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: WILMINGTON NEW HANVR AP, NC **COOP ID: 319457**

Climate Division: NC 6 **NWS Call Sign: ILM** **Elevation: 30 Feet** **Lat: 34˚16N** **Lon: 77˚54W**

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	56.3	35.8	46.1	82	1975	31	58.8	1974	5	1985	21	35.8	1977	589	3	.0	.0	22.8	.3	12.4	.0
Feb	59.5	37.5	48.5	85	1962	28	55.5	1990	10	1934	10	38.5	1978	474	4	.0	.0	22.1	.2	9.5	.0
Mar	66.2	43.7	55.0	89+	1974	9	60.8	1976	9	1980	4	49.9	1981	331	17	.0	.0	29.6	@	3.7	.0
Apr	74.1	51.2	62.7	95	1967	7	66.5	1991	30+	1983	20	57.4	1983	134	65	.0	.9	30.0	.0	.3	.0
May	80.6	59.8	70.2	98+	1953	31	74.9	1991	35	1963	2	66.9	1992	28	187	.0	2.3	31.0	.0	.0	.0
Jun	86.4	67.6	77.0	104	1952	27	80.9	1998	48	1983	2	72.7	1972	1	361	.1	8.8	30.0	.0	.0	.0
Jul	89.9	72.3	81.1	102+	1977	9	84.1	1993	55	1988	2	77.9	1984	0	501	.3	17.1	31.0	.0	.0	.0
Aug	88.3	71.0	79.7	103	1999	1	82.6	1999	55	1982	30	76.9	1981	0	455	.1	12.2	31.0	.0	.0	.0
Sep	84.1	65.9	75.0	98+	1975	4	78.7	1980	44	1981	24	71.0	1984	3	304	.0	4.8	30.0	.0	.0	.0
Oct	75.6	53.9	64.8	95+	1986	3	71.1	1985	27	1962	27	59.2	1988	95	90	.0	.2	31.0	.0	.1	.0
Nov	67.8	45.1	56.5	87	1974	2	66.6	1985	16	1950	26	49.7	1976	277	25	.0	.0	29.2	.0	3.1	.0
Dec	59.6	38.1	48.9	82+	1998	8	57.5	1984	0	1989	25	38.6	1989	497	5	.0	.0	25.6	.1	10.2	@
Ann	74.0	53.5	63.8	104	Jun 1952	27	84.1	Jul 1993	0	Dec 1989	25	35.8	Jan 1977	2429	2017	.5	46.3	343.3	.6	39.3	@

\+ 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: 1933-2001

(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	4.52	4.73	3.03	1998	23	10.22	1991	1.09	1981
Feb	3.66	3.36	3.37	1998	3	11.22	1998	1.01	1976
Mar	4.22	4.09	5.12	1936	10	8.27	1994	1.66	1985
Apr	2.94	2.99	3.50	1961	9	7.60	1989	.16	1995
May	4.40	3.64	5.02	1999	1	8.16	1999	.95	1987
Jun	5.36	4.99	7.69	1945	25	12.74	1976	.89	1984
Jul	7.62	7.61	6.49	1988	22	14.49	1988	2.82	1979
Aug	7.31	5.94	6.77	1998	26	14.06	1981	2.48	1979
Sep	6.79	5.79	13.38	1999	15	23.41	1999	.70	1986
Oct	3.21	2.50	5.50	1994	13	9.31	1995	.38+	2000
Nov	3.26	2.99	4.06	1951	6	7.87	1972	.49	1973
Dec	3.78	3.84	3.99	1941	23	7.06	1989	.59	1988
Ann	57.07	57.92	13.38	Sep 1999	15	23.41	Sep 1999	.16	Apr 1995

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.3	7.7	3.0	1.2
Feb	9.4	6.3	2.6	1.0
Mar	9.9	6.7	2.8	1.3
Apr	7.5	4.9	1.7	.9
May	9.5	6.5	2.8	1.0
Jun	10.0	6.9	3.3	1.7
Jul	12.8	9.2	4.3	2.4
Aug	12.7	8.6	4.3	2.1
Sep	10.2	6.7	3.7	2.1
Oct	6.8	4.4	2.0	.9
Nov	8.5	5.3	1.9	1.1
Dec	9.5	6.0	2.5	1.0
Ann	118.1	79.2	34.9	16.7

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	1.63	2.06	2.67	3.18	3.67	4.17	4.72	5.35	6.17	7.42	8.56
Feb	.95	1.29	1.82	2.29	2.75	3.24	3.78	4.42	5.25	6.57	7.81
Mar	1.71	2.10	2.65	3.10	3.53	3.96	4.43	4.96	5.65	6.69	7.64
Apr	.48	.73	1.16	1.56	1.98	2.43	2.96	3.59	4.44	5.82	7.14
May	1.28	1.70	2.32	2.87	3.40	3.95	4.56	5.28	6.22	7.67	9.03
Jun	1.56	2.07	2.83	3.50	4.15	4.82	5.56	6.44	7.58	9.36	11.01
Jul	3.19	3.89	4.86	5.66	6.41	7.17	7.99	8.93	10.12	11.93	13.58
Aug	2.47	3.16	4.17	5.03	5.85	6.70	7.62	8.71	10.09	12.24	14.22
Sep	1.05	1.63	2.62	3.55	4.52	5.59	6.80	8.29	10.29	13.53	16.64
Oct	.30	.53	.96	1.41	1.90	2.45	3.10	3.91	5.03	6.89	8.71
Nov	.70	1.00	1.48	1.91	2.35	2.81	3.33	3.96	4.78	6.10	7.35
Dec	.97	1.33	1.87	2.36	2.84	3.34	3.90	4.57	5.43	6.81	8.09
Ann	45.23	47.62	50.62	52.87	54.84	56.72	58.65	60.76	63.29	66.92	70.01

\+ 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: 1933-2001
(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	.6	.0	#	0	5.0	1988	15	6.1	2000	3+	2000	26	#	2000	.3	.2	.1	.1	.0	.5	.1	.0	.0
Feb	.5	.0	#	0	6.8	1973	9	12.5	1973	8	1973	11	1	1973	.3	.1	.1	.1	.0	.2	.1	.1	.0
Mar	.4	.0	#	0	5.2	1980	2	6.6	1980	7	1980	3	1	1980	.2	.1	@	@	.0	.1	.1	.1	.0
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	#	1997	.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	#	1976	14	#	1976	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.6	.0	#	0	9.6	1989	23	15.3	1989	13+	1989	25	2	1989	.3	.1	.1	@	.0	.3	.3	.2	.1
Ann	2.1	.0	N/A	N/A	9.6	Dec 1989	23	15.3	Dec 1989	13+	Dec 1989	25	2	Dec 1989	1.1	.5	.3	.2	.0	1.1	.6	.4	.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	4/15	4/10	4/06	4/03	3/31	3/28	3/25	3/21	3/16
32	4/08	4/01	3/27	3/23	3/19	3/15	3/11	3/06	2/27
28	3/19	3/13	3/08	3/05	3/01	2/25	2/22	2/17	2/11
24	3/06	2/27	2/22	2/17	2/13	2/09	2/05	1/30	1/22
20	2/18	2/11	2/05	1/31	1/25	1/19	1/10	0/00	0/00
16	2/08	1/29	1/20	1/08	0/00	0/00	0/00	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	10/16	10/22	10/27	10/31	11/03	11/07	11/11	11/15	11/21
32	10/31	11/06	11/10	11/14	11/18	11/21	11/25	11/29	12/06
28	11/14	11/21	11/26	11/30	12/05	12/09	12/13	12/18	12/25
24	11/29	12/07	12/14	12/20	12/25	12/30	1/05	1/12	1/23
20	12/17	12/25	12/31	1/06	1/11	1/18	1/26	0/00	0/00
16	1/02	1/14	1/24	2/06	0/00	0/00	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	242	233	227	221	216	211	206	199	191
32	269	260	254	248	243	238	233	226	217
28	306	296	289	283	278	272	266	259	250
24	>365	338	328	320	313	307	301	293	283
20	>365	>365	>365	>365	359	344	334	325	315
16	>365	>365	>365	>365	>365	>365	>365	>365	360

***** 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	589	474	331	134	28	1	0	0	3	95	277	497	2429
60	455	335	198	46	2	0	0	0	0	49	174	368	1627
57	375	262	139	22	0	0	0	0	0	26	123	292	1239
55	326	218	106	12	0	0	0	0	0	16	94	247	1019
50	223	131	45	2	0	0	0	0	0	4	40	155	600
32	22	3	0	0	0	0	0	0	0	0	0	7	32

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	445	465	713	920	1184	1351	1521	1477	1289	1016	734	527	11642
55	31	45	112	250	472	661	808	764	599	313	135	50	4240
57	21	32	84	203	411	601	746	702	539	259	104	36	3738
60	11	17	50	141	322	511	653	609	449	186	66	19	3034
65	3	4	17	65	187	361	501	455	304	90	25	5	2017
70	0	0	4	19	84	219	343	299	170	29	5	1	1173

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	243	285	477	690	947	1121	1284	1238	1057	778	502	313	243	528	1005	1695	2642	3763	5047	6285	7342	8120	8622	8935
45	142	181	335	540	792	971	1129	1083	907	623	361	196	142	323	658	1198	1990	2961	4090	5173	6080	6703	7064	7260
50	73	103	213	392	637	821	974	928	757	470	239	108	73	176	389	781	1418	2239	3213	4141	4898	5368	5607	5715
55	36	50	116	258	482	671	819	773	607	321	141	55	36	86	202	460	942	1613	2432	3205	3812	4133	4274	4329
60	11	17	53	147	331	521	664	618	457	191	70	22	11	28	81	228	559	1080	1744	2362	2819	3010	3080	3102
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	143	176	286	427	631	784	904	878	739	500	309	187	143	319	605	1032	1663	2447	3351	4229	4968	5468	5777	5964

(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