Earth Gauge
A National Environmental Education Foundation Program

Hurricane Preparedness Week

Hurricane Preparedness Week takes place May 25th through May 31st, 2008! The National Hurricane Center designated Hurricane Preparedness Week to inform the public about hurricane hazards, and how to be prepared should a hurricane strike. Learn more at www.nhc.noaa.gov/HAW2/english/intro.shtml.

HURRICANE BASICS

An average of 11 tropical storms develop each year over the Gulf of Mexico, Caribbean Sea, and Atlantic Ocean. While many of those storms stay over the ocean without impacting the U.S., about five hurricanes will strike the U.S. Coastline from Texas to Maine in a given three-year period, with two being Category 3 (winds 111-130 miles per hour (mph)) or higher storms. As hurricane season approaches (June 1st – November 30th), it is important to understand and prepare for hurricane hazards, including: storm surge, high winds, tornadoes, and inland flooding. Read on for descriptions of these hazards, historical examples, and hurricane preparedness tips.

STORM SURGE

Storm surge occurs when winds push water towards the shore. When combined with normal tides, mean water levels can increase by up to 15 feet! Storm surge can cause major flooding along coastal areas, especially when combined with high tide. Densely populated areas along the Gulf and Atlantic Coasts, many of which lie less than ten feet above mean sea level, are especially at risk for flooding from storm surge.

Galveston, 1900
National Hurricane Center

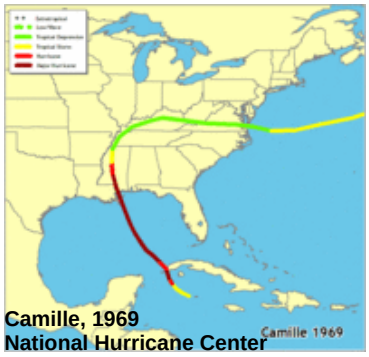
The **Galveston Hurricane (1900)** had storm tides (storm surge plus astronomical tides) of eight to 15 feet, which inundated all of Galveston Island, and parts of the Texas coast. The flooding is thought to be largely responsible for the 6,000 to 12,000 deaths attributed to the storm, and property damages of about 30 million dollars.

Hurricane Katrina (2005) created storm surge flooding 25 to 28 feet above normal tide levels along the Mississippi coast, and 10 to 20 feet above normal levels along Louisiana's southeastern coast. Storm surge extended several miles inland in Mississippi, and breached levees in New Orleans. The storm resulted in 75 billion dollars in damages, and about 1200 reported deaths.

HIGH WINDS

The Saffir-Simpson Hurricane Scale classifies hurricane intensity from Category 1 to Category 5, determined by wind speed and potential damage. A Category 1 hurricane has lighter winds than higher Categories, and may cause less damage. For comparison, a Category 4 hurricane, with winds between 131 and 155 mph, could do 100 times the amount of damage as a Category 1 storm.

The maximum sustained winds of **Hurricane Camille (1969)** were estimated to be around 200 mph, but because the storm destroyed all wind-recording instruments when it made landfall in Mississippi, the actual sustained winds will never be known! Camille is the second most intense hurricane to hit the U.S. on record, resulting in more than 250 deaths and 1.4 billion dollars in damage.



Camille, 1969
National Hurricane Center

The majority of damage in Florida from **Hurricane Andrew (1992)** was due to wind. In a similar situation to Hurricane Camille, maximum winds in Florida were not measured because instruments were broken. Gusts above 160 mph were measured before instruments were damaged, and 120 mph gusts were reported in Louisiana after the storm had crossed the Florida Peninsula and the Gulf of Mexico.

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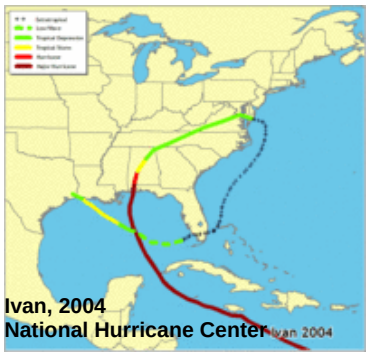
TORNADOES

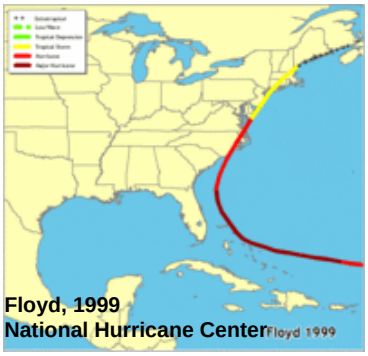
More than half of hurricanes that make landfall produce at least one tornado. Tornadoes associated with hurricanes most often occur in the right-front quadrant of the hurricane, but can occur in rainbands and away from the hurricane's center. While hurricane-generated tornadoes are generally not as strong as those occurring in the Great Plains, they are still a serious threat – they often lack cues, such as hail and lightning, that may act as warnings.



Hurricane Frances (2004) resulted in more than 100 tornadoes throughout the Southeast and Mid-Atlantic U.S. As **Hurricane Ivan (2004)** moved inland, it produced heavy rains and more than 100 tornadoes. **Hurricane Katrina (2005)** spawned 33 reported tornadoes, and **Hurricane Rita (2005)** spawned 90 tornadoes in the Southern U.S.

INLAND FLOODING

Storm surge is a serious threat during hurricanes, but more people actually died from inland flooding between 1970 and 2000. Hurricane wind speed and rainfall are not always related, and some of the heaviest rains can occur inland when a storm moves slowly or stalls over a particular area.



Florida experienced relatively minor effects from storm surge and wind when **Hurricane Agnes (1972)** made landfall. However, as the storm moved north and combined with a non-tropical low, it produced six to 12 inches of rain across much of the Northeast, with local amounts up to 19 inches. Severe flooding occurred from Virginia to New York, and all but nine of the 122 deaths associated with the storm were tied to flooding.

Hurricane Floyd (1999) combined with a frontal system in the Eastern U.S. to produce heavy rainfall along the east coast. Wilmington, NC experienced up to 19 inches of rain, and Brewster, NY recorded about 13 inches. Rainfall and flooding caused the majority of the three to six billion dollars of damage during Floyd, and was also responsible for the 50 of the 56 deaths associated with the storm.

BE PREPARED!

Increasing awareness about hurricanes and taking proper precautions to keep lives and property safe can make a big difference in the impact of major hurricane events. Be ready for hurricane season with these preparedness tips.

- An emergency evacuation plan should be made prior to hurricane season.
  - Make sure you have a safe place to go in the event of an evacuation. Pick an evacuation route that will not be vulnerable to hazards such as flooding or storm surge. All family members should know where to go and have emergency phone number contacts.
  - Prepare an emergency supply kit. Visit www.nhc.noaa.gov/HAW2/english/prepare/supply_kit.shtml for a recommended list.
  - Be sure to make arrangements for your pets when making an evacuation plan – most temporary shelters will not accept pets.
  - If you do not live in an evacuation zone, designate a windowless room with no exterior doors as your "safe room" where you can ride-out the storm.
- Find out if your home meets current building code requirements for high winds. If not, consider making some improvements to your home. Visit the National Hurricane Center's "Retrofitting Your Home" site for more information: www.nhc.noaa.gov/HAW2/english/retrofit/secure_home.shtml.
  - Most mobile and manufactured homes are not built to withstand hurricane force winds. Never attempt to "ride-out" a storm in one of these structures.
  - Make sure that you have window and door shutters, or 5/8-inch plywood sheets that can be nailed down to cover your windows and doors, ready to go before a warning is issued.
  - Garage doors are often the first thing to fail in a windstorm. Consider bracing your garage doors.
  - Trim all dead and weak overhanging branches from the trees around your home. Any dead tree near your home is a hazard. Also consider using landscaping materials other than gravel or rock.
  - Identify items, such as lawn furniture, that should be secured or brought inside if a hurricane warning is issued. These items can become projectiles in high winds.
- Determine if you live in a flood zone. Visit www.floodsmart.gov for more information.
  - Consider purchasing flood insurance, which is usually not included with home insurance.

The information in this fact sheet is from the National Hurricane Preparedness website. Learn more at www.nhc.noaa.gov/HAW2/english/intro.shtml.