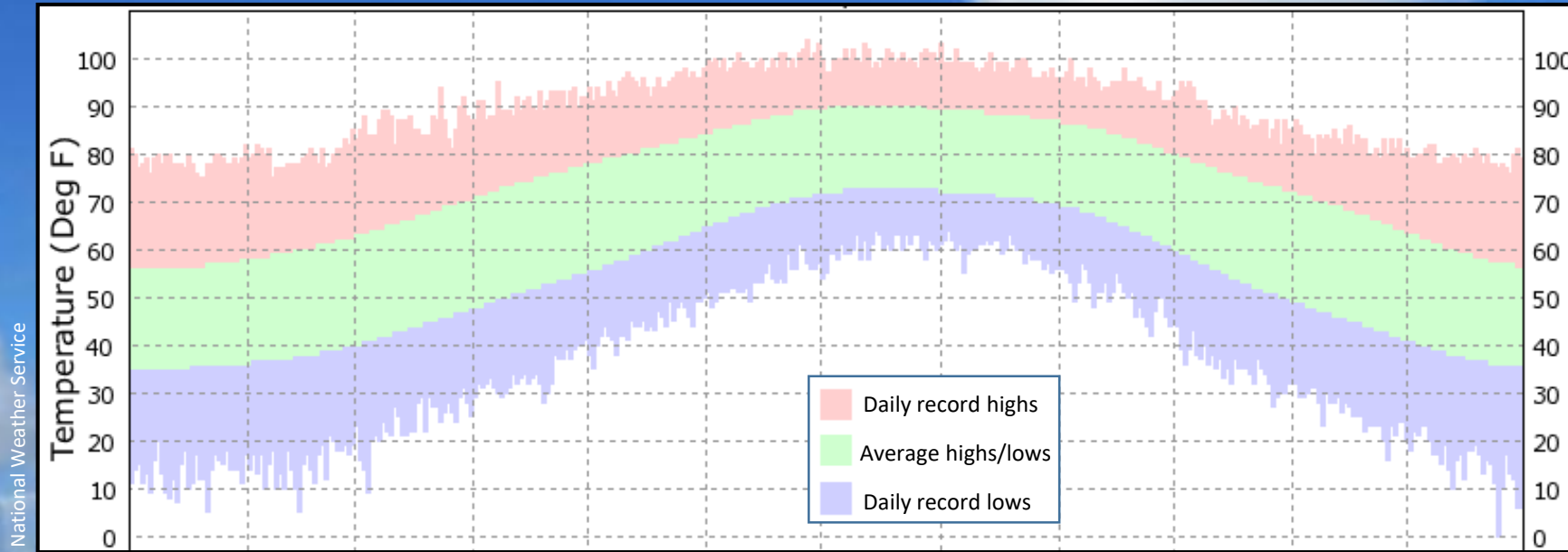


# Climate Overview of Wilmington, NC

## Temperatures



National Weather Service  
Wilmington, NC  
[weather.gov/ilm](http://weather.gov/ilm)



### All-time Heat Records

104° on June 27, 1952  
103° on June 30, 2012  
103° on August 1, 1999

### Hottest Month (avg temp)

84.7° in July 2012

### Hottest Year (avg temp)

66.5° in 1990

### Avg Number of Days per Year

≥ 80°: 157    ≥ 90°: 45    ≥ 100°: 1

### All-time Cold Records

0° on December 25, 1989  
5° on January 21, 1985  
5° on February 14, 1899

### Coldest Month (avg temp)

35.7° in January 1977

### Coldest Year (avg temp)

61.0° in 1981

### Avg Number of Nights per Year

≤ 32°: 37    ≤ 25°: 9    ≤ 20°: 2

TEMP DATA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
<b>Highest Ever</b>	82	85	94	95	101	104	103	103	100	98	87	82	104
<b>Average High</b>	57.2	60.3	66.5	74.6	81.1	87.0	90.0	88.3	83.9	76.1	67.4	60.3	74.4
<b>Average Temp</b>	46.8	49.3	55.3	63.6	71.1	78.2	81.5	80.0	75.3	65.9	56.1	49.7	64.4
<b>Average Low</b>	36.3	38.4	44.1	52.6	61.1	69.3	73.0	71.7	66.7	55.6	44.8	39.1	54.4
<b>Lowest Ever</b>	5	5	9	28	35	48	54	55	42	27	16	0	0

Wilmington has a humid subtropical climate with hot summers and cool winters. Summertime heat can become excessive, especially when high humidity accompanies hot temperatures. During the spring and summer months, seabreezes originating from the ocean to the east and south bring cooler air onshore during most afternoons. The transition seasons of fall and spring often have pleasant temperatures and comfortable humidity. Freezing temperatures occur regularly between mid-November and mid-March, but severe or long-lasting cold is very rare.

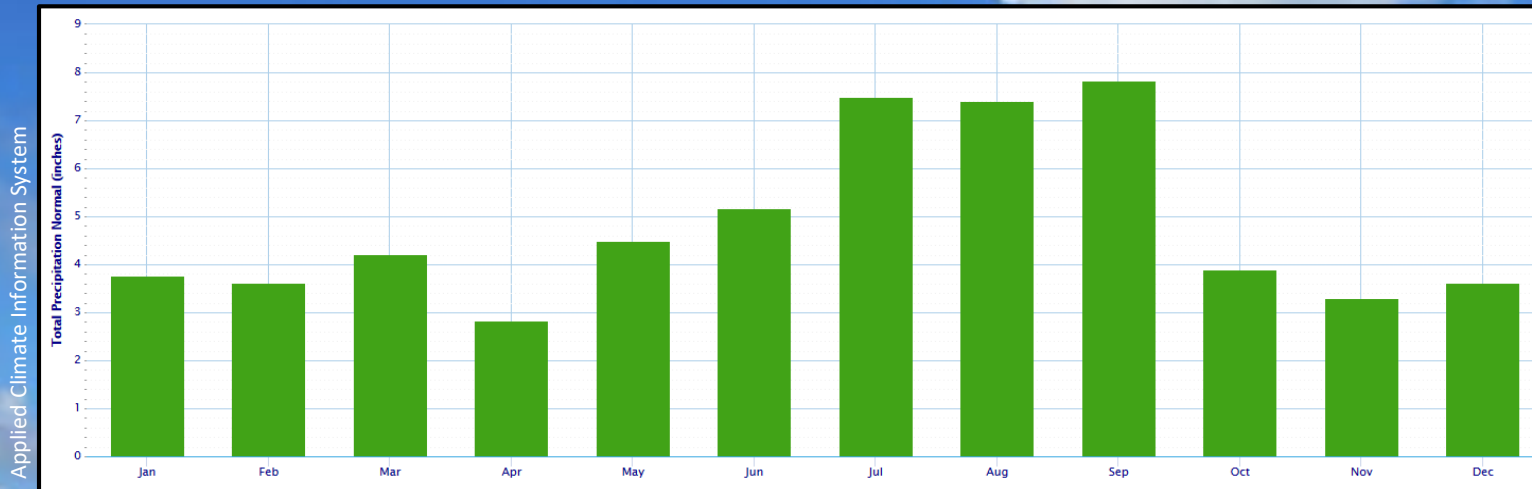
# Climate Overview of Wilmington, NC

## Rainfall



National Weather Service  
Wilmington, NC  
weather.gov/ilm

Monthly Average Rainfall Totals (inches)



Applied Climate Information System

### All-time Rainfall Records

23.02" Hurr. Florence (Sep 2018)  
22.54" Non-trop. low (Sep 2010)  
19.06" Hurr. Floyd (Sep 1999)  
13.79" Non-trop. low (Oct 2005)

### Longest Wet Streak

14 days Jul 22 to Aug 4, 2018  
(most recent of four occurrences)

### Wettest Day

13.38" on Sept 15, 1999 (Floyd)

### Wettest Month

24.13" in September 2018

### Wettest Year

102.40" in 2018

### Longest Dry Streak

42 days Sept 4 to Oct 15, 1931

### Driest Month

0.02" in October 1943

### Driest Year

27.68" in 1909

Updated June 2021

RAIN DATA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
Highest Ever	10.22"	11.22"	10.43"	8.21"	14.36"	12.87"	21.12"	18.83"	24.13"	15.91"	7.87"	8.86"	102.40"
Average	3.81"	3.47"	3.97"	3.07"	4.54"	5.67"	6.86"	8.16"	8.69"	4.66"	3.56"	3.69"	60.15"
Lowest Ever	0.45"	0.38"	0.26"	0.16"	0.10"	0.89"	1.08"	1.56"	0.12"	0.02"	0.07"	0.15"	27.68"
Avg # Days ≥ .01"	10	9	10	8	10	11	13	14	11	8	9	10	122
0.01" daily prob.	32%	33%	31%	26%	31%	37%	43%	45%	36%	26%	28%	32%	33%
0.10" daily prob.	20%	22%	20%	16%	20%	25%	28%	31%	23%	17%	17%	20%	22%
0.50" daily prob.	9%	8%	9%	6%	8%	12%	13%	16%	13%	7%	7%	8%	10%
1.00" daily prob.	4%	3%	4%	3%	4%	5%	7%	9%	8%	4%	3%	3%	5%

Wilmington receives plentiful rainfall throughout the year. The wettest season is summer when locally heavy thunderstorms occur many afternoons and evenings. Hurricanes occasionally bring flooding rain, especially during late summer or fall. The passage of low pressure systems once or twice a week brings most of our winter rainfall – typically a light and steady rain compared to other times of the year. The driest periods in Wilmington are spring and late fall when high pressure covers the area.



# Climate Overview of Wilmington, NC

## Thunderstorms



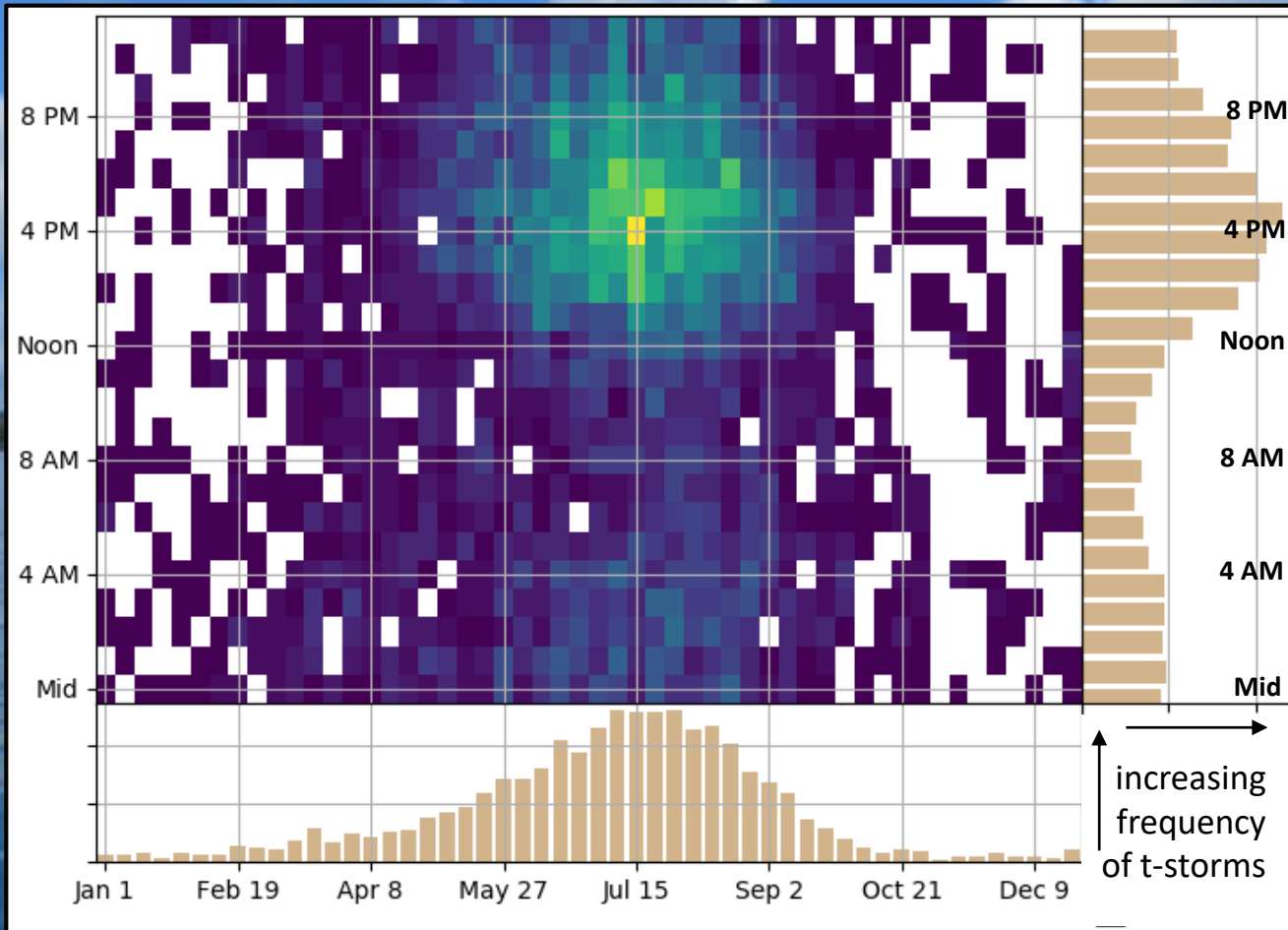
National Weather Service  
Wilmington, NC  
[weather.gov/ilm](http://weather.gov/ilm)

### Average Wilmington Thunderstorm Frequency

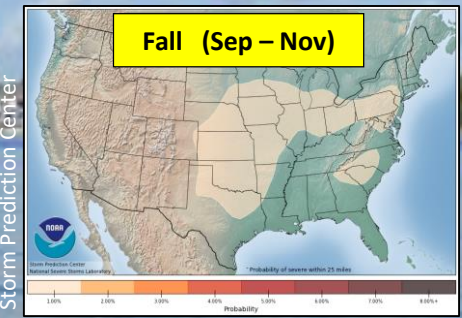
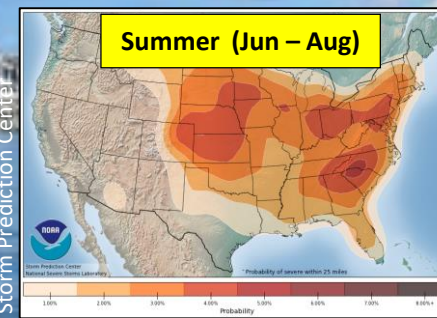
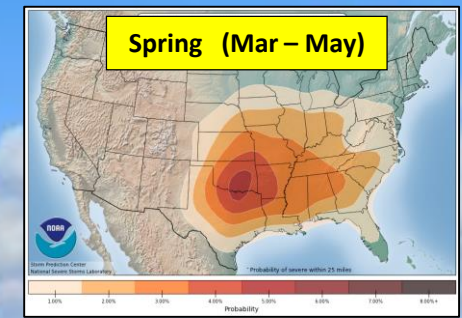
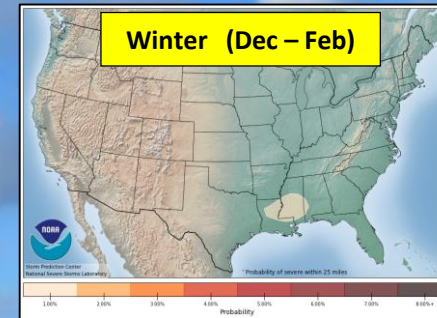
T-STORM DATA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
Avg. Days with Thunder	1	1	2	1	5	7	13	15	6	0	0	0	51

### Thunderstorm relative frequency

Green and yellow colors indicate more frequent thunderstorm occurrence



### Severe Thunderstorm Risk by Season



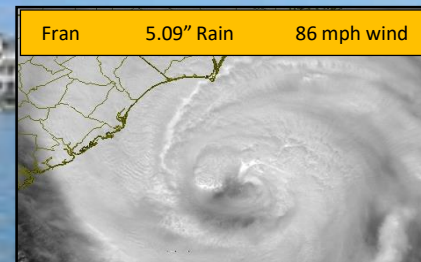
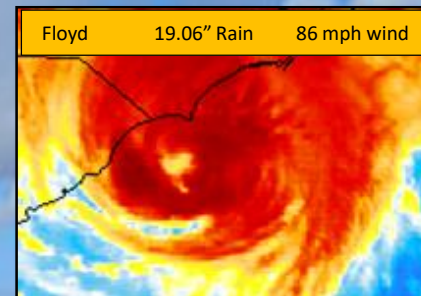
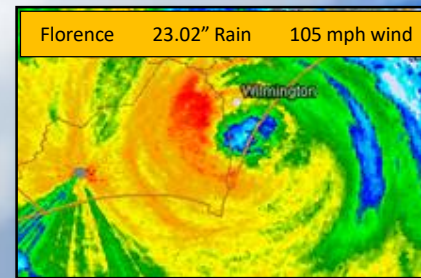
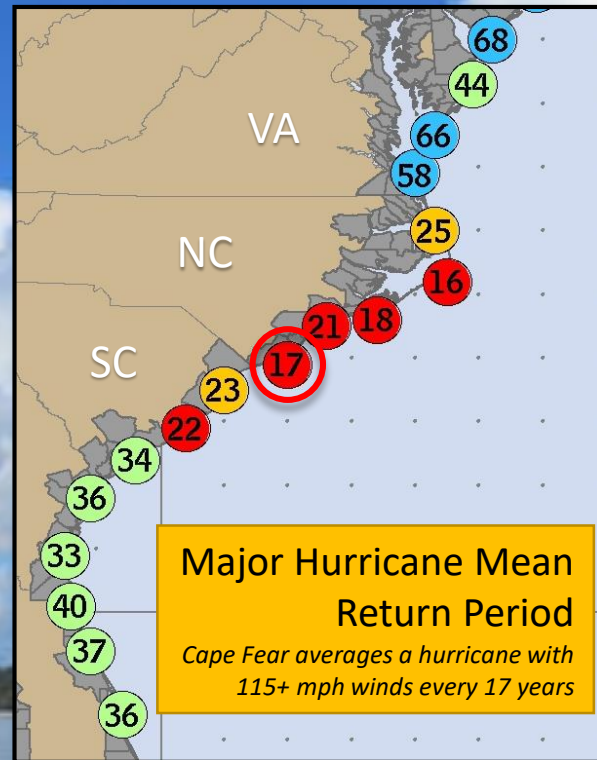
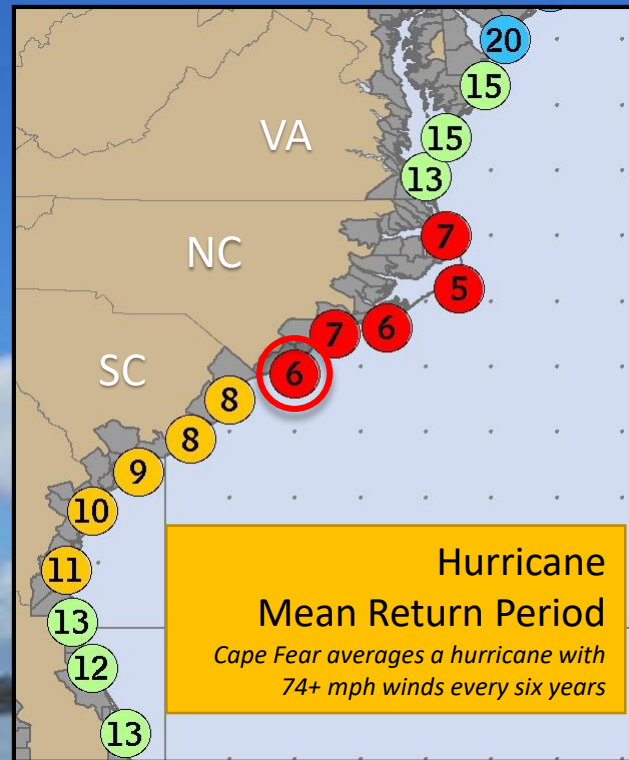
Thunderstorms are most common in Wilmington from May through September when heat and humidity are greatest. Most of these storms occur between 1 pm and 10 pm. Wilmington's severe thunderstorm risk is highest during the spring and summer months, although landfalling tropical cyclones can bring a risk of tornadoes during the fall.

# Climate Overview of Wilmington, NC

## Hurricanes



National Weather Service  
Wilmington, NC  
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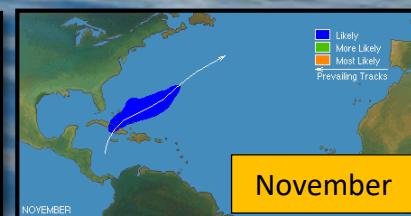
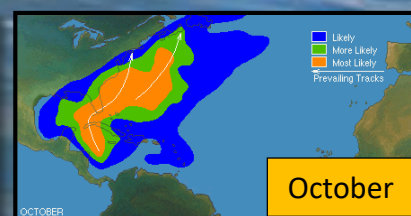
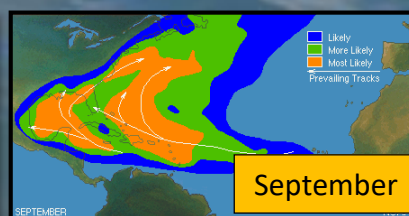
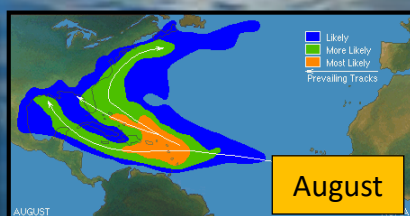
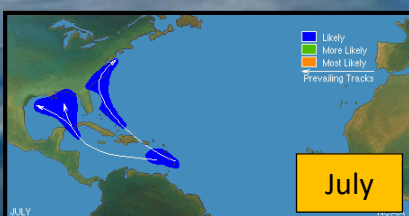
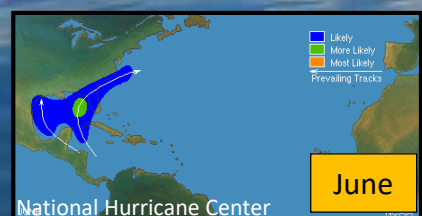
Many tropical storms and hurricanes have brought flooding, damaging winds, and even tornadoes to Wilmington. Some of the most significant storms to strike the city throughout recent history are:

Hurricane Florence	Sept 14, 2018
Hurricane Floyd	Sept 16, 1999
Hurricane Fran	Sept 5, 1996
Hurricane Diana	Sept 3, 1984
Hurricane Donna	Sept 11, 1960
Hurricane Helene	Sept 27, 1958
Hurricane Ione	Sept 19, 1955
Hurricane Connie	Aug 11, 1955
Hurricane Hazel	Oct 15, 1954
Hurricane "Six"	Sept 9, 1881

From 1871 to 2021, 73 tropical cyclones have produced wind gusts of at least 39 mph at the NWS (or US Weather Bureau) official station. Fourteen hurricanes have brought 74+ mph winds during that time.

Eastern North Carolina, south Florida, and coastal Louisiana are among the most hurricane-prone regions of the United States, averaging a hurricane strike every five to seven years.

### Climatological Tropical Storm and Hurricane Development and Risk Zones by Month





# Climate Overview of Wilmington, NC

## Snow and Wind

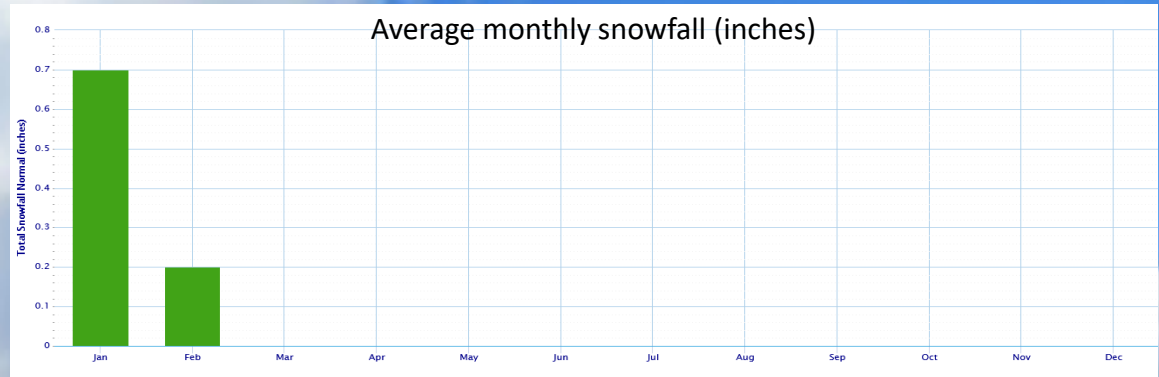


National Weather Service  
Wilmington, NC  
weather.gov/ilm

### Largest Snowstorms in Wilmington

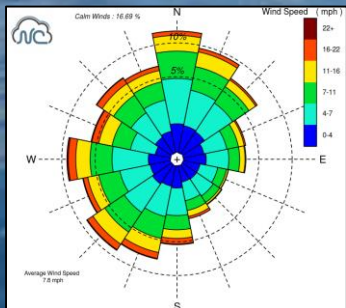
December 22-24, 1989	15.3"
February 9-11, 1974	12.5"
February 17-18, 1896	12.1"
February 10-11, 1912	9.8"
January 13-15, 1912	8.6"
February 24-25, 1942	8.0"
December 20-21, 1915	7.5"
March 1-3, 1980	6.6"
January 30, 1936	6.5"

Applied Climate Information System

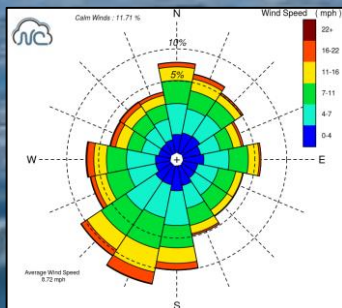


SNOW DATA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
Highest Month/Annual Total	8.6"	12.5"	6.6"	T	0	0	0	0	0	0	1.5"	15.3"	19.4"
Average Month/Annual Total	0.7"	0.2"	0	0	0	0	0	0	0	0	0	0.0"	0.9"
Monthly Chance of Measurable Snow	27%	13%	3%	0%	0%	0%	0%	0%	0%	0%	0%	7%	47%
Monthly Chance of Any Snow, incl. trace	43%	53%	17%	0%	0%	0%	0%	0%	0%	0%	3%	27%	87%

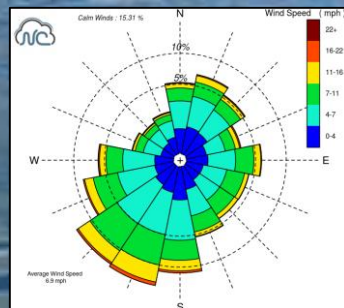
WIND DATA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
Average Speed (mph)	8.3	8.4	9.2	9.3	8.3	7.7	7.3	6.7	7.4	6.8	7.2	7.4	7.8
Prevailing Direction	SW	SW	SW	SW	SW	SW	SW	SW	NE	NE	N	N	SW



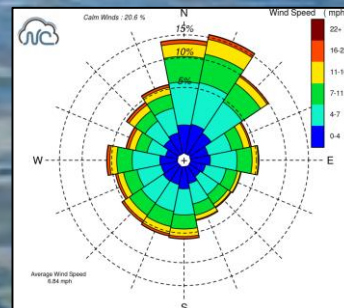
Winter (Dec-Feb)



Spring (Mar-May)



Summer (Jun-Aug)



Fall (Sep-Nov)

### Wilmington's Strongest Recorded Wind Gusts

Hurricane Helene	Sep 27, 1958	135 mph
Hurricane Florence	Sep 14, 2018	105 mph
Hurricane "Six"	Sep 9, 1881	103 mph *
Hurricane Hazel	Oct 15, 1954	98 mph
Hurricane Donna	Sep 11, 1960	97 mph
Hurricane Ione	Sep 19, 1955	92 mph

\* converted from fastest mile to 5-second gust

# Climate Overview of Wilmington, NC

## Humidity, Sky Cover, Fog



National Weather Service  
Wilmington, NC  
[weather.gov/ilm](http://weather.gov/ilm)

### Average relative humidity (percent)

REL. HUMIDITY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
1:00 AM	79	78	80	81	88	89	90	91	91	88	84	81	85
7:00 AM	81	80	82	81	85	86	87	91	91	89	86	83	85
1:00 PM	57	53	52	48	55	59	63	64	63	56	54	56	57
7:00 PM	72	68	67	64	71	74	76	80	81	81	78	75	74
Daily Average	71	69	69	68	73	76	78	80	79	76	74	72	74

Wilmington's proximity to the Atlantic Ocean provides a humid climate. Relative humidity is typically lowest during the late winter and spring months, and highest during summer.

### Sky condition (average number of clear, partly cloudy, cloudy days per month)

SKY CONDITION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
Clear	9.6	9.0	9.9	11	8.5	7.3	6.0	6.8	8.3	12.5	11.8	10.1	110.8
Partly Cloudy	6.0	5.7	7.5	8.2	10.6	10.8	12.4	11.8	9.6	7.3	7.1	7.0	104
Cloudy	15.4	13.5	13.6	10.8	11.9	11.9	12.6	12.4	12.1	11.2	11.1	13.8	150.3
Cloud Cover (%)	61	60	58	53	59	61	63	63	60	51	52	58	58
% of Psbl. Sunshine	56	59	64	71	67	66	64	62	61	64	63	59	63
Daily Solar Energy*	3.86	4.46	5.46	6.19	6.53	6.34	6.17	5.77	5.14	5.20	4.43	3.58	5.26

Spring and fall experience the most sunny days in Wilmington. Cloudy days are most common during winter, comprising almost half of all days in January.

\* kWh/m<sup>2</sup>/day, National Renewable Energy Laboratory

### Fog Days (average number of days per month visibility falls to 5 miles; ¼ mile)

FOG & DENSE FOG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL
Fog (5 mi. vsby)	15.8	14.4	14.0	13.2	15.8	15.9	17.3	19.1	16.1	15.5	17.7	18.2	180.7
Dense Fog (¼ mi. vsby)	2.9	2.0	2.2	1.5	2.1	1.8	1.2	1.7	2.2	2.4	2.9	3.2	26.1

Almost half of all days experience some reduced visibility due to fog, usually during the early morning hours. However dense fog (visibility ¼ mile or less) occurs infrequently, most often during the cooler months.



# Climate Overview of Wilmington, NC

## Climate Change and Sea Level Rise

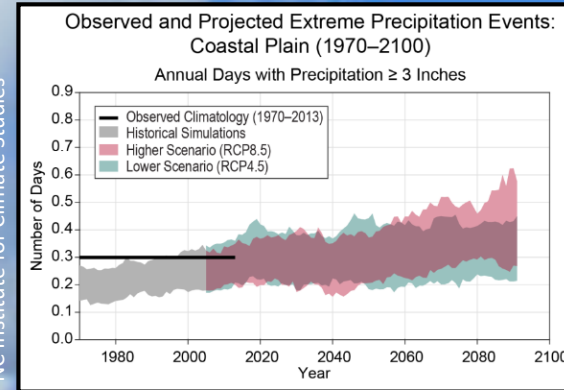


National Weather Service  
Wilmington, NC  
weather.gov/ilm

As humanity continues to burn fossil fuels for electricity and transportation, the concentration of greenhouse gases in Earth's atmosphere is rising. This traps more of the sun's heat, leading to a warming global climate. Wilmington's local climate is already changing – temperatures are warmer and rainfall events are becoming heavier. More changes, including an increase in flooding from heavy rainfall and substantial sea level rise, are anticipated in the years ahead.

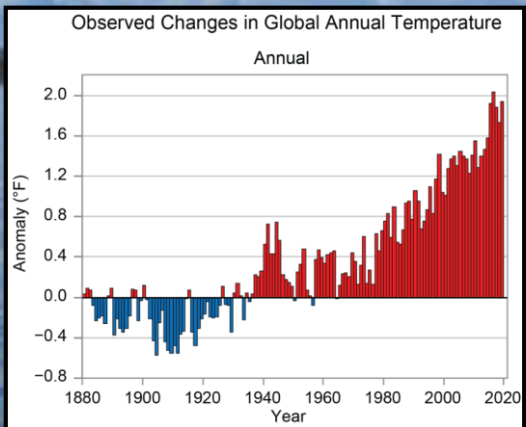
### More Numerous Heavy Rainfall Events

NC Institute for Climate Studies

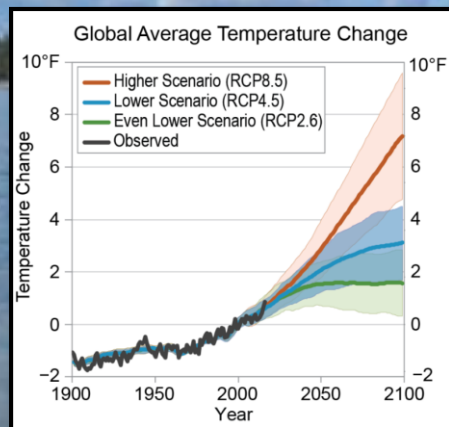


Most long-range climate models show some potential for higher overall rainfall amounts. The number of days with heavy rainfall (3+ inches) is expected to double from its historic averages.

### Increasing Temperatures



NC Institute for Climate Studies

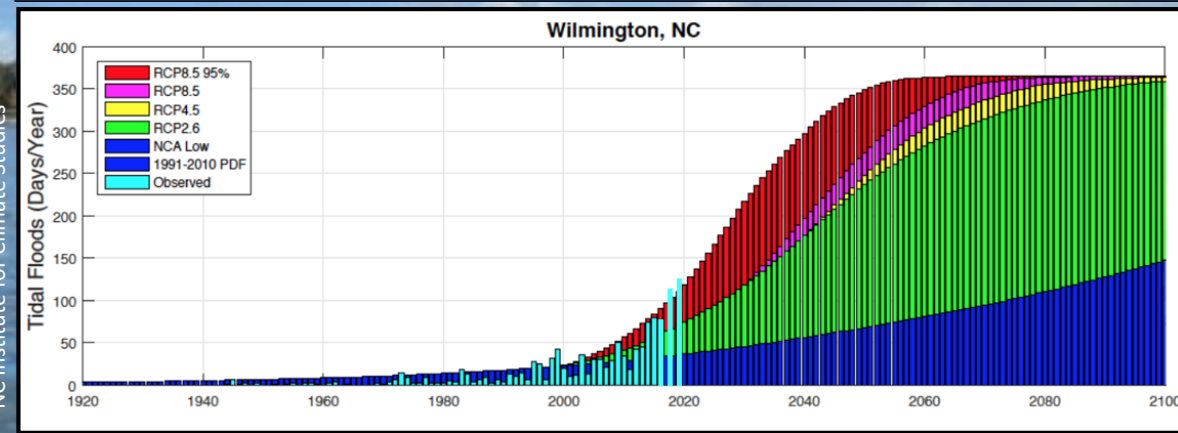


NC Institute for Climate Studies

Wilmington's temperature has risen about 1° F over the past 100 years. Additional rises of 2-5° F are possible by 2050, with 2-10° F of total increase by the year 2100. Extreme heat should occur more often.

### Sea Level Will Rise, Causing More Frequent Coastal Flooding

NC Institute for Climate Studies



The Cape Fear River reached flood stage a record number of times in 2019. By the year 2040 coastal flooding should occur on half the days in the year, and by 2100 coastal flooding may occur virtually every day. Hurricanes will more easily create damaging storm surge flooding.



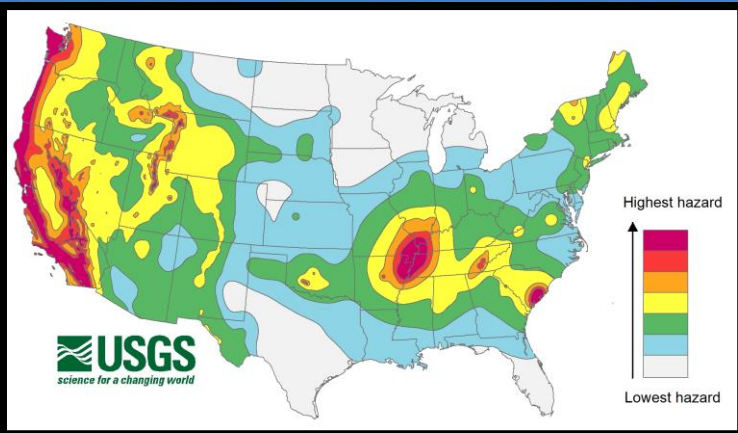
# Climate Overview of Wilmington, NC

## Other Environmental Hazards

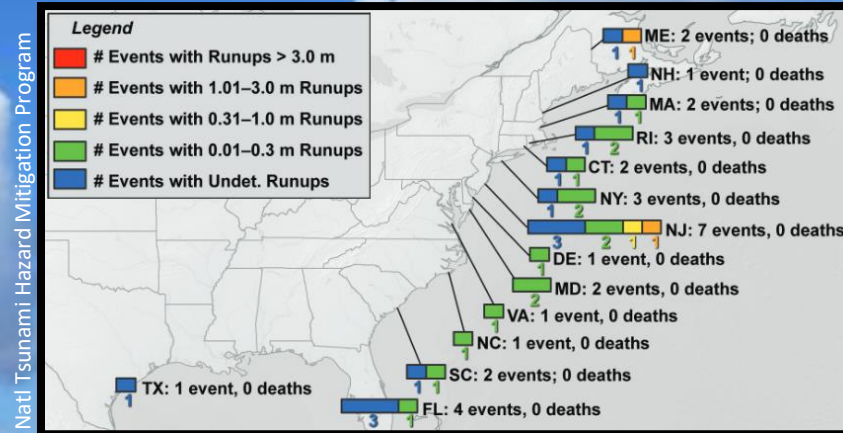


National Weather Service  
Wilmington, NC  
[weather.gov/ilm](http://weather.gov/ilm)

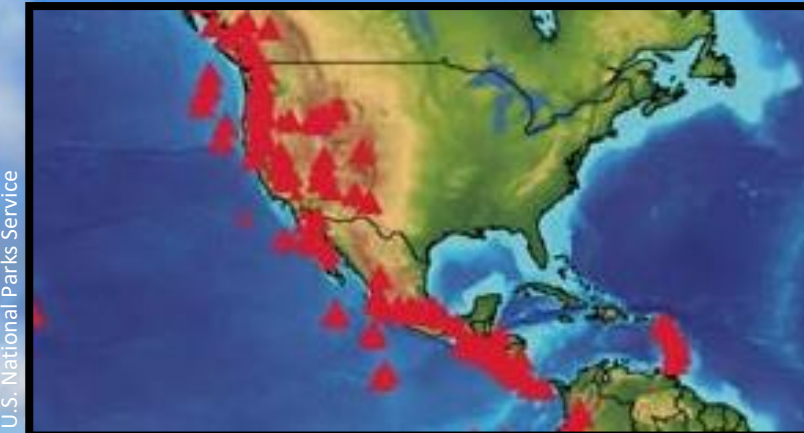
### Earthquakes



### Tsunamis



### Volcanoes



Wilmington's earthquake risk is near average compared to the rest of the country. The last earthquake felt in Wilmington occurred August 23, 2011 and was centered in northern Virginia. No damage occurred locally. Strong earthquakes in 1886 (Charleston, SC) and 1811 (New Madrid, MO) caused minor damage in Wilmington.

Wilmington's tsunami risk is 'very low.' No East Coast earthquake is likely to generate a tsunami. Distant tsunamis could originate from the Puerto Rican trench, the Canary Islands, or the Azores-Gibraltar fault zone, however no such events have occurred in recorded history. Non-geological events called *meteo-tsunamis* produced by weather can produce up to 3 foot high water level departures.

Wilmington has no risk of volcanic eruptions. The closest active volcanoes are located approximately 1,500 miles to the southeast on the Caribbean islands of Montserrat and Guadeloupe.