Hurricanes

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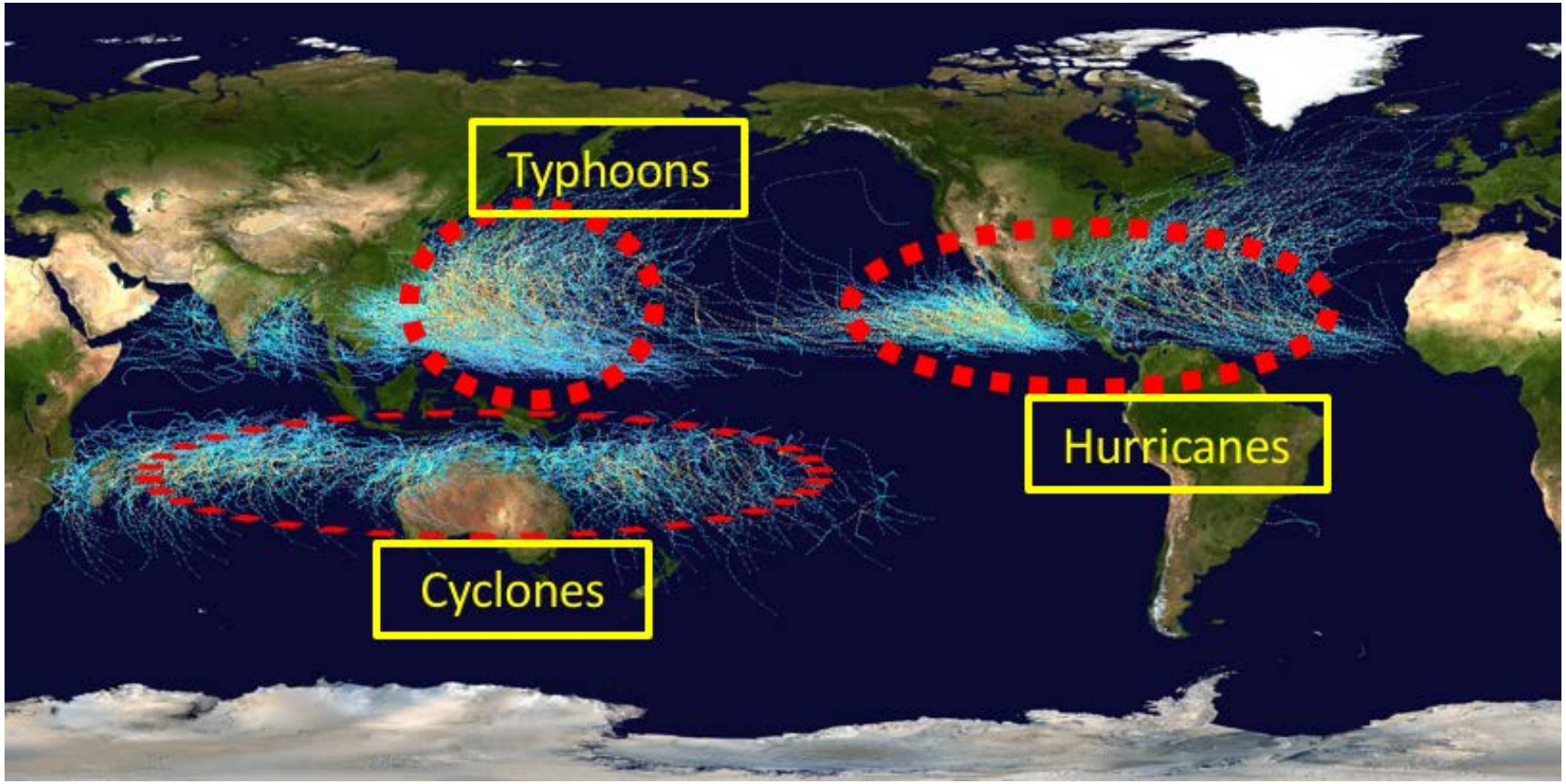
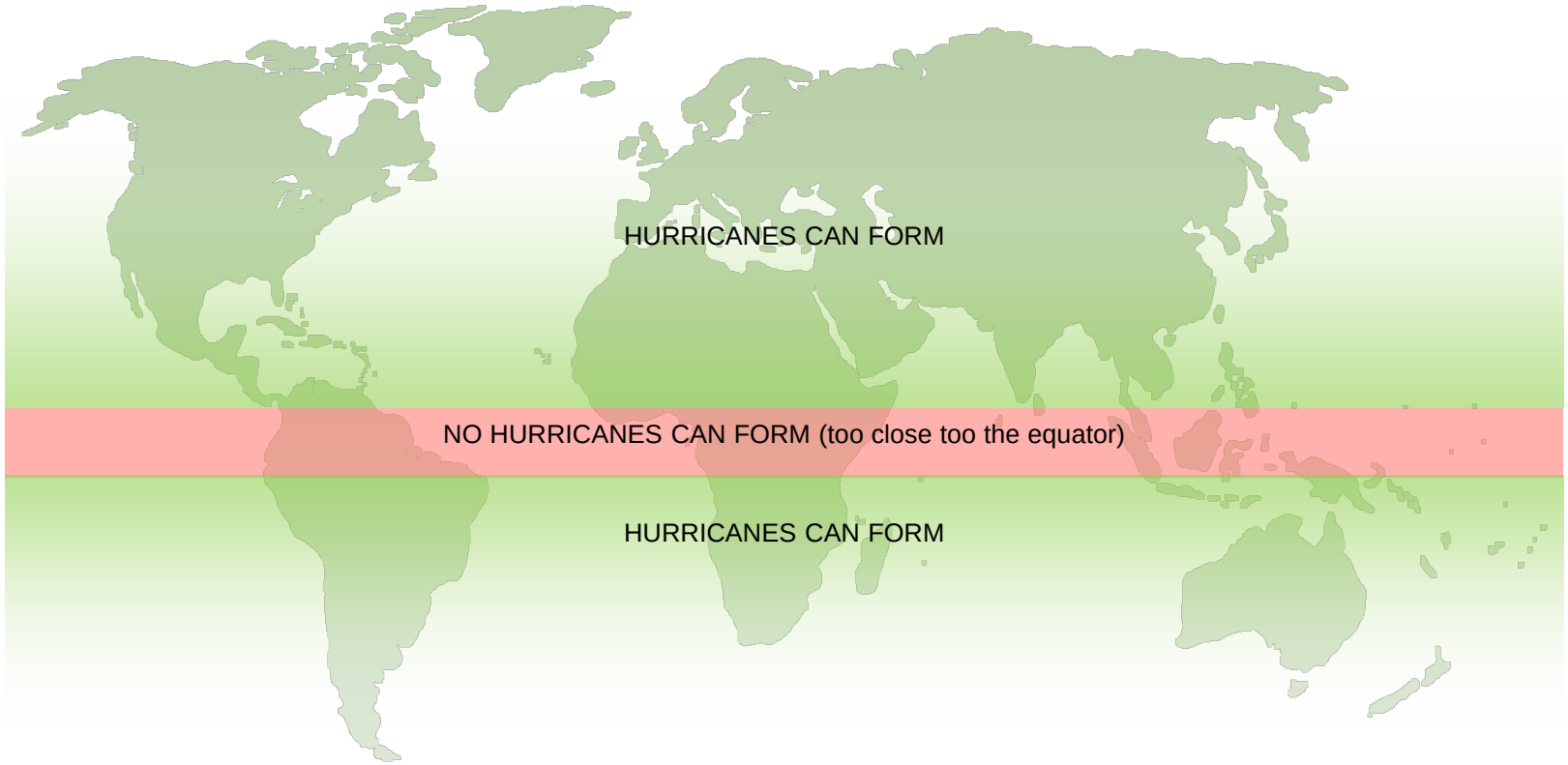
Tropical Cyclones Around the World

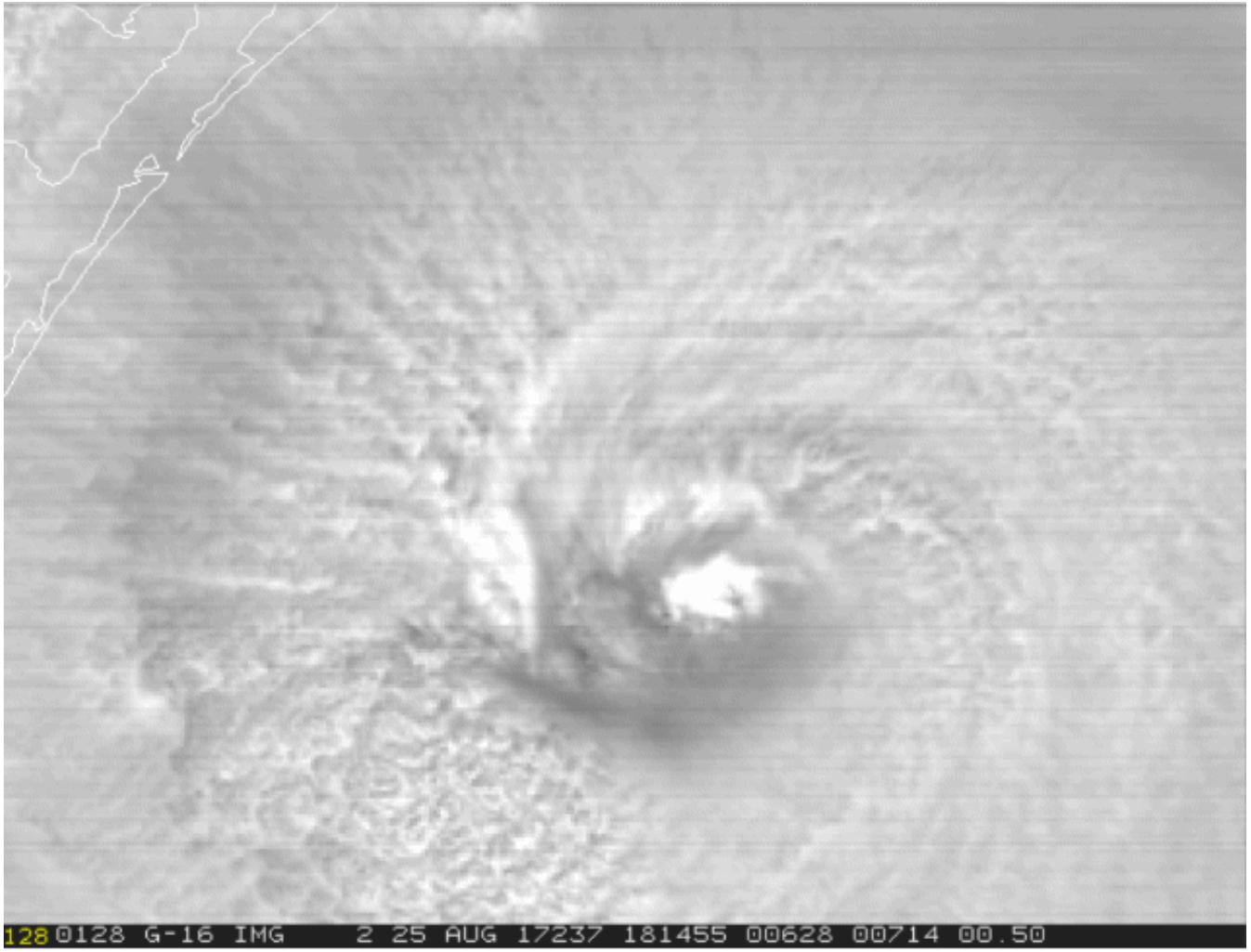


Hurricane Recipe

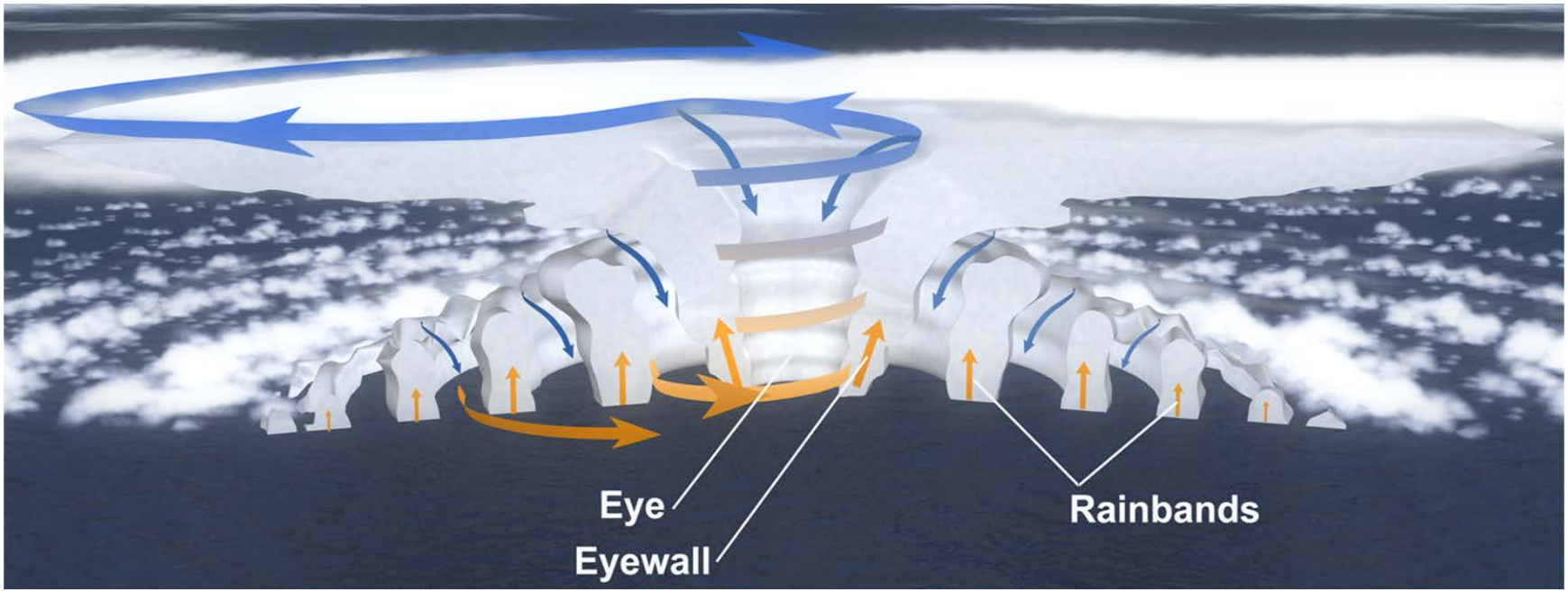


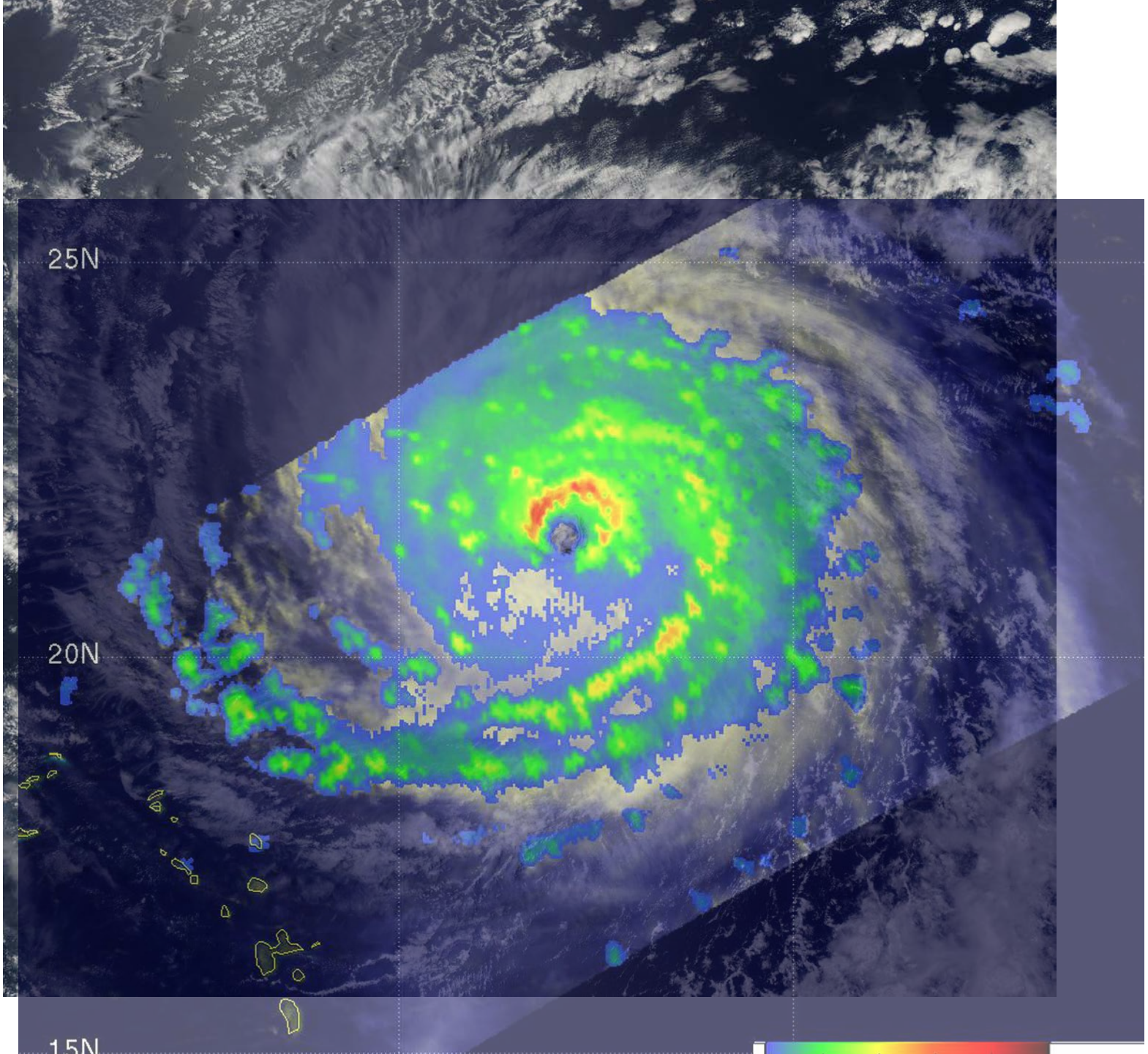
Hurricane recipe

What does a forecaster look at?



Into the Storm




25N
20N
15N

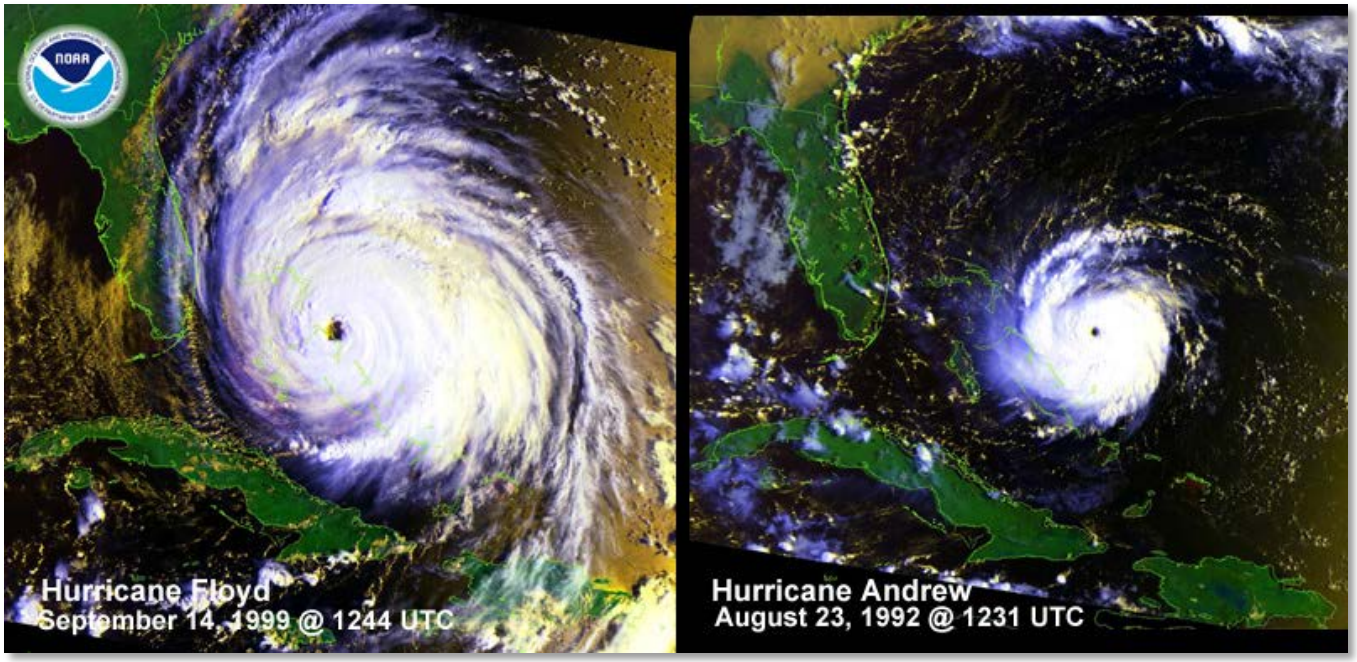
Categories

Wind Speeds	Tropical Depression	Tropical Storm	Category One	Category Two	Category Three	Category Four	Category Five
	≤38mph	39-73mph	74-95mph	96-110mph	111-129mph	130-156mph	≥157mph

Based *only* on sustained wind speeds in the eyewall

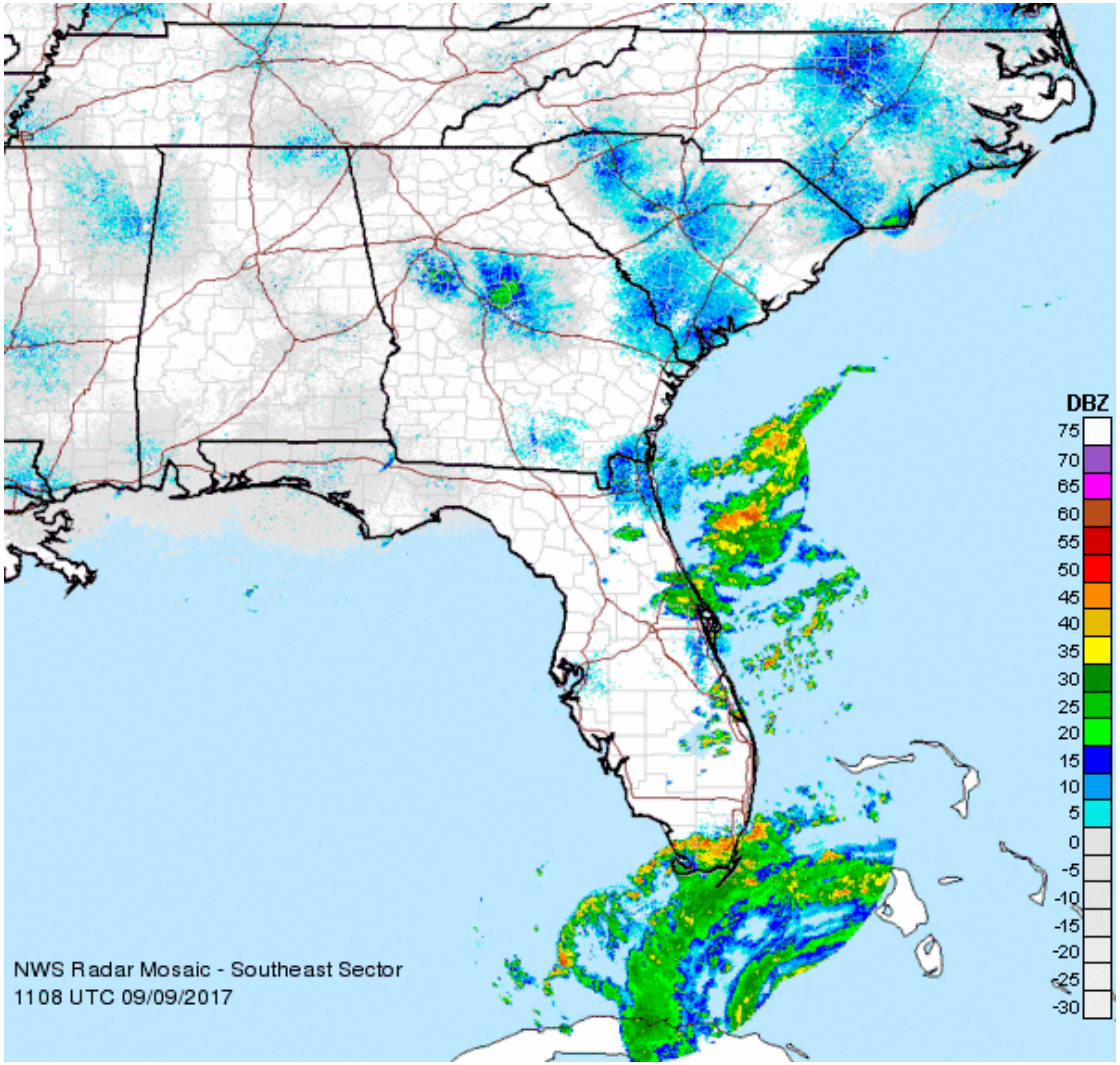
Even weak hurricanes and tropical storms can be very destructive

Size ≠ Strength



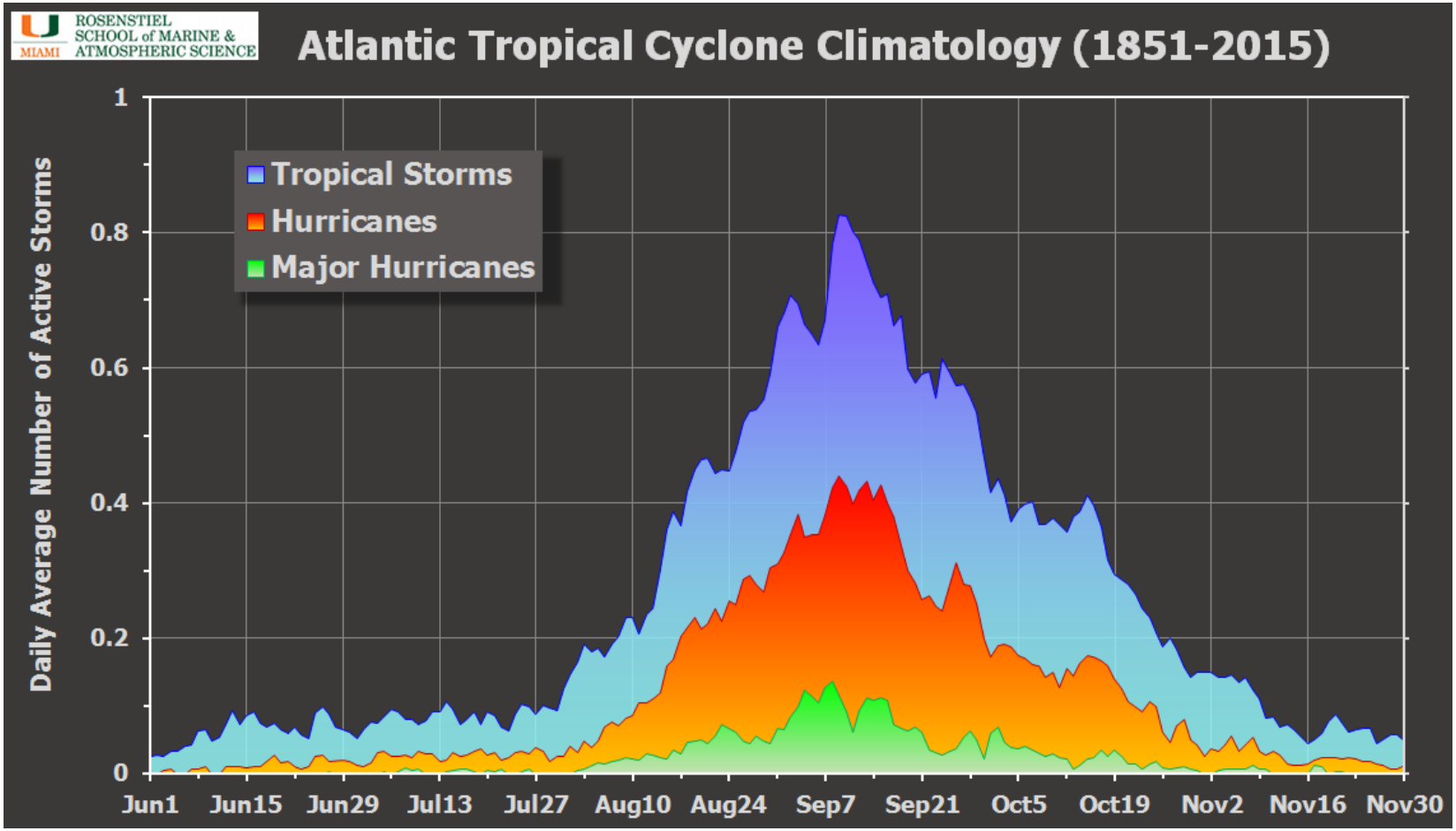
However, Hurricane Andrew was a small storm but was devastating for Miami-Dade

HURRICANE IRMA



Irma was a very large storm (the size of Texas before FL landfall), having impacts over the entire state

The Atlantic Hurricane Season



The forecast cone

“Forecast cone” contains the probable path of the storm center

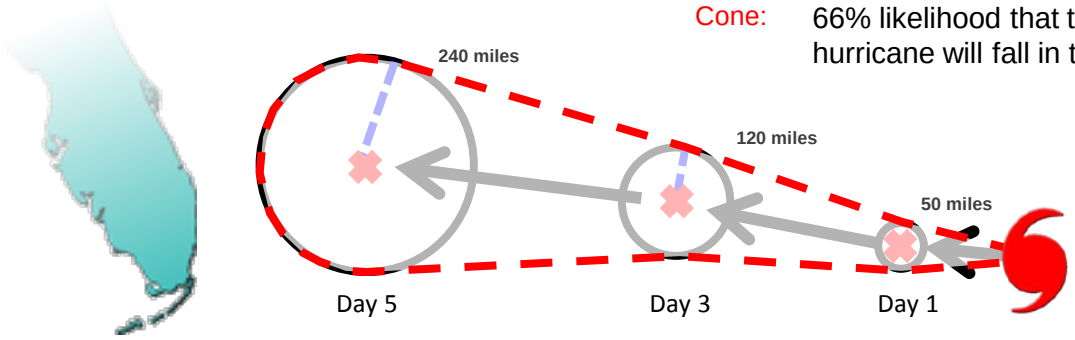
Important notes:

A) The cone is 2/3 probability of the **center** falling in that region

B) The same sized cone is used for the whole season – uncertainty can vary from storm to storm

C) THIS IS NOT AN IMPACTS CONE – impacts extend far beyond the boundary of the cone

Making the cone



Cone: 66% likelihood that the CENTER of the hurricane will fall in that region

Error in track at 1 day out is 50 miles

Error increases with increasing length of time of forecast

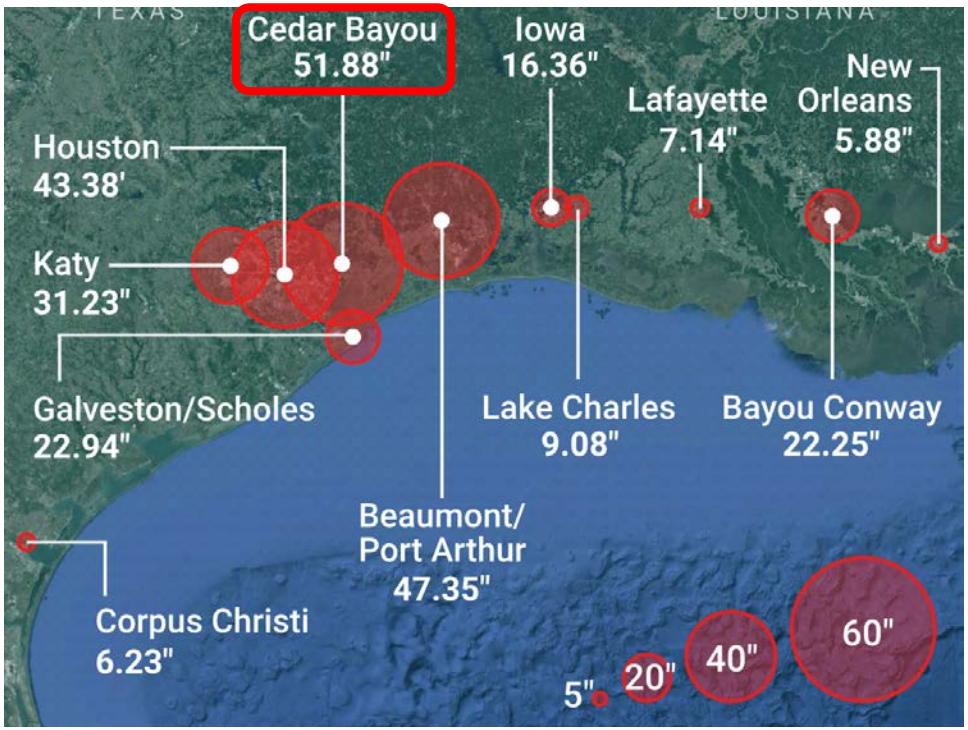
Better forecasts (averaged over 5 years) = smaller error = a smaller cone!

Hurricane Hazards

- Storm Surge
- Wind
- Rain
- Tornadoes

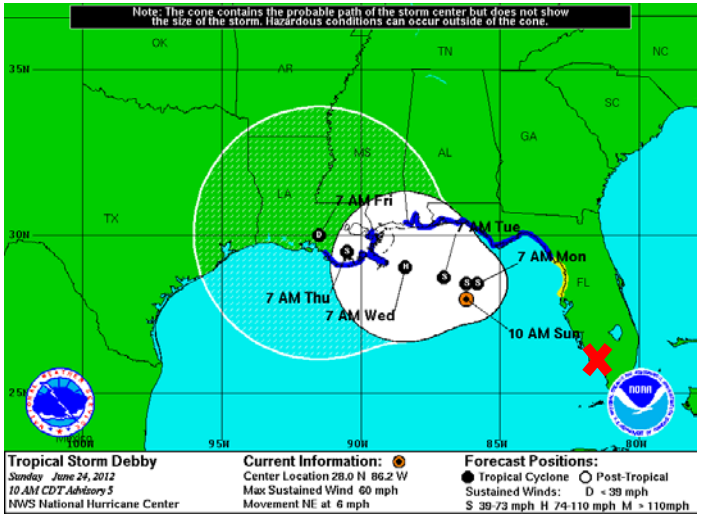
Wind, Rain, and Waves

Rain – Hurricane Harvey



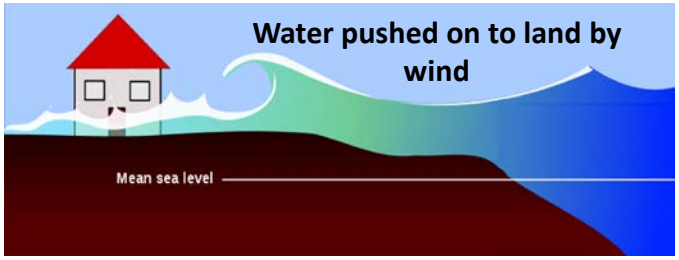
Tornadoes

- ~70% of landfalling hurricanes cause at least 1 tornado
- Most often occur in rainbands well away from the storm center



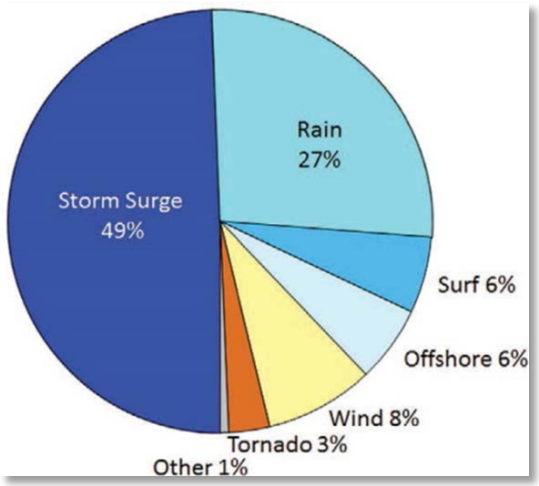
Storm surge

What is storm surge?



FACT:

- The #1 cause of deaths in hurricanes (49%)



Storm Surge

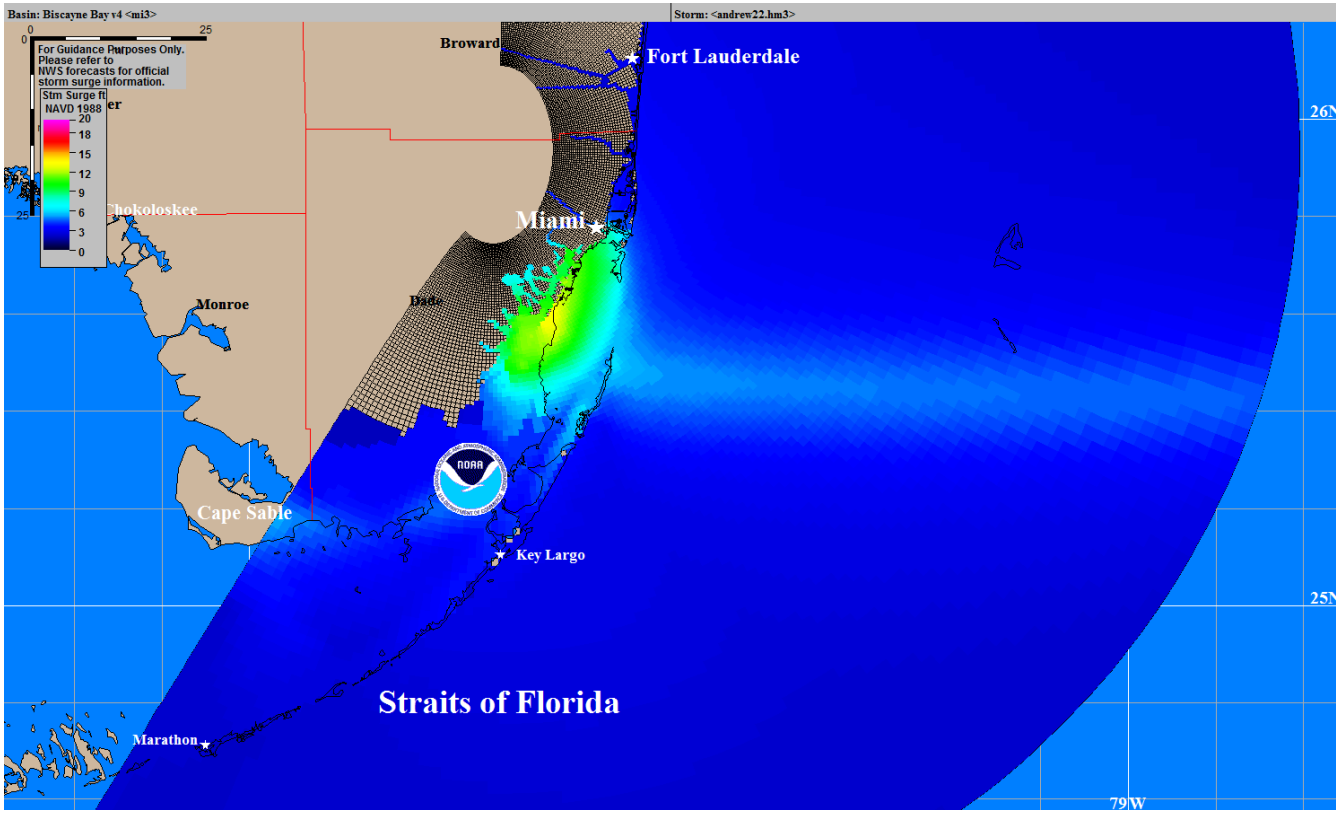
Brickell during Hurricane Irma (2017)

Hurricane Andrew (1992)

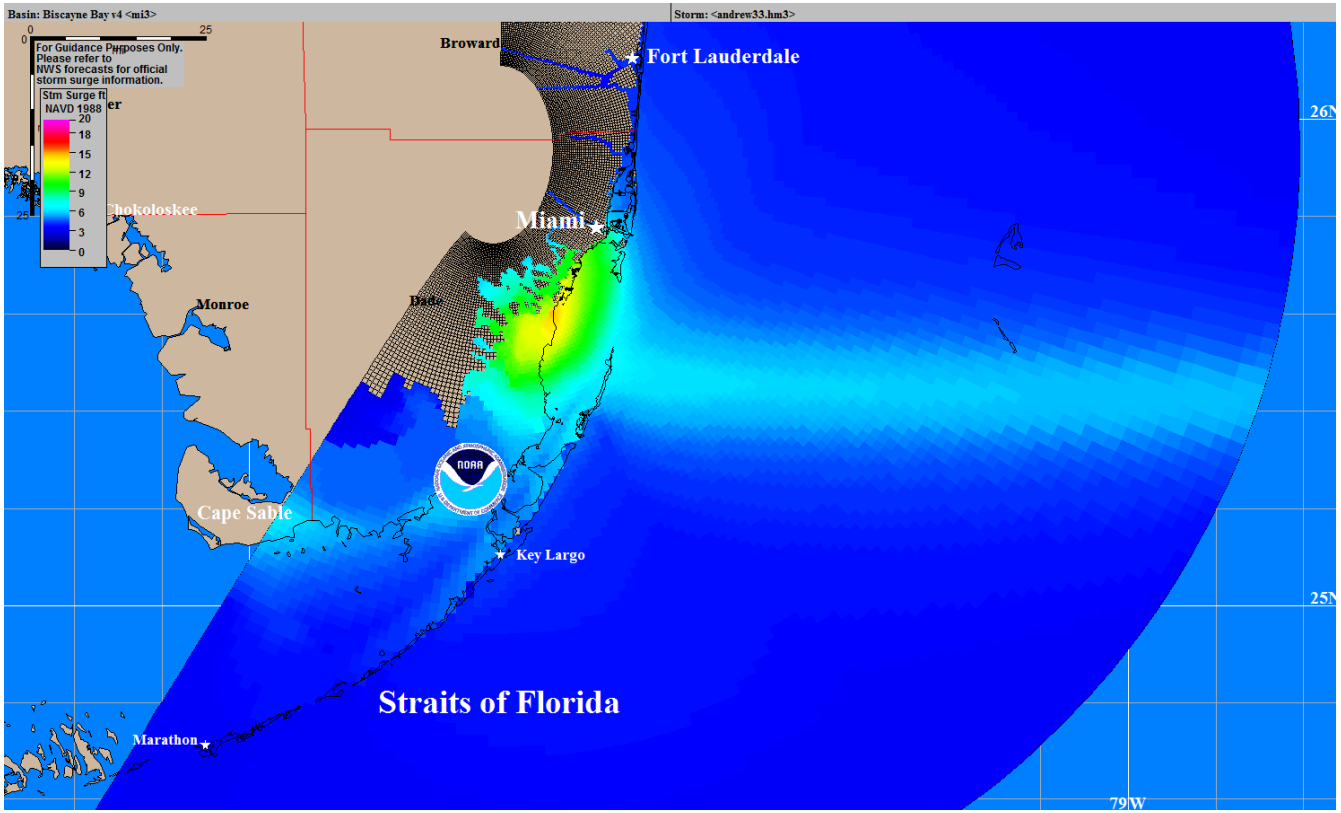
SLOSH Storm Surge Prediction Model

Sea Level Rise Scenarios

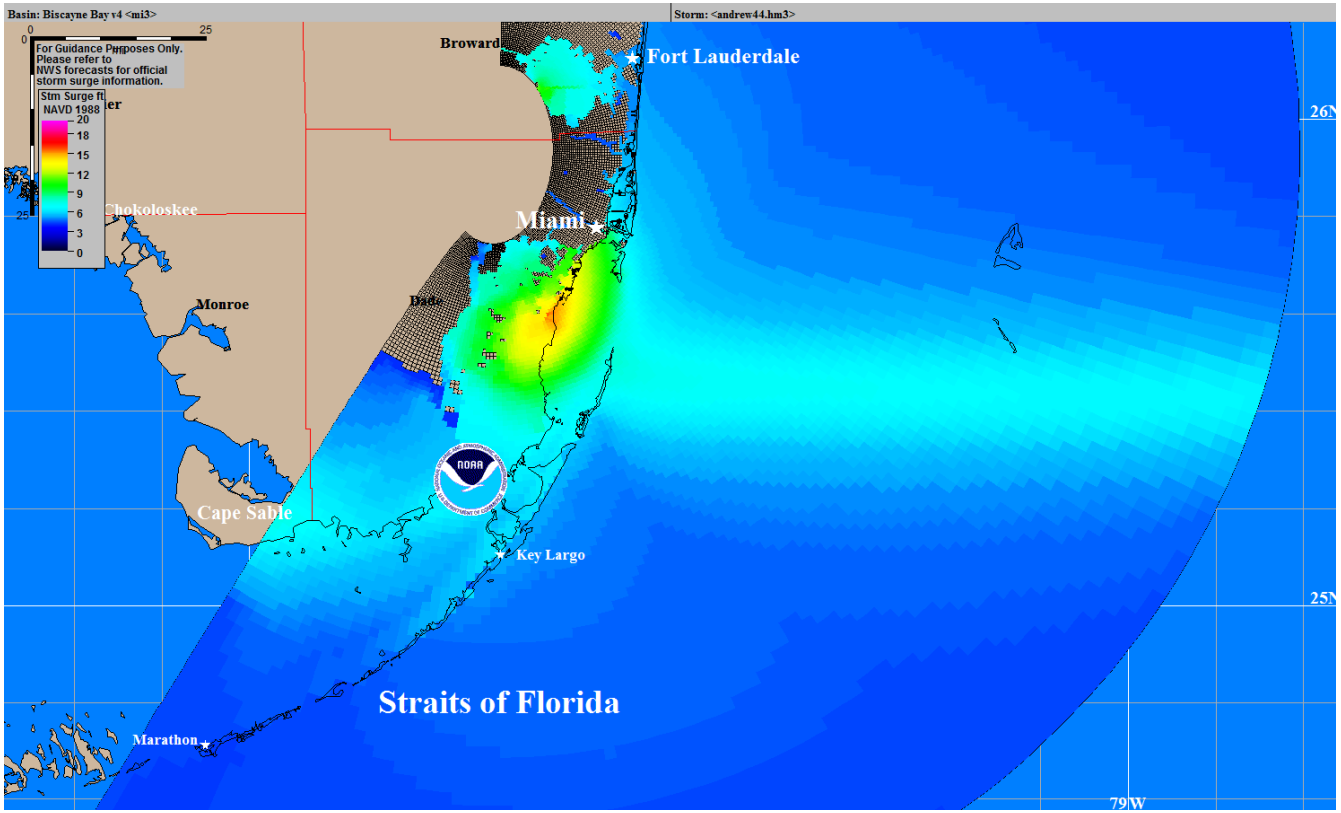
Baseline SLOSH Simulation



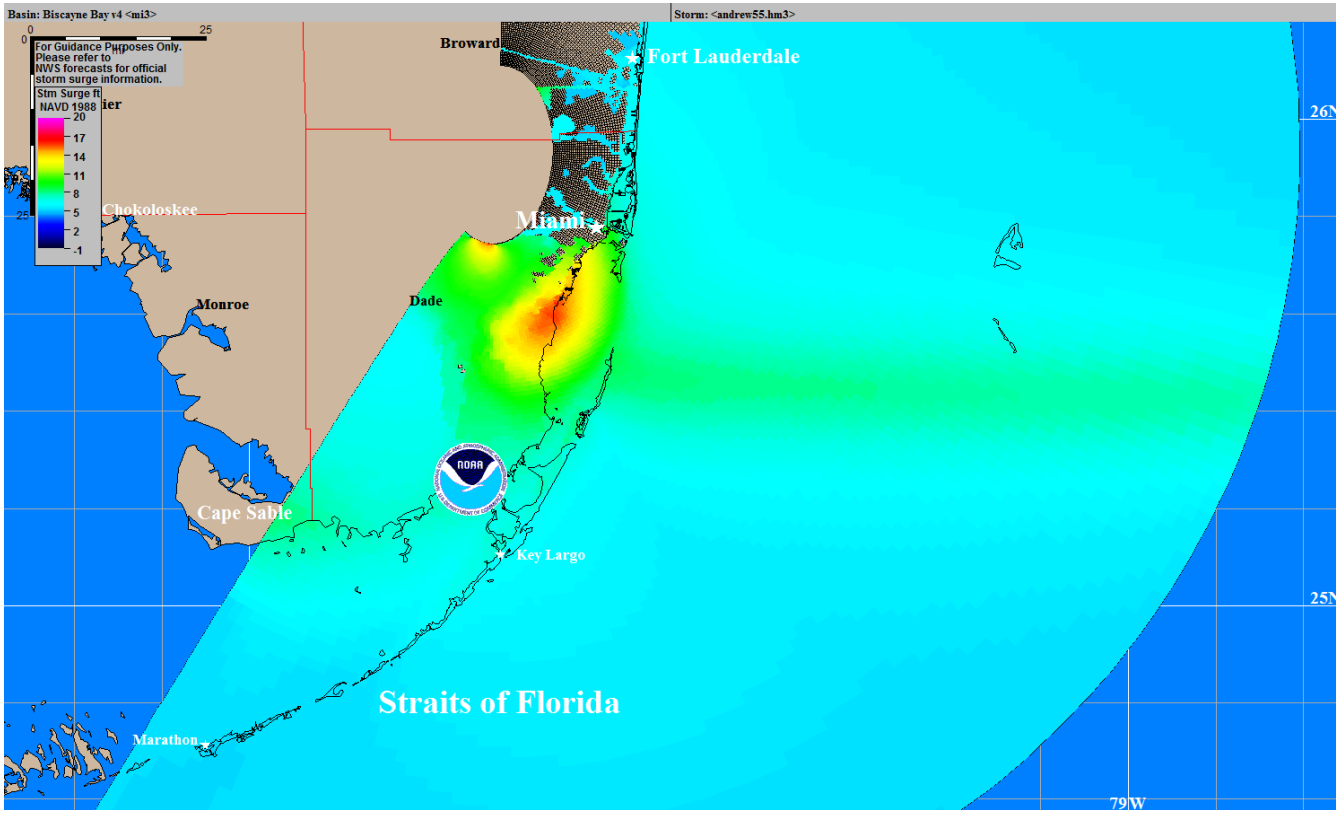
Sea Level Rise Scenario +1



Sea Level Rise Scenario +2



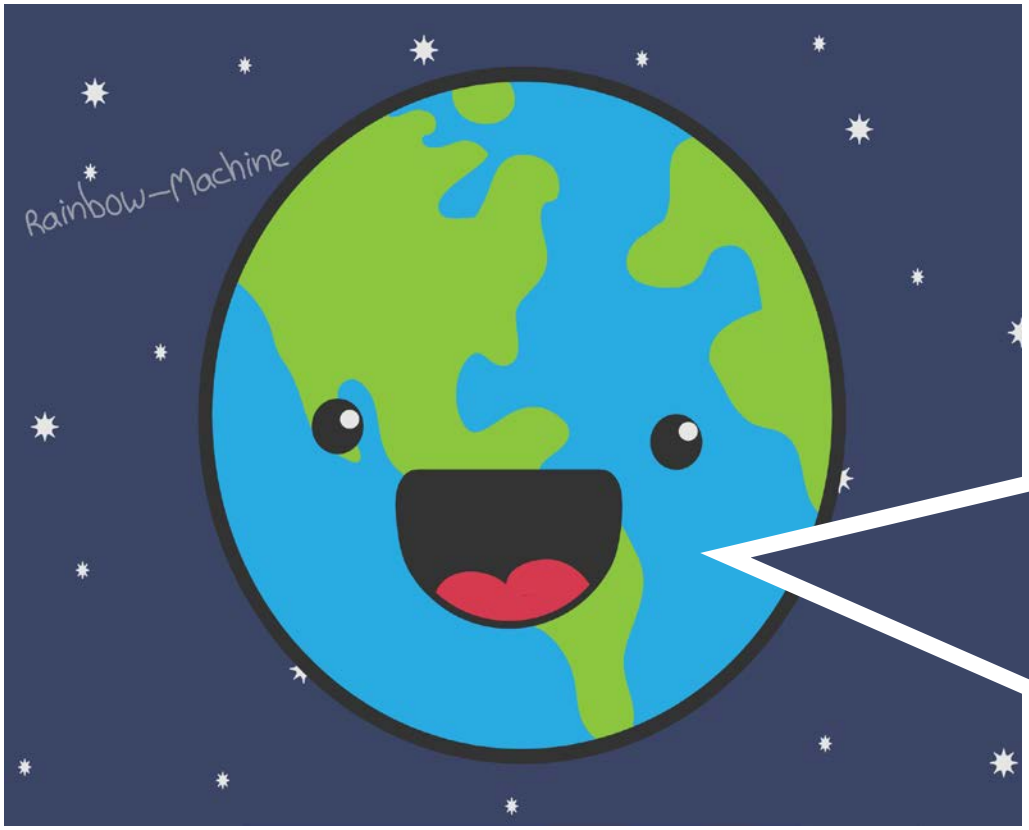
Sea Level Rise Scenario +3



Be prepared!

- Get bottled water
- Canned food
- Medicine
- First-aid kit
- Charged cell phone
- Flashlight
- Radio and extra batteries
- Fill bathtub with water
- Evacuate when told

How you can help!



- Reduce, reuse, recycle
- Reusable water bottles
- Bring reusable bags to the store
- Turn off the water while you brush your teeth
- Turn off the lights
- Don’t litter