



National Weather Service Overview

And

Severe Weather/Tornado Safety

Erik Heden

NWS/Newport/Morehead City



Our Mission



The National Weather Service (NWS)

Weather.gov > About the NWS

About the NWS

National Program

About

Serving you in every community in the U.S. Check out who we are and what we do!

NWS Mission

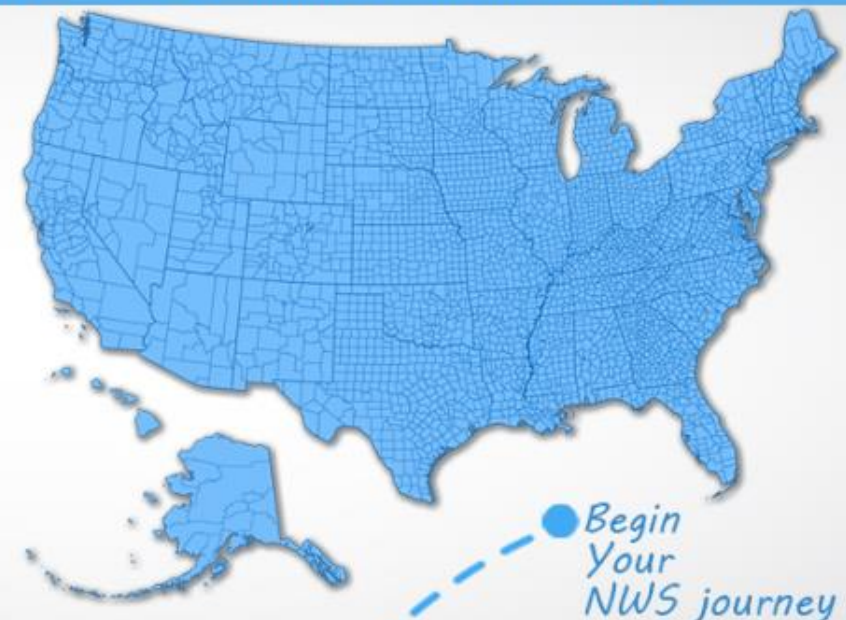
Provide weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy.

NWS Vision

A Weather-Ready Nation: Society is prepared for and responds to weather, water, and climate-dependent events.

Weather-Ready Nation Story

Accurate weather forecasts do not always result in a good outcome. The National Weather Service (NWS) learned this difficult... [Read more](#)

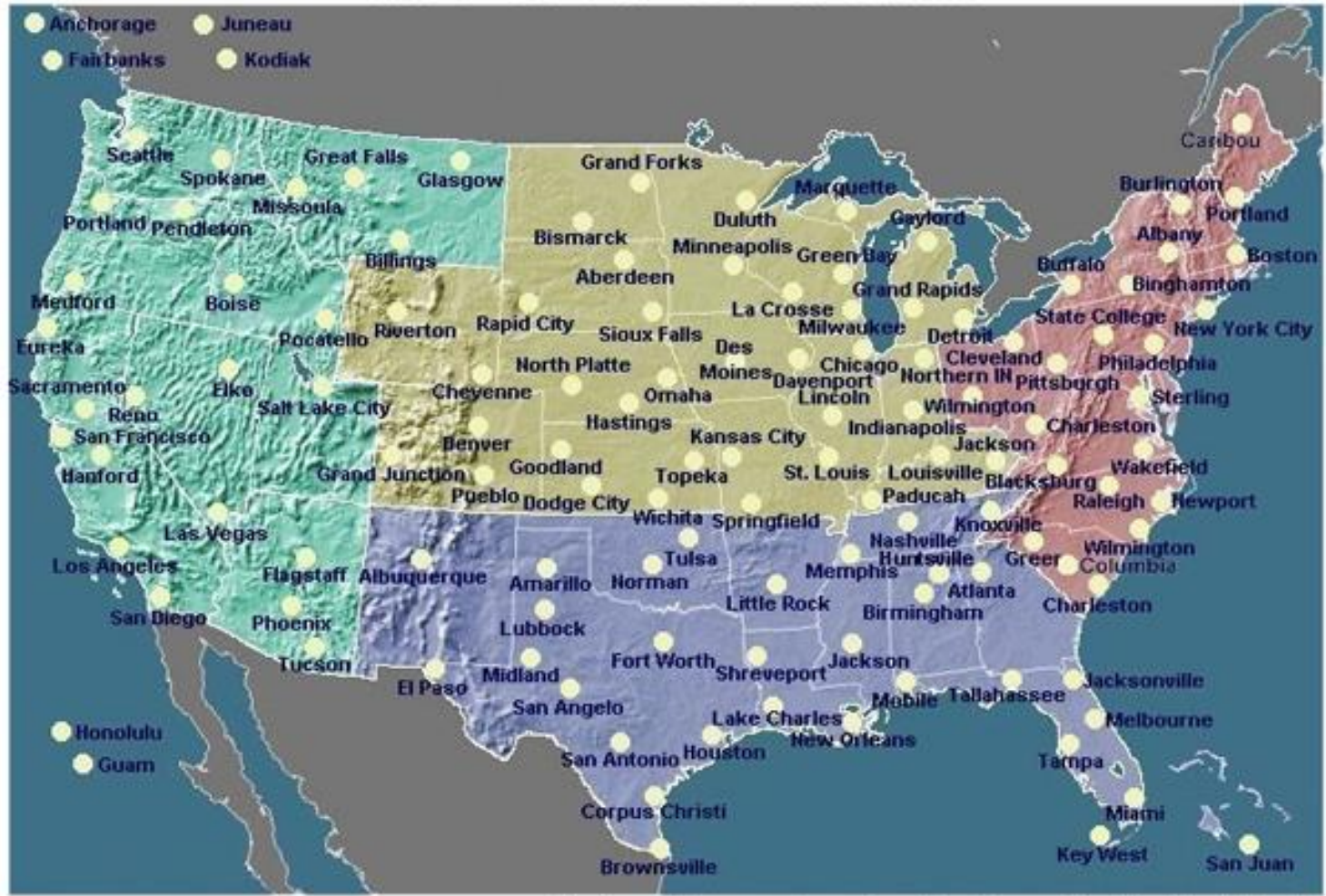


Begin Your NWS journey



Office Locations

National Weather Service Office Locations



Background topography courtesy Ray Stemer, Johns Hopkins University



Our Local Office



Eastern part of North Carolina

Includes: Land areas, inland rivers, sounds, and adjacent ocean

Other parts of the state covered by other local offices (Raleigh, Wilmington, etc)





Work Hours



24 hours a day, 7 days a week, plus any overtime for severe weather...we never close!

Two to three forecasters per shift.

Shifts per day: midnight, day and evening.

Management team: 8 am to 5 pm Mon.-Fri. (they work shifts sometimes too!)

In total 22 to 25 people



Our Website

weather.gov/newport



Weather information from past events, current weather, and forecast

Explore the website and bookmark or save what you like

Go in depth as much as you need

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION


HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, St" or ZIP code
Enter location ...
[Location Help](#)


News Headlines


- [The Fall 2019 Edition Of Our Newsletter, Carolina Skywatcher, Is Now Online!](#)

MY FORECAST
Morehead City NC



Overcast
49°F
9°C [Get Detailed info](#)


Today

Partly Sunny
High: 55°F

Tonight

Mostly Cloudy
Low: 43°F
[change location](#)

NWS Forecast Office Newport/Morehead City, Newport/Morehead City, NC
Weather Forecast Office
[Weather.gov](#) > Newport/Morehead City, NC

[Current Hazards](#) [Current Conditions](#) [Radar](#) [Forecasts](#) [Rivers and Lakes](#) [Climate and Past Weather](#) [Local Programs](#)


Click a location below for detailed forecast.





Watches, Warnings & Advisories

- [Coastal Flood Advisory](#)
- [High Surf Advisory](#)
- [Small Craft Advisory](#)
- [Hazardous Weather Outlook](#)

Last Map Update: Tue, Nov. 19, 2019 at 11:58:19 am EST

Tropical


Local Radar


Satellite

11/19/19 16:46Z GOES-East



7- Day Forecast

weather.gov/newport



Sky cover



High/low temperatures



Winds



Chance of precipitation

Detailed Forecast

Today	Mostly cloudy, with a high near 54. Light northwest wind.
Tonight	Mostly cloudy, with a low around 38. West wind 5 to 7 mph.
Wednesday	Sunny, with a high near 60. Northwest wind 7 to 9 mph.
Wednesday Night	Mostly clear, with a low around 38. Light north wind.
Thursday	Sunny, with a high near 60. Light and variable wind becoming northwest around 5 mph.
Thursday Night	Partly cloudy, with a low around 44.
Friday	Mostly sunny, with a high near 67.
Friday Night	Mostly cloudy, with a low around 48.
Saturday	A chance of showers. Mostly cloudy, with a high near 64. Chance of precipitation is 50%.
Saturday Night	A chance of showers. Mostly cloudy, with a low around 44. Chance of precipitation is 50%.
Sunday	Partly sunny, with a high near 58.
Sunday Night	Mostly clear, with a low around 39.
Monday	Sunny, with a high near 60.

Extended Forecast for New Bern NC

Today	Tonight	Wednesday	Wednesday Night	Thursday	Thursday Night	Friday	Friday Night	Saturday
Mostly Cloudy	Mostly Cloudy	Sunny	Mostly Clear	Sunny	Partly Cloudy	Mostly Sunny	Mostly Cloudy	Chance Showers
High: 54 °F	Low: 38 °F	High: 60 °F	Low: 38 °F	High: 60 °F	Low: 44 °F	High: 67 °F	Low: 48 °F	High: 64 °F



Hourly Forecast

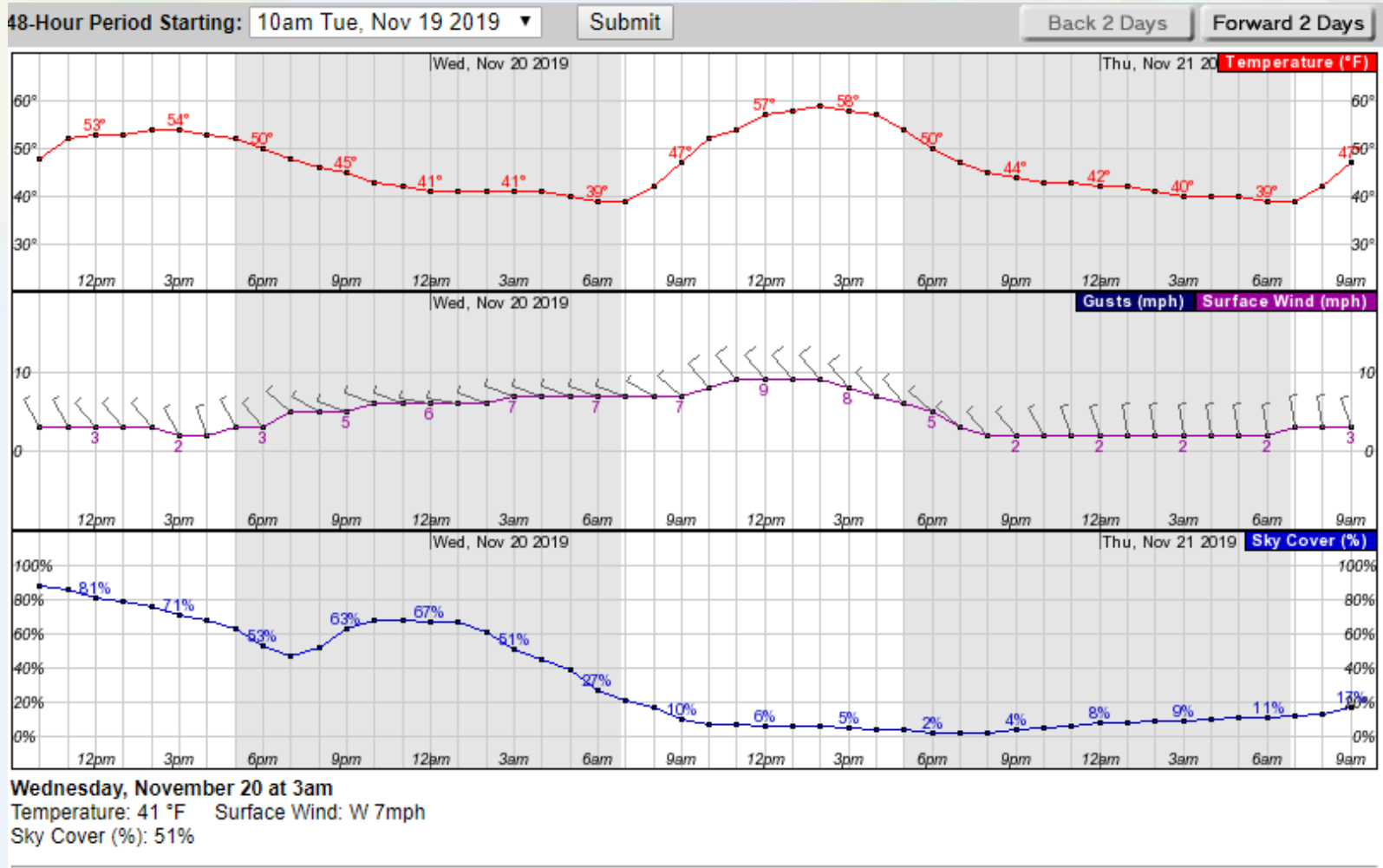
weather.gov/newport



Check on and off any weather parameter you want

See trends in hourly increments out through 7 day

Digital readout available





Weather Briefings

weather.gov/newport



Local forecast by "City, ST" or ZIP code
 Enter location ...
[Location Help](#)

News Headlines

- Here's the Updated Skywarn Training Schedule!
- Here's a Summary on the March 2-5, 2018 Wind/Coastal Flood/Low Water Event.
- Summary on the Minor Winter Weather Event, March 12-13, 2018

Customize Your Weather.gov

City, ST

Enter Your City, ST or ZIP Code

Remember Me

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NWS Forecast Office Newport/Morehead City, Newport/Morehead City, NC
 Weather Forecast Office

[Weather.gov](#) > Newport/Morehead City, NC

[Current Hazards](#) [Current Conditions](#) [Radar](#) [Forecasts](#) [Rivers and Lakes](#) [Climate and Past Weather](#) [Local Programs](#)

Click a location below for detailed forecast.

Last Map Update: Thu, Mar. 22, 2018 at 11:05:21 am EDT

[Watches, Warnings & Advisories](#)

Radar	Current Weather	Rivers & Lakes	Satellite	Weather Inform Disp	Forecast Maps
Hour by Hour Forecast	Winter Weather	Map View	Surf Forecast/Rip Currents	Weather Hazard Briefing (when applicable)	Local Self-Briefing Pages
Forecaster Discussion	Marine	Text Products	Tropical	Skywarn	Submit Storm Reports



Created prior to bigger events of severe weather

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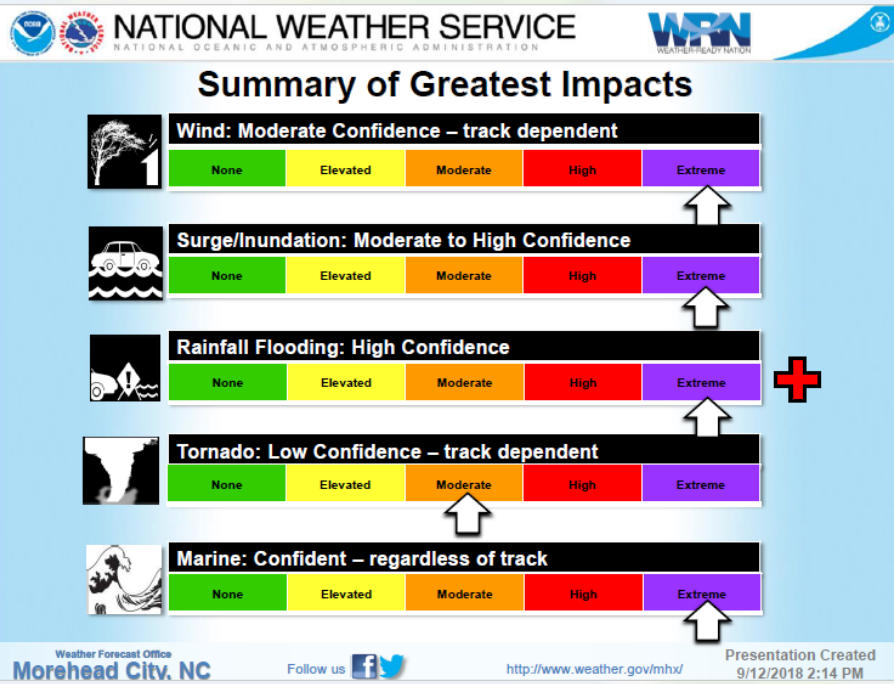
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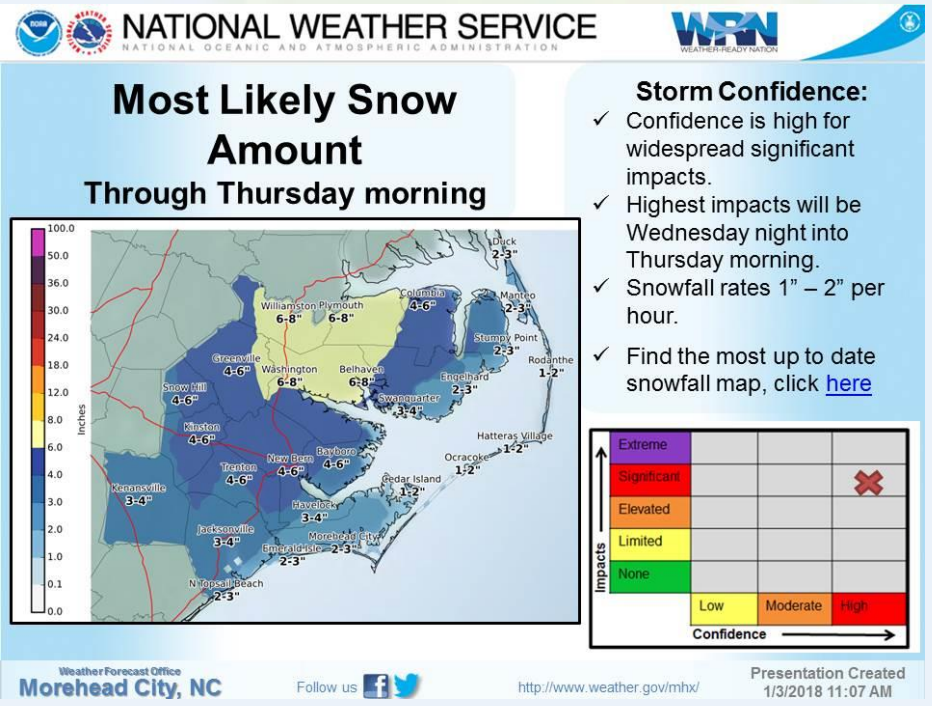


Weather Briefings

weather.gov/newport



January 2018 Winter Storm



Hurricane Florence Impacts



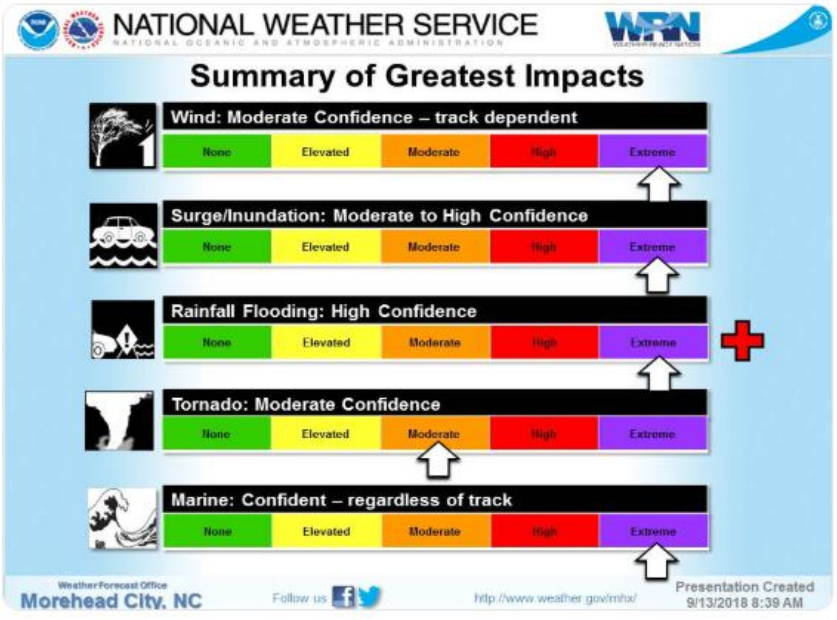
Social Media

Search NWS Morehead City



NWS Newport/Morehead @NWSMoreheadCity

Category of the storm is only related to wind, it does not tell you about all of the impacts with a #hurricane like #florence. Our impacts have not changed with storm surge and catastrophic flooding. Do not let your guard down. weather.gov/media/mhx/Late...



8:44 AM - 13 Sep 2018

765 Retweets 1,078 Likes

40 765 1.1K

YouTube

Search

NATIONAL WEATHER SERVICE
Hurricane Florence Briefing #15
As of: 630 AM
Wednesday, September 12th 2018

What has Changed?

- Track has shifted a bit further south and west, and has slowed significantly near the coast
- Extreme rainfall amounts now are expected across southern coastal counties
- Major River Flooding Likely

Disclaimer: Do not use after 5 PM Wednesday 9/12/18
Next Briefing: By 600 PM Wednesday (9/12/18)

Hurricane Florence NWS Morehead City Wednesday 900 AM Briefing

2,895 views

13 0 SHARE SAVE

NWSMoreheadCity
Published on Sep 12, 2018

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Hurricane Florence Lead Up



Mobile Forecasts

mobile.weather.gov



Quickly access hourly forecasts, radar, and more from your local office, ANYWHERE in the country

Can work like a weather "APP" by adding it to home screen

Also works on PCs

National Weather Service

Morehead City NC

Current Conditions

Beaufort Smith Field
Updated: 19 Nov 09:58 am EST

48 °F
Wind NE 3 MPH
Dew Point 46 °F (93% RH)

Overcast

Forecast
19 Nov 09:58 am EST

Today	Tonight	Wednesday
Partly Sunny Hi 55°F	Mostly Cloudy Lo 45°F	Sunny Hi 58°F

Verizon 3:42 PM 50%

mobile.weather.gov

Hourly Forecast

Topeka KS

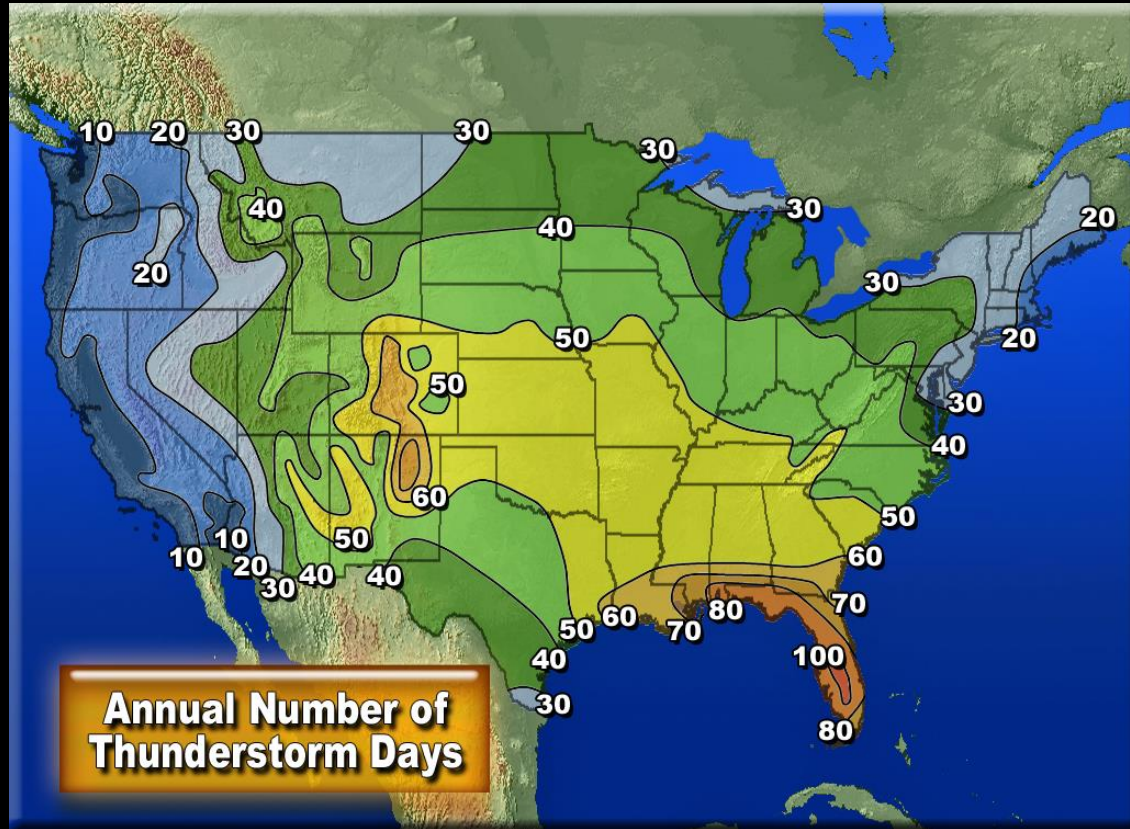
Tonight Sunday Night

SUN, FEB 26

6 am	Chance Snow Temp: 34°F Wind: SSW @ 6 mph 30%
7 am	Chance Rain And Snow Temp: 35°F Wind: SSW @ 5 mph 30%
8 am	Chance Rain And Snow Temp: 36°F Wind: S @ 5 mph 30%
9 am	Chance Rain Temp: 37°F Wind: S @ 5 mph 30%

Severe Weather Talk

U.S. Thunderstorm Distribution



Thunderstorm Formation



- All thunderstorms result from the same necessary conditions.
- What are the necessary conditions?



BASIC THUNDERSTORM INGREDIENTS



- 1) **Moisture** – most notably in the lower levels of the atmosphere
- 1) **Lifting Mechanism** – the “Push” that triggers the lifting process
- 1) **Instability** – ability of air to accelerate up when given a push



Lightning



Forsyth County, NC March 2016



Lightning Facts (U.S. Statistics)



- All thunderstorms produce lightning and are potentially deadly.
- More than 400 people are struck annually.
- On average kills almost 50 people each year.
- There is no safe place outdoors.
Lightning can strike 15 miles or more from the storm (“**bolt** from the **blue**”).
- Lightning can strike after a storm has passed.
- Lightning can travel through wires and pipes.

When thunder roars, go indoors!

What Happens When Lightning Hits the Ground?



Photo Credit : Anthony Dodge
The Champions Course at Weeks Park

Lightning Safety Tips



Outdoors



- Avoid water, high ground, open spaces, tall objects, and metal objects.
- DO NOT shelter under small canopies or trees.
- Find indoor shelter or enclosed metal vehicle.
- Groups should spread out.

Indoors



- Avoid water, cords, plumbing.
- Stay away from doors and windows.
- Unplug and stay away from appliances.
- Refrain from using plugged in phones or laptops.
- Lightning can travel indoors (lines/pipes).

Severe Weather Safety

When Thunder Roars, Go Indoors!



STOP all activities.

Seek shelter in a substantial building or hard-topped vehicle.

Wait 30 minutes after the storm to resume activities.



www.lightningsafety.noaa.gov



Have you heard thunder while playing outside? What did you do?

Thunderstorms can produce deadly lightning capable of striking up to 10 miles away — so, even if you don't see rain you could be in harm's way!



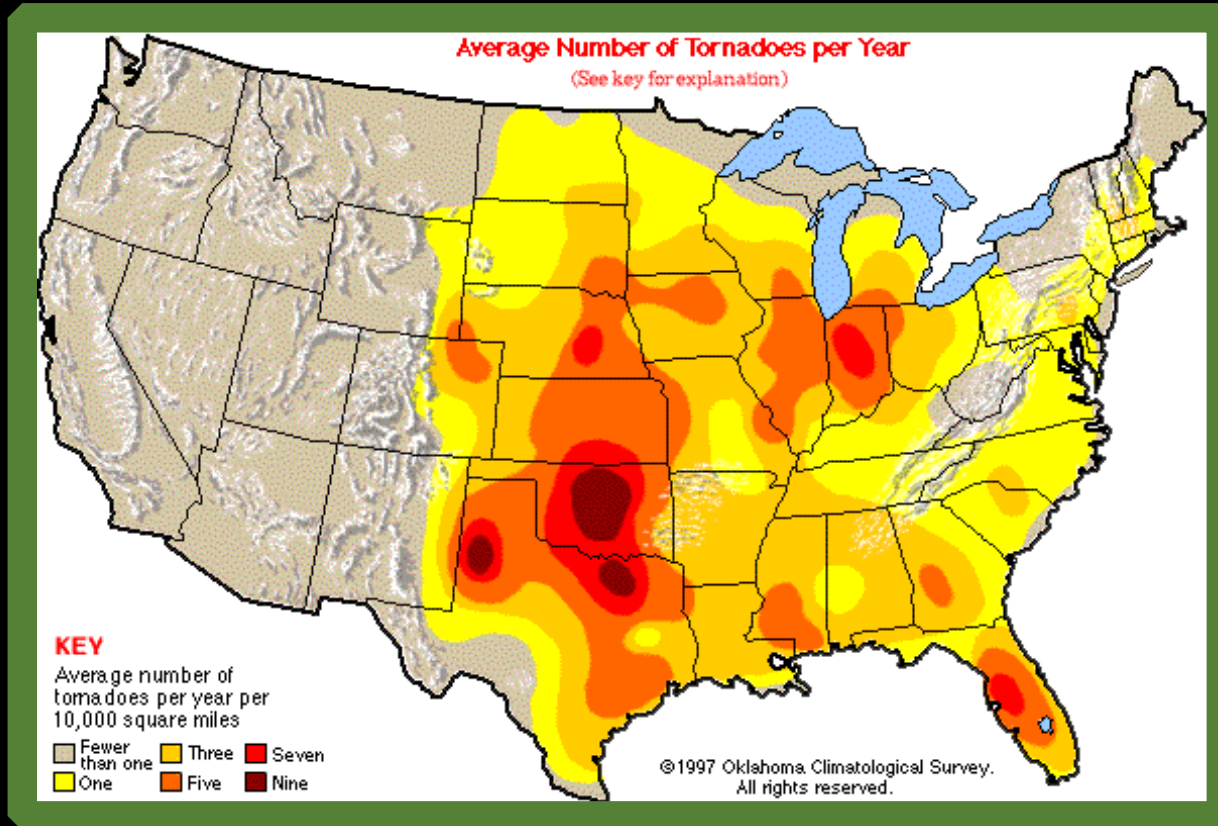
Building a Weather-Ready Nation

Tornadoes

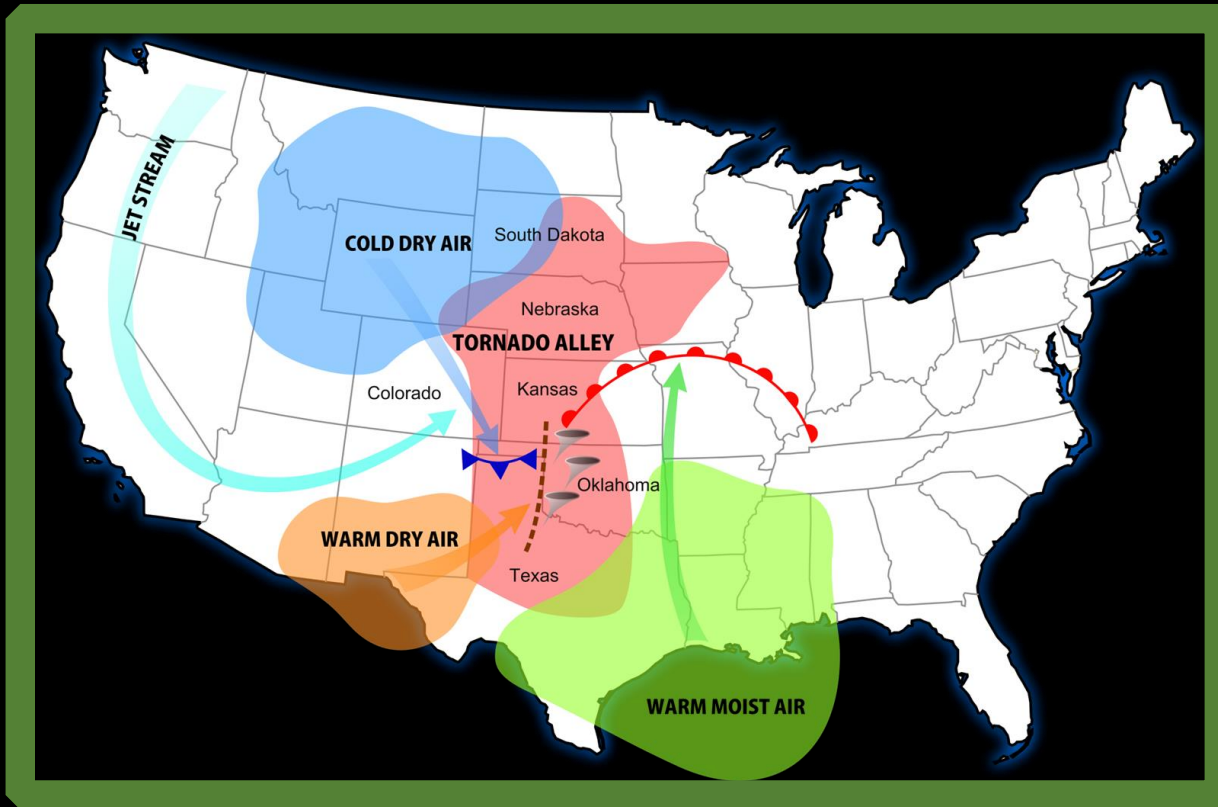


Belhaven, NC April 2014

U.S. Tornado Distribution



U.S. Tornado Distribution



Enhanced-Fujita Scale Winds

Weak
 ↓
 Strong
 ↓
 Violent

EF Rating	Wind Speeds	Expected Damage	
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.	
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.	
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.	
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.	
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.	
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.	

Tornado Safety - Outside



Greensboro, NC April 2018

- People in open rural areas may be able to drive away from a distant approaching tornado
- If tornado is unavoidable, seek shelter in strong building or ditch
- Do not ride out tornado in auto!

Tornado Safety – Inside (*best by far!*)



Wilson, NC April 2011

- Seek shelter in a strong building
- *Underground shelter & “safe room” by far the best if “up to code”.*
- Otherwise small interior room on lowest floor for most twisters (bathroom or closet, cover yourself)
- Stay away from windows!!!
- Abandon mobile homes!

Severe Weather Safety



Tornado/High Wind Safety At Home

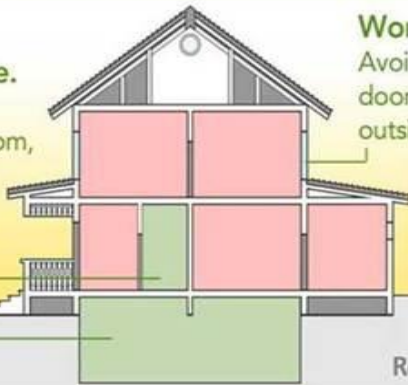


Where is your safe place at home?

Tornado Shelter Tips

Safest place.

Basement
or interior room,
stairwell or
hallway on
a low floor.



Worst place.

Avoid windows,
doors and
outside walls.

Cover yourself with
blankets or a mattress
for protection. A
helmet can be used
for added protection
against head injuries.

ready.ga.gov

Ready.Gorgia

The safest place to be is an underground shelter, basement or safe room.

Mobile homes are NOT safe during high winds!

If no underground shelter or safe room is available, a small, windowless interior room or hallway on the lowest level of a sturdy building is the safest alternative.



Building a Weather-Ready Nation



Flash Floods



Whitefield, NC Aug. 2016



Ellicott City, MD May 2018

Flash Flood Facts



Raleigh, NC April 2017



- Cars can float in water < 2 feet deep
- Moving water can sweep a car away
- As little as 6 inches of rapidly moving water can sweep a person off their feet.
- Most flash flood deaths occur in vehicles.
- Most flash flood deaths occur at night.
- **Flash flooding can occur from distant storms.**

Flash Flood Safety Tips



Newton, NC July 2013

- Do not cross a flooded roadway!!!
- Do not walk/hike/stand near flood waters!
- Be patient, wait for water to recede, or find an alternate route.
- Are you in a low-lying area that is flood prone? *Seek higher ground.*

Never Walk Into Flood Waters



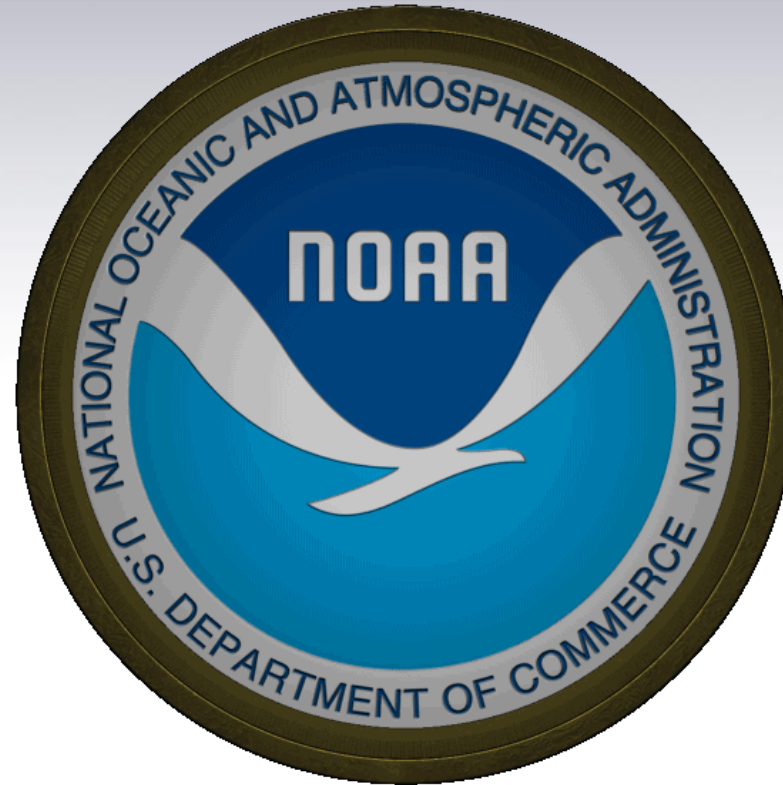
It only takes 6 inches of swiftly moving water to knock an adult off his or her feet

Weather-Ready Nation

National Oceanic and Atmospheric Administration

National Weather Service
[weather.gov/floodsafety](https://www.weather.gov/floodsafety)

Thanks for Your Interest!



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www.weather.gov/mhx