

*Welcome!*

# Three Minute Thesis Webinar: Tropical Weather



**Regional Collaboration Network**

*Improving NOAA's service to the Nation through collaboration*

# Three Minute Thesis Outline

Welcome and Overview

New Technologies for Sampling Hurricanes – Shirley Murillo

Three Questions that Guide Hurricane Forecasting – John Cangialosi

Trying to Reason with Hurricane Season – Jamie Rhome

Audience Questions

Tropical Weather Decision Support Services – Jennifer Hubbard

Selling the Hurricane Story- Know Your Audience – Dennis Feltgen

Audience Questions

After the Storm... How NOAA Helps Re-Open Ports – Kyle Ward

Disasters R Us? NOAA Fisheries and Disaster Assessments – Michael Jepson

Hurricane Hunters on a Record Breaking Season – LCDR Becky Shaw

Audience Questions

Webinar Concludes / Brief Survey

# New Technologies for Sampling Hurricanes



Shirley Murillo

Deputy Director, Hurricane Research Division, Atlantic Oceanographic and Meteorological Laboratories, OAR

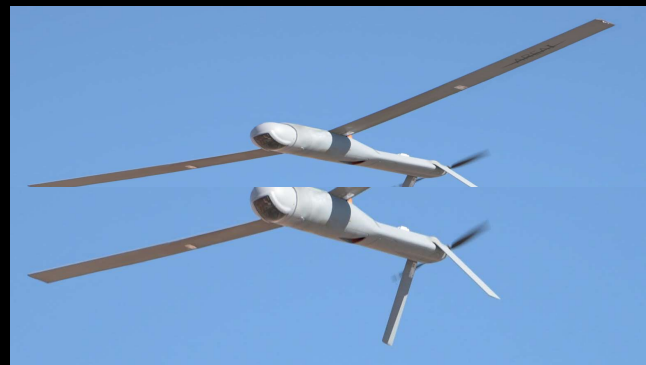


## Doppler Wind Lidar

- Provides wind profiles of the hurricane environment



## Un-crewed areal system: Altius-600

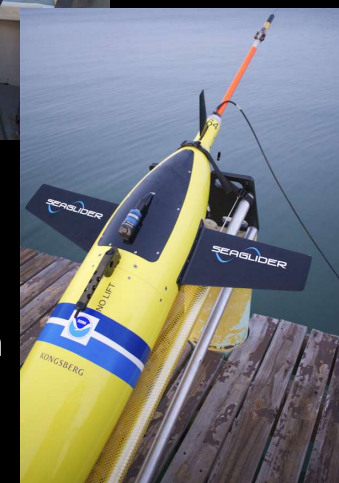


- Flies close to the ocean surface



## Un-crewed Ocean Hurricane Glider

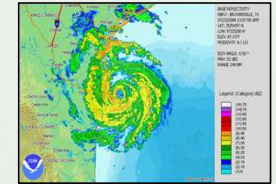
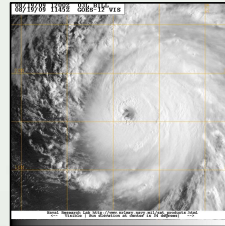
- Collects ocean data below a hurricane



# Three Questions that Guide Hurricane Forecasting

## \* Before the Forecast Begins

- Find the center of circulation
- Estimate the intensity
- Evaluate the wind field



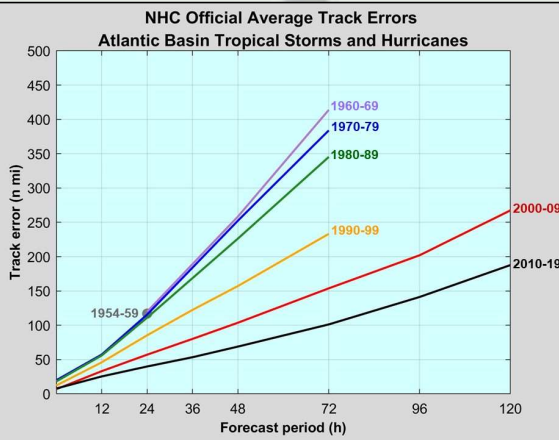
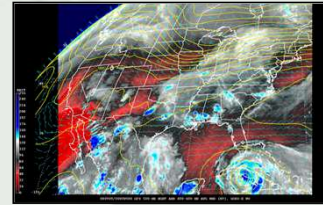
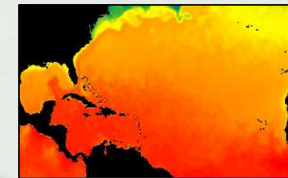
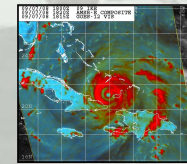
## 1. Where is it going?

Motion of tropical systems is largely controlled by synoptic scale ridges, troughs, jet streams



## 2. How strong will it become?

A storm's strength is dependent on its exact track. It also depends on wind, temperature, moisture patterns near the core and in the environment of the tropical system.

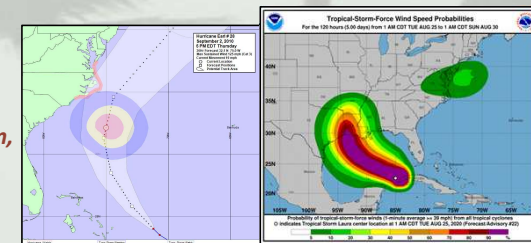


## 3. How big will it get?

The most challenging part to predict as the models are not very skillful yet.

### Basic concepts

- \* Storms get bigger with latitude
- \* Storms get bigger as they strengthen
- \* Consider friction, extratropical transition, asymmetries, environment



# Our Mission and Who We Are

- Support coastal community preparedness and resiliency through storm surge vulnerability and risk analysis (Stafford Act)
  - National Hurricane Program
  - Evacuation planning, modeling, and mapping
  - Training and technical assistance
- Provide accurate real-time storm surge forecasts during tropical cyclone events (Weather Service Organic Act)
- Support post-landfall response and recovery (Stafford Act and Coastal Act)



# Questions?

New Technologies for Sampling Hurricanes  
Shirley Murillo

Three Questions that Guide Hurricane Forecasting  
John Cangialosi

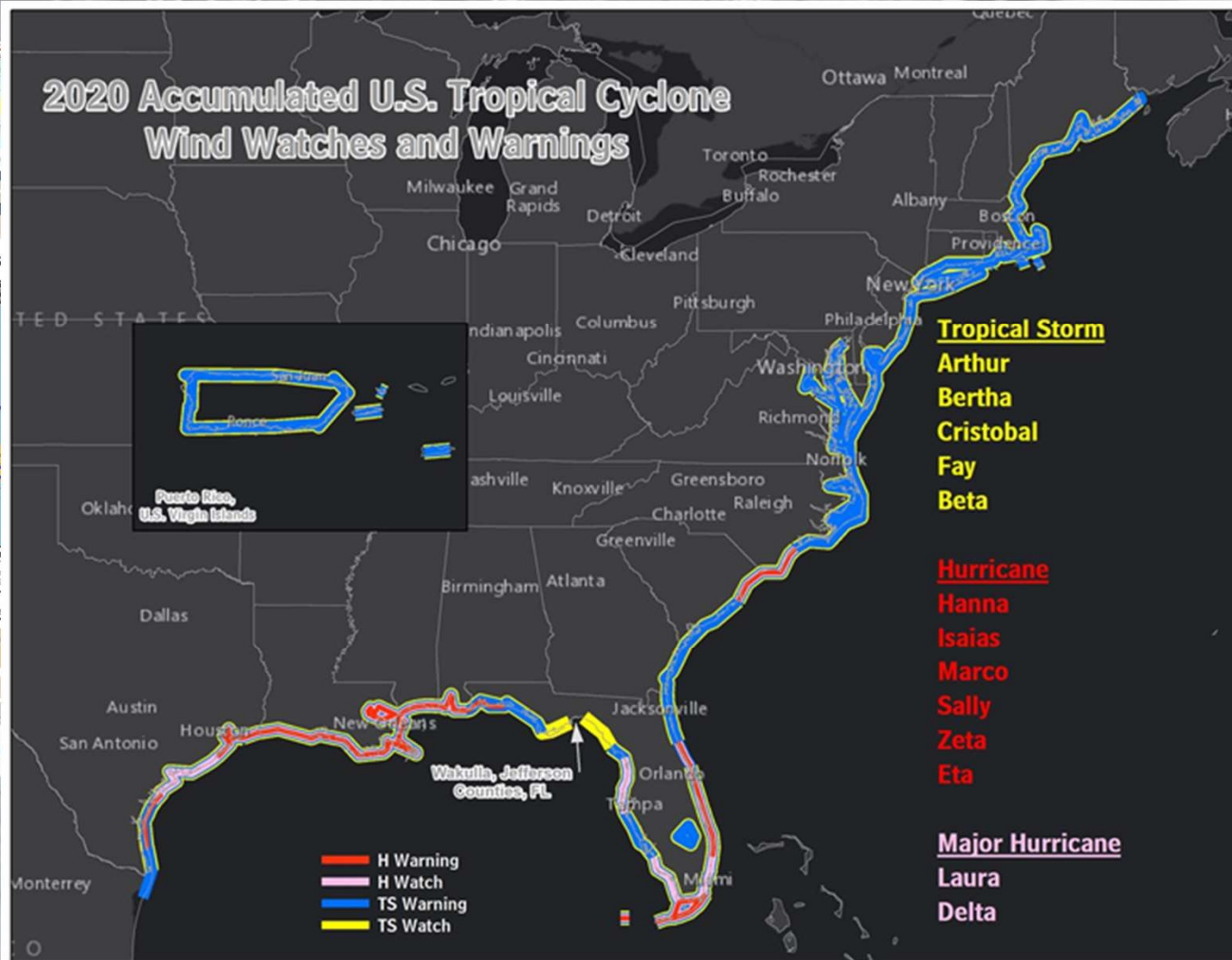
Trying to Reason with Hurricane Season  
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# Tropical IDSS: Managing Partner Expectations



## Trying a New Approach

Tropical Storm ETA

**Phase I** (Today through Tues)



11/8/2020 12:29 PM

Wind less than 39 mph

Figure 1. Example

Tampa Bay (Ruskin)  
 WEATHER FORECAST OFFICE

Green shading: Wednesday through Saturday

Some colors in the probable path of the storm center but does not show all of the storm. Hazardous conditions can occur outside of the cone.

Tampa Bay (Ruskin)  
 WEATHER FORECAST OFFICE

East Florida, with **phase 1** seeing rain (or) through Monday. **Phase 2** will drift northward over the eastern

through Friday. Severity of this surge and Eta's size / strength at that time. Water rise (2-5' MHHW) during the

is a multi-day event

acts from Eta until very late this week or coming weekend

on Tonight through the Florida Straits

eastern Gulf of Mexico Tuesday Night

www.weather.gov/TampaBay

Tornadoes not expected

Hurricane Irma (2017).  
 adjustments



# Selling the hurricane story - know your audience



## MEDIA

- Who are they
- Local, local, local
- Building the trust



## SOCIAL MEDIA

- Consistency
- Facebook Live
- Twitter & Instagram

**Key Messages for Tropical Storm Laura**  
Advisory 20: 5:00 PM EDT Mon Aug 24, 2020

1. Laura is forecast to reach the northwestern Gulf Coast as a hurricane late Wednesday and early Thursday. Do not focus on the details of the official forecast given the typical uncertainty in NHC's 2 to 3 day track and intensity predictions. In addition, storm surge, wind, and rainfall hazards will extend well away from Laura's center along the Gulf Coast.
2. There is a risk of life-threatening storm surge from San Luis Pass, Texas, to Ocean Springs, Mississippi, within the next 48 hours, and a storm surge watch has been issued for these areas outside of the southeast Louisiana Hurricane and Storm Damage Risk Reduction System. Residents in these areas should follow any advice given by local officials.
3. Hurricane conditions are possible by late Wednesday from Port Bolivar, Texas, to west of Morgan City, Louisiana, with tropical storm conditions possible by Wednesday afternoon, and a hurricane watch has been issued. Additional hurricane watches may be needed farther south along the Texas coast if the track forecast shifts farther south and west tonight and Tuesday.
4. Tropical storm conditions and heavy rainfall are expected across central and western Cuba through tonight. These rains could cause mudslides and life-threatening flash and urban flooding.

For more information go to [hurricanes.gov](https://hurricanes.gov)

## GRAPHICS

- It's not radio
- Short & to the point
- Targeting the hazards



# Questions?

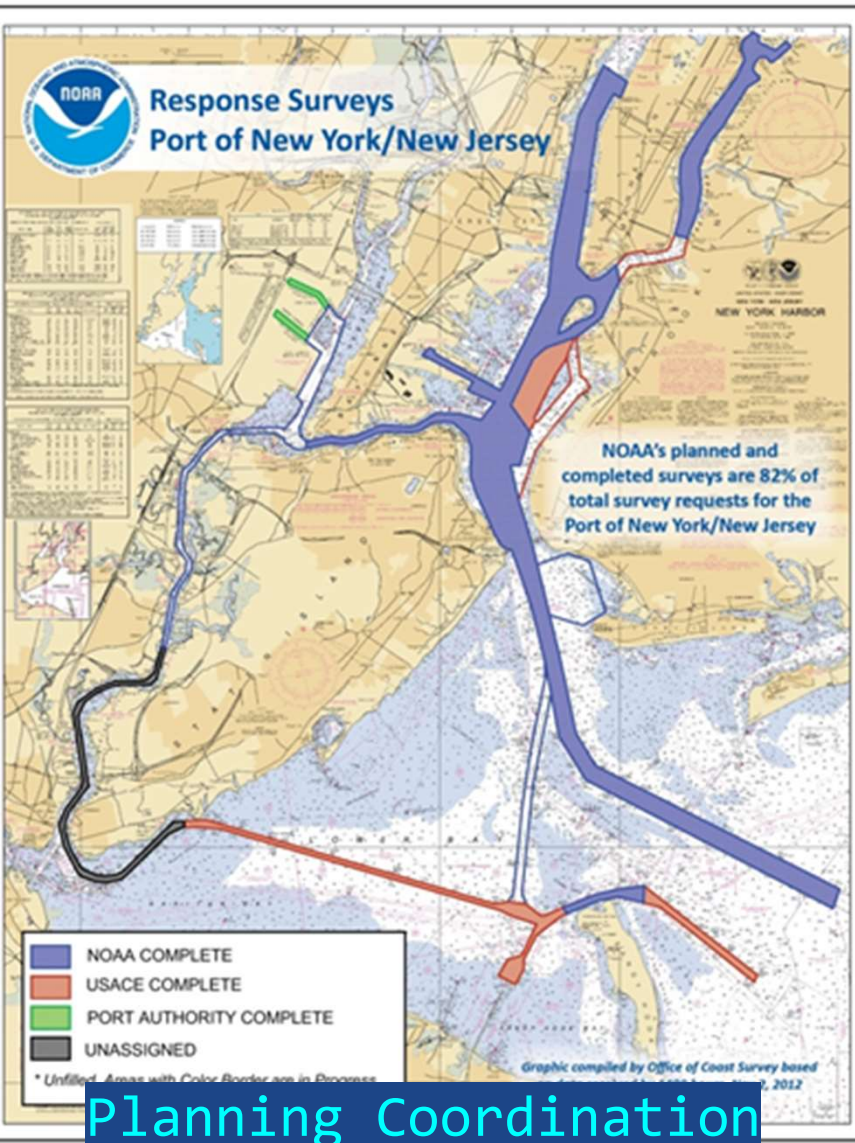
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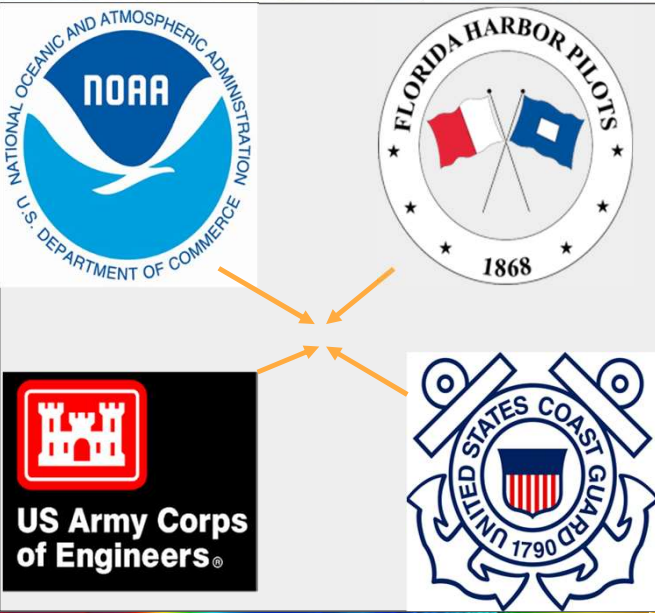


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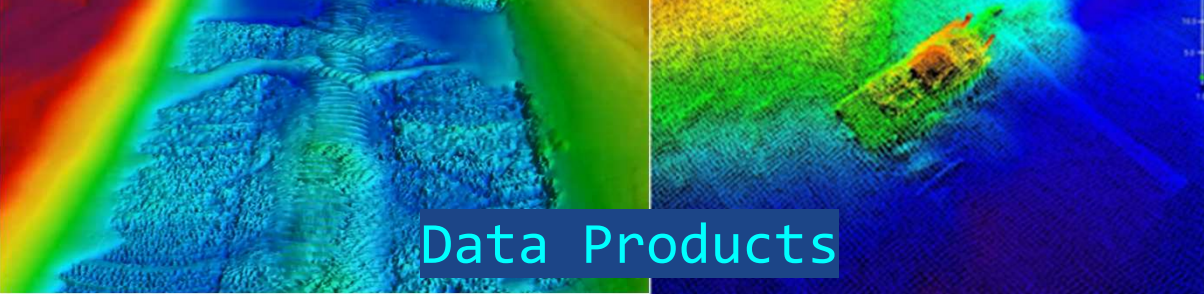
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**Survey Assets**



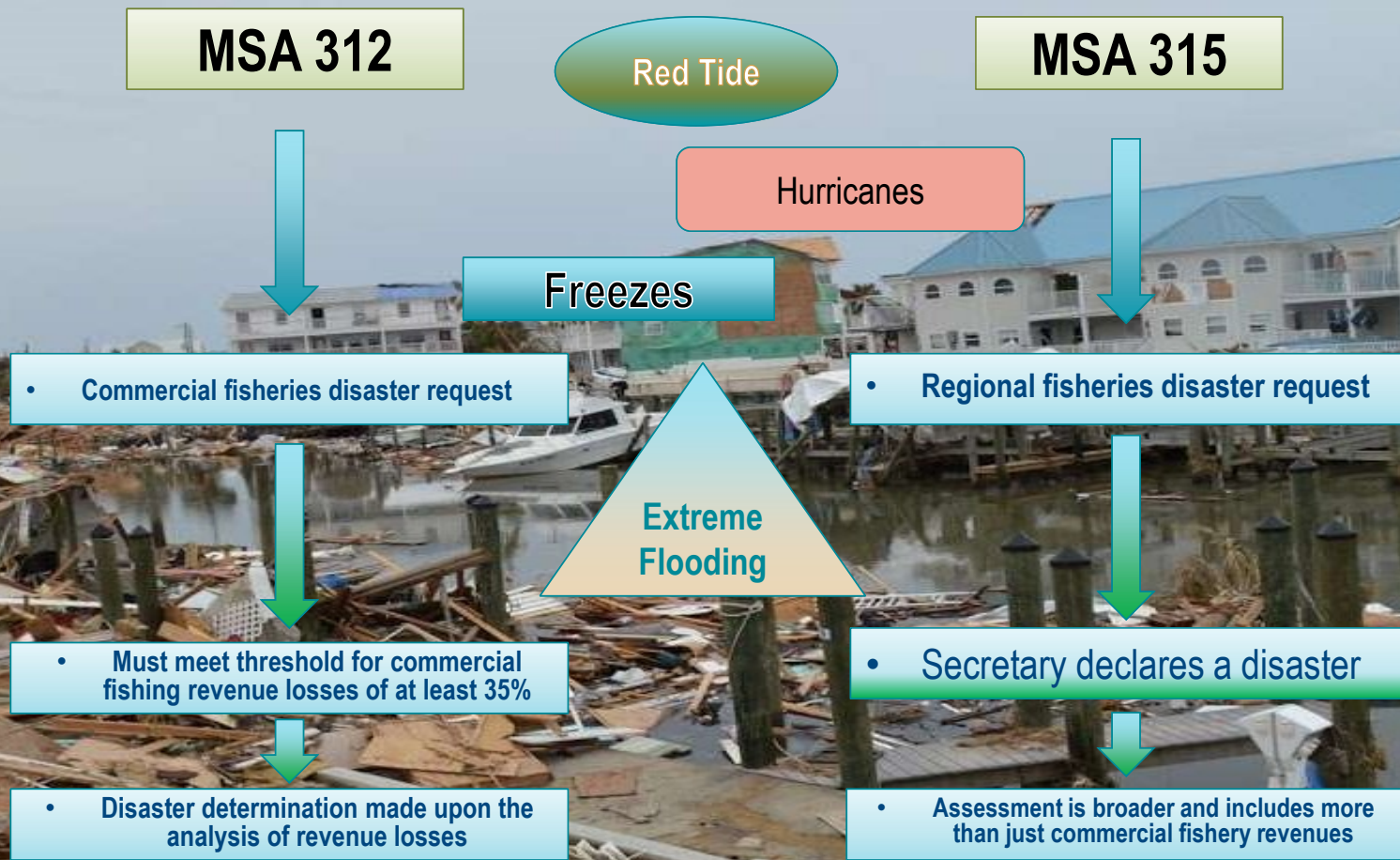
**Priorities**



**Data Products**

**Planning Coordination**

# NOAA Fisheries Disaster Assessment

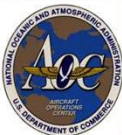


# *Hurricane Hunters on a Record Breaking Season*

- Who flies on the Hurricane Hunters?
- What science instruments do we have onboard the aircraft?
- How did this team overcome the pandemic?



The edge of Hurricane Eta in October of 2020. The 2020 season exhausted the named storms relying use on the greek alphabet. This was the first use of the name Eta storm in history of named storms.



# Questions?

After the Storm... How NOAA Helps Re-Open Ports

Kyle Ward

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Michael Jepson

Hurricane Hunters on a Record Breaking Season

LCDR Becky Shaw



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## *What Questions Do You Have?*

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*Thank You for attending!*

Your input is valuable to us.  
Please take a moment to provide your  
feedback at the conclusion of the webinar.



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Group Picture Placeholder