



18 Nov. 2024

# Looking Back While Moving Forward: The Importance of Partnerships in Ocean Observing



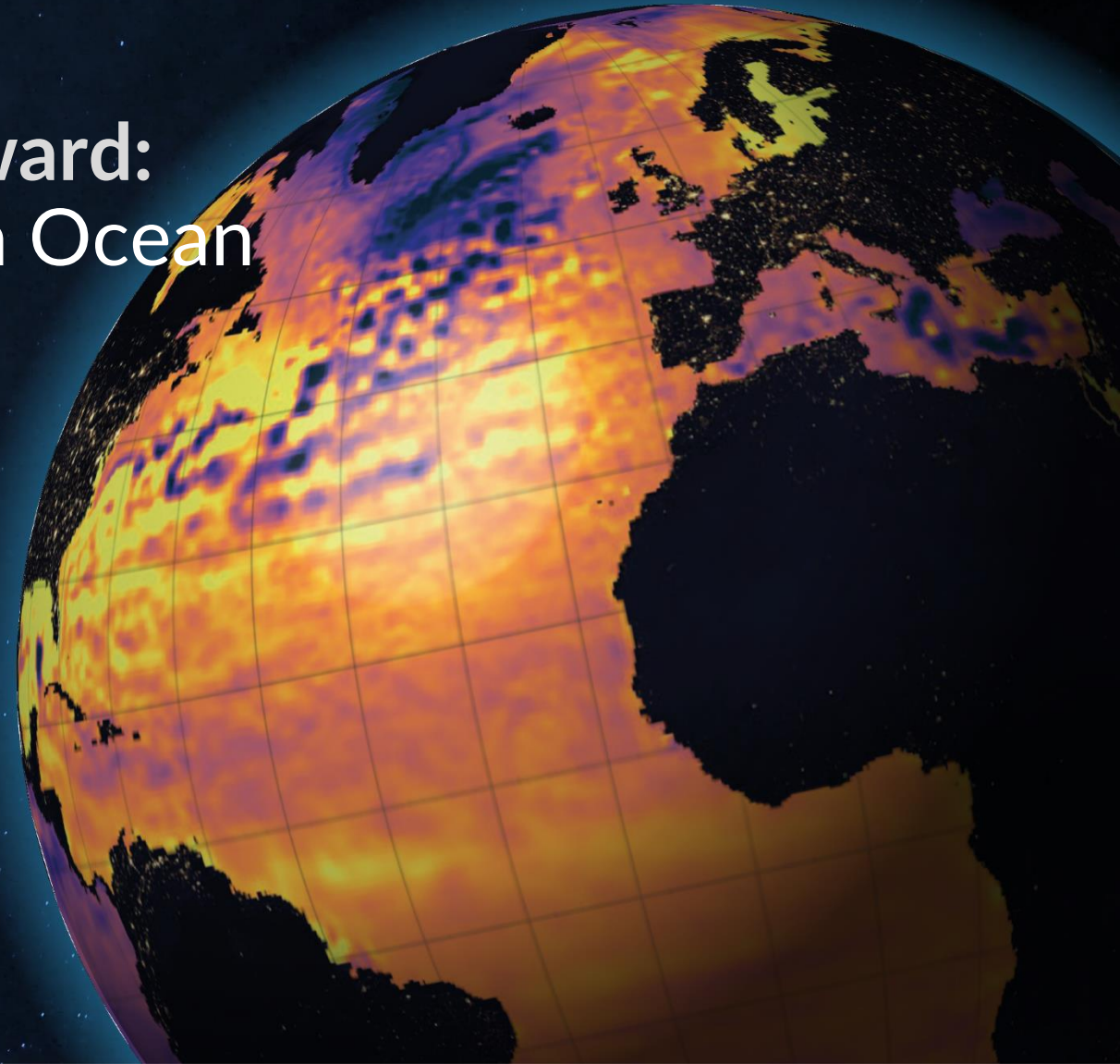
**Dr Steven THUR**  
NOAA



In partnership with



2021 United Nations Decade  
of Ocean Science  
2030 for Sustainable Development





# Dr. Steven Thur

## *Acting* NOAA Chief Scientist

National Oceanic and Atmospheric Administration  
U.S. Department of Commerce





# Looking at the Past



# Observing Platforms



**Argo**



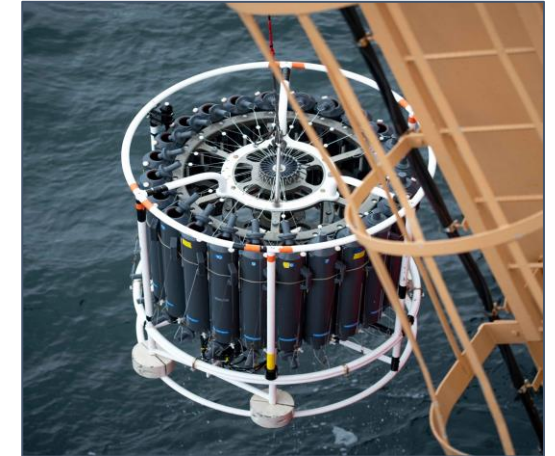
**Drifters**



**Moorings**



**GO-SHIP**



**XBT**



**Uncrewed  
Surface Vehicles**



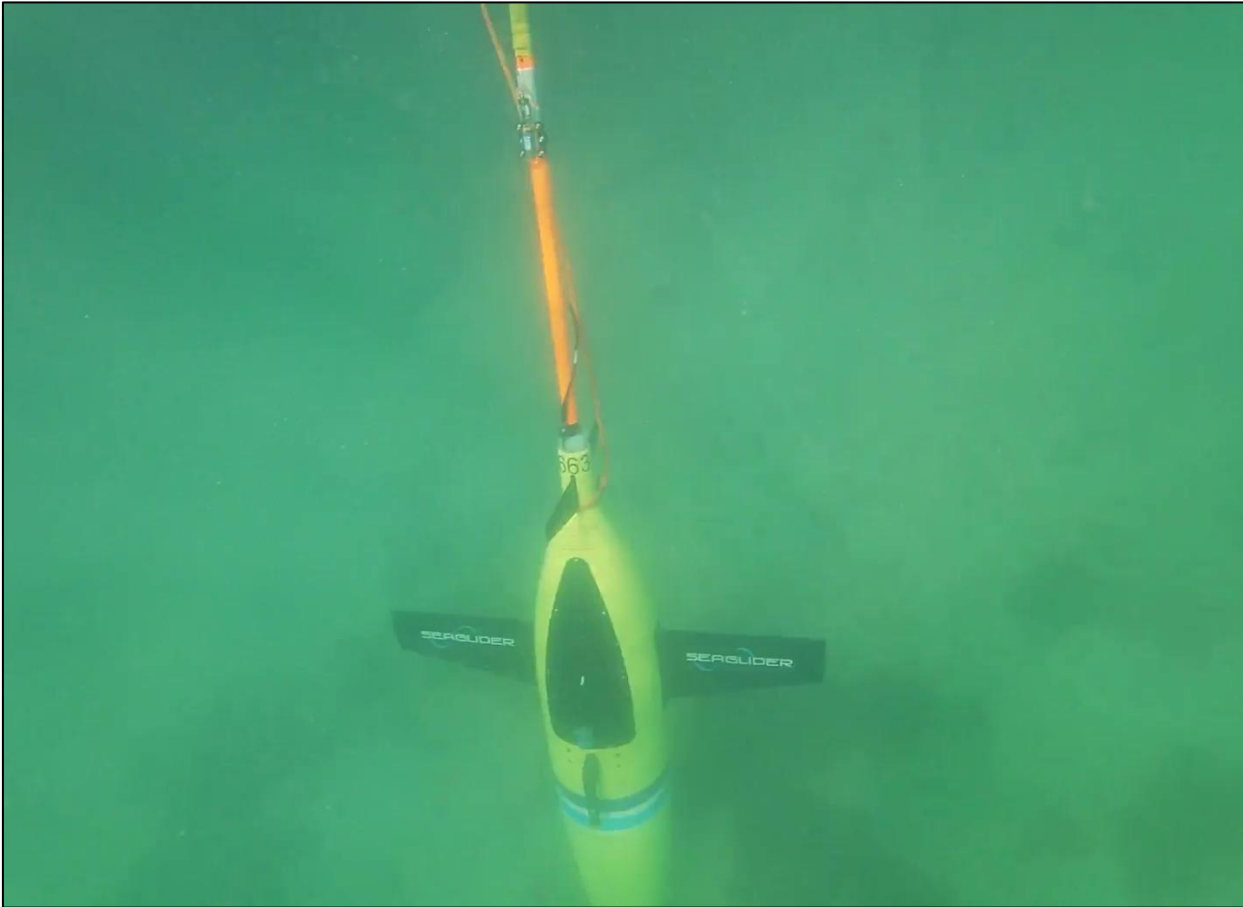
**Ocean Gliders**



**Tide Gauges**



# Underwater Gliders



## Glider applications include:

- Hurricane forecasting
- Ecosystem dynamics monitoring
- Marine mammal monitoring
- Ocean acidification

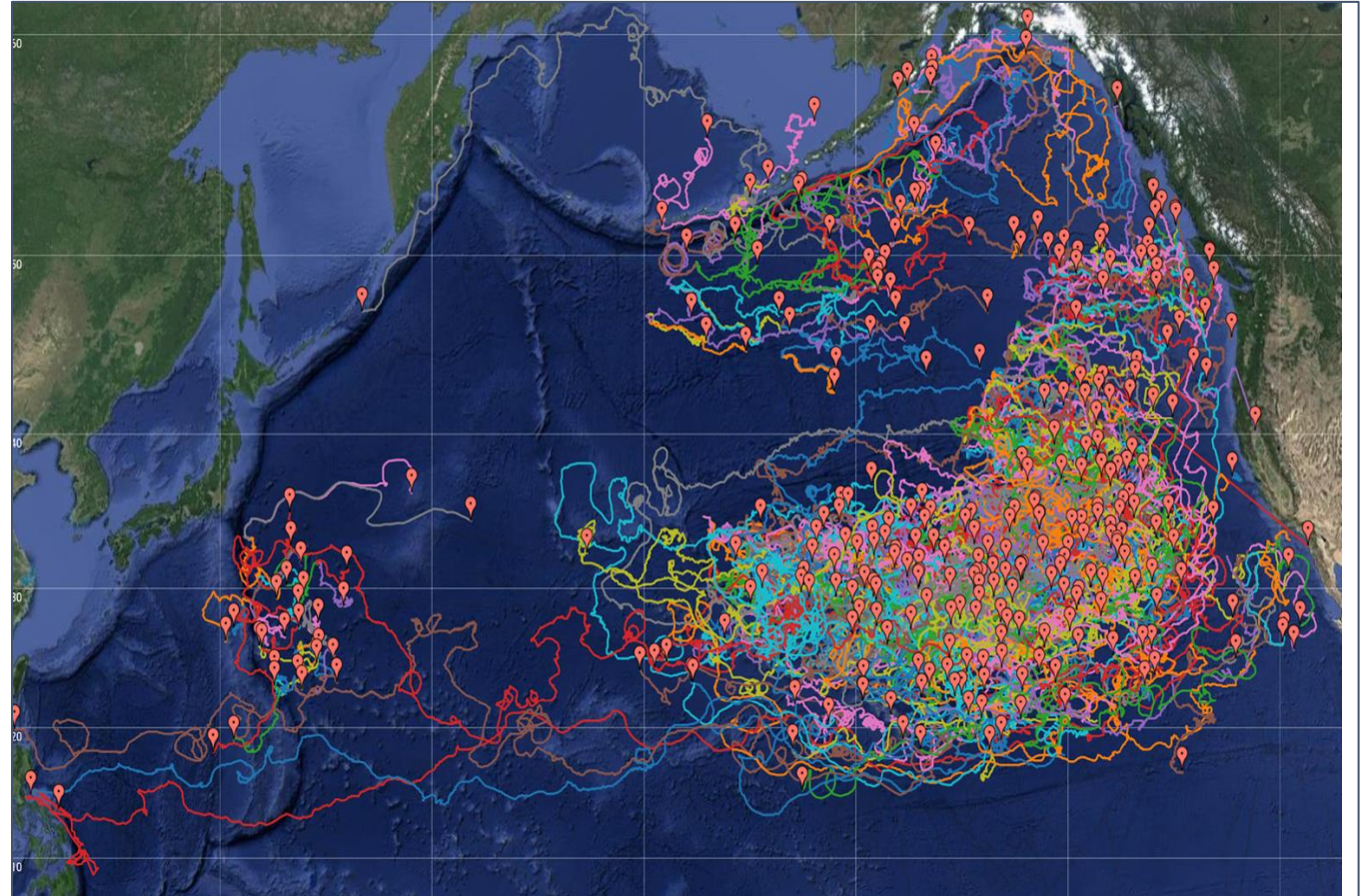


# Backyard Buoys



BACKYARD BUOYS

# Drifters

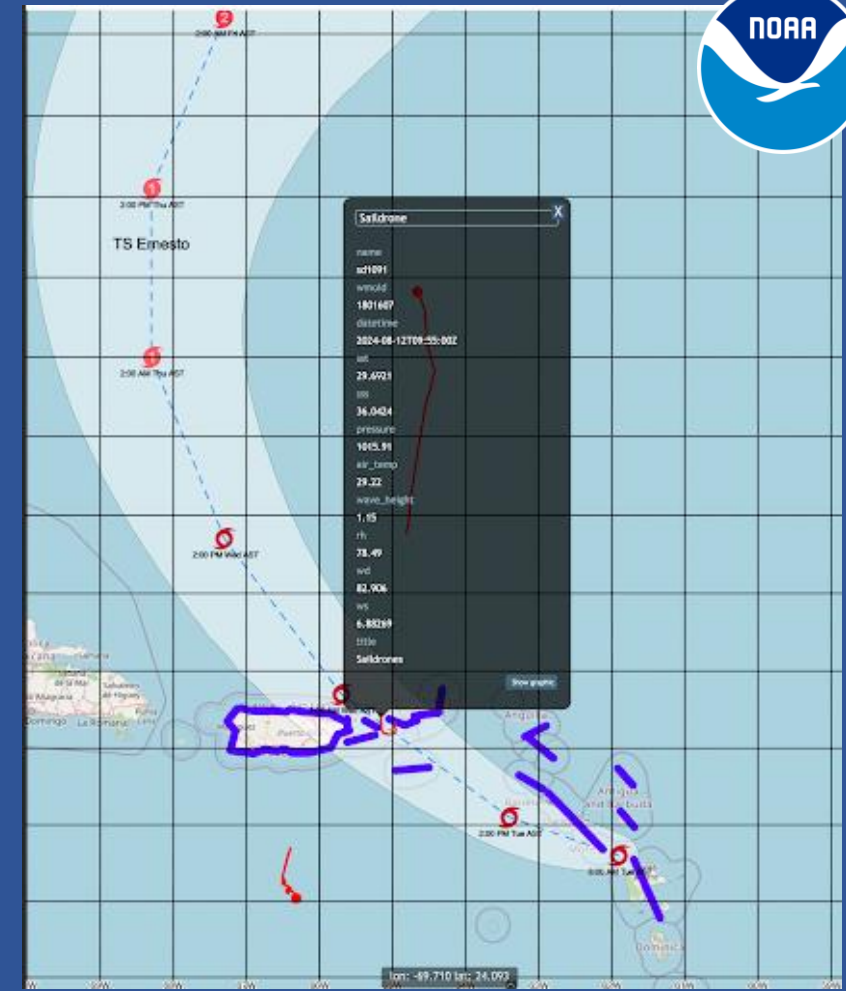


# Uncrewed Surface Vehicles

Captured by SD-1083 in the Gulf of Mexico during Hurricane Helene at 2216 UTC on Sept 26, 2024  
71.82 kn wind gusts, 9.06 m significant wave height



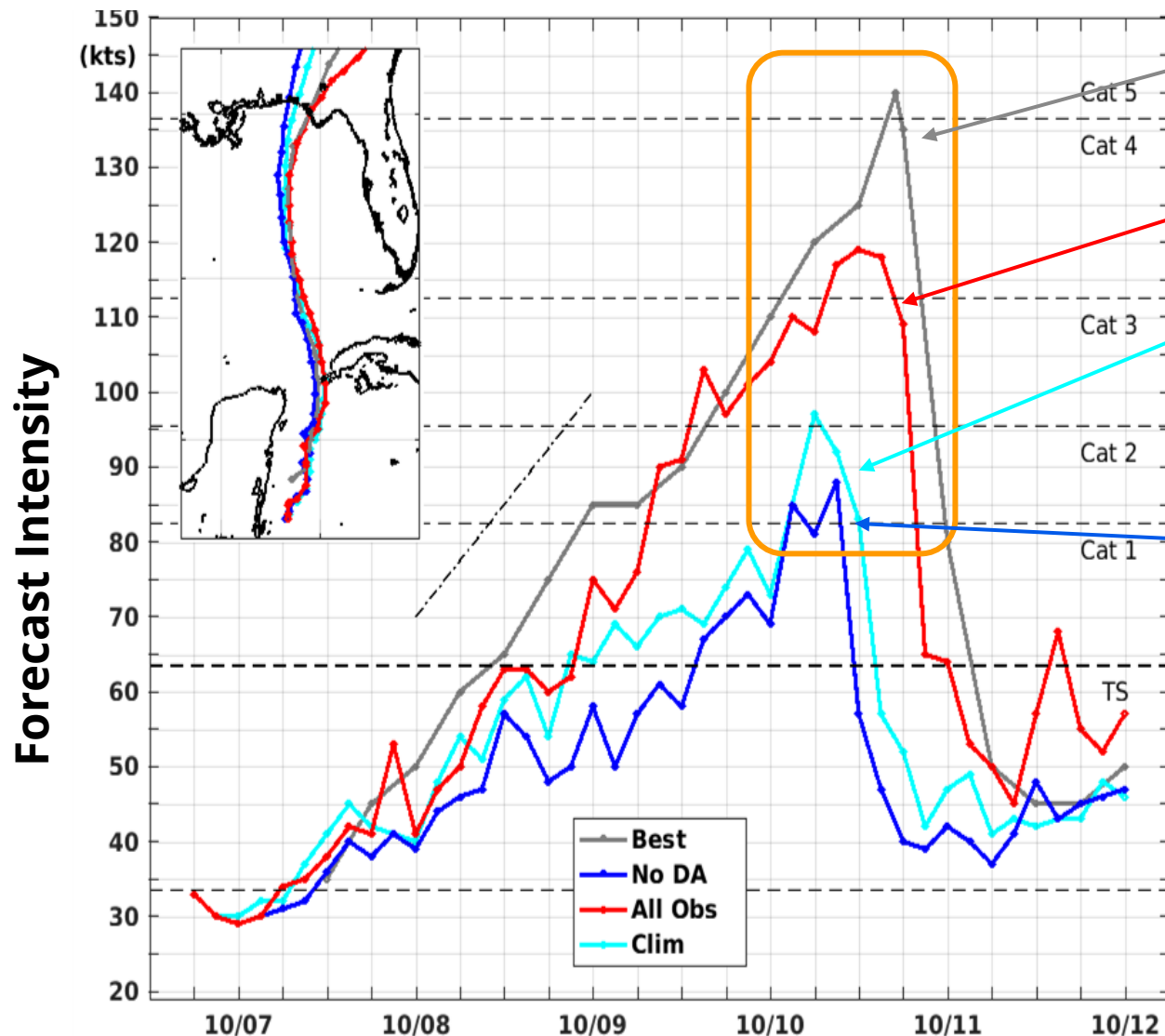
SAILDRONE



## 2024 Tropical Storm Ernesto



# Ocean observations benefit hurricane forecasting



**Observed Intensity**  
**Assimilate Ocean Data**  
**Climatology**  
**Ignore Ocean Data**





# The Reality of Our Present



# Challenges



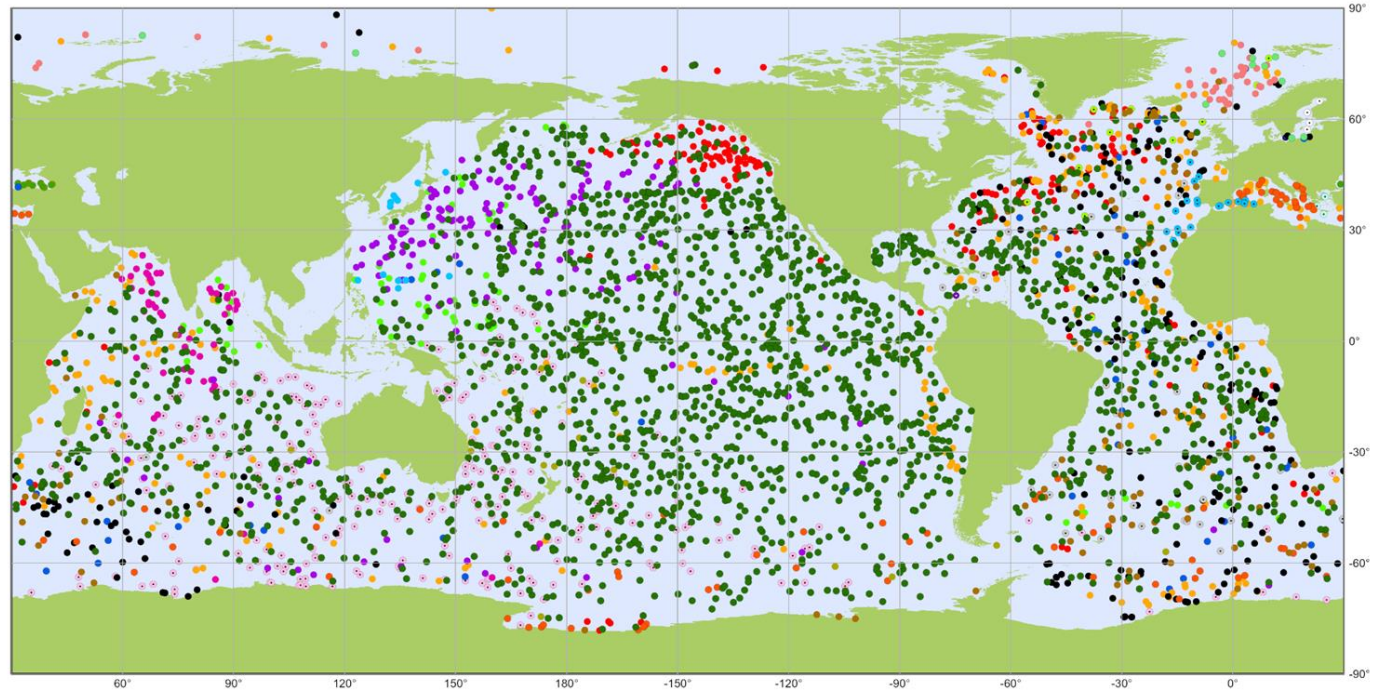
**Reduces uncertainty in sea level assessment**



**Accurate Infrastructure Planning**



**Preparing Vulnerable Communities**



Argo

National contributions - 3866 operational floats

September 2024

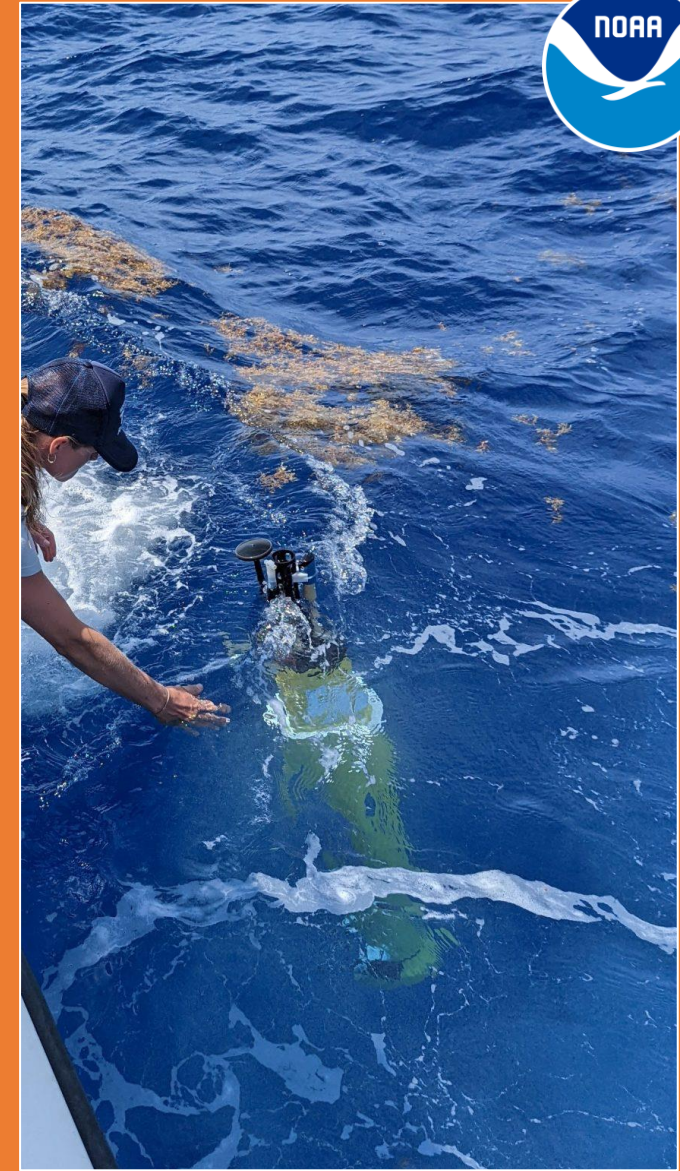
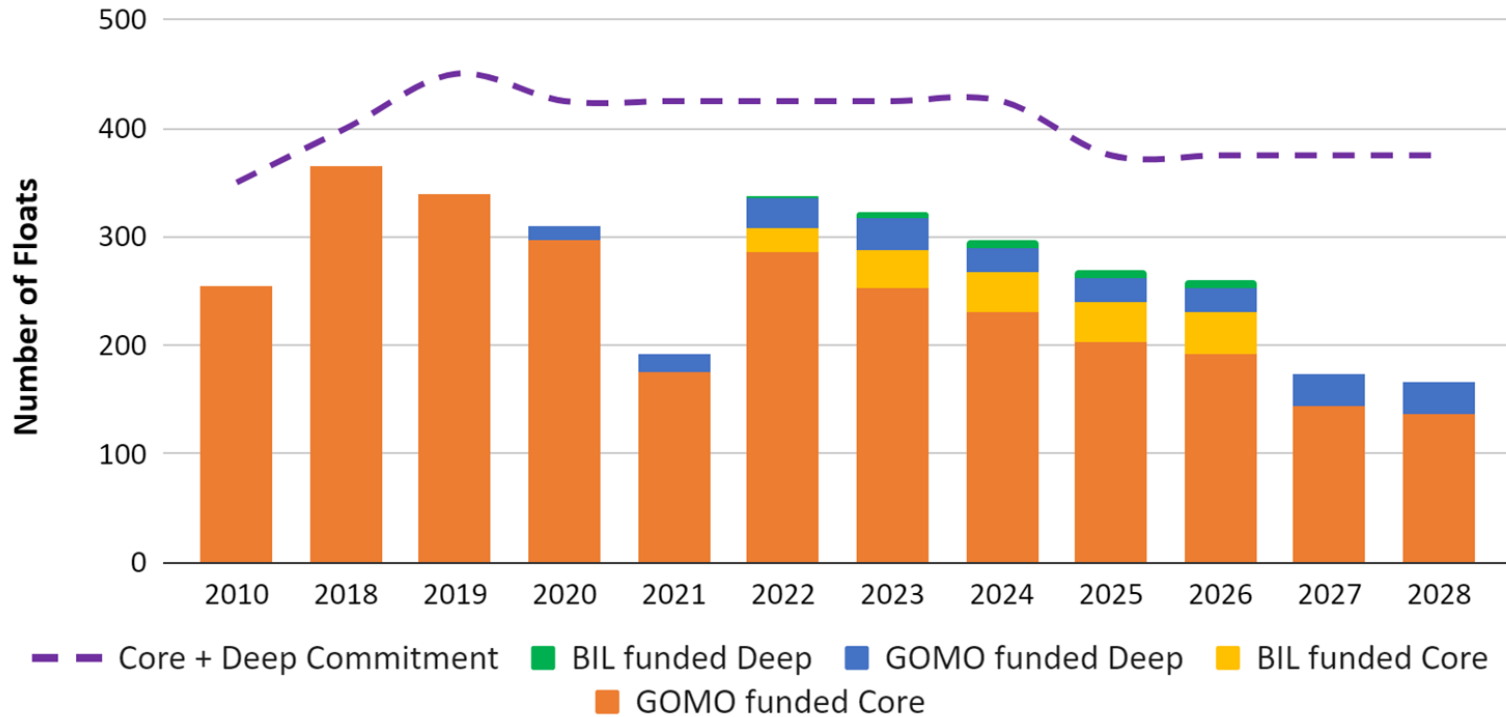
Latest location of operational floats (data distributed within the last 30 days)

- |                   |                 |                |                           |              |
|-------------------|-----------------|----------------|---------------------------|--------------|
| • AUSTRALIA (292) | • DENMARK (2)   | • GREECE (6)   | • NETHERLANDS (32)        | • SPAIN (20) |
| • BULGARIA (12)   | • EUROPE (56)   | • INDIA (59)   | • NEW ZEALAND (16)        | • UK (128)   |
| • CANADA (200)    | • FINLAND (5)   | • IRELAND (14) | • NORWAY (40)             | • USA (2171) |
| • CHINA (70)      | • FRANCE (291)  | • ITALY (86)   | • POLAND (11)             |              |
| • COLOMBIA (1)    | • GERMANY (242) | • JAPAN (165)  | • KOREA, REPUBLIC OF (14) |              |



Generated by ocean-ops.org, 2024-10-04  
Projection: Plate Carree (-150,0000)

# NOAA Core and Deep Argo Float Procurement

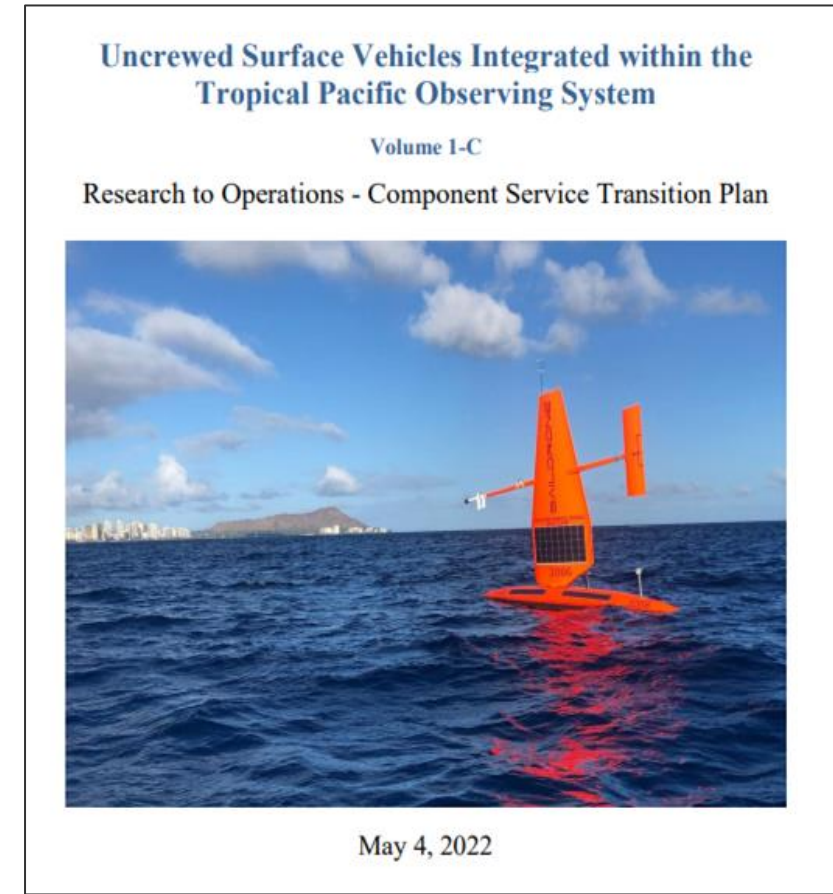
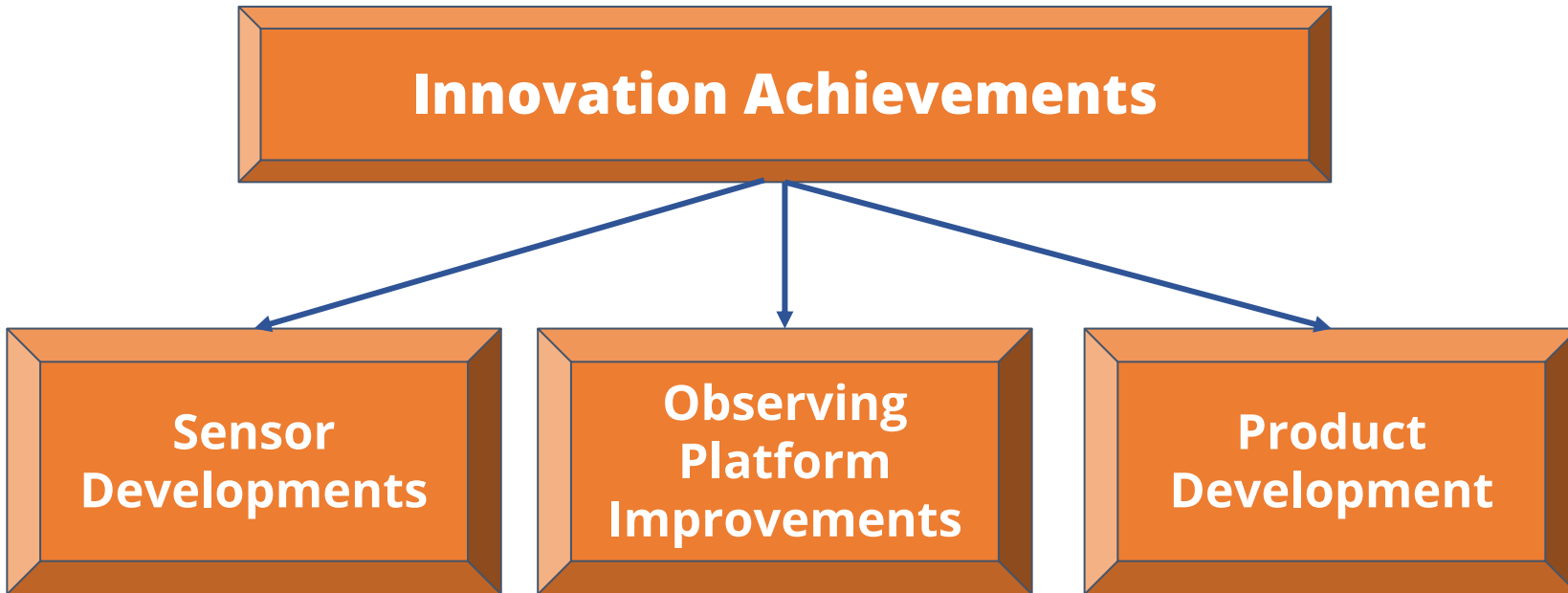




# Looking Forward



# Emerging Technologies and Importance of Partnerships





**Partnership  
Opportunities**

# SYM POSIUM IUM 24

ADVANCING OCEAN PREDICTION  
SCIENCE FOR SOCIETAL BENEFITS

# Thank you!



**For more  
information**