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: CLAYTON WTP, NC **COOP ID: 311820**

Climate Division: NC 7 **NWS Call Sign:** **Elevation: 300 Feet** **Lat: 35˚38N** **Lon: 78˚28W**

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	50.0	28.1	39.1	80	1990	25	50.5	1974	-10	1985	21	28.3	1977	806	0	.0	.0	17.1	1.4	19.2	@
Feb	53.8	29.9	41.9	82	1989	3	49.2	1990	4	1979	10	32.3	1978	649	0	.0	.0	18.8	.9	15.6	.0
Mar	62.7	37.8	50.3	91	1990	12	56.9	1990	11+	1960	6	45.5	1996	460	3	.0	.1	27.7	.1	8.0	.0
Apr	71.7	45.4	58.6	97	1990	27	63.5	1985	25+	1982	7	53.8	1987	216	22	.0	.6	29.6	.0	1.2	.0
May	79.6	55.8	67.7	99	1991	31	74.3	1991	33	1977	10	64.4	1994	45	129	.0	2.4	31.0	.0	.2	.0
Jun	86.7	64.1	75.4	103	1959	30	80.2	1981	44	1977	8	70.8	1972	2	314	.1	10.3	30.0	.0	.0	.0
Jul	89.9	68.9	79.4	103+	1977	21	83.4	1988	52+	1975	2	75.8	1975	0	445	.8	15.5	31.0	.0	.0	.0
Aug	87.6	67.2	77.4	107	1988	18	84.2	1988	48+	1986	29	74.2	1986	0	384	.3	11.9	31.0	.0	.0	.0
Sep	82.1	60.7	71.4	98+	1993	1	75.5	1980	40	1993	30	67.7	1982	12	203	.0	4.0	30.0	.0	.0	.0
Oct	72.3	48.7	60.5	93	1986	4	66.0	1984	20	1962	27	53.2	1987	186	46	.0	.4	30.9	.0	.8	.0
Nov	62.6	38.7	50.7	85+	1996	1	58.6	1985	12	1970	24	43.4	1976	435	4	.0	.0	27.5	.0	8.7	.0
Dec	53.1	31.5	42.3	81	1998	9	49.8	1971	5+	1983	24	35.3	1989	703	0	.0	.0	20.5	.6	16.1	.0
Ann	71.0	48.1	59.6	107	Aug 1988	18	84.2	Aug 1988	-10	Jan 1985	21	28.3	Jan 1977	3514	1550	1.2	45.2	325.1	3.0	69.8	@

+ 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: 1955-2001

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

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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	4.20	4.14	2.36	1960	31	8.79	1987	1.28	1981
Feb	3.55	3.54	2.85	1973	2	7.94	1983	.34	1991
Mar	4.29	4.04	3.52	1998	9	6.87	1975	1.63	1985
Apr	2.98	2.82	4.34	1987	15	7.33	1987	.33	1976
May	3.69	3.45	5.20	1983	20	8.05	1979	.88	1999
Jun	3.66	3.09	5.54	1967	18	12.97	1995	.41	1993
Jul	4.74	4.16	5.34	1965	28	10.95	1984	.73	1992
Aug	4.55	4.16	9.90	1995	28	11.08	1995	.63	1975
Sep	4.53	4.12	9.50	1999	16	20.62	1999	.37	1990
Oct	3.17	3.10	4.33	1959	24	8.44	1971	.00	2000
Nov	3.16	2.97	4.32	1963	6	7.73	1979	.81	1973
Dec	3.18	3.24	2.10	1964	26	5.87	1973	.81	1988
Ann	45.70	44.56	9.90	Aug 1995	28	20.62	Sep 1999	.00	Oct 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.1	7.4	2.9	1.0
Feb	8.7	6.3	2.4	1.0
Mar	10.5	7.2	3.0	1.1
Apr	7.1	5.2	2.0	.6
May	9.6	6.6	2.3	.9
Jun	9.2	6.5	2.5	1.0
Jul	10.9	7.3	3.0	1.5
Aug	9.1	6.4	3.1	1.3
Sep	7.4	5.3	2.6	1.2
Oct	6.6	4.1	2.1	1.1
Nov	7.7	5.0	2.1	.6
Dec	9.1	6.1	2.3	.9
Ann	106.0	73.4	30.3	12.2

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	1.58	1.97	2.53	3.00	3.44	3.90	4.39	4.96	5.69	6.81	7.84
Feb	.96	1.29	1.81	2.26	2.70	3.16	3.67	4.28	5.08	6.31	7.47
Mar	1.92	2.30	2.83	3.26	3.66	4.06	4.50	4.99	5.61	6.56	7.41
Apr	.59	.86	1.30	1.70	2.11	2.54	3.03	3.63	4.41	5.68	6.87
May	1.15	1.50	2.02	2.47	2.90	3.35	3.84	4.42	5.16	6.32	7.39
Jun	.66	.98	1.52	2.01	2.53	3.08	3.71	4.47	5.48	7.12	8.68
Jul	1.33	1.78	2.46	3.06	3.64	4.24	4.91	5.70	6.73	8.34	9.84
Aug	1.19	1.62	2.28	2.86	3.43	4.03	4.70	5.49	6.52	8.14	9.66
Sep	.59	.96	1.60	2.23	2.90	3.63	4.49	5.54	6.96	9.29	11.54
Oct	.43	.83	1.37	1.82	2.27	2.74	3.27	3.90	4.73	6.05	7.30
Nov	.85	1.15	1.60	2.01	2.40	2.81	3.27	3.82	4.53	5.64	6.68
Dec	1.03	1.33	1.78	2.16	2.52	2.90	3.31	3.79	4.41	5.38	6.27
Ann	33.37	35.78	38.85	41.18	43.24	45.22	47.27	49.52	52.25	56.19	59.60

\+ 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: 1955-2001
(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	1.0	.0	#	0	5.6	1973	8	5.6	1973	6	1988	8	1	1982	.7	.4	.1	.1	.0	.5	.2	.0	.0
Feb	1.7	.0	#	0	7.0	1979	18	15.0	1979	10	1979	19	1	1980	.6	.5	.3	.1	.0	.1	.1	.1	.0
Mar	.2	.0	0	0	2.0	1978	3	2.0	1978	9	1980	3	1	1980	.2	.2	.0	.0	.0	.1	.0	.0	.0
Apr	#	.0	0	0	#	1983	18	#	1983	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	.6	2000	20	.6	2000	0	0	0	0	0	.1	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.3	.0	#	0	2.5	1971	3	3.0	1971	2	1993	23	#	1993	.2	.1	.0	.0	.0	.0	.0	.0	.0
Ann	3.2	.0	N/A	N/A	7.0	Feb 1979	18	15.0	Feb 1979	10	Feb 1979	19	1+	Jan 1982	1.8	1.2	.4	.2	.0	.7	.3	.1	.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	5/13	5/06	5/01	4/26	4/22	4/18	4/13	4/08	4/01
32	4/27	4/20	4/14	4/09	4/05	4/01	3/27	3/21	3/14
28	4/13	4/05	3/31	3/27	3/23	3/18	3/14	3/09	3/02
24	3/21	3/14	3/09	3/05	3/01	2/24	2/20	2/15	2/08
20	3/06	2/27	2/22	2/18	2/14	2/10	2/05	1/31	1/24
16	2/25	2/16	2/10	2/04	1/30	1/24	1/18	1/07	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	10/24	10/27	10/29	11/02	11/06
32	10/17	10/22	10/26	10/30	11/02	11/05	11/08	11/12	11/18
28	10/31	11/05	11/08	11/11	11/14	11/17	11/20	11/24	11/29
24	11/06	11/14	11/19	11/24	11/28	12/03	12/08	12/13	12/21
20	11/24	12/03	12/10	12/16	12/22	12/27	1/02	1/09	1/18
16	12/11	12/20	12/27	1/02	1/07	1/13	1/21	2/01	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	209	201	195	189	184	179	174	168	160
32	237	228	221	215	210	205	199	192	183
28	262	253	247	241	236	231	225	219	210
24	301	291	284	278	272	267	261	254	244
20	342	330	322	315	309	303	297	289	279
16	>365	>365	>365	350	339	331	324	316	306

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	806	649	460	216	45	2	0	0	12	186	435	703	3514
60	660	509	317	114	11	0	0	0	2	96	299	549	2557
57	572	432	240	70	3	0	0	0	0	59	226	463	2065
55	516	380	195	47	1	0	0	0	0	41	184	405	1769
50	384	259	105	14	0	0	0	0	0	13	98	273	1146
32	76	25	1	0	0	0	0	0	0	0	0	23	125

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	294	300	566	796	1107	1302	1468	1407	1181	883	559	342	10205
55	20	11	47	154	396	612	755	694	491	211	52	12	3455
57	15	7	31	116	336	552	693	632	431	168	35	8	3024
60	9	0	15	70	250	462	600	539	343	112	18	1	2419
65	0	0	3	22	129	314	445	384	203	46	4	0	1550
70	0	0	0	4	49	179	290	237	93	13	0	0	865

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	136	184	378	598	844	1071	1226	1175	963	659	373	190	136	320	698	1296	2140	3211	4437	5612	6575	7234	7607	7797
45	69	105	254	452	689	921	1071	1020	813	505	250	105	69	174	428	880	1569	2490	3561	4581	5394	5899	6149	6254
50	33	52	148	316	535	771	916	865	663	357	150	56	33	85	233	549	1084	1855	2771	3636	4299	4656	4806	4862
55	12	19	77	192	385	621	761	710	513	219	76	25	12	31	108	300	685	1306	2067	2777	3290	3509	3585	3610
60	0	4	36	105	247	472	606	555	366	118	31	7	0	4	40	145	392	864	1470	2025	2391	2509	2540	2547
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	91	126	236	378	553	733	847	816	649	412	233	119	91	217	453	831	1384	2117	2964	3780	4429	4841	5074	5193

(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