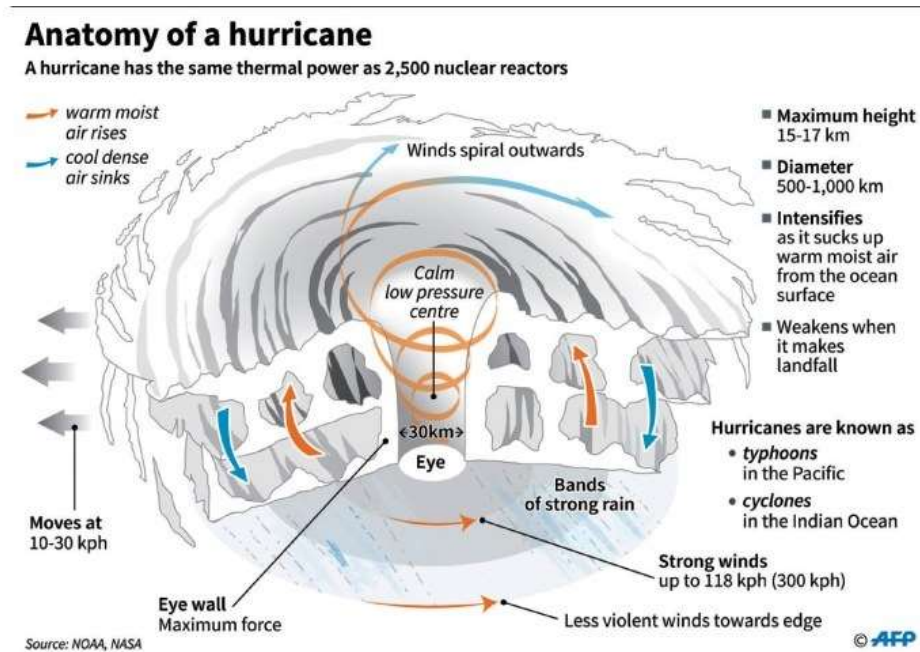


Hurricanes

Hurricanes develop in tropical regions with areas of low pressure, where temperatures are warm, and winds are converging (go towards each other). Most storms that affect the Eastern United States begin with disturbances that come off of the coast of Africa.



Eye: Calm region in the middle of the storm. Has the lowest ground pressures anywhere in the storm. Is 20-50 km across

Eye Wall: Most devastating region of the hurricane - most intense conditions with highest winds. (cumulonimbus clouds are found here)

Rain Bands: bands of heavy storms that spiral around the eye of the storm. Extend 100s of miles from the eye.

Factors that affect hurricane strength

What strengthens hurricanes?

- Sea surface temperatures of 79 degrees F
- Low vertical wind shear
- Warm moist air
- Ocean area along projected storm path

What weakens hurricanes?

- Sea surface temperatures below 79 degrees F
- High vertical wind shear
- Dry air
- Land masses along projected storm path

Damaging Effects of Hurricanes

- Storm Surge: abnormally high rise in the sea water level as a result of a storm. The strong winds of the storm push the sea water up and onto shore as the storm approaches. Affected by shape of ocean floor.
- Strong winds - damage to structures and trees - See Saffir-Simpson Scale
- Flooding - Loss of life: most deadly factor of a hurricane. 6 inches of water can sweep a car away.
 - Structures: move house off of foundation, initial water damage, mold/milder after water recedes, not always covered by insurance

What is a hurricane?

HURRICANE WATCH - The National Hurricane Center issues a hurricane watch to alert specific regions when hurricane conditions are forecast for the area within the next 36 hours. This watch should trigger your family's disaster plan and you should begin protecting your home and property from the storm. Monitor weather reports via television or radio to stay informed.

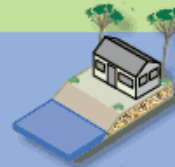
HURRICANE WARNING - The National Hurricane Center issues a hurricane warning when sustained winds of 74 mph or greater are forecast for the area within the next 24 hours. All precautions must be taken immediately; your family should already be in the process of securing property and relocating to a safe place to wait out the storm. Monitor weather reports via television or radio to stay informed.

SAFFIR/SIMPSON HURRICANE SCALE

CATEGORY 1

Surge: 4-5 feet Winds and Effects: 74-95 mph (64-82kt)

No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery and trees. Also, some coastal flooding and minor pier damage.



CATEGORY 2

Surge: 6-8 feet Winds and Effects: 96-110 mph (83-95kt)

Some roofing material, door and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.



CATEGORY 3

Surge: 9-12 feet Winds and Effects: 111-130 mph (96-113kt)

Some structural damage to small residences and utility buildings, with a minor amount of structural failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris. Terrain may be flooded well inland.



CATEGORY 4

Surge: 13-18 feet Winds and Effects: 131-155 mph (114-135kt)

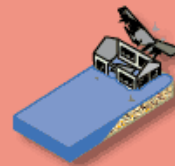
More extensive structural failures with some complete roof failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.



CATEGORY 5

Surge: 19 feet+ Winds and Effects: 156 mph+ (135+ kt)

Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.



Historical Hurricanes

Great Storm of 1900: Galveston, TX - Lack of sophisticated technology and a refusal to work with Cuba (who had the best technology at the time) resulted in little warning for the people of Galveston. Of the 37,000 people living in Galveston, 30,000 were left homeless and the storm killed a total of roughly 8,000 people. It was the deadliest natural disaster in US history.

Hurricane Katrina - New Orleans, LA, 2005 - Some uncertainty of the path, but largely due to poor planning, people were unable to sufficiently evacuate New Orleans. The city is built on sinking soils, and sits below sea level, protected by levees and sea walls. These levees failed, filling much of the city with water and creating a terrible tragedy and humanitarian crisis. Loss of buffering wetlands also contributed to the extent of the damage.

Hurricane Matthew - North Carolina and Haiti (2016) - Matthew resulted in extensive flooding in Eastern NC due to rivers flooding. In Haiti the disaster came on the heels of an earth quake, a cholera epidemic, and political unrest. The country is still struggling to recover.