

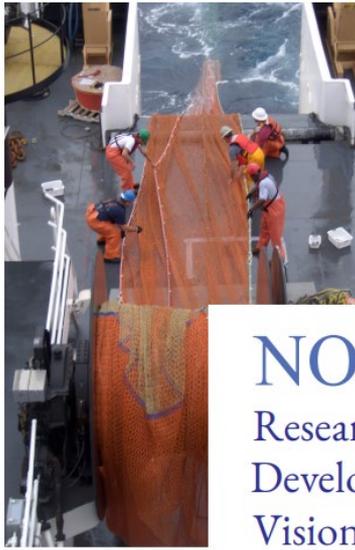


NOAA Science Update to the Science Advisory Board

Craig McLean

Acting NOAA Chief Scientist

March 15, 2021



NOAA
Research and
Development
Vision Areas:
2020–2026

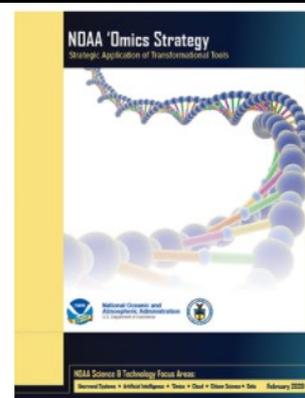
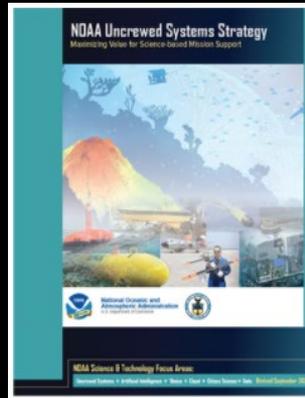
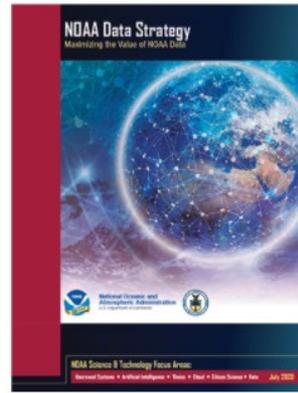
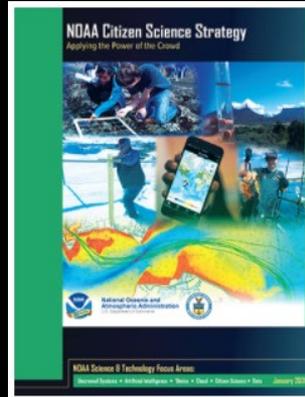


Vision Area 1: Reducing societal impacts from hazardous weather and other environmental phenomena

Vision Area 2: Sustainable use and stewardship of ocean and coastal resources

Vision Area 3: A robust and effective research development, and transition enterprise

Science and Technology Focus Areas



Recent Executive Orders



BRIEFING ROOM

Executive Order on Tackling the Climate Crisis at Home and Abroad

JANUARY 27, 2021 • PRESIDENTIAL ACTIONS



BRIEFING ROOM

Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

JANUARY 20, 2021 • PRESIDENTIAL ACTIONS



BRIEFING ROOM

Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking

JANUARY 27, 2021 • PRESIDENTIAL ACTIONS

NOAA R&D During the COVID-19 Pandemic



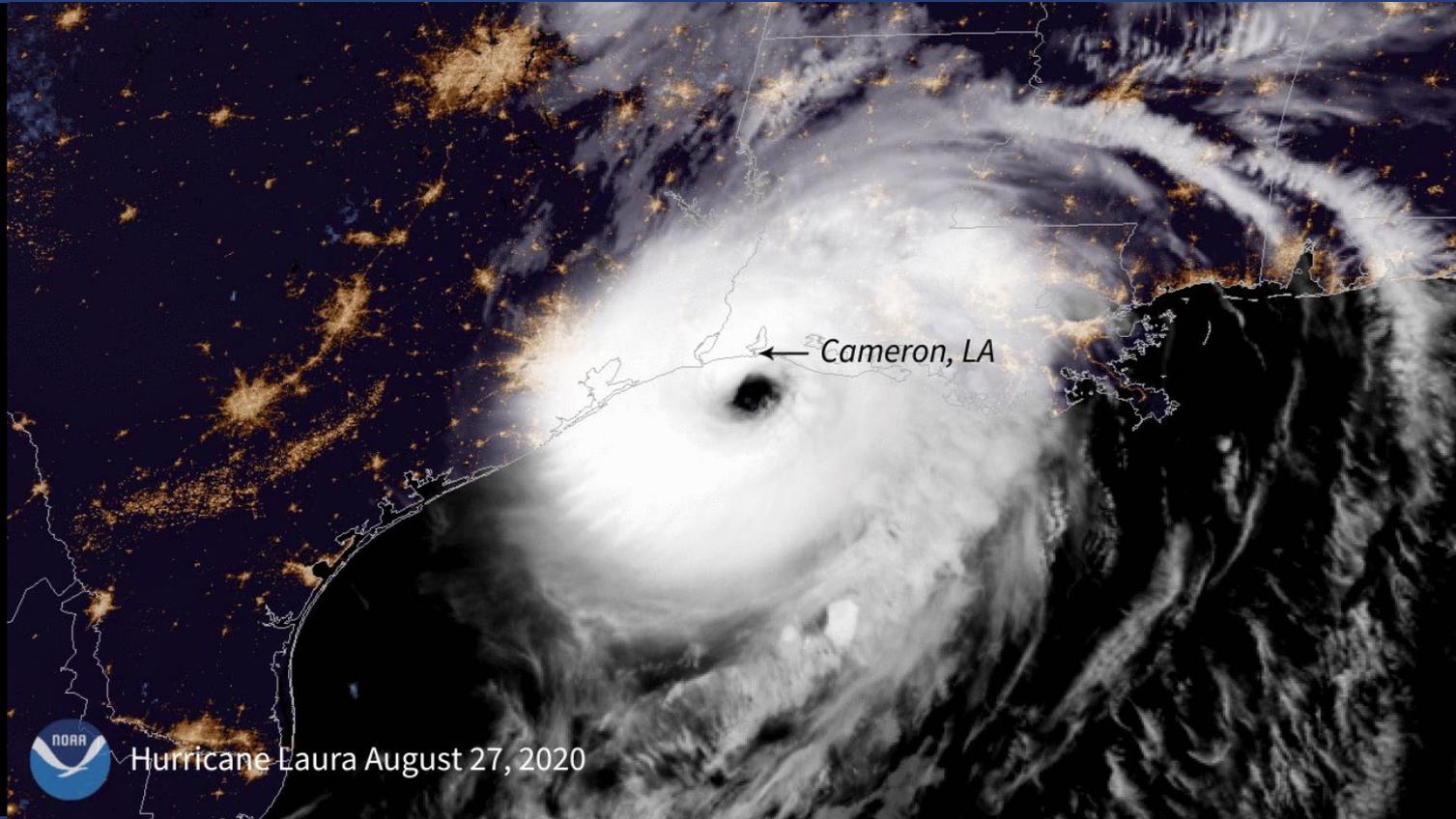
Image of NOAA CSL instruments measuring during OVID-19 "safer-at-home" orders. Credit: Jessica Gilman, NOAA/CSL

Vision Area 1: Reducing societal impacts from hazardous weather and other environmental phenomena

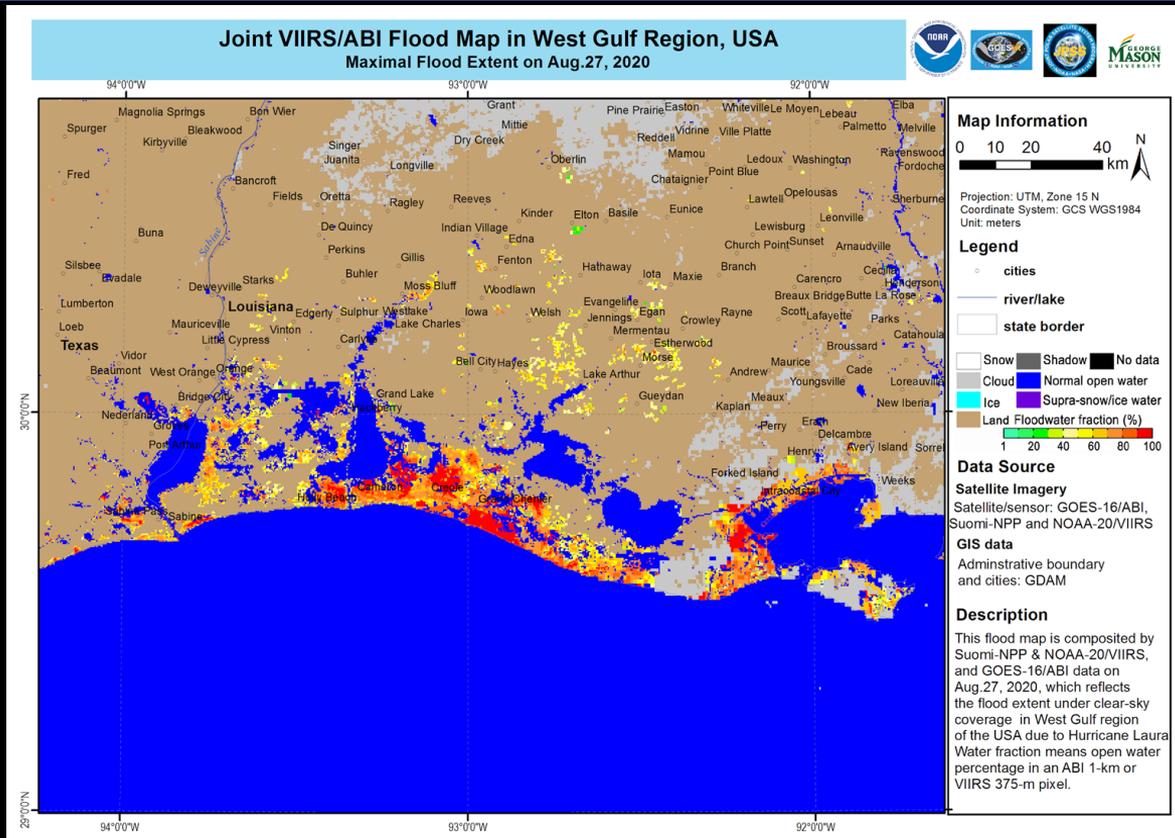


*A radar monitoring severe storms.
Photo credit: Robin Tanamachi, NOAA/OAR/NSSL*

2020 Hurricane Season



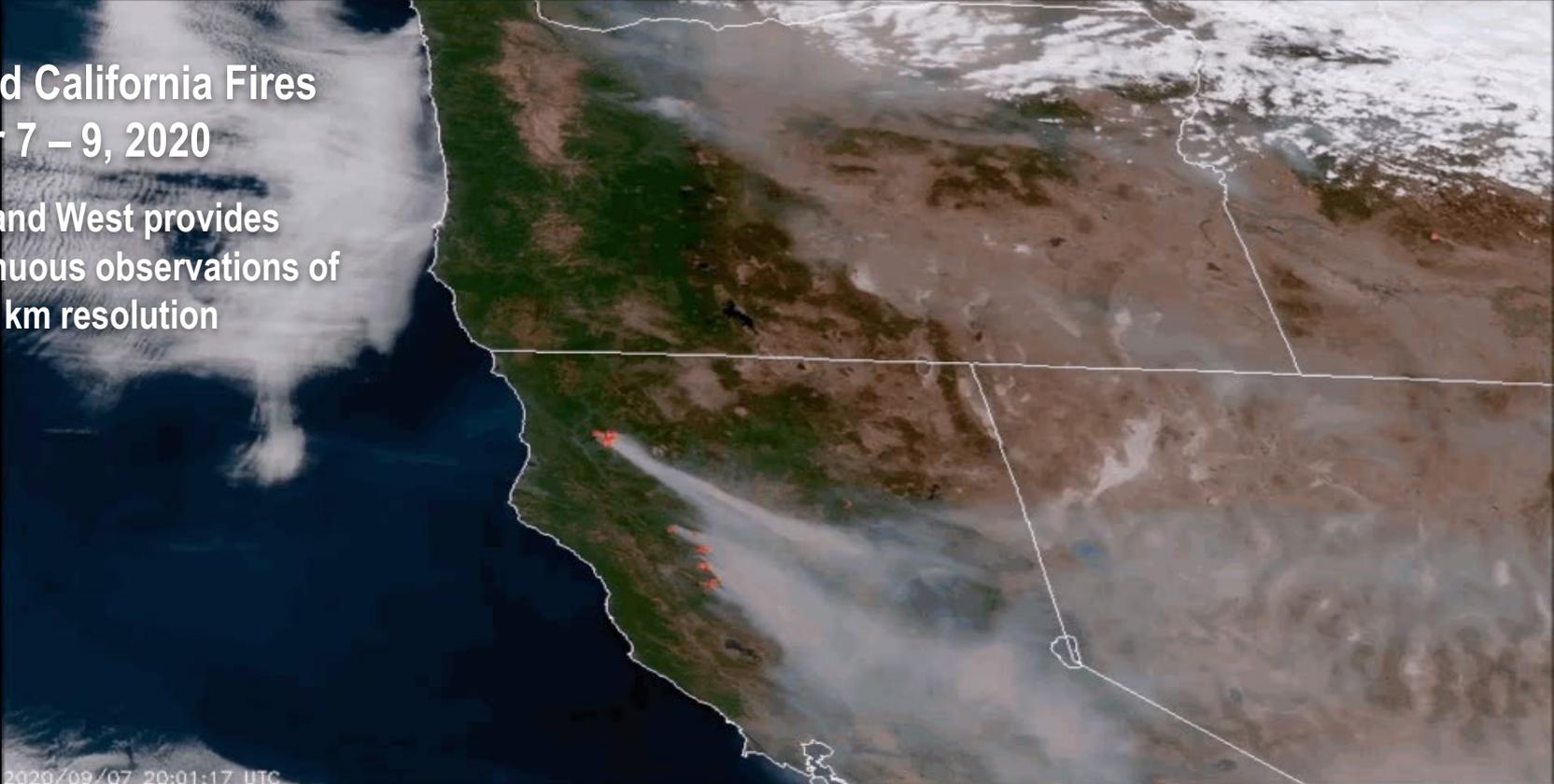
Integration of Satellite Data in Flood Mapping Software for Flood Monitoring and Forecasting



2020 Wildfires

**Oregon and California Fires
September 7 – 9, 2020**

**GOES-East and West provides
nearly continuous observations of
fires at a 2-3 km resolution**

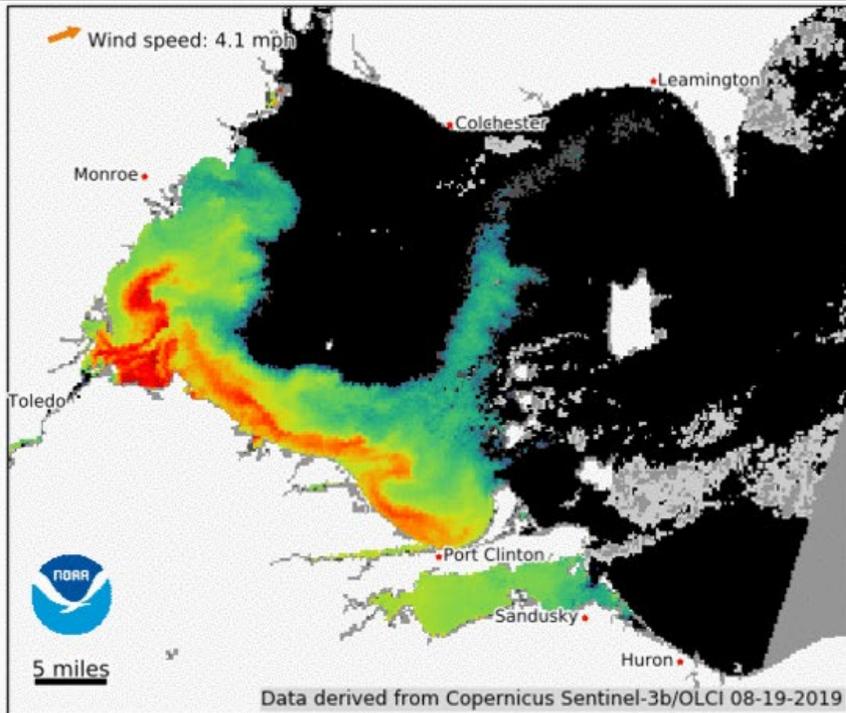




Improved Harmful Algal Bloom Forecasts



Western Lake Erie basin true color image derived from the OLCI sensor on Copernicus Sentinel-3b obtained from EUMETSAT.



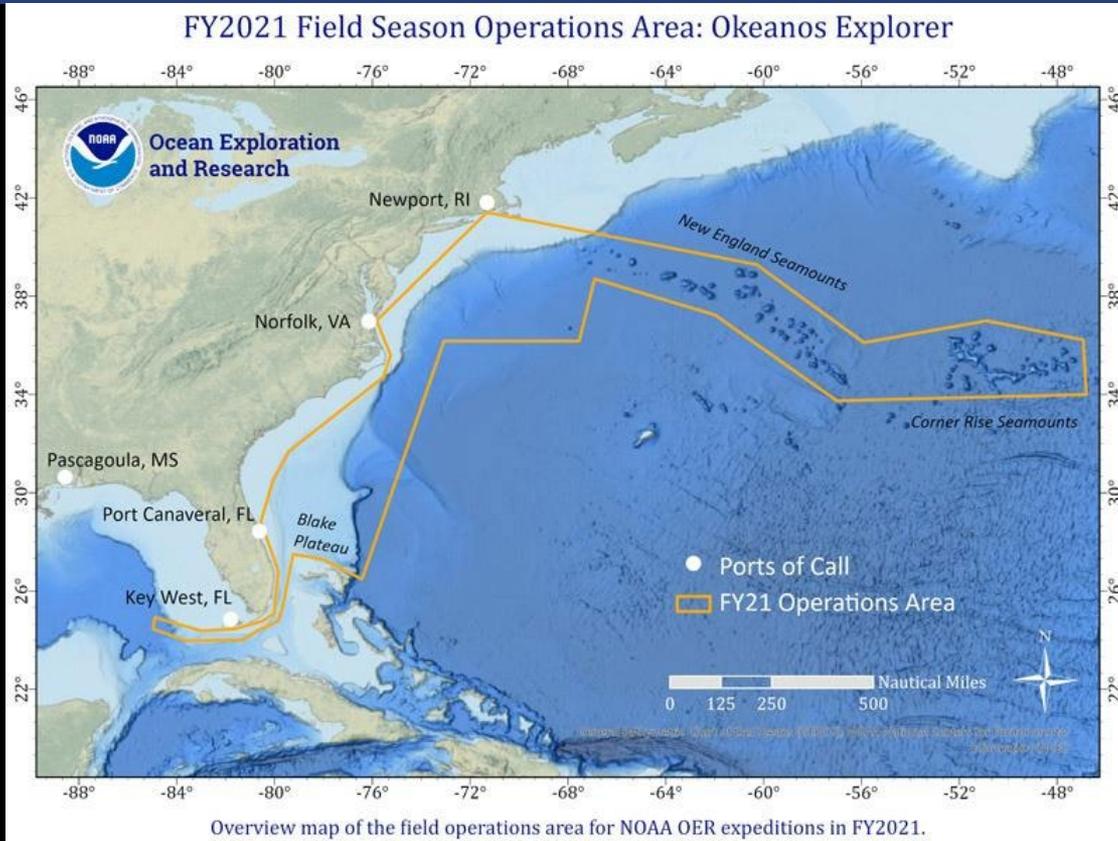
Cyanobacteria Index (CI) for Western Lake Erie basin. Winds above 4.0 mph may mix the bloom and clouds may obscure it, leading to an underestimate of the area. Moderate and low concentrations may not be obvious to the eye. Winds from NOAA NDBC station THL01.

Vision Area 2: Sustainable use and stewardship of ocean and coastal resources



South entrance of Detroit River to the right and northeast corner of Lake Erie to the left. Photo credit: NOAA/OAR/GLERL

2021 Okeanos Explorer Expeditions



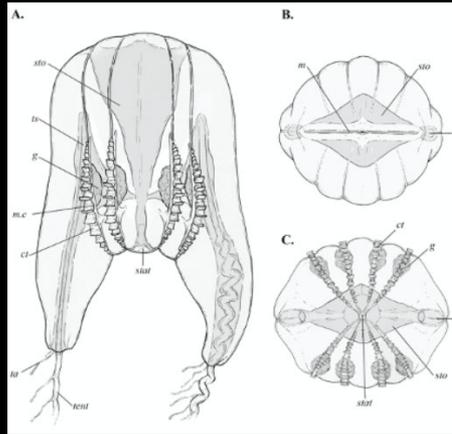
New Technologies Enable New Discoveries



A First!

NOAA Fisheries scientists described and annotated a new species, not with a physical specimen, but exclusively with the use of high-definition video.

[NOAA Fisheries Article and Video](#)



New methodologies lead to better determination of biological traits of endangered species



NOAA Fisheries scientists determine the age of endangered Cook Inlet beluga whales with a small skin sample.

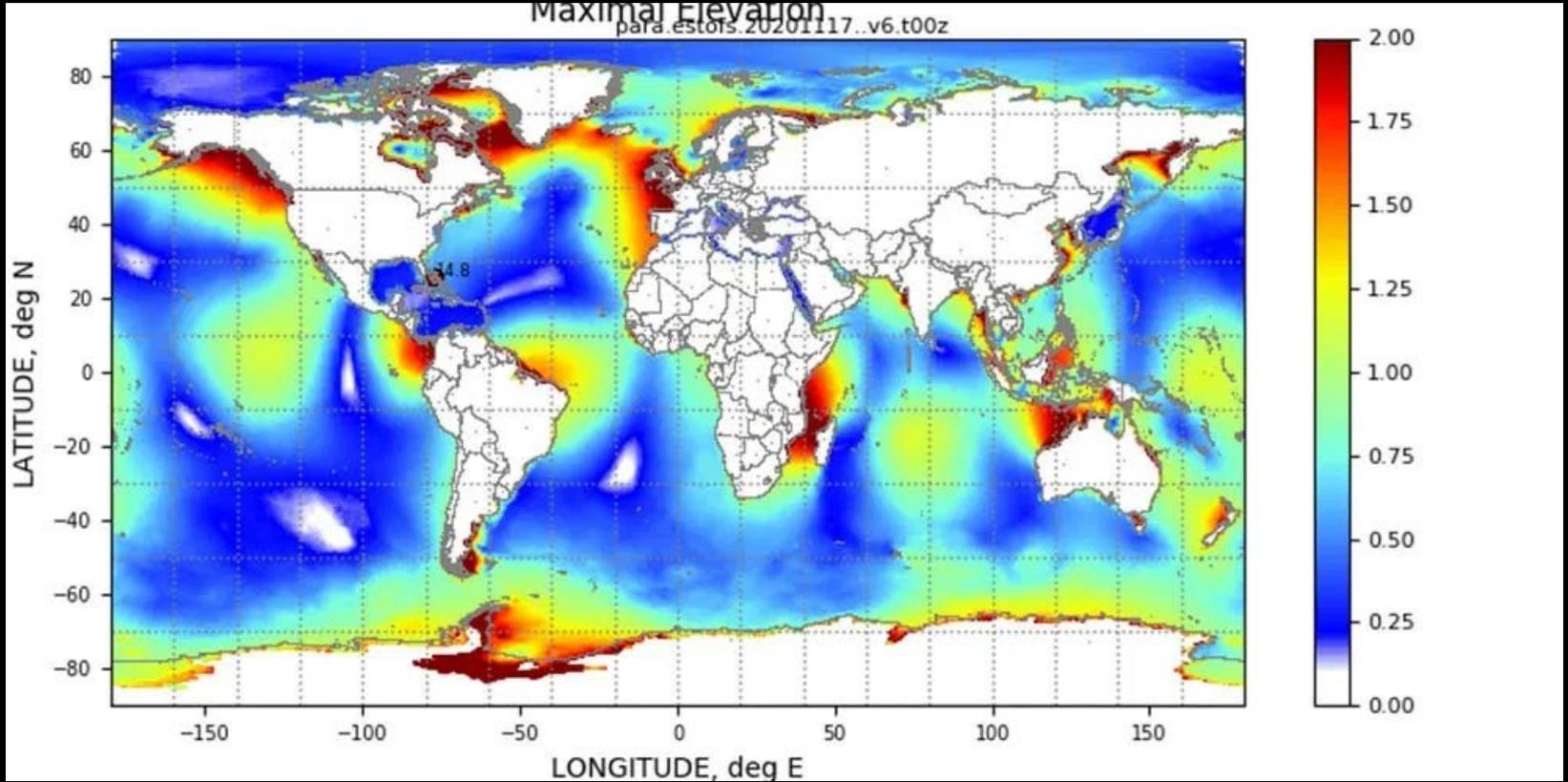
[NOAA Fisheries Article](#)

Vision Area 3: A robust and effective research development, and transition enterprise



*The GOES-17 satellite above the thermal vacuum chamber.
Photo credit: Lockheed Martin.*

Expansion of extratropical surge and tide operational forecast systems (ESTOFS)

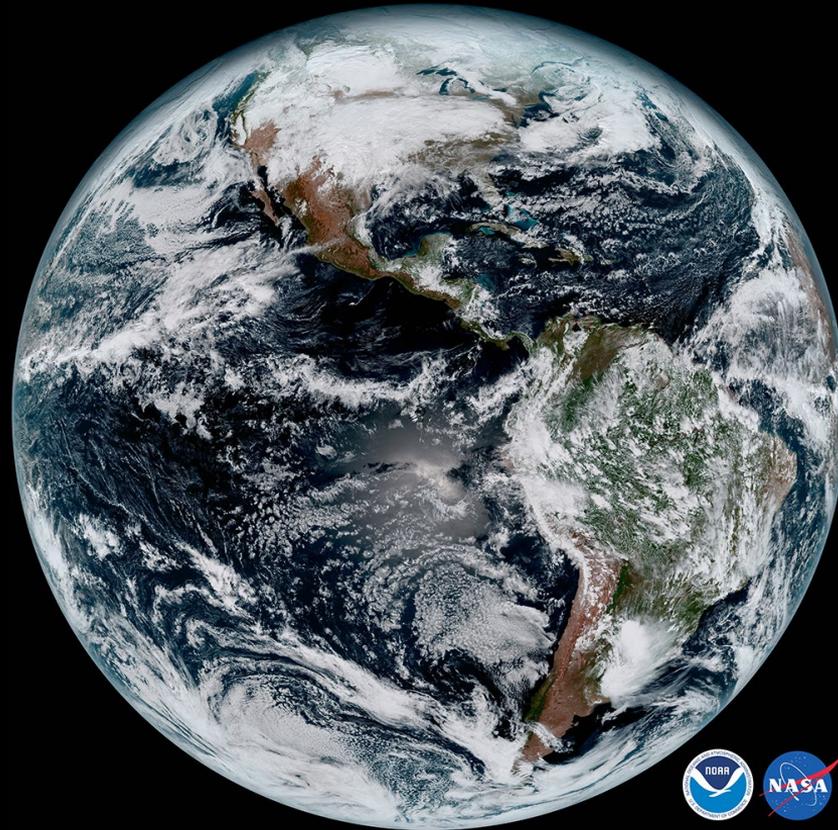


Saildrone



Photo credit: Saildrone

Geostationary and Extended Orbits (GEO-XO)



OMAO Partners with University of Southern Mississippi on UXS



NOAA Scientist operates a UXS

Future Roger F. Wicker Center
(under construction)



OMAO and Scripps Institute of Oceanography Partner to further UXS technology and applications

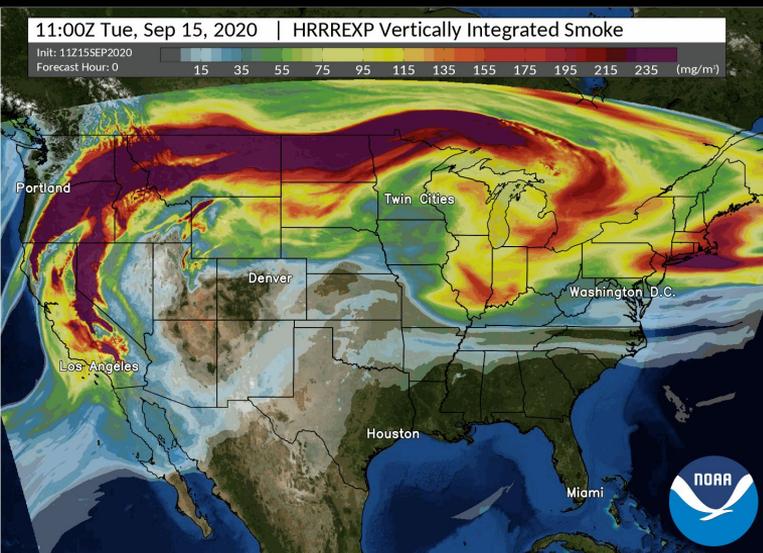


**Scripps Vessel *Sally Ride*:
Cooperation from NOAA to map the location
and extent of DDT barrel pollution**



**DDT Barrel photographed by UXS
on a joint NOAA/Scripps mission**

Recent NWS Implementations



A HRRR-Smoke model forecast of vertically integrated smoke showing where wildfire smoke will travel across the U.S.

- September 23, 2020** Global Ensemble Forecast System (GEFS) v12
- September 29, 2020** National Blend of Models (NBM) v4.0
- October 14, 2020** Multi-Radar Multi-Sensor (MRMS) System v12.0
- November 24, 2020** Global Extratropical Surge and Tide Operational Forecast System (ESTOFS)
- December 2, 2020** Rapid Refresh Model (RAP) v5 High-Resolution Rapid Refresh (HRRR) v4
- December 10, 2020** Global Real-Time Ocean Forecast System (Global RTOFS) v2.0
- February 3, 2021** Geospace Model v2.0
Nearshore Wave Predictions System v1.3
- February 24, 2021** MRMS System v12.1
- Wednesday
March 17, 2021** Global Forecast System (GFS) v16

Questions?

