



NOAA Science Update to the Science Advisory Board

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National Centers for Coastal Ocean
Science Director

November 1, 2018



Reduce the impacts of extreme weather and water events

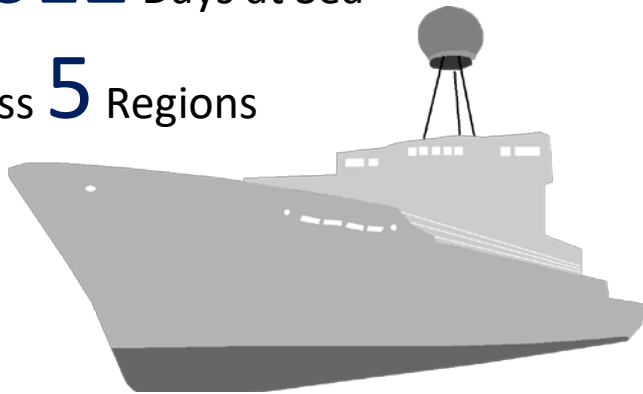


Increase the sustainable economic contributions of our fishery and ocean resources

NOAA Science by the Numbers (July 2018 – October 2018)

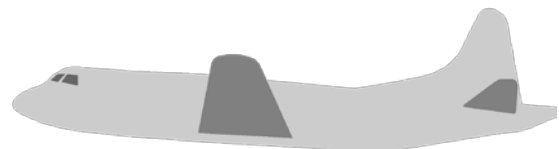
1,012 Days at Sea

across **5** Regions



17 +

Congressional Reports



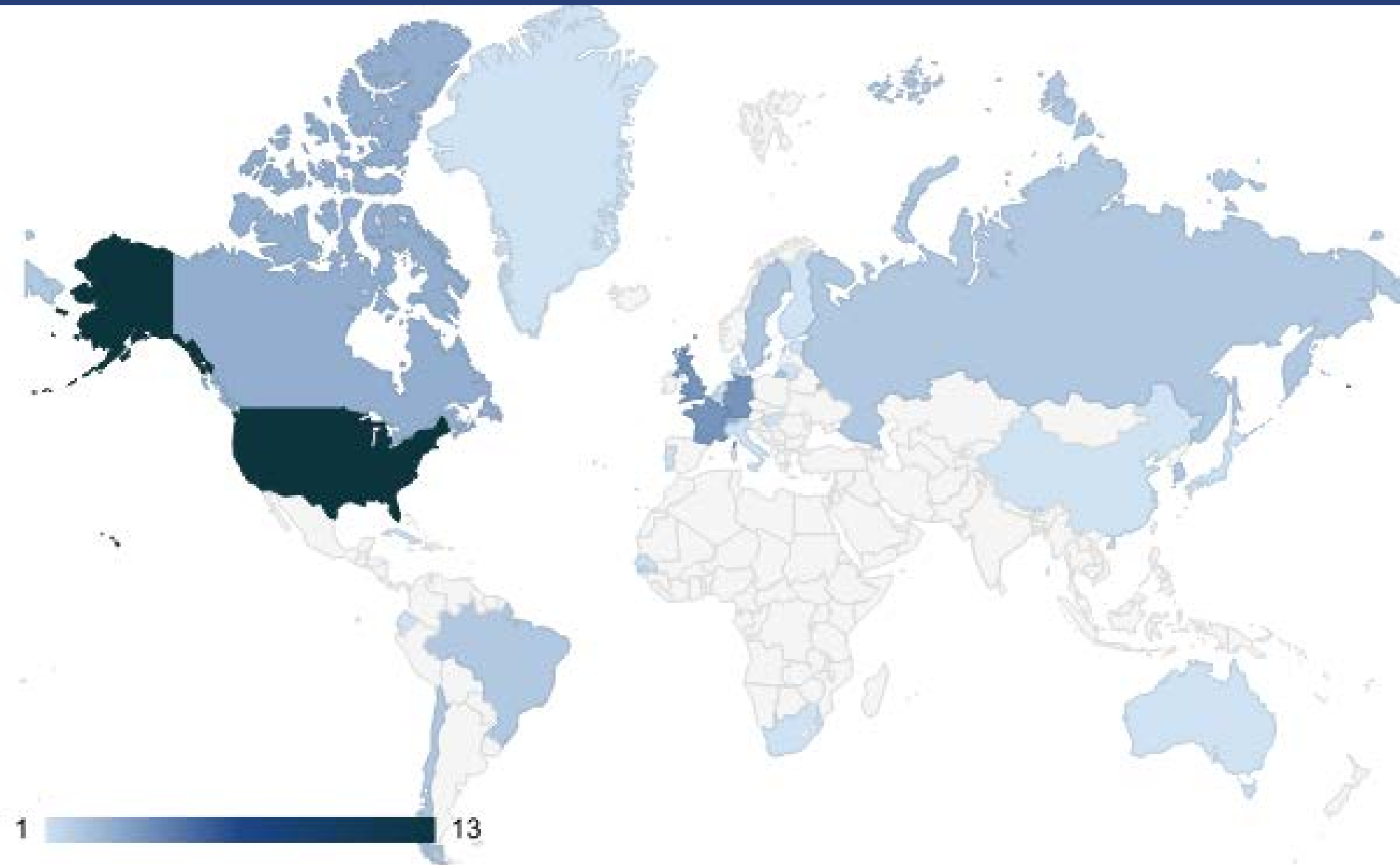
837 Flight Hours



70+

International Meetings

NOAA Participates in International Science Meetings

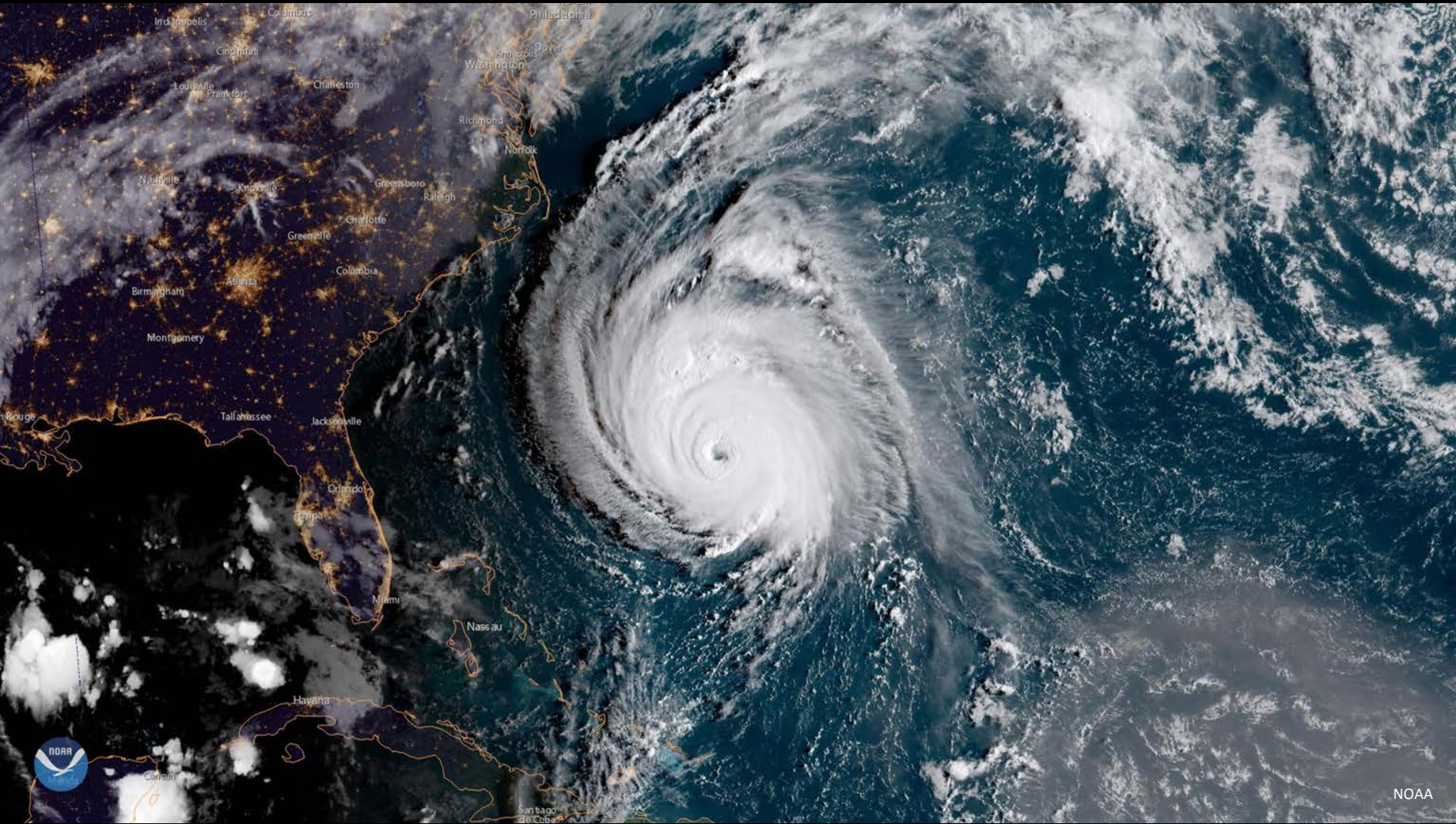


Reduce the impacts of extreme weather and water events



NOAA

Warn-on-Forecast System Utilized During Hurricane Florence Landfall



NOAA

NESDIS Ocean Winds Flight Experiment Collects Invaluable Data During '18 Hurricane Season



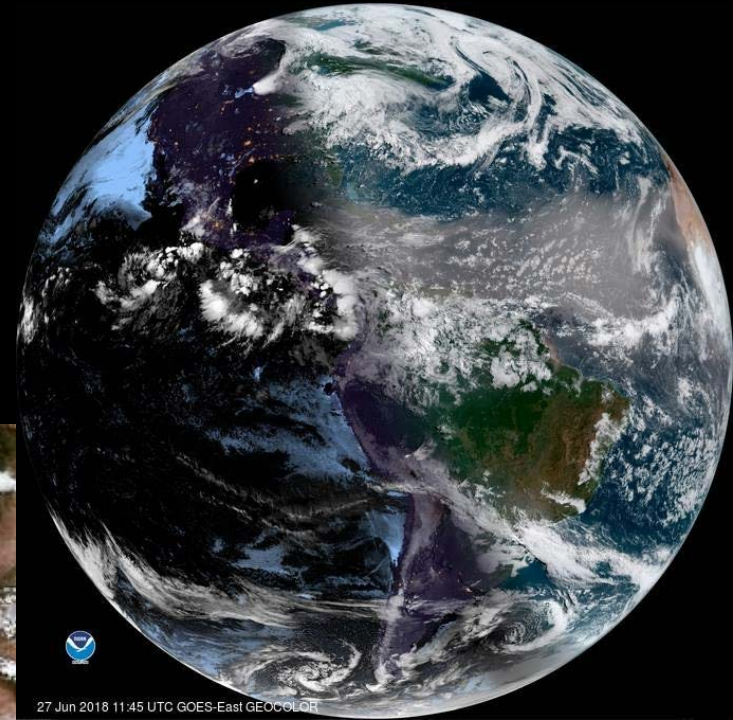
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Doppler Radar Mounted “Hurricane Hunter” Aircraft Captures Bird’s-Eye View of Tornado Genesis



NOAA

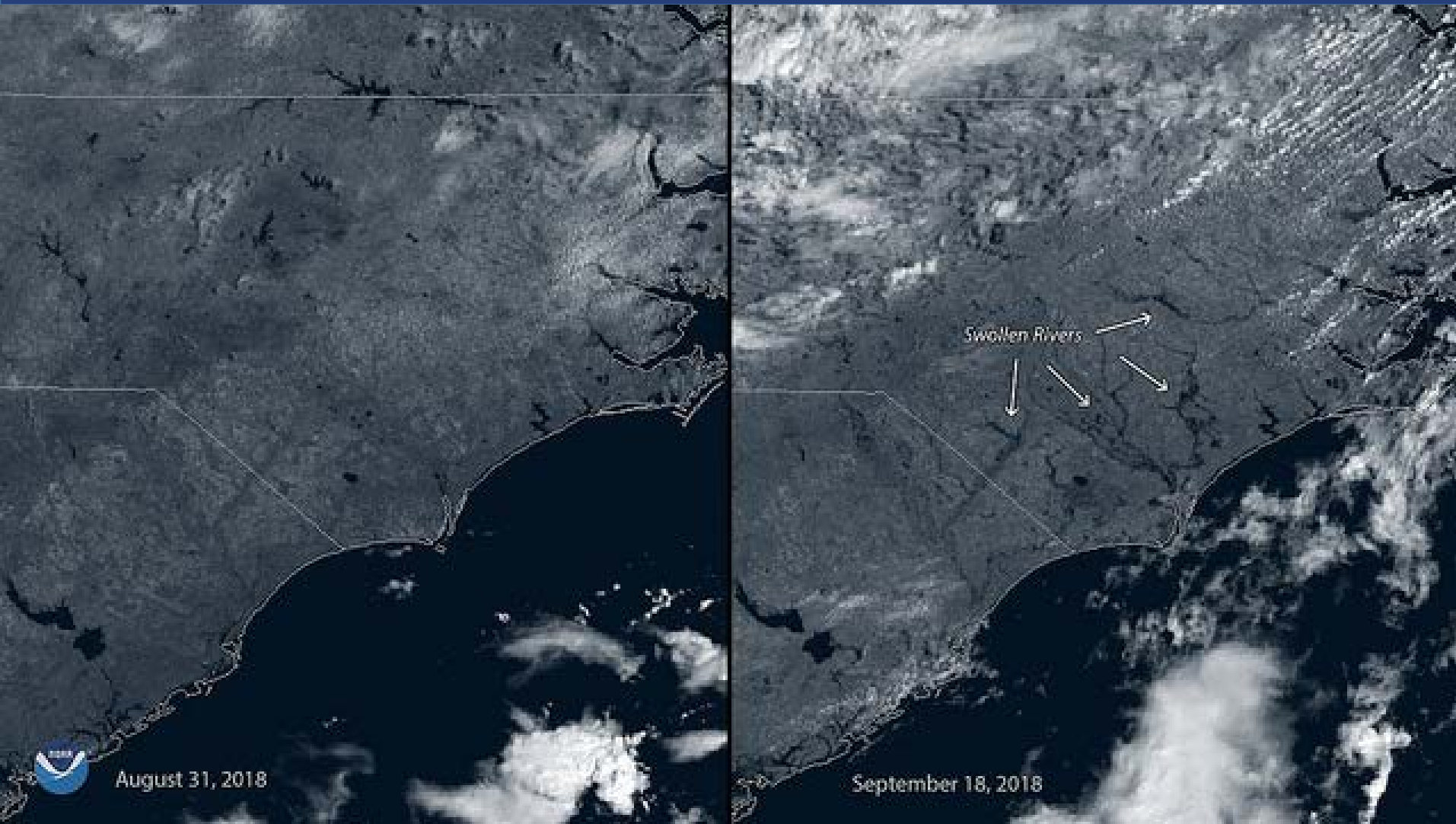
Satellite Products Continue Transition to Operations



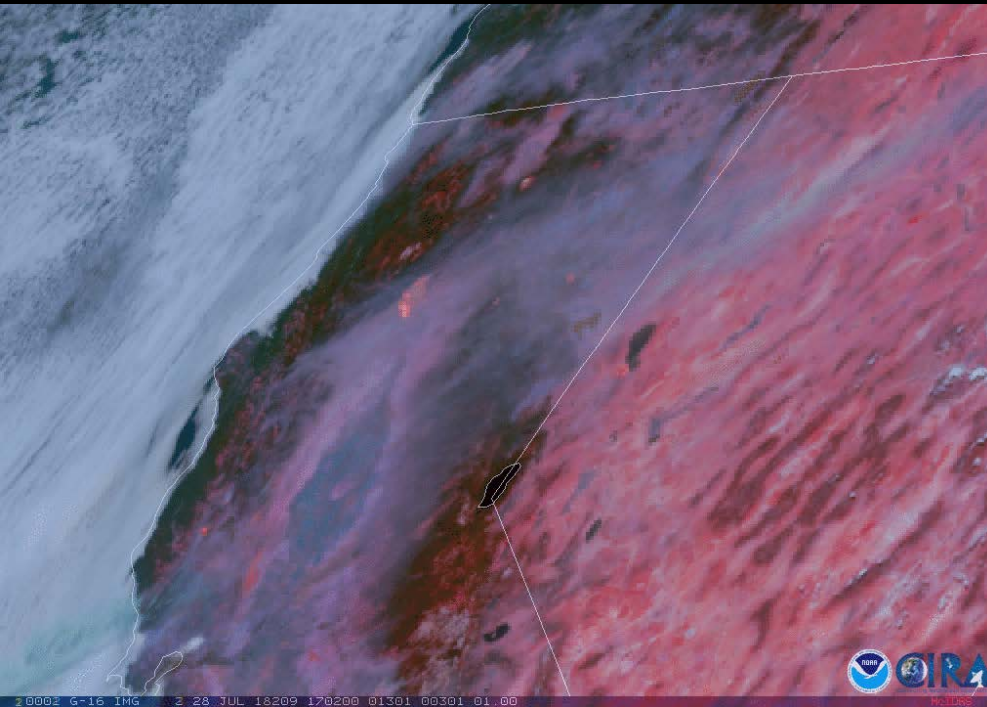
NOAA

NOAA Science Update to the SAB

Satellites Provide Critical Mapping of Floods



Satellite Imagery and on Site Meteorologists Provide Critical Observations During Active Wildfire Season



NWS forecasters supporting Sockeye Fire


Onsite forecast service to aid firefighters

The Meteorologist In Charge and a forecaster from the Anchorage Forecast Office meet Sockeye Fire staff at the Incident Command Post in Houston



Anchorage based NWS Incident Meteorologist (IMET) briefs the Sockeye Fire Incident Command team with weather information specific to the Sockeye Fire

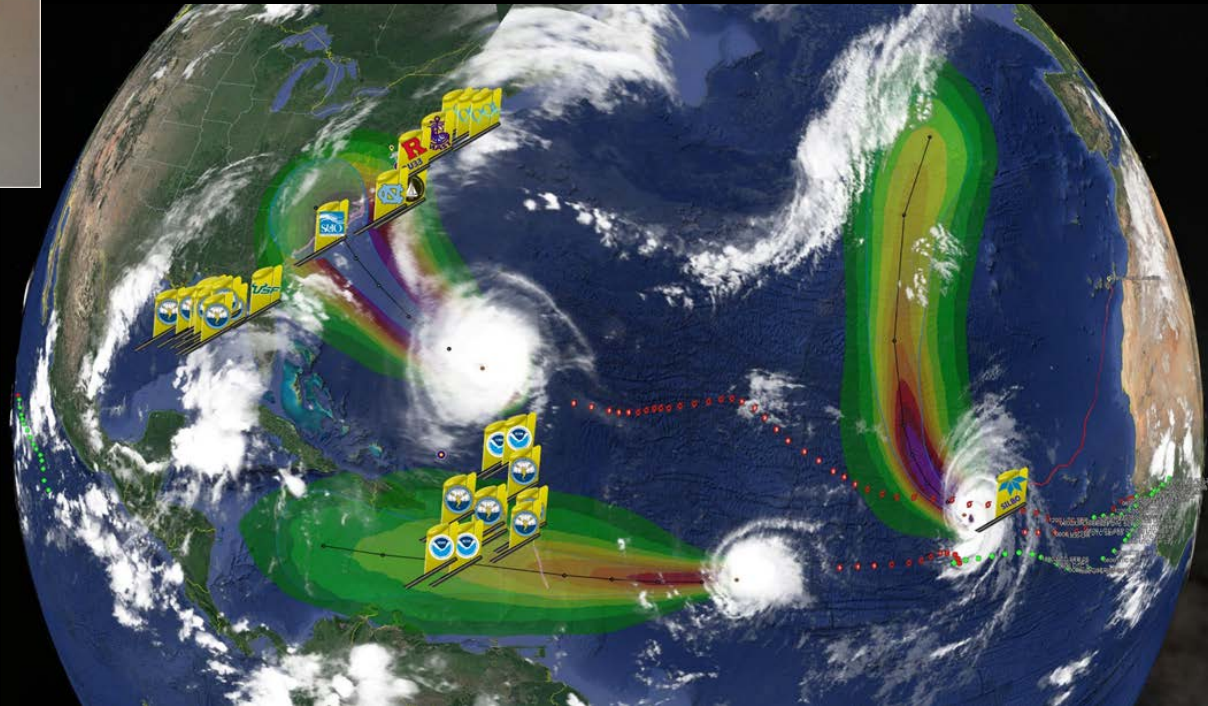
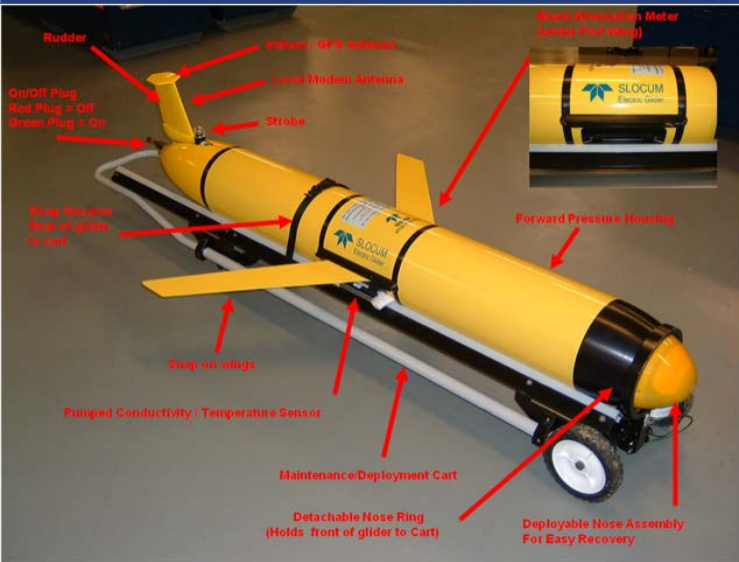


 weather.gov/Anchorage

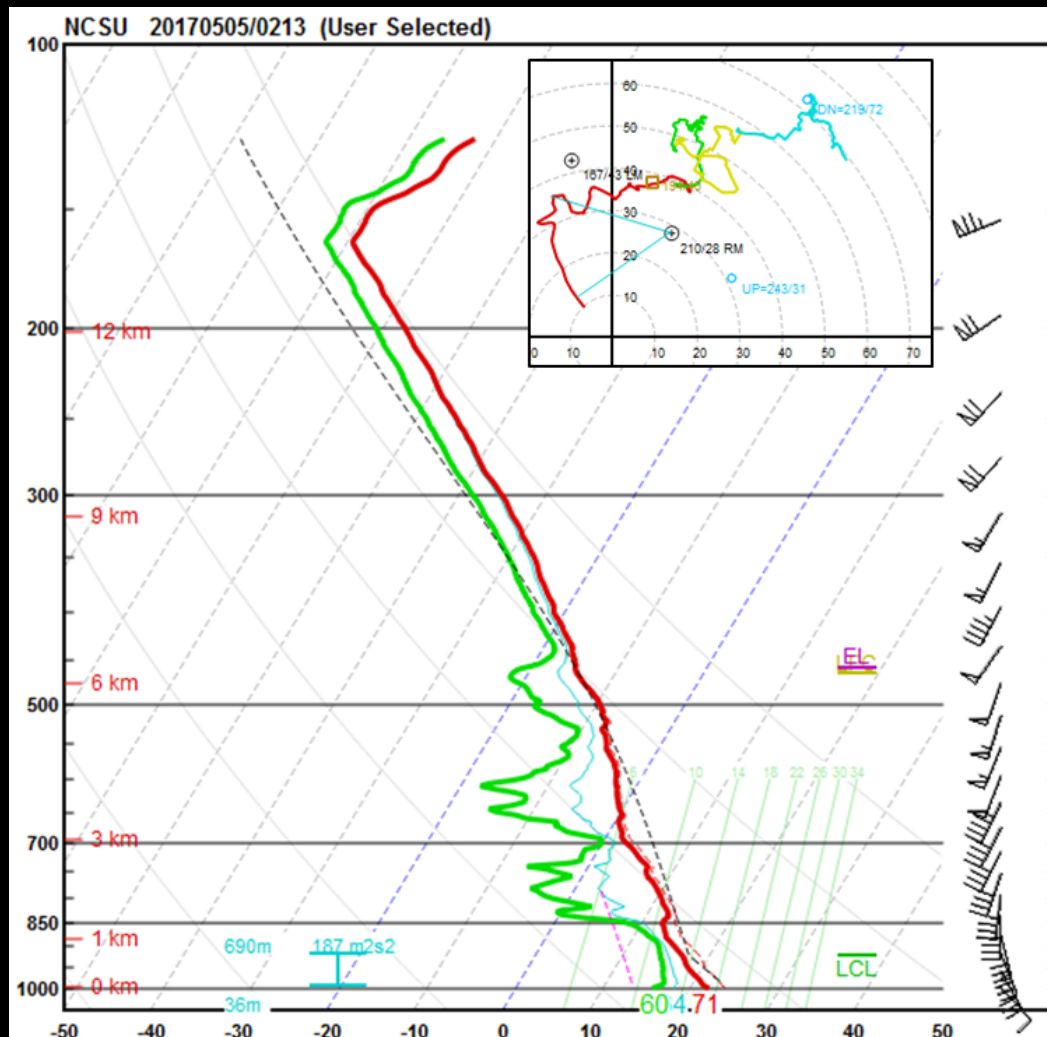
 [@NWSAnchorage](https://twitter.com/NWSAnchorage)

 [NWSAnchorage akwxtv](https://www.youtube.com/NWSAnchorage)

Coyote UAV Improving Hurricane Forecasting



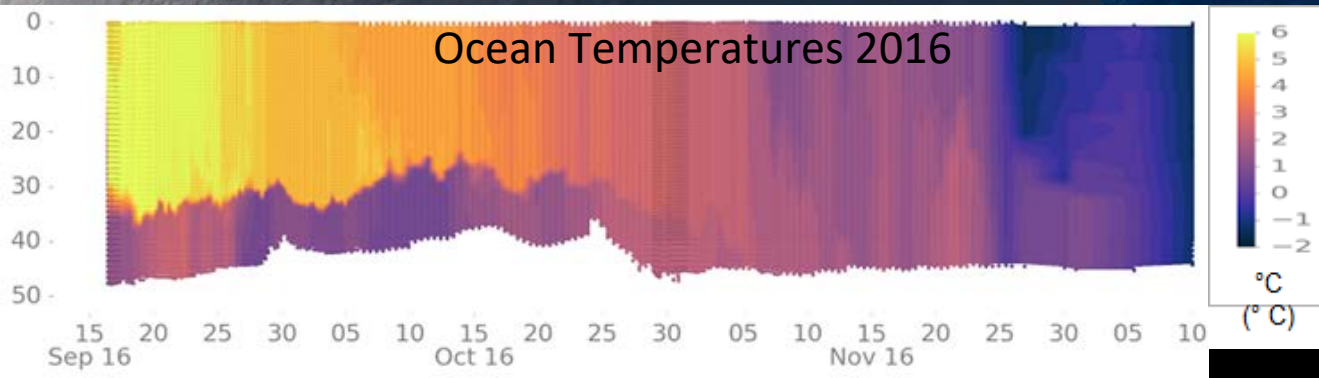
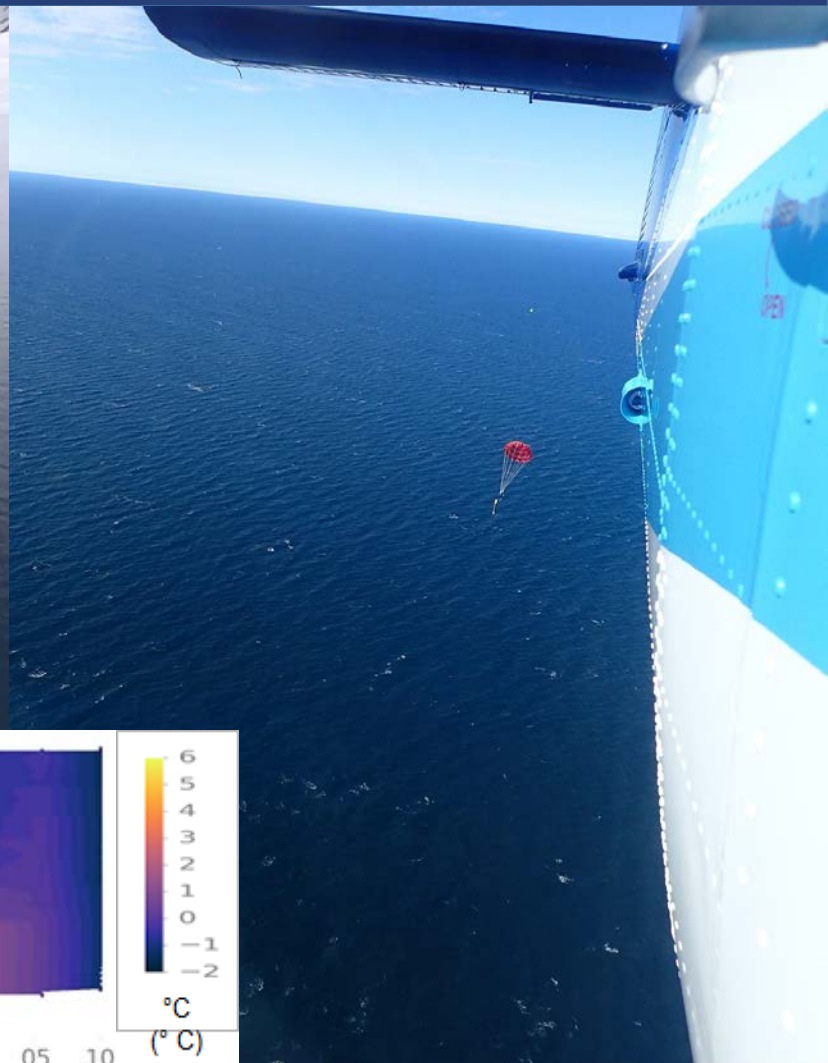
Severe Weather Soundings Program Improves Forecasts by Partnering Research, Education, and Operations



Predicting Snowpack Before Snow Falls



Arctic Heat Project



Increase the
sustainable
economic
contributions of
our fishery and
ocean resources



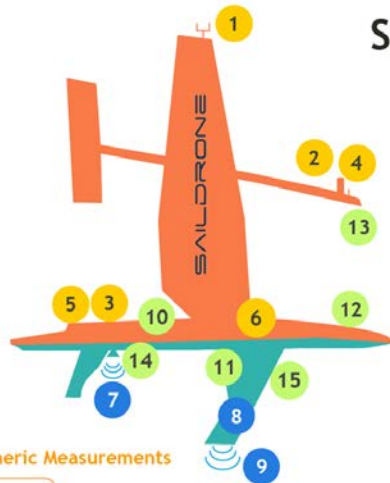
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NOAA Uses Autonomous Saildrones to Make Key Observations

Saildrone Sensor Suite

Specifications

Length: 7 m
 Height: 4.6 m (above water line)
 Depth: 2 m
 Weight: 545 kg, (fully loaded)
 Speed: Transit - 3 Kt, Max - 8 Kt
 Payload Power: 30W Steady state
 Payload Capacity: 100 kg
 Max deployed duration: 12 months
 Longest voyage: 16,100 km



Atmospheric Measurements

- Wind Speed — 1 Anemometer @ +5.0m
Gill WindMaster 3D Ultrasonic 20Hz
- Wind Direction — 2 Sunshine Pyranometer @ +2.5m
Delta-T Devices SPN1
- Sunlight & Infrared Radiation — 3 Pyrgometer @+0.7m
Eppley PIR
- Air Temperature — 4 Meteorological Probe @+2.4m
Rotronic HC2 - S3 with rad shield
- Humidity — 5 Digital Barometer @ +0.3m
Vaisala BAROCAP® PTB210
- Air Pressure — 6 CO₂ System @ +0.5m
PMEL ASVCO₂

Oceanic Surface Measurements

- Wave Height & Period — 10 Dual GPS & IMU
Vectronav / KVV
- Seawater pCO₂ & pH — 11 CO₂ System
PMEL ASVCO₂ @ -0.5m
Honeywell Durafet @ -0.5m
Aanderaa Optode @ -0.5m
Sea-Bird Scientific SBE PRAWLER @ -0.6m
- Dissolved Oxygen
- Water Temperature
- Salinity
- Magnetic Field — 12 Magnetometer
Barrington MAG 648
- Skin Temperature — 13 SST IR Pyrometer @ +2.2m
Heitronics KT15 II

Oceanic Subsurface Measurements

- Ocean Current — 7 ADCP @ -0.3m
Teledyne RDI 300 kHz Workhorse Sentinel
- Marine Mammal Presence — 8 Passive Acoustic Recorder @ -1.3m
Greenridge Sciences Inc. Acousonde
- Fish Biomass — 9 Scientific Echosounder @ -1.8m
SIMRAD WMINI
Multi-beam Sonar @ -1.8m
Norbit IWBMS
- Bathymetry

- Chla — 14 Fluorometer and Backscatter @ -0.2m
Sea-Bird Scientific WET Labs Eco Triplet
- CDOM Concentration
- Red Backscatter
- Water Temperature — 15 Thermosalinograph CTD @ -0.6m
Teledyne RDI Citadel TS-NH
- Salinity



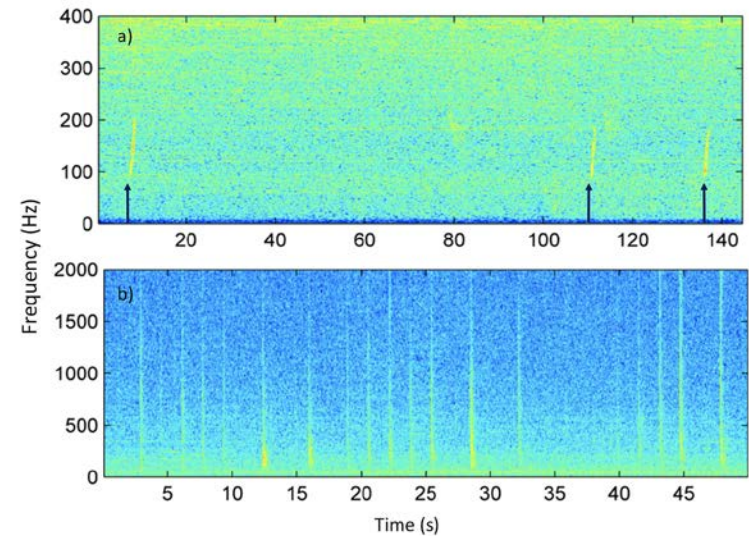
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NOAA Employs Unmanned Aerial Systems (UAS) to Assess the Health of Endangered Resident Killer Whales



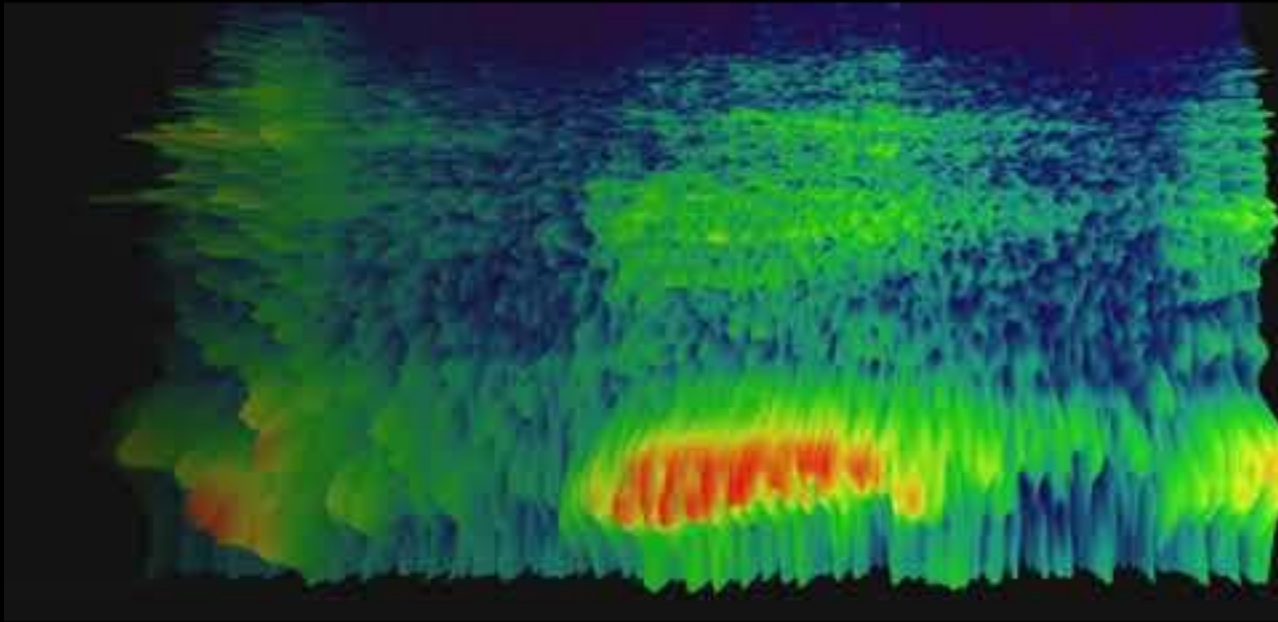
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Study Shows Potential for Interactions between Critically Endangered North Pacific right whale and vessels in high-traffic Aleutian Island Pass



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Humpback Whale Acoustic Monitoring



National Survey Shows Ocean and Coastal Recreation is Big Business



NOAA

Experimental HAB Forecast Product Deployed in FL's Gulf Coast



Gulf of Mexico Harmful Algal Bloom Bulletin

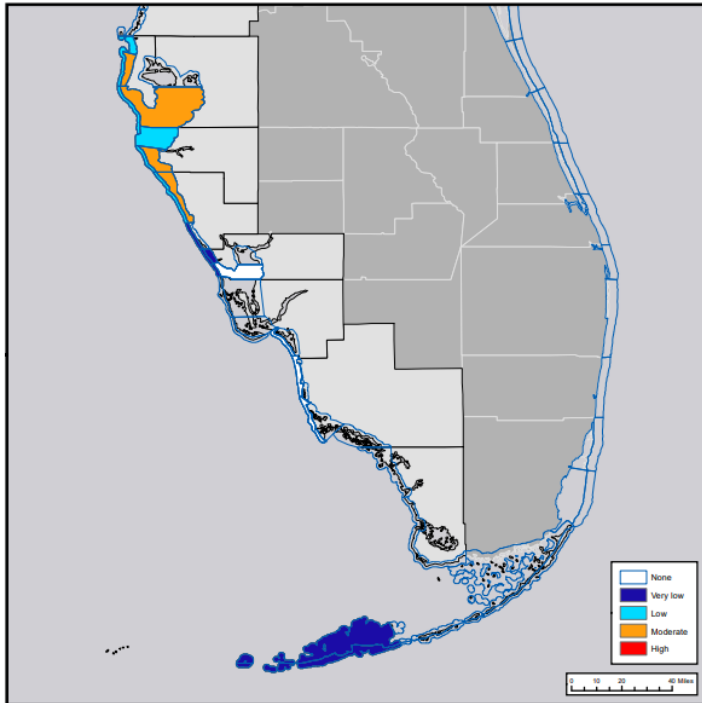
Monday, October 22, 2018

NOAA National Ocean Service

NOAA Satellite and Information Service

NOAA National Weather Service

Instructions for viewing this geospatial pdf are available at: <https://go.usa.gov/xn9g2>.



The image above is the top layer in a series of maps for 10-22-18 to 10-25-18 displaying the highest level of potential respiratory irritation forecasts in each region.

Region: Southwest Florida



Conditions Report

Not present to high concentrations of *K. brevis* (commonly known as red tide) are present along- and offshore portions of southwest Florida, and are present in the Florida Keys. *K. brevis* concentrations are patchy in nature and levels of respiratory irritation will vary locally based upon nearby bloom concentrations, ocean currents, and wind speed and direction.

Recently Reported Impacts (Listed by County):

Respiratory irritation: Pinellas, Manatee, Sarasota

Dead fish: Pinellas, Manatee, Collier

Definition of respiratory irritation levels.

RESPIRATORY IRRITATION LEVEL	AFFECTED POPULATION				
	NONE	CHRONIC RESPIRATORY CONDITION	SENSITIVE TO RED TIDE	GENERAL PUBLIC (MILD SYMPTOMS)	GENERAL PUBLIC (INTENSE SYMPTOMS)
None	X				
Very low		X			
Low		X	X		
Moderate		X	X	X	
High		X	X	X	X

Additional Resources

Health Information:

Florida Department of Health:

<http://www.floridahealth.gov/environmental-health/aquatic-toxins/red-tide.html>

Other resources: <https://go.usa.gov/xQNWp>

Recent, Local Observations and Data:

Mote Marine Laboratory Daily Beach Conditions:

<http://visitbeaches.org>

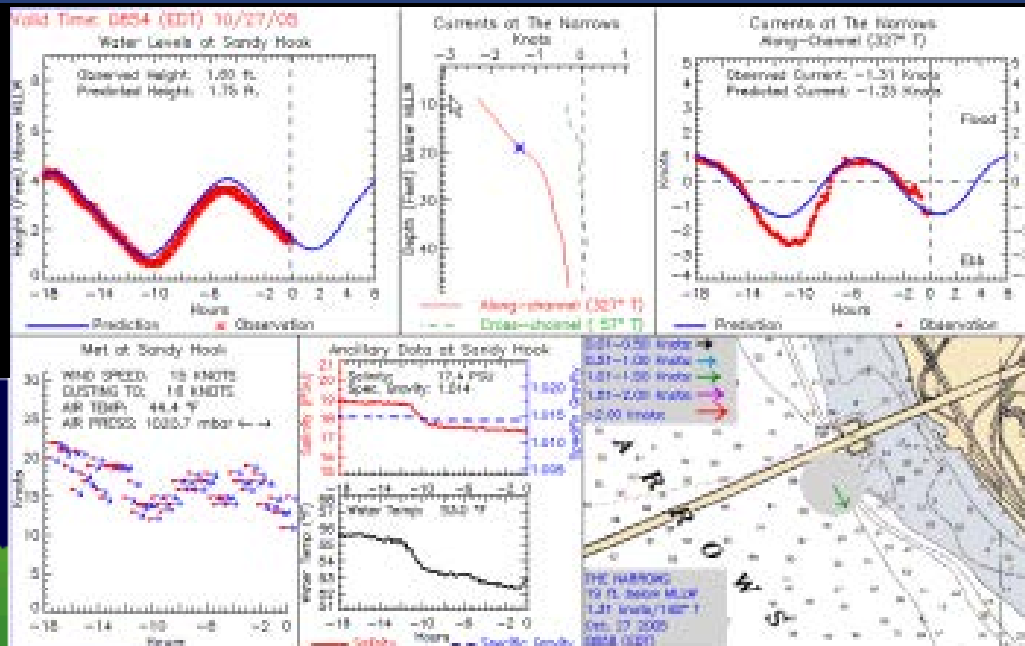
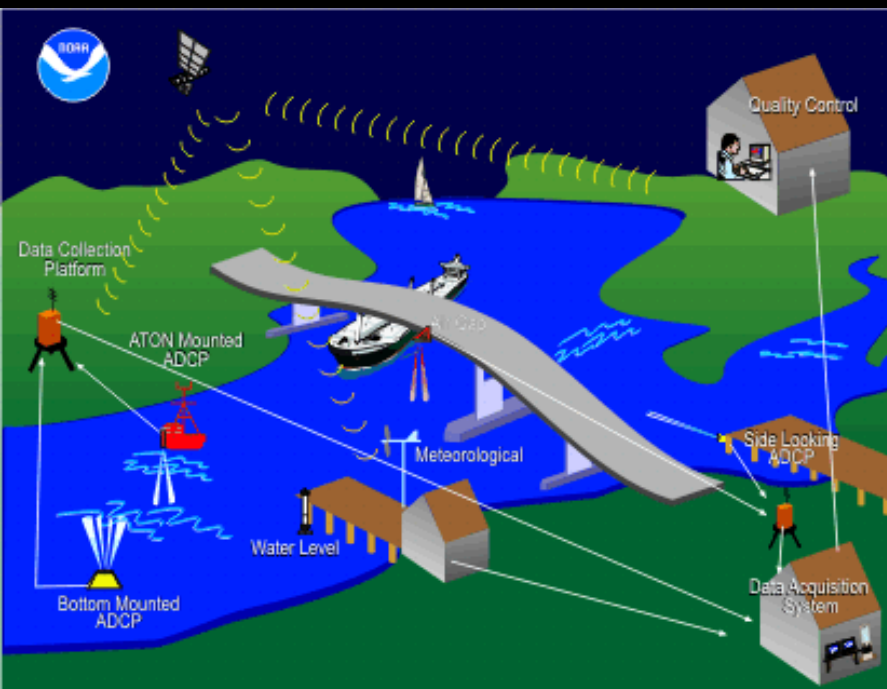
Florida Fish and Wildlife Conservation Commission:

<http://myfwc.com/redtidestatus>



NOAA

New PORTS® Established in Toledo, OH

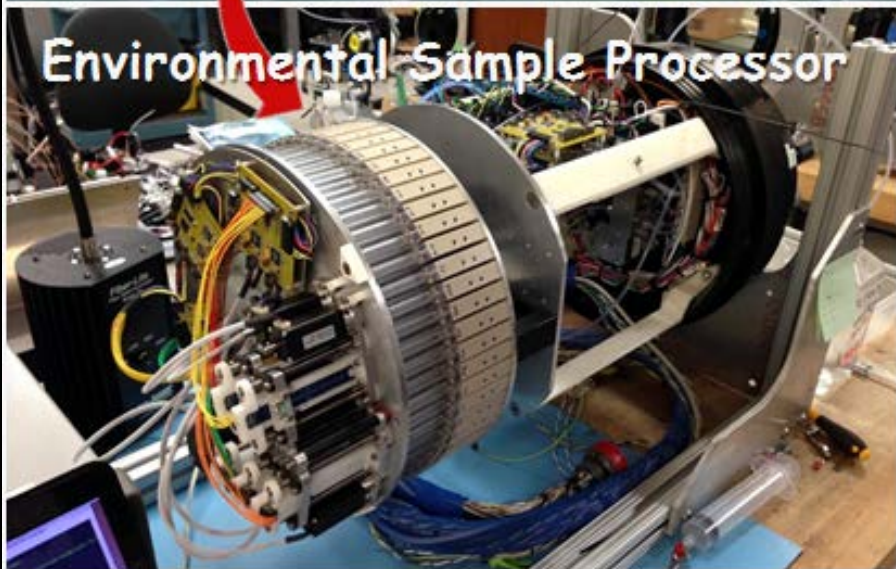


Oil Spill Research Conducted at Mississippi Canyon Well Site (MC20)

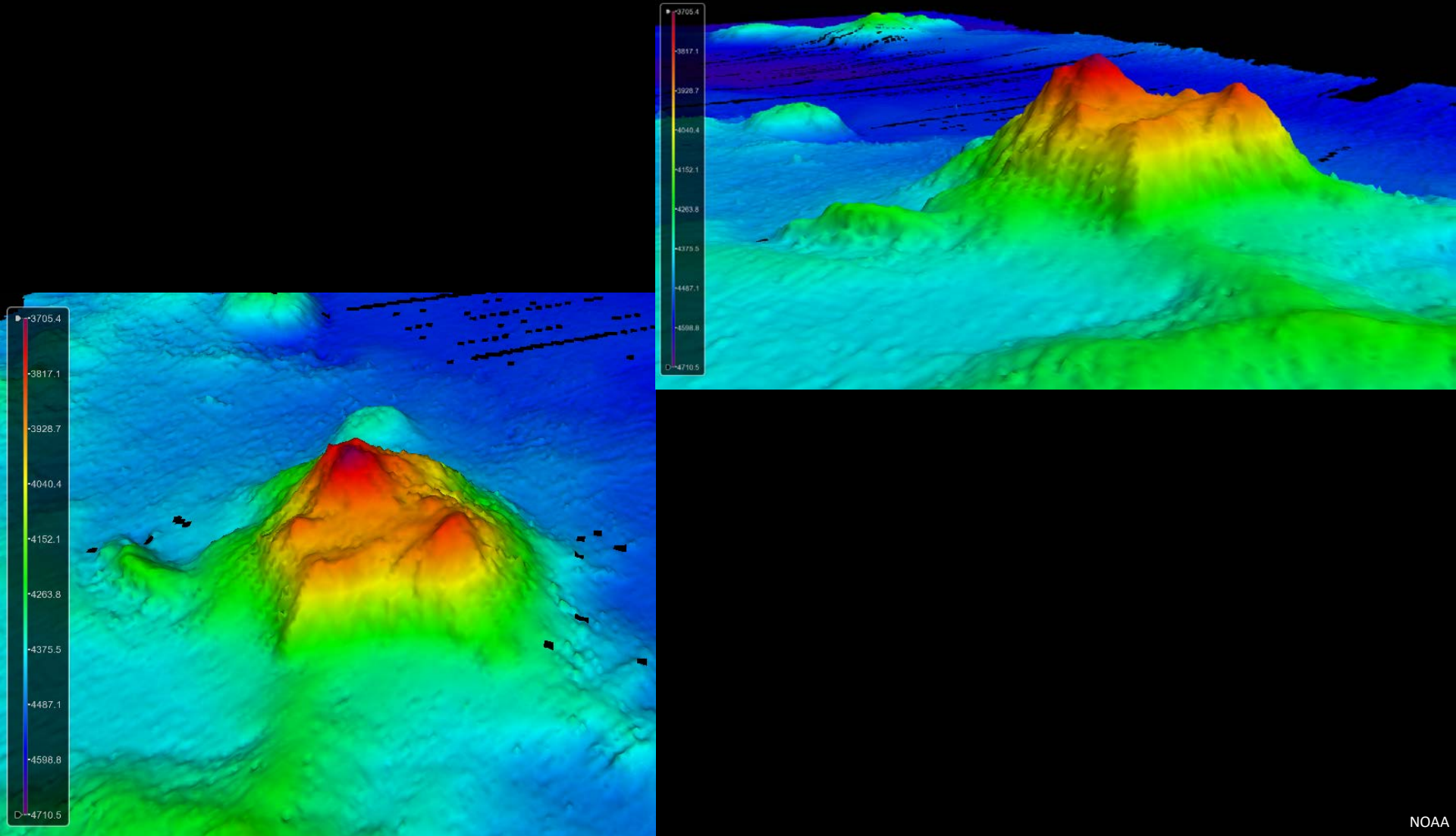


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Environmental Sample Processor (ESB) - AUV: 'Lab-in-an-AUV' for real-time surveillance



Ron Brown Discovers Unmapped Seamount in Indian Ocean



NOAA



NOAA Science Update to the SAB

NOAA and Biomedical Researchers Collaborate to Find Out if Cancer Cures are Living on Alaska's Seafloor

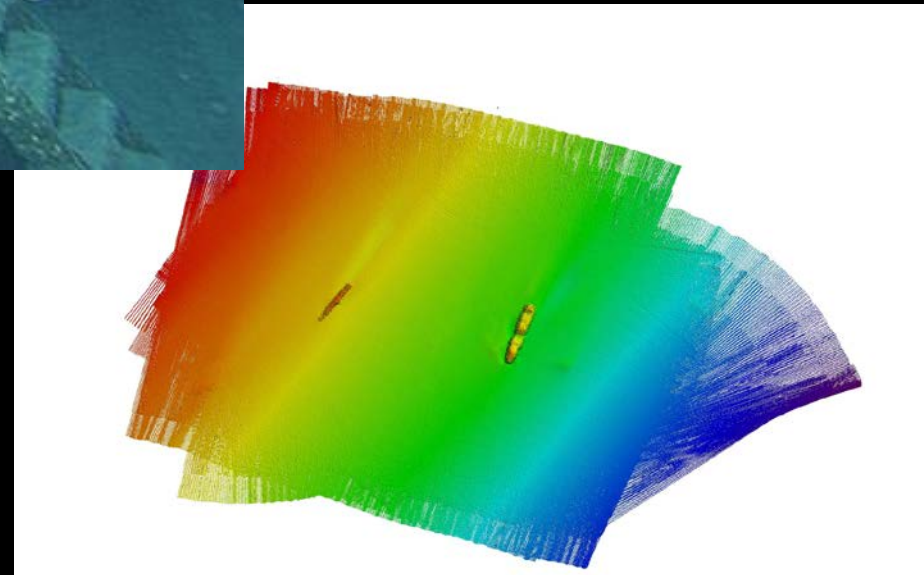


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Concept for Genomics is no Longer Science Fiction

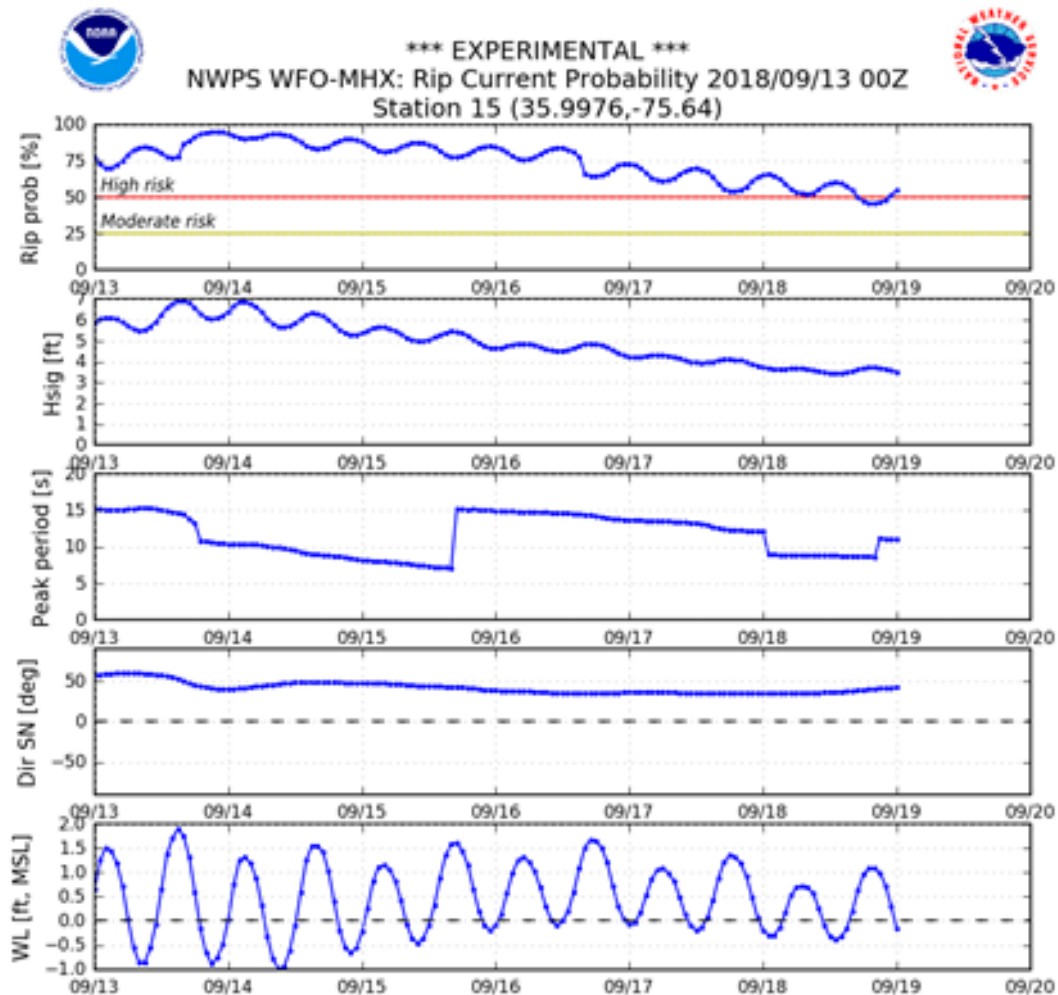


ONMS Maritime Archeology: SS Bluefields and U-576



NOAA

NOAA Probabilistic Rip Current Model



NWPS Nearshore Wave Prediction System



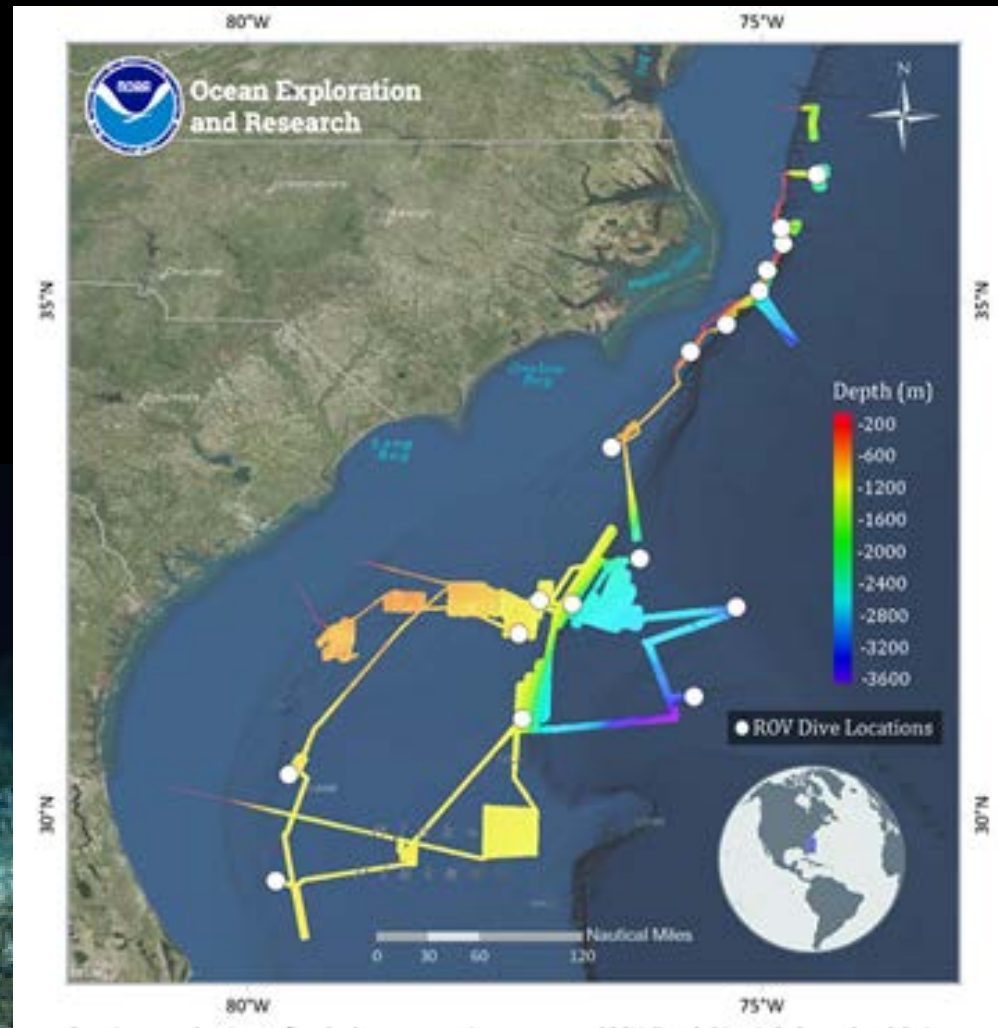
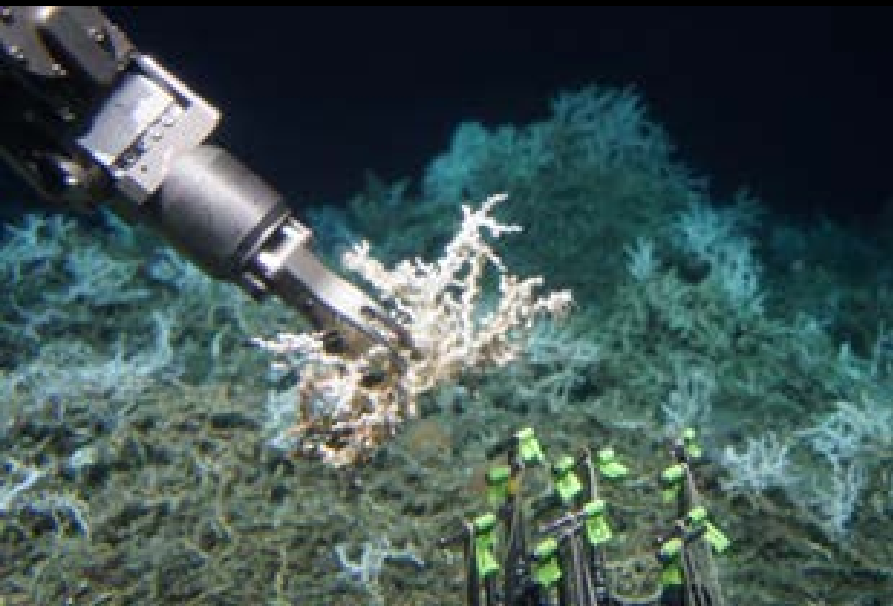
Autonomous Surface Vehicles: New Tool for Hydrographic Surveys



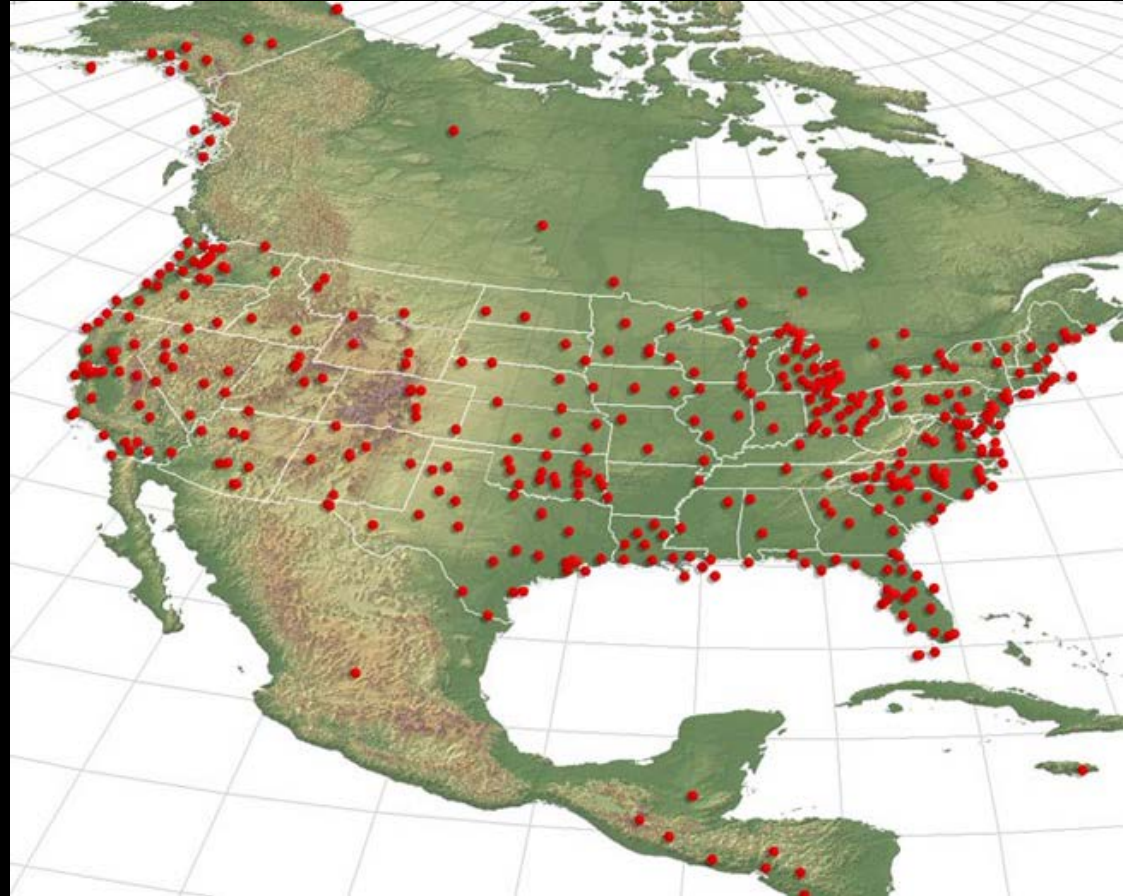
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NOAA Science Update to the SAB

DEEP SEARCH 2018: Deep coral reef system discovery off east coast



Modernizing the National Spatial Reference System



Next NOAA Research and Development (R&D) Plan

- NOAA will be collecting public input for the next R&D Plan
 - Public comment period – to be announced in the Federal Register
 - Town halls
 - AGU in Washington, DC - December 13, 12:30-1:30 pm
 - AMS in Phoenix, AZ - January 8, 7:00-8:15 am
- Target release of plan: Spring 2019



Questions?

