

The Wilmington Wave

National Weather Service, Wilmington, NC

VOLUME II, ISSUE I

SPRING 2012



StormReady/TsunamiReady Program

- Sandy LaCorte

Our staff here at NWS Wilmington NC is proud to say that all 14 counties in our area of responsibility are StormReady, with our 5 coastal counties also certified as TsunamiReady. But what does it mean to be StormReady and/or TsunamiReady? The NOAA NWS StormReady program began in 1999 with a mission to help equip communities with both the communication and safety skills necessary to aid in the saving of lives and property before, during, and after the event. A community that is recognized as StormReady is better prepared when severe weather is imminent, and this planning and preparedness is crucial to helping save lives. This program highlights the partnership between community lead-

ers, emergency managers, first responders, and the National Weather Service through the growth of weather-related safety programs within a community. In addition to severe weather awareness and preparedness, a TsunamiReady community has developed an action plan for responding to a tsunami, should one ever threaten the coastline. For more information about the StormReady program, visit : <http://www.stormready.noaa.gov/>



PICTURE: StormReady and TsunamiReady Recognition/Renewal. March 2012 - Brunswick County, NC. From left to right: Anthony Marzano - Director of Emergency Services for Brunswick County, Sandy LaCorte - NWS Meteorologist, Scott Garner - Deputy Director/Fire Marshall for Brunswick County



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Freezing Temperatures in Spring?

- Tim Armstrong



Spring brings warmer temperatures and thoughts of flowers and gardening to the minds of many people. The Eastern Carolinas are blessed with a long growing season averaging seven to eight months in length. In most years tender plants can be set out during the latter half of March near the coast and around the first of April inland. However the weather can occasionally throw our plans into disarray when a late freeze strikes.

Cold fronts normally move through the Carolinas at the rate of one or two a week throughout the winter and early spring months. When the air behind these fronts originates from Canada, we can experience freezing temperatures at night well into the month of April. A series of hard freezes April 7-10, 2007 severely damaged the North Carolina Blueberry crop with the loss of over 15 million pounds of berries. There are even a few instances where the thermometer has dropped to 32 degrees during the first week of May; freezing temperatures were measured in Whiteville, Lumberton and Dillon on the morning of May 2, 1963.

The National Weather Service has recorded daily high and low temperatures at airports around the nation for many decades. There are sometimes hundreds of miles between airports, however, which could leave many smaller towns and cities without an official climate record. Cooperative observers are a special class of National Weather Service volunteers who help fill these gaps. “Co-ops,” as they’re sometimes called, are given official thermometers and rain gauges and are asked to report their readings once a day to their local National Weather Service office. By adding data from all these stations together we can create a more complete picture of how climate varies from place to place and over time.

Last Spring Freeze Probabilities, using airport and NWS Cooperative Observer Data, 1950-2010

	Earliest start ever to the Growing Season	10% 1-in-10 chance you've had the Last Freeze	25% 1-in-4 chance you've had the Last Freeze	50% Average Date of Last Freeze	75% 3-in-4 chance you've had the Last Freeze	90% 9-in-10 chance you've had the Last Freeze	Latest start ever to the Growing Season
Wilmington, NC	Feb 8	Feb 28	Mar 8	Mar 18	Mar 25	Apr 6	Apr 21
Whiteville, NC	Feb 23	Mar 11	Mar 20	Mar 30	Apr 9	Apr 18	May 2
Lumberton, NC	Feb 23	Mar 11	Mar 21	Apr 1	Apr 12	Apr 22	May 10
Florence, SC	Feb 10	Mar 3	Mar 12	Mar 21	Mar 31	Apr 8	Apr 20
Conway, SC	Feb 7	Feb 24	Mar 4	Mar 15	Mar 25	Apr 4	Apr 26
Georgetown, SC	Feb 3	Feb 20	Mar 1	Mar 12	Mar 23	Apr 1	Apr 20

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Freezing Temperatures in Spring?

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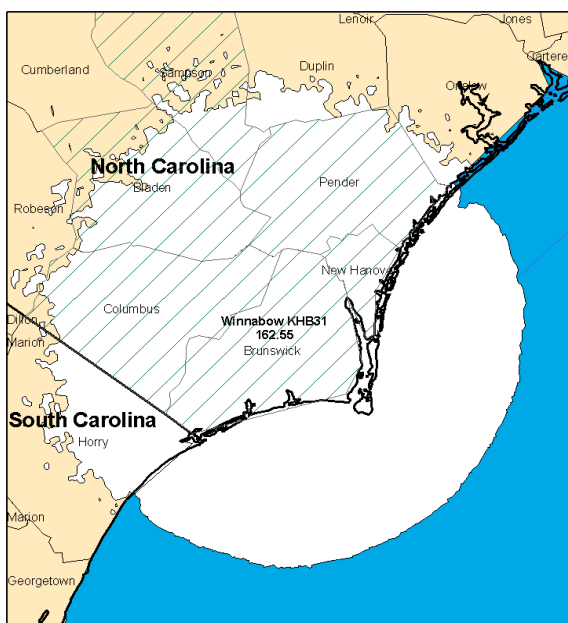
Growing Season Length, using airport and NWS Cooperative Observer Data, 1950-2010

	Shortest Growing Season ever	Average Growing Season Length <i>consecutive number of days with no freezing temperatures</i>	Longest Growing Season ever
Wilmington, NC	192 days	242 days	283 days
Whiteville, NC	176 days	215 days	259 days
Lumberton, NC	168 days	212 days	266 days
Florence, SC	192 days	232 days	273 days
Conway, SC	184 days	244 days	289 days
Georgetown, SC	199 days	255 days	283 days

See <http://weather.gov/ilm/climate/freeze> for additional Spring and Fall freeze dates and growing season length data.

Replacement of Old SRS NWR Transmitters with the Nautel NG1000

- Michael Perdue



After many years of reliable service, the old Scientific Radio Systems (SRS) SR-416P transmitters were finally replaced at the Winnabow, NC NWR site (call sign KHB31) this last November. These transmitters were manufactured in 1976 and still used tube technology. The company that manufactured SR-416P (Scientific Radio Systems) is no longer in business, therefore the equipment is no longer supported.

The new replacement transmitters are manufactured by Nautel. A company known for making military grade transmitters. Their equipment is known for being rugged and reliable. The new transmitters take up about half the space of the SR-416P transmitter, produce much less heat, and transmit the same 1000 Watt output.

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Replacement of Old SRS NWR Transmitters with the Nautel NG1000 ...continued

Like the SRS transmitter, The NG1000 is a dual 1000 Watt transmitter. This means that the primary transmitter has a backup transmitter ready to be switched in if needed. Unlike the old SR-416P which had to be switched manually, the NG1000 continually monitors its own performance and will switch to the backup transmitter automatically. The NG1000 will also notify the weather office by phone if a switch of the transmitters has occurred.



SR-415P Dual
1000 Watt
Transmitter
(file photo)

To our NWR listeners, there probably was no discernible difference in the transmission quality. We are still transmitting 162.55Mhz at 1000 Watts, but the dependability of that broadcast has increased significantly. The replacement of the aging SRS unit with the new NG1000 was a much needed and overdue improvement, and we expect these transmitters to provide reliable coverage long into the foreseeable future.

NG1000 Dual 1000
Watt Transmitter
(file photo)



Frying Pan Lightship and Tower

- Michael Colby

Frying Pan Lightship has a Bar and Grill but the Tower would like to become a Bed and Breakfast!

Soaking up the nautical atmosphere of Lightship "Frying Pan" requires a trip to Maritime Pier 66-A at Hudson River Park in New York City. Here you can dine at a bar and grill aboard the historic guard-ship. Lightship "Frying Pan" is listed on the Federal Register of Historic Places, and is one of 13 lightships remaining from more than 100 built.



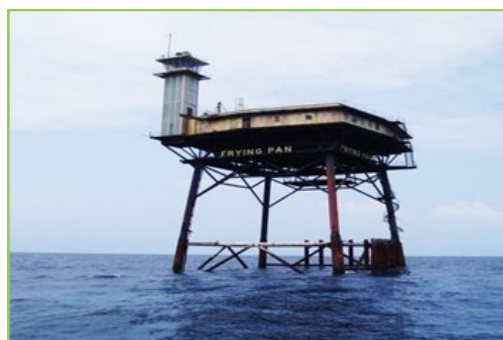
Lightships were floating lighthouses that warned other ships of treacherous shoals and submerged hazards positioned too far from land to be served by a lighthouse on shore.



Lightship "Frying Pan" guarded Frying Pan Shoals 30 miles off Cape Fear NC, from 1930 to 1964. 15 men lived aboard ship for the purpose of keeping the light atop the mast burning bright, and the foghorn sounding loud no matter the weather, season, or time of day. A job said to be "filled with months of boredom mixed with minutes of pure fear"!



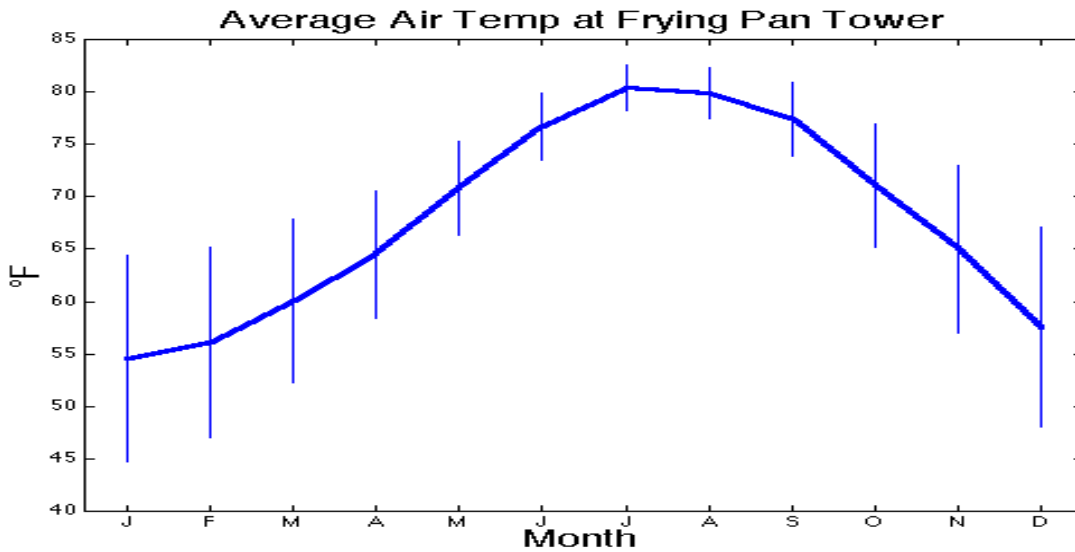
In 1965 Frying Pan Lightship was replaced by the Frying Pan Shoal "Tower". The tower marks the shallow waters around Frying Pan Shoals. The tower was manned from 1966 to 1979, after which time it became automated. In 2003, the light tower was deemed too unstable to service onboard equipment. As a replacement, the National Buoy Data Center moored an automated sea buoy located about 8 miles west-southwest of the tower position.



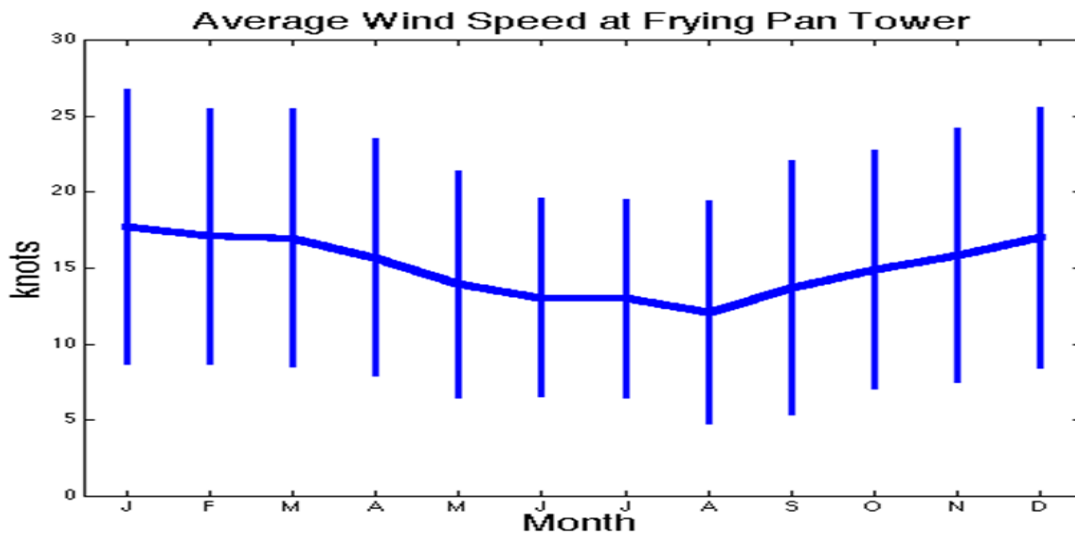
The Frying Pan Shoals Light Tower was bought in a government auction for \$85,000 by an investor who would like to refurbish the tower into a high seas bed-and-breakfast and fishing destination. The tower is more than 60 feet above the water, it has seven bedrooms, a kitchen, a recreation room and a helicopter landing platform.

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What would the weather be like living on Frying Pan Shoals Tower?

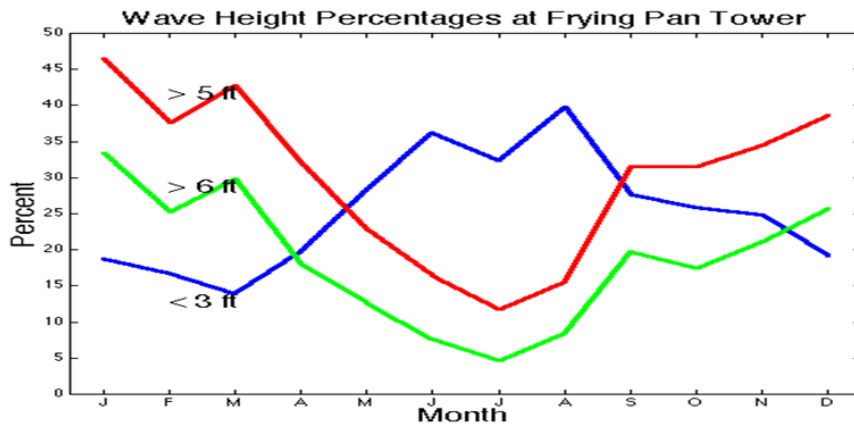


Bring your jacket in winter and spring, but by May the average air temperature warms into the 70s. Summer is balmy yet not hot, as temperatures approach 80 degrees. By November the waters turn chilly. The highest temperature ever recorded was 89 degrees on July 31, 1999, and the lowest temperature was 11 degrees on January 21, 1985.

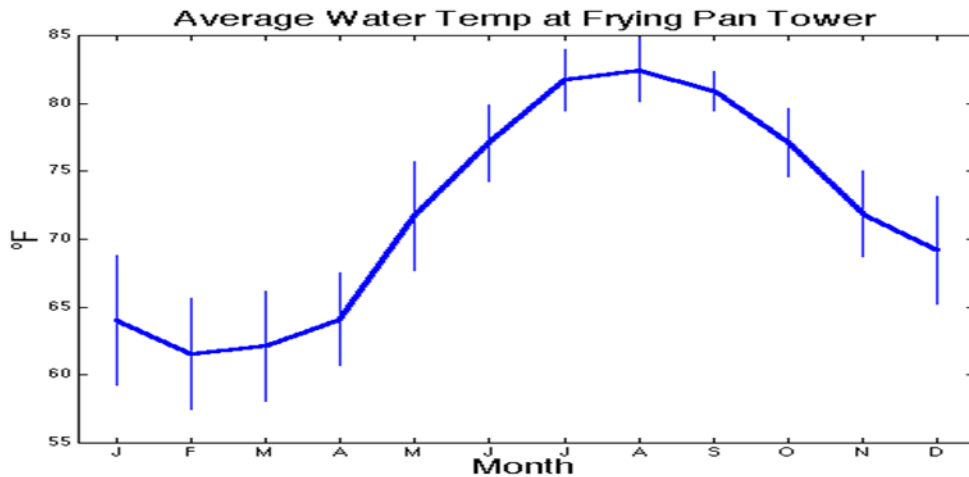


It can get breezy on the Tower, especially November through March, but winds are lightest on average, during the warm summer months. The highest wind speed ever recorded was 123 mph on September 5th, 1996 from hurricane Fran.

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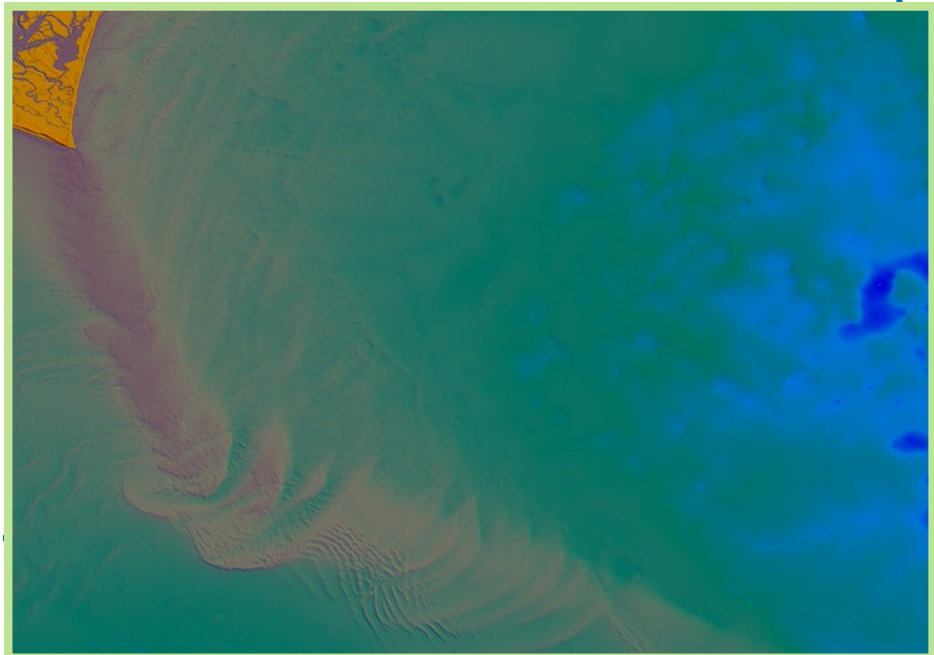
Waves can get large at the Tower, but for the most part it's summer ease! Seas less than 3 feet occur around 40 percent of the time during the summer months, while seas greater than 5 feet occur almost 50 percent of the time in January! Seas greater than 6 feet are rare in mid-summer. The highest recorded wave was 31.5 feet on 9/5/96 from Hurricane Fran.



Thinking about a swim? Waters are still chilly through early spring, but warm up significantly by late April and May, peaking in August. The most frigid water temperatures at Frying Pan can be found during late January and early February. The warmest water temperature ever recorded at Frying pan Shoals was 90 degrees on August 29, 1987, and the coldest 49 degrees on January 27, 1985.

The dangerous Frying Pan Shoals extend up to 30 miles southeast off Bald Head Island. Over 130 shipwrecks have been discovered around the shoals, with others likely still undiscovered. Large breaking waves, swift currents, and hazardous underwater sand-bars all made this a difficult region to navigate prior to GPS.

Thanks to GPS, both the Lightship and Tower can enjoy a life of active retirement!



Severe Weather Climatology

-Steve Pfaff

The National Weather Service in Wilmington NC serves a population of over 1.2 million people spread across 14 counties (8 in north-east SC and 6 in southeast NC). Although our area here in the coastal Carolinas experience severe weather anytime during the year in the form of tornadoes, straight-line wind gusts (in excess of 58 mph), and hail the size of quarters, distinctive severe weather seasons exist for each parameter. For instance, severe hail season peaks in May and accounts for just over 30% of all reported hail events. Meanwhile, 44% of all severe wind events occur during the months of June and July. As far as tornadoes, the primary peak season is March through May, with a secondary peak in September likely in response tropical cyclones. Additionally, a third smaller tornado peak occurs in November, but it should be noted that tornadoes can be extreme during any of its peak seasons.

of all reported events. Of the 468 tornadoes observed in the NWS Wilmington NC CWA (County Warning Area – 14 counties), 78% of them were F0 and F1 tornadoes. Fortunately, there have only been 10 tornadoes which were ranked to be F4 strength, and none of F5 strength on record for our area.

Fujita Scale	Wind Estimate (MPH)	Typical Damage
F0	<73	Light Damage
F1	73-112	Moderate Damage
F2	113-157	Considerable Damage
F3	158-206	Severe Damage
F4	207-260	Devastating Damage
F5	261-318	Incredible Damage

Fujita Scale – Tornado Intensity (As of 2007, Enhanced Fujita Scale— not considered in this study)

Past Tornado Events:

- ◆ **April 16th 2011:** Tornado Outbreak associated with a strong cold front
- ◆ **August 2004:** Rocky Point Tornado from remnants of Tropical Storm Bonnie
- ◆ **November 2006:** Riegelwood Tornado event from strong cold front

In a detailed severe weather climatology study completed by NWS Wilmington NC for the years 1955-2009, it was found that the time of event for all severe weather phenomenon also varied by each type. The potential for severe hail was found to trend upward around 1 PM, with a peak at 3 PM. The daily peak time for severe winds occurs between 3-5 PM, while overall 76% of all events occur between 1-8 PM. Lastly, peak time for daily tornado activity falls between 2-6 PM, which includes 57%

Given the unique location that we live in here in the coastal Carolinas, our area can experience dangerous severe weather conditions. We saw a very active severe weather season during 2011 and we strongly urge people to be prepared when warnings are issued – whether these are Severe Thunderstorm, Tornado or Flood warnings. Be sure to have a family plan, identify the safest spot in your house and make sure everyone knows what to do if severe weather strikes.



April 2011 Tornado Outbreak

NWS Wilmington Visit Hallsboro/Artesia Elementary School

- Stephen Keebler

For the past several years, forecasters from the Wilmington WFO have received a grant from The Bright Ideas educational grant program, which is sponsored by North Carolina Electric Cooperatives, to present the tornado safety program. This year they received \$500.00 for the purchase of bottles to make mini-tornadoes and provide tornado safety refrigerator magnets to the entire fifth grade class at Hallsboro-Artesia Elementary School in Columbus County.



Meteorologist Sandy LaCorte teaches the students about the formation of tornadoes.

During the month of March, Sandy LaCorte and Stephen Keebler visited the school for three separate sessions covering all aspects of meteorology. The first day, an overview of The National Weather Service, basic fronts and pressure systems, and the components of the water cycle were covered. The NOAA cloud chart, a popular item among all ages, was passed out along with a new item, a water cycle bracelet. This inexpensive item emphasized certain components of the water cycle with various color beads representing different stages of the water cycle and was an instant hit with the students.

On the second day, clouds, thunderstorms and thunderstorm hazards such as flooding and lightning were covered along with an extensive review of the previous session's material. The third and final day featured another extensive review of the previous session's material, with the added material of tornados and tornado safety. The mini-tornadoes were distributed along with a demonstration of the stations tornado simulator. The mini-tornadoes have safety information on the side as do the refrigerator magnets to serve as a reminder of the rules of thumb.

The event was deemed a tremendous success as a pre-test yielded an average score of 68 while the post test showed an improved average of 85. To date, the number of students served by the tornado program now stands at approximately four thousand. These students have the knowledge of The National Weather Service, their mission and products, and most importantly, safety rules regarding tornadoes and other severe weather hazards, which may someday save their lives or the lives of people they come in contact with.



Students had an opportunity to touch a tornado with the help of a man-made tornado machine. (Pictured: Stephen Keebler, Meteorologist)

Severe Weather: Are you Prepared?

- Sandy LaCorte

Whether it is hail, damaging winds, tornadoes or flash flooding, the primary peak season for severe weather in the Carolinas is just around the corner! Are you ready?

The best way to be prepared is to stay weather aware, especially when severe weather is expected. Make sure you know the terminology, have a plan and know your surroundings. Do you know the difference between a Watch and a Warning? What are the best sources for important weather information? Where should you take shelter if you're at work or at home?

Watch vs. Warning

"A Severe Thunderstorm Watch has been issued for your area...", or "The National Weather Service has issued a Tornado Warning for...". The words WATCH and WARNING have significant meanings when it comes to severe weather, but which is which? It is vital that you know the difference between the two.

WATCH: Conditions are favorable for severe weather development within the watch box over the next several hours.
Stay weather aware!

WARNING: Severe weather is imminent or occurring!
Take action immediately!

Safety Tips

Whether a tornado is threatening your area or a flash flood, you must be prepared!

Before the Storm

- Know your sources for up-to-date weather information.
 - NOAA Weather Radio
 - National Weather Service website (www.weather.gov)
 - Local TV broadcast
- Purchase a NOAA Weather Radio.
 - If you already have one, refresh the batteries every time you replace the batteries in your smoke detector and CO detector. Always make sure your radio is correctly programmed.
 - For any questions or assistance for programming your weather radio, contact your local National Weather Service office.

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- Have an emergency/communication plan & emergency kit prepared for you and your family.
 - Flashlight and batteries, bicycle helmet(s), out of town contact(s), and much more!
http://www.ready.gov/sites/default/files/documents/files/checklist_1.pdf



During the Storm

- Stay Weather Aware!
 - Whether it's a NOAA Weather Radio or local media, always pay attention to new information as weather conditions are quickly changing.
- Do not rely on outdoor sirens!
 - Many locations do not have outdoor sirens, or have sirens that are not operational. Sirens were initially intended to sound for those caught outside in severe weather. If you are in a building or your home, you will likely not hear them. Do not wait to hear a siren to take shelter!
- Pay attention to Severe Thunderstorm Warnings
 - Damaging winds and large hail can be extremely dangerous.
 - They are capable of quickly evolving into a Tornado Warning.
- If a tornado warning is issued for your area, take shelter immediately!
 - Go to a basement or an interior room in your home, putting as many walls between you and the exterior of your home.
 - If you are in a mobile home, evacuate immediately to a well-built structure.
For more information: <http://www.ready.gov/tornadoes>
- Always wear closed-toed shoes, and have your emergency plan and kit with you at all times.

For more safety and preparedness information, as well as what you should do after the storm, follow the following links from Ready.gov - <http://www.ready.gov/>

- Tornadoes: <http://www.ready.gov/tornadoes>
- Flooding: <http://www.ready.gov/floodawareness>
- Hurricanes: <http://www.ready.gov/hurricanes>
- Thunderstorms and Lightning: <http://www.ready.gov/thunderstorms-lightning>





ILM Staff News



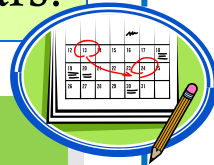
In January 2012, Josh Weiss was promoted to a General Forecaster position here at NWS Wilmington NC. Josh began as a Meteorological Intern at our office in August 2009. In 2008, he received his B.S. in Atmospheric Science from the University of Massachusetts Lowell, and is in the process of completing his master's thesis work entitled "Supercells of the Serranias del Burro". Josh is a very active member within the office, serving as both the Fire Weather program leader, as well as the CoCoRaHS Regional Coordinator. He recently helped North Carolina win it's second straight CoCoRaHS Cup in 2012; a national competition to recruit new CoCoRaHS observers during the month of March. In addition, Josh has performed several SkyWarn Spotter trainings and StormReady certifications, as well as led research efforts to develop new warning thresholds for severe hail and severe wind. Aside from his weather interests in nor'easters, severe weather and climatology, he enjoys P90X and cheering on his Boston Celtics and Boston Red Sox. Congratulations Josh!

StormFest is coming to the Coastal Carolinas this Summer!



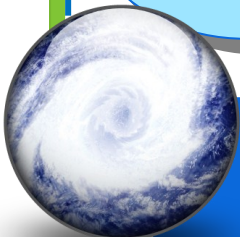
Fascinated by the weather? Want to learn more about severe weather? Come out and meet the area's meteorologists, emergency managers and responders to inform you about the impact severe weather can have on the lives of North and South Carolina residents. Activities, prizes and more!

Mark Your Calendars!



Cape Fear Museum
Wilmington, NC
Saturday, June 2nd, 2012
10am-4pm

Inlet Square Mall
Murrells Inlet, SC
Saturday, June 9th, 2012
9am-2pm



Be sure to check our website in the coming weeks for more information about both StormFest events!

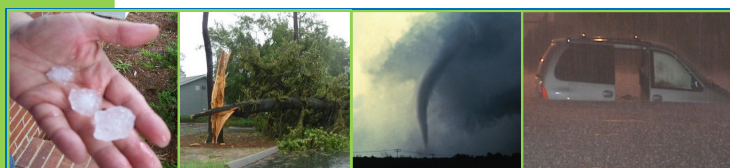
www.weather.gov/ilm

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Wilmington, North Carolina

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Wilmington, NC 28405
Phone: (910) 762-4289
www.weather.gov/ilm



Webmaster's Email: ILM.webmaster@noaa.gov



We need your Storm Reports!!

Events of tornadoes, hail, damaging winds,
and flooding are very important to us.

Please call: 1-877-633-6772

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- Submit your weather photos and storm reports
- Find out when weather is expected and how you can stay weather aware ...and much more!

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