.0
Ann	71.2	49.9	60.6	101+	Aug 1988	19	82.3	Jul 1991	4	Dec 1989	25	31.5	Jan 1977	3113	1516	.5	40.9	327.2	2.1	58.4	@

\+ 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

(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	4.36	4.18	2.48	1978	20	8.21	1987	1.34	1981
Feb	3.34	2.97	3.12	1960	1	6.14	1998	.98	1991
Mar	4.33	4.23	3.47	1994	3	7.30	1983	1.60	1985
Apr	3.16	3.11	2.80	1970	27	5.49	1989	.52	1985
May	4.09	4.15	4.92	1977	25	7.44	1977	.87	1987
Jun	4.46	4.04	9.42	2001	16	13.38	1995	2.06	1997
Jul	5.17	3.94	4.18	1962	4	12.23	1996	1.67	1983
Aug	5.23	4.08	6.72	1967	21	14.67	1981	.77	1975
Sep	5.48	4.06	10.95	1999	16	28.89	1999	.28	1981
Oct	3.75	3.09	7.40	1971	1	15.23	1971	.00	2000
Nov	2.77	2.64	3.87	1969	2	6.18	1992	.48	1973
Dec	3.16	3.44	3.06	1973	9	8.36	1973	.67	1988
Ann	49.30	48.26	10.95	Sep 1999	16	28.89	Sep 1999	.00	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.3	7.7	2.8	1.0
Feb	9.6	6.4	2.6	.7
Mar	11.6	7.3	3.0	1.1
Apr	8.9	6.2	2.4	.7
May	11.4	7.3	2.8	.9
Jun	9.7	6.5	2.6	1.4
Jul	10.1	7.0	2.9	1.4
Aug	11.0	7.1	3.5	1.8
Sep	8.8	6.2	3.2	1.7
Oct	8.2	4.6	2.2	1.1
Nov	8.4	5.1	2.1	.6
Dec	11.1	6.7	2.4	.6
Ann	120.1	78.1	32.5	13.0

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	2.05	2.43	2.95	3.37	3.76	4.16	4.57	5.05	5.65	6.55	7.36
Feb	1.15	1.47	1.93	2.32	2.69	3.07	3.49	3.97	4.59	5.56	6.44
Mar	1.88	2.27	2.82	3.26	3.67	4.09	4.54	5.06	5.71	6.70	7.59
Apr	.97	1.27	1.72	2.11	2.48	2.87	3.29	3.79	4.44	5.44	6.38
May	1.42	1.81	2.37	2.84	3.29	3.76	4.27	4.86	5.62	6.79	7.87
Jun	1.82	2.23	2.81	3.28	3.73	4.18	4.67	5.23	5.95	7.04	8.03
Jul	1.53	2.03	2.76	3.40	4.02	4.66	5.37	6.21	7.29	8.98	10.54
Aug	1.16	1.65	2.42	3.11	3.80	4.53	5.36	6.35	7.65	9.72	11.67
Sep	.63	1.05	1.81	2.58	3.39	4.31	5.37	6.70	8.50	11.47	14.36
Oct	.56	1.05	1.69	2.21	2.73	3.28	3.89	4.61	5.56	7.06	8.48
Nov	.74	1.00	1.40	1.75	2.10	2.46	2.86	3.34	3.96	4.94	5.86
Dec	.92	1.22	1.67	2.06	2.44	2.84	3.28	3.80	4.47	5.52	6.50
Ann	36.63	39.12	42.30	44.69	46.81	48.84	50.94	53.25	56.03	60.06	63.52

\+ 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

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	.9	.0	#	0	6.4	1973	9	7.8	1973	5	1973	10	1	1973	.4	.3	.1	.1	.0	.4	.3	.1	.0
Feb	2.2	.0	#	0	8.0	1980	7	12.5	1979	8	1980	7	1	1980	.8	.6	.3	.2	.0	1.0	.5	.3	.0
Mar	1.7	.0	#	0	17.0	1980	3	24.4	1980	17	1980	3	2	1980	.3	.2	.1	.1	.1	.3	.2	.1	.1
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	.4	.0	#	0	6.5	1989	24	6.5	1989	#	1973	11	#	1973	.1	.1	.1	.1	.0	.0	.0	.0	.0
Ann	5.2	.0	N/A	N/A	17.0	Mar 1980	3	24.4	Mar 1980	17	Mar 1980	3	2	Mar 1980	1.6	1.2	.6	.5	.1	1.7	1.0	.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	4/26	4/20	4/16	4/12	4/09	4/06	4/02	3/29	3/23
32	4/15	4/09	4/05	4/01	3/29	3/25	3/22	3/17	3/12
28	4/01	3/25	3/21	3/17	3/13	3/09	3/05	2/28	2/22
24	3/16	3/08	3/02	2/25	2/21	2/16	2/11	2/05	1/28
20	2/28	2/21	2/15	2/11	2/06	2/02	1/28	1/21	1/09
16	2/18	2/10	2/04	1/30	1/24	1/17	1/05	0/00	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	10/11	10/16	10/19	10/22	10/25	10/28	10/31	11/03	11/08
32	10/17	10/23	10/28	11/01	11/04	11/08	11/11	11/16	11/22
28	11/04	11/10	11/15	11/19	11/23	11/27	12/01	12/05	12/12
24	11/15	11/22	11/27	12/02	12/06	12/10	12/15	12/20	12/28
20	12/05	12/15	12/21	12/27	1/01	1/07	1/13	1/21	2/05
16	12/23	1/01	1/07	1/13	1/20	1/28	0/00	0/00	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	222	214	208	203	198	194	189	183	175
32	247	238	231	225	220	214	208	201	192
28	279	271	264	259	254	250	244	238	230
24	319	309	301	294	288	282	275	267	256
20	>365	352	341	334	327	322	316	309	299
16	>365	>365	>365	>365	>365	349	338	328	316

***** 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	715	580	405	185	45	3	0	0	8	172	378	622	3113
60	569	446	264	84	9	0	0	0	1	89	251	478	2191
57	483	367	191	44	2	0	0	0	0	55	188	393	1723
55	427	317	150	26	1	0	0	0	0	37	152	341	1451
50	301	206	71	5	0	0	0	0	0	12	79	226	900
32	37	13	0	0	0	0	0	0	0	0	0	18	68

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	345	357	620	822	1093	1277	1449	1405	1196	908	624	419	10515
55	22	17	57	158	381	587	736	692	506	232	86	29	3503
57	16	11	36	116	321	527	674	630	446	187	62	20	3046
60	9	6	16	66	234	437	581	537	357	129	35	11	2418
65	0	0	2	17	115	290	426	382	214	57	12	1	1516
70	0	0	0	2	40	159	272	228	94	18	2	0	815

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	159	205	395	613	878	1067	1229	1179	986	678	413	215	159	364	759	1372	2250	3317	4546	5725	6711	7389	7802	8017
45	84	120	267	464	723	917	1074	1024	836	525	286	125	84	204	471	935	1658	2575	3649	4673	5509	6034	6320	6445
50	39	61	160	322	568	767	919	869	686	376	176	61	39	100	260	582	1150	1917	2836	3705	4391	4767	4943	5004
55	16	22	82	202	413	618	764	714	536	244	94	31	16	38	120	322	735	1353	2117	2831	3367	3611	3705	3736
60	1	8	36	108	266	468	609	559	387	129	39	7	1	9	45	153	419	887	1496	2055	2442	2571	2610	2617
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	97	131	239	378	569	739	857	824	674	434	254	133	97	228	467	845	1414	2153	3010	3834	4508	4942	5196	5329

(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