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: BENT CREEK, NC **COOP ID: 310724**

Climate Division: NC 1 **NWS Call Sign:** **Elevation: 2,110 Feet** **Lat: 35˚30N** **Lon: 82˚36W**

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	47.2	26.3	36.8	82	1952	1	47.7	1974	-16	1985	21	25.7	1977	876	0	.0	.0	13.8	2.4	22.0	.4
Feb	51.7	28.0	39.9	81	1977	26	45.8	1990	-5	1996	5	31.9	1978	705	0	.0	.0	17.1	1.5	19.1	@
Mar	59.7	34.5	47.1	85+	1954	31	51.8	1997	-1	1993	15	42.2	1971	556	0	.0	.0	26.2	.3	13.3	@
Apr	69.0	40.8	54.9	90	1986	27	59.3	1994	17	1960	11	50.7	1983	305	3	.0	@	29.1	.0	6.1	.0
May	75.5	49.9	62.7	91+	1996	19	67.5	1991	26+	1989	8	58.8	1997	123	52	.0	@	30.9	.0	.7	.0
Jun	81.1	57.6	69.4	98+	1954	28	72.6	1994	33	1966	2	65.3	1972	14	145	.0	1.3	30.0	.0	.0	.0
Jul	84.2	62.0	73.1	98	1952	30	77.7	1993	40	1963	11	70.2	1979	0	252	.0	5.1	31.0	.0	.0	.0
Aug	82.7	61.1	71.9	100	1983	21	75.2	1995	38	1963	15	69.4	1992	2	215	@	2.5	31.0	.0	.0	.0
Sep	77.5	54.9	66.2	97	1954	7	71.1	1998	29	1967	30	62.9	1984	55	91	.0	.8	30.0	.0	.1	.0
Oct	68.6	43.1	55.9	89+	1954	6	62.5	1984	15	1952	22	50.5	1988	296	12	.0	.0	30.7	.0	5.1	.0
Nov	59.0	35.3	47.2	83	1955	17	55.8	1985	-1	1950	26	40.5	1976	536	0	.0	.0	25.0	.1	13.2	.0
Dec	50.2	28.8	39.5	76+	1998	8	47.0	1971	-9	1962	13	31.5	2000	790	0	.0	.0	17.4	1.1	20.7	.2
Ann	67.2	43.5	55.4	100	Aug 1983	21	77.7	Jul 1993	-16	Jan 1985	21	25.7	Jan 1977	4258	770	@	9.7	312.2	5.4	100.3	.6

\+ 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: 1949-2001

(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	4.02	3.34	3.45	1995	14	11.29	1998	.50	1981
Feb	3.91	4.52	3.82	1966	13	7.25	1990	.39	1980
Mar	5.17	4.29	4.12	1968	12	10.62	1975	.99	1985
Apr	3.82	3.97	4.07	1957	5	8.31	1998	.44	1975
May	4.39	3.76	4.73	1973	28	9.66	1973	.65	1988
Jun	3.81	3.77	3.30	1967	4	9.04	1989	1.10	1990
Jul	3.93	3.71	2.89	1957	26	7.81	1991	1.34	1977
Aug	3.92	3.27	3.46	1994	17	7.78	1978	.25	1997
Sep	4.12	2.79	4.48	1997	24	12.22	1997	.03	1984
Oct	3.26	2.97	4.93	1964	4	8.97	1990	.01	2000
Nov	4.11	3.98	4.47	1979	2	10.46	1979	1.08	1981
Dec	3.31	3.33	3.78	1958	28	8.22	1973	.41	1985
Ann	47.77	46.93	4.93	Oct 1964	4	12.22	Sep 1997	.01	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.3	7.2	2.7	1.1
Feb	8.3	6.2	2.5	1.3
Mar	11.1	7.9	3.2	1.5
Apr	9.1	6.2	2.5	1.1
May	10.8	7.8	2.8	1.1
Jun	11.0	7.9	2.4	.8
Jul	11.2	7.8	2.8	.9
Aug	10.9	7.1	2.4	.9
Sep	8.6	6.4	2.8	1.1
Oct	6.8	5.1	2.0	1.0
Nov	8.7	5.8	2.6	1.2
Dec	9.0	6.2	2.1	.9
Ann	114.8	81.6	30.8	12.9

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	1.07	1.45	2.03	2.54	3.04	3.57	4.15	4.85	5.75	7.17	8.50
Feb	.84	1.20	1.77	2.29	2.81	3.37	4.00	4.75	5.74	7.33	8.83
Mar	1.62	2.11	2.84	3.47	4.07	4.70	5.38	6.19	7.23	8.85	10.35
Apr	.98	1.34	1.89	2.39	2.87	3.38	3.95	4.62	5.50	6.89	8.19
May	1.26	1.68	2.30	2.85	3.39	3.94	4.56	5.28	6.23	7.70	9.07
Jun	1.11	1.47	2.02	2.49	2.95	3.43	3.95	4.58	5.39	6.65	7.83
Jul	1.15	1.52	2.08	2.57	3.04	3.54	4.08	4.73	5.56	6.86	8.07
Aug	.77	1.12	1.70	2.23	2.76	3.34	3.99	4.77	5.81	7.48	9.07
Sep	.44	.75	1.32	1.89	2.51	3.21	4.02	5.03	6.42	8.70	10.94
Oct	.17	.35	.73	1.17	1.67	2.27	2.99	3.93	5.25	7.50	9.76
Nov	1.32	1.71	2.28	2.78	3.25	3.74	4.28	4.91	5.72	6.98	8.14
Dec	.68	.98	1.47	1.91	2.36	2.84	3.38	4.03	4.89	6.26	7.56
Ann	32.97	35.80	39.45	42.24	44.72	47.12	49.61	52.37	55.73	60.61	64.85

\+ 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: 1949-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	3.7	1.5	#	0
Feb	3.1	2.0	#	#
Mar	1.7	.0	#	0
Apr	.6	.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	.0	.0	#	0
Dec	1.5	.0	#	0
Ann	10.6	3.5	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	11.0	1988	7	16.0	1996	12	1996	7	3	1988
Feb	9.0	1979	18	17.0	1979	9	1979	18	4	1978
Mar	17.5	1993	13	18.0	1993	17	1993	13	2	1993
Apr	13.0	1987	3	14.0	1987	13	1987	3	1	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	.0	0	0	.0	0	2	2000	11	#	2000
Dec	13.0	1971	3	13.0	1971	13	1971	3	1	1993
Ann	17.5	Mar 1993	13	18.0	Mar 1993	17	Mar 1993	13	4	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.0	.9	.4	.2	@
Feb	.9	.8	.4	.2	.0
Mar	.4	.4	.1	.1	.1
Apr	.1	.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	.0	.0	.0	.0	.0
Dec	.3	.3	.2	.1	.1
Ann	2.7	2.5	1.1	.6	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	2.0	1.5	.9	.2
Feb	.9	.2	.0	.0
Mar	.6	.3	.2	.1
Apr	.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	.5	.3	@	@
Ann	4.1	2.4	1.2	.3

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

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	9/21	9/25	9/28	10/01	10/03	10/06	10/08	10/11	10/15
32	9/29	10/03	10/06	10/09	10/12	10/14	10/17	10/20	10/24
28	10/10	10/15	10/18	10/21	10/24	10/27	10/30	11/02	11/07
24	10/21	10/27	11/01	11/05	11/08	11/12	11/16	11/21	11/27
20	11/03	11/08	11/12	11/16	11/19	11/22	11/25	11/29	12/04
16	11/16	11/25	12/01	12/06	12/11	12/16	12/21	12/27	1/05

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	163	156	151	147	143	140	136	131	124
32	182	176	172	168	164	161	157	153	147
28	208	203	199	195	192	189	185	181	175
24	251	243	236	231	226	221	216	210	201
20	275	267	261	257	252	248	243	237	230
16	328	315	306	299	292	286	279	271	260

***** 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	876	705	556	305	123	14	0	2	55	296	536	790	4258
60	721	565	405	173	47	1	0	0	14	173	391	635	3125
57	635	481	318	109	22	0	0	0	5	116	309	543	2538
55	577	425	264	75	11	0	0	0	2	85	258	487	2184
50	436	294	150	22	1	0	0	0	0	32	150	345	1430
32	92	20	2	0	0	0	0	0	0	0	3	40	157

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	238	239	468	687	952	1121	1274	1237	1026	740	456	274	8712
55	11	0	18	73	250	431	561	524	338	112	21	7	2346
57	7	0	10	46	198	371	499	462	281	81	13	2	1970
60	0	0	3	20	131	282	406	369	200	45	5	0	1461
65	0	0	0	3	52	145	252	215	91	12	0	0	770
70	0	0	0	0	12	48	114	85	26	2	0	0	287

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	80	116	265	459	709	890	1039	1006	803	513	255	119	80	196	461	920	1629	2519	3558	4564	5367	5880	6135	6254
45	34	51	156	318	555	740	884	851	653	364	146	58	34	85	241	559	1114	1854	2738	3589	4242	4606	4752	4810
50	6	19	75	196	402	590	729	696	503	223	69	26	6	25	100	296	698	1288	2017	2713	3216	3439	3508	3534
55	0	2	31	99	257	440	574	541	357	113	27	3	0	2	33	132	389	829	1403	1944	2301	2414	2441	2444
60	0	0	4	37	135	293	419	386	220	45	4	0	0	0	4	41	176	469	888	1274	1494	1539	1543	1543
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	57	92	182	303	454	593	708	682	524	327	171	79	57	149	331	634	1088	1681	2389	3071	3595	3922	4093	4172

(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