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: HENDERSONVILLE 1 NE, NC **COOP ID: 313976**

Climate Division: NC 1 **NWS Call Sign:** **Elevation: 2,160 Feet** **Lat: 35˚20N** **Lon: 82˚27W**

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	46.7	25.2	36.0	76+	1975	31	47.6	1974	-14	1985	21	23.9	1977	901	0	.0	.0	14.2	2.5	21.1	.3
Feb	50.7	26.9	38.8	81	1951	26	44.9	1990	-2+	1958	18	29.9	1978	734	0	.0	.0	16.9	1.5	18.0	@
Mar	58.5	33.9	46.2	84	1985	30	51.4	1997	-2	1993	15	40.0	1971	582	0	.0	.0	26.3	.1	11.2	@
Apr	67.0	40.9	54.0	91	1986	27	59.0	1981	21+	1960	11	50.5	1973	333	2	.0	@	29.3	.0	3.7	.0
May	74.3	51.3	62.8	92	1953	30	67.3	1998	24	1971	4	59.0	1971	125	57	.0	.1	30.9	.0	.2	.0
Jun	80.6	59.0	69.8	97	1954	27	74.3	1981	35	1966	2	65.4	1972	17	162	.0	2.1	30.0	.0	.0	.0
Jul	84.3	63.7	74.0	100+	1952	29	77.9	1993	45+	1964	6	69.9	1971	0	280	.0	6.1	31.0	.0	.0	.0
Aug	82.5	62.2	72.4	101	1983	23	76.7	1983	40	1968	29	69.0	1976	4	231	.1	3.0	31.0	.0	.0	.0
Sep	76.9	55.7	66.3	97	1954	6	71.0	1998	30+	1967	30	63.3	1976	44	83	.0	.6	30.0	.0	.0	.0
Oct	67.8	43.1	55.5	91	1954	5	63.7	1984	17	1952	30	50.1	1988	309	14	.0	.0	30.7	.0	2.8	.0
Nov	58.4	34.5	46.5	81	1974	2	56.2	1985	-2	1950	26	40.1	1976	556	0	.0	.0	24.8	.1	11.8	.0
Dec	49.7	27.8	38.8	77+	1998	7	47.4	1984	-4	1983	25	31.1	1989	814	0	.0	.0	17.2	.9	19.7	.1
Ann	66.5	43.7	55.1	101	Aug 1983	23	77.9	Jul 1993	-14	Jan 1985	21	23.9	Jan 1977	4419	829	.1	11.9	312.3	5.1	88.5	.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

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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	5.20	4.43	5.71	1998	8	11.96	1998	.39	1981
Feb	4.58	4.90	5.00	1966	13	9.78	1998	.46	1978
Mar	5.94	5.32	4.63	1991	29	10.85	1975	1.08	1985
Apr	4.16	4.18	3.69	1992	21	8.16	1979	.13	1976
May	4.88	4.58	4.90	1973	28	11.18	1976	1.19	1988
Jun	4.76	4.54	3.55	1957	5	11.92	1989	.64	1993
Jul	4.53	4.15	4.44	1964	19	9.70	1994	.80	1998
Aug	5.41	4.46	9.16	1961	24	14.41	1994	.99	1981
Sep	4.29	4.19	4.92	1959	30	10.22	1977	.16	1984
Oct	3.97	4.10	3.75	1990	12	10.10	1971	.03	2000
Nov	4.64	4.47	3.67	1977	6	10.22	1992	1.10	1981
Dec	4.26	4.06	4.90	1950	7	10.63	1973	.75	1980
Ann	56.62	56.89	9.16	Aug 1961	24	14.41	Aug 1994	.03	Oct 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.2	7.5	3.4	1.6
Feb	9.1	6.6	3.1	1.5
Mar	11.9	8.4	3.7	1.8
Apr	9.7	6.3	3.1	1.6
May	12.0	8.1	3.2	1.4
Jun	11.9	8.4	3.2	1.4
Jul	12.4	8.0	3.0	1.1
Aug	13.5	8.4	3.1	1.4
Sep	10.4	6.6	3.1	1.5
Oct	8.0	5.4	2.6	1.3
Nov	9.7	6.6	3.2	1.6
Dec	10.4	7.2	2.9	1.2
Ann	130.2	87.5	37.6	17.4

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	1.39	1.88	2.63	3.29	3.94	4.62	5.38	6.28	7.45	9.28	11.00
Feb	1.13	1.56	2.22	2.82	3.41	4.03	4.72	5.54	6.62	8.33	9.93
Mar	1.82	2.38	3.23	3.95	4.65	5.38	6.18	7.12	8.34	10.23	11.99
Apr	.74	1.11	1.71	2.28	2.86	3.49	4.20	5.07	6.22	8.08	9.85
May	1.36	1.82	2.52	3.13	3.73	4.36	5.05	5.87	6.94	8.61	10.16
Jun	1.36	1.81	2.49	3.09	3.67	4.27	4.94	5.73	6.76	8.36	9.86
Jul	1.41	1.84	2.48	3.03	3.56	4.11	4.72	5.43	6.34	7.77	9.09
Aug	1.30	1.81	2.60	3.30	4.00	4.74	5.56	6.55	7.84	9.88	11.81
Sep	.81	1.19	1.82	2.40	3.00	3.63	4.36	5.23	6.39	8.26	10.04
Oct	.40	.70	1.24	1.79	2.39	3.06	3.85	4.84	6.19	8.43	10.62
Nov	1.73	2.17	2.79	3.31	3.80	4.31	4.85	5.49	6.30	7.55	8.69
Dec	1.16	1.56	2.18	2.71	3.24	3.80	4.41	5.14	6.08	7.57	8.95
Ann	40.15	43.34	47.42	50.52	53.28	55.94	58.70	61.74	65.43	70.79	75.42

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	3.7	2.0	#	0
Feb	2.7	1.0	#	0
Mar	1.3	.0	#	0
Apr	.5	.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	.3	.0	#	0
Dec	.9	.0	#	0
Ann	9.4	3.0	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	11.5	1988	7	16.5	1987	12	1988	7	2	1988
Feb	11.0	1979	18	20.5	1979	4+	1989	17	#+	1994
Mar	18.0	1993	14	18.0	1993	7	1983	24	#+	1998
Apr	6.0	1987	3	6.0	1987	6	1987	4	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	6.0	1975	23	6.0	1975	#	1999	3	#	1999
Dec	5.0	1993	21	8.0	1993	5	1993	21	#+	1999
Ann	18.0	Mar 1993	14	20.5	Feb 1979	12	Jan 1988	7	2	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.3	1.0	.6	.3	.1
Feb	.9	.7	.3	.1	@
Mar	.4	.4	.2	.2	@
Apr	.1	.1	.1	@	.0
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	.2	.2	.1	@	.0
Dec	.5	.4	.1	@	.0
Ann	3.4	2.8	1.4	.6	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.2	.9	.6	.2
Feb	.8	.2	.0	.0
Mar	.2	@	@	.0
Apr	.2	.1	.1	.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	.0
Dec	.2	.1	.1	.0
Ann	2.6	1.3	.8	.2

+ 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	5/14	5/09	5/05	5/02	4/29	4/26	4/23	4/19	4/14
32	5/05	4/29	4/25	4/21	4/18	4/15	4/12	4/08	4/02
28	4/22	4/15	4/09	4/05	4/01	3/27	3/23	3/18	3/10
24	4/08	3/31	3/26	3/21	3/17	3/13	3/08	3/03	2/23
20	3/20	3/13	3/08	3/04	2/28	2/24	2/20	2/15	2/08
16	3/09	3/01	2/22	2/17	2/12	2/07	2/02	1/26	1/18

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	9/30	10/03	10/06	10/08	10/10	10/12	10/14	10/17	10/21
32	10/06	10/11	10/14	10/18	10/21	10/24	10/27	10/30	11/05
28	10/15	10/21	10/26	10/30	11/02	11/06	11/09	11/14	11/20
24	10/29	11/04	11/09	11/13	11/16	11/20	11/23	11/28	12/04
20	11/13	11/20	11/25	11/29	12/03	12/06	12/11	12/15	12/22
16	11/24	12/02	12/09	12/14	12/19	12/24	12/29	1/05	1/13

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	184	177	172	168	163	159	155	150	143
32	208	200	194	189	185	180	175	169	161
28	240	232	225	220	215	210	204	198	189
24	275	264	256	250	243	237	231	223	212
20	301	293	287	282	277	272	267	261	252
16	348	330	320	313	306	299	292	284	273

***** 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.

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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	901	734	582	333	125	17	0	4	44	309	556	814	4419
60	746	594	431	196	50	2	0	0	9	187	411	659	3285
57	659	510	344	128	23	0	0	0	3	130	329	567	2693
55	601	454	290	90	13	0	0	0	1	98	277	511	2335
50	459	325	173	29	2	0	0	0	0	42	166	368	1564
32	105	32	5	0	0	0	0	0	0	0	4	49	195

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	228	222	446	659	955	1135	1303	1251	1030	728	437	259	8653
55	10	1	18	59	254	445	590	538	341	113	20	7	2396
57	7	0	11	36	203	385	528	476	283	83	13	1	2026
60	0	0	4	15	137	297	435	383	199	47	5	0	1522
65	0	0	0	2	57	162	280	231	83	14	0	0	829
70	0	0	0	0	15	64	140	104	19	2	0	0	344

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	89	130	291	483	743	922	1077	1033	820	526	265	130	89	219	510	993	1736	2658	3735	4768	5588	6114	6379	6509
45	35	61	174	339	588	772	922	878	670	374	156	64	35	96	270	609	1197	1969	2891	3769	4439	4813	4969	5033
50	10	21	86	213	433	622	767	723	520	236	74	30	10	31	117	330	763	1385	2152	2875	3395	3631	3705	3735
55	0	4	37	110	284	473	612	568	371	123	30	4	0	4	41	151	435	908	1520	2088	2459	2582	2612	2616
60	0	0	4	44	154	325	457	413	232	51	1	0	0	0	4	48	202	527	984	1397	1629	1680	1681	1681
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	57	92	187	307	465	617	742	707	534	325	168	83	57	149	336	643	1108	1725	2467	3174	3708	4033	4201	4284

(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.
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