

Expanding the Impact of Your Research

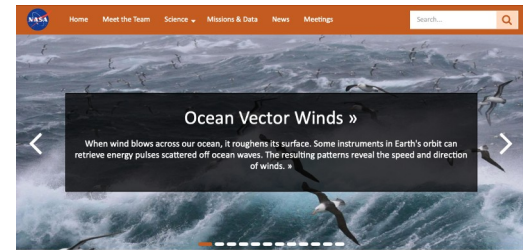
Annette deCharon, ODYSEA LLC, avdecharon@gmail.com

Mark Bourassa, Florida State University, bourassa@coaps.fsu.edu



NASA Winds website → nasawinds.org

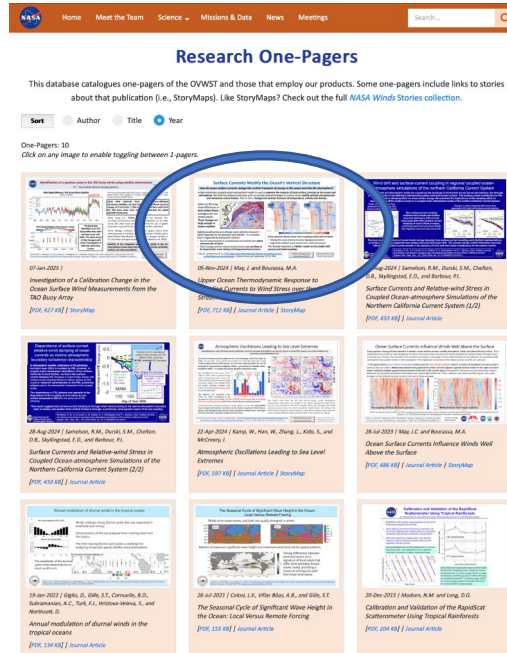
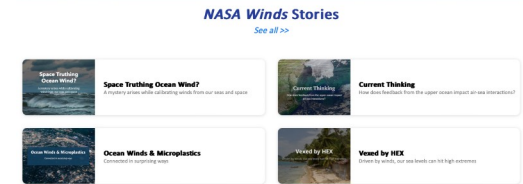
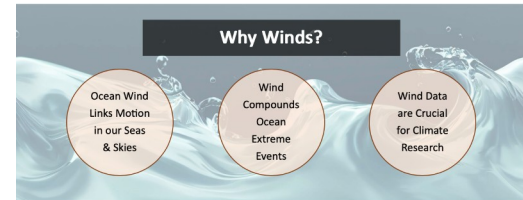
- Hub for the NASA's Ocean Vector Winds Science Team
- 16 archived meetings
 - 978 presentations
- 864 publications
- News
- Research One-Pagers
- NASA Winds Stories



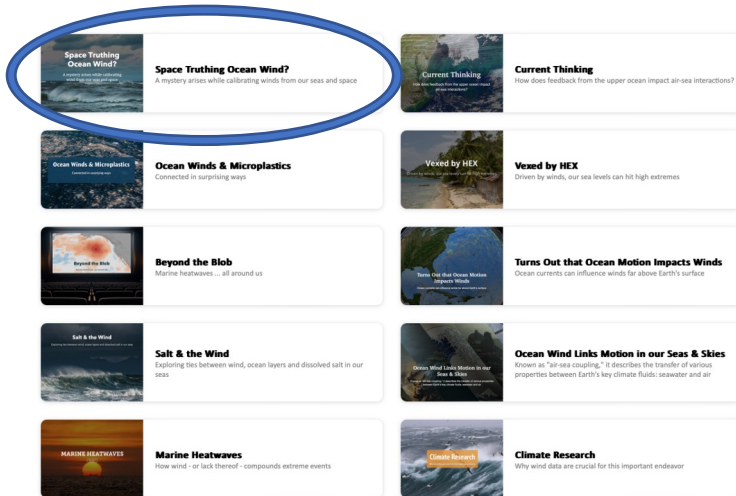
Observing and interpreting winds over our ocean is one of NASA's oldest traditions.

Nearly four decades and several satellite missions later, global data records of ocean vector winds are an important backbone of scientific discovery. These records are key to understanding the interactions between huge, restless systems that drive our climate: the ocean and atmosphere.

The **Ocean Vector Wind Science Team (OVWST)** is an international community of scientists, government agencies, and users. Members of the OVWST have produced high-quality data streams from Earth-observing satellite missions. They have analyzed and interpreted wind-driven processes. They've improved operational modeling and forecasting applications for safer seas and coasts.



You are here



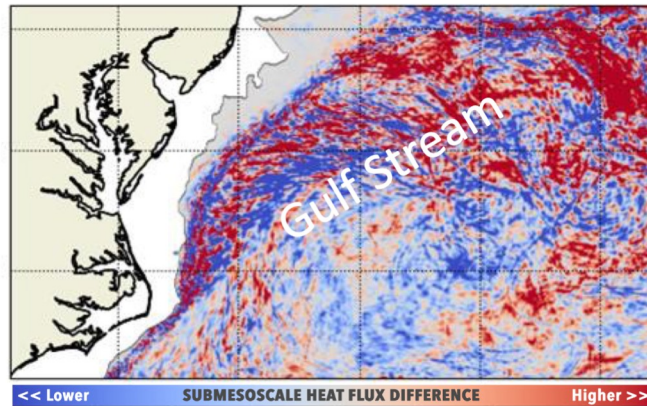
#1 We Can Help You Craft a One-pager Based on a Publication

Surface Currents Modify the Ocean's Vertical Structure

How do ocean surface currents change the vertical transport of energy in the ocean and into the atmosphere?

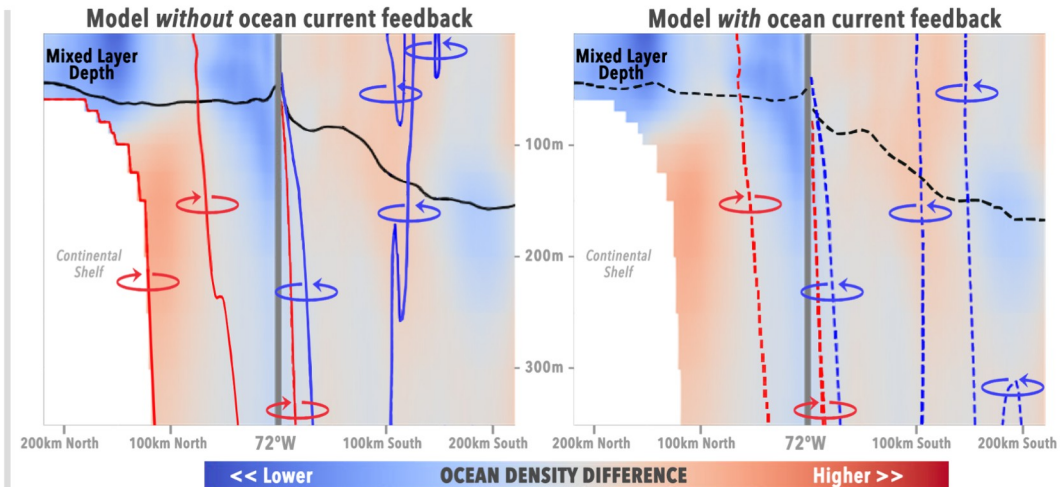
A high-resolution coupled ocean-atmosphere model is used to **examine the impacts of total surface currents on the ocean and atmosphere**. We find that physical processes such as current-induced changes in surface stress **modify vertical sub-mesoscale and mesoscale ocean motion**. This, in turn, **changes the vertical structure of temperature, salinity and density**.

Colors on this map show differences in **heat surface fluxes** averaged over one winter season. **These changes are large enough to impact weather.**



Submesoscale processes change ocean density structure – which depends on temperature and salinity – in a manner that is organized by mesoscale rotation:

- Current-induced patterns of temperature and salinity have **added submesoscale structure**
- These changes and the related vertical motions **are very likely to be important for ocean biology and biogeochemical processes**



Cross sections above show how coupling winds and currents:

- Change the ocean density structure (background colors)
- Align with modeled ocean current curl / vorticity (arrows)

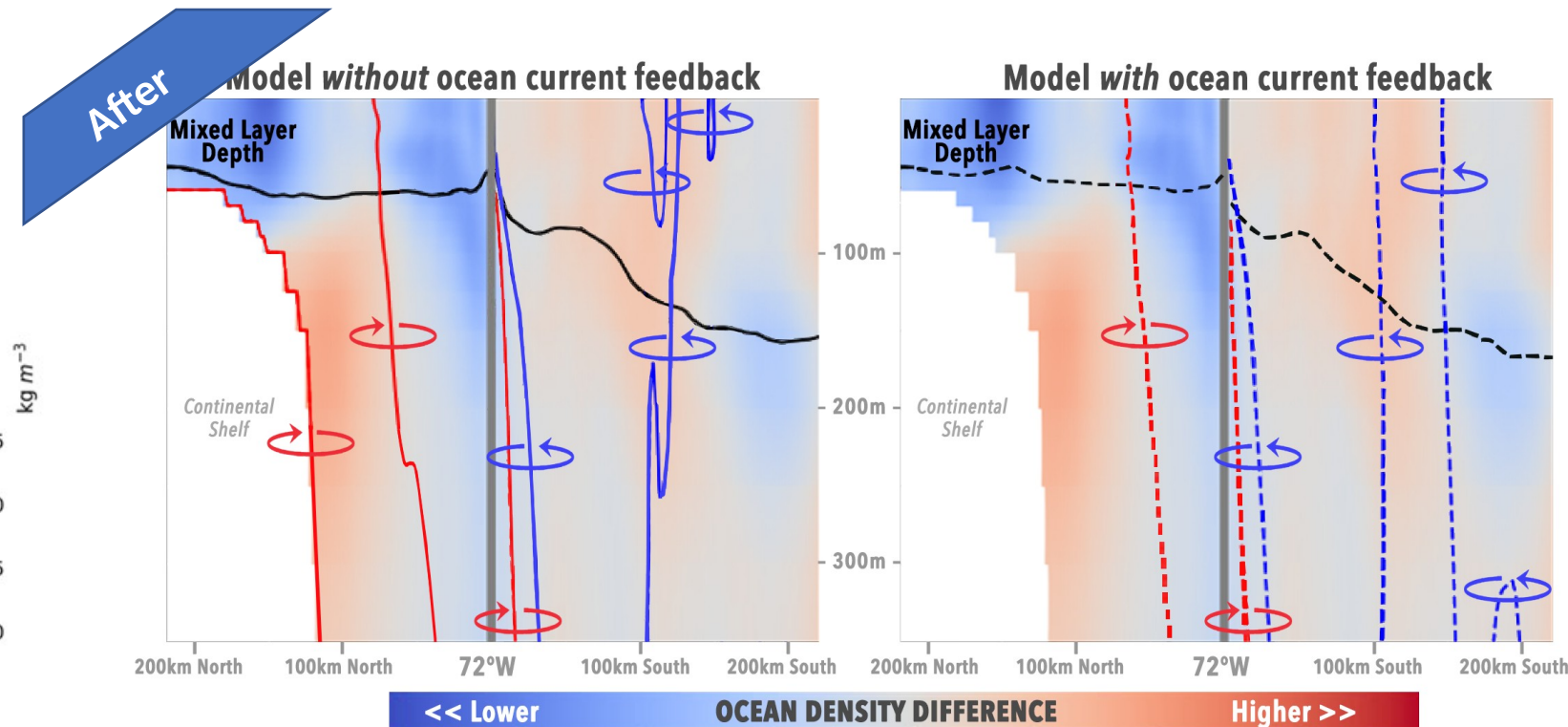
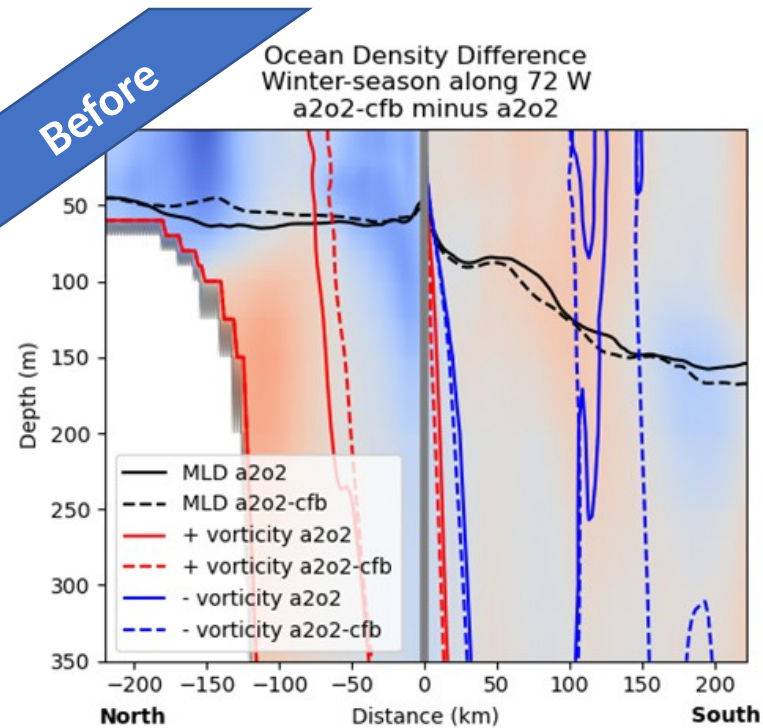
The density response is a **better match to the model with current and wind coupling**.

May, J.C., and Bourassa, M. A. (2024) [Upper Ocean Thermodynamic Response to Coupling Currents to Wind Stress over the Gulf Stream](#), *J. Marine Science and Engineering*, 12 (11), 1994.

Visit the interactive story:
<https://arcg.is/1XCrX1>

Funded through NASA's Ocean Vector Winds Science Team & the Office of Naval Research

#1 We Can Help You Craft a One-pager Based on a Publication



- ✓ Made the plots' title more descriptive
- ✓ Separated into two plots showing *model without feedback* (—) and *model with feedback* (- - -)
- ✓ Added arrows to indicate the direction of vorticity
- ✓ Added measurement description to the color bar itself
- ✓ Simplified the color bar for faster comprehension
- ✓ Added *72°W* to the horizontal axis
- ✓ De-emphasized the axes' labels
- ✓ Labeled the *Continental Shelf* & *Mixed Layer Depth*

Check out our poster for more information

#2 We Can Create an Interactive Story Based on a Publication or Other Topic

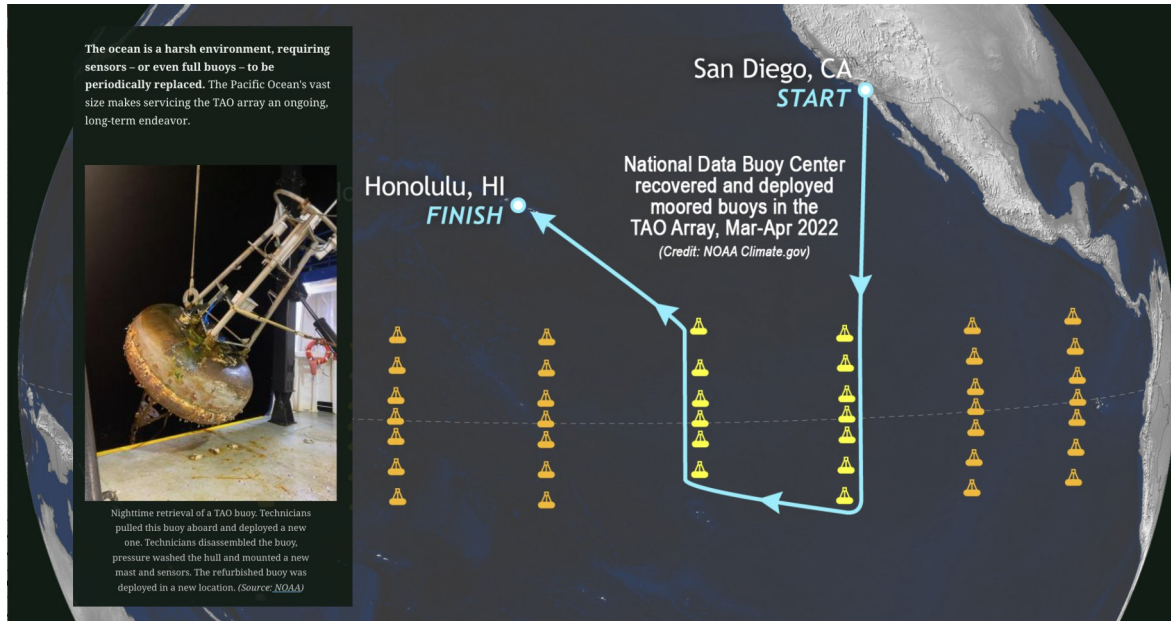
Space Truthing Ocean Wind?

A mystery arises while calibrating wind from our seas and space

Based on Ricciardulli, L., Manaster, A. and Lindsley, R. (2025) *Investigation of a calibration change in the ocean surface wind measurements from the TAO buoy array*, Bull. Amer. Meteor. Soc., doi: 10.1175/BAMS-D-24-0072.1

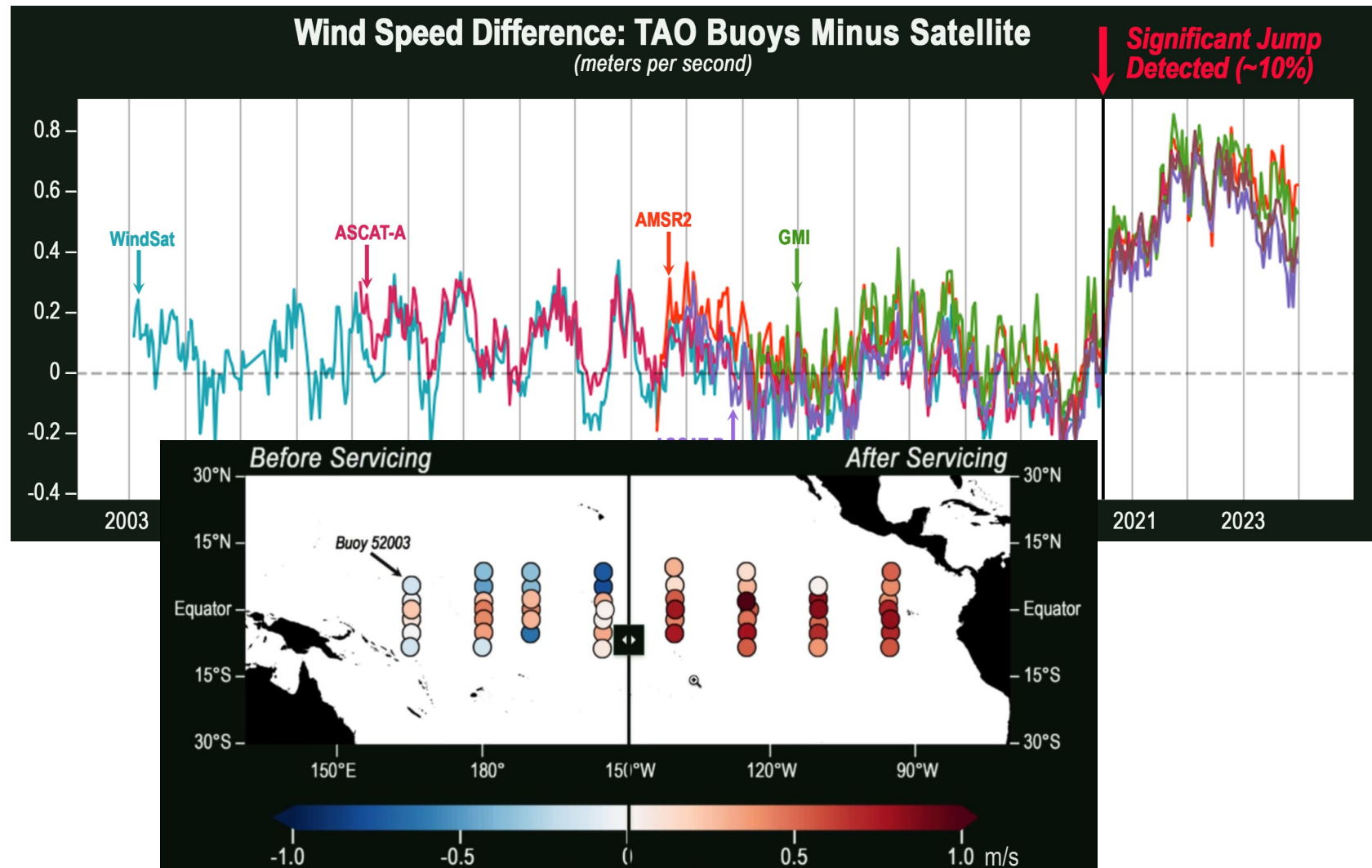
Direct URL  <https://arcg.is/1ub9zm>

- ✓ Introduce the El Niño connection
- ✓ Introduce key players: *Team Water & Team Space*
- ✓ Explain why marine equipment is periodically replaced
- ✓ Explain why cross-calibration of satellite data is crucial



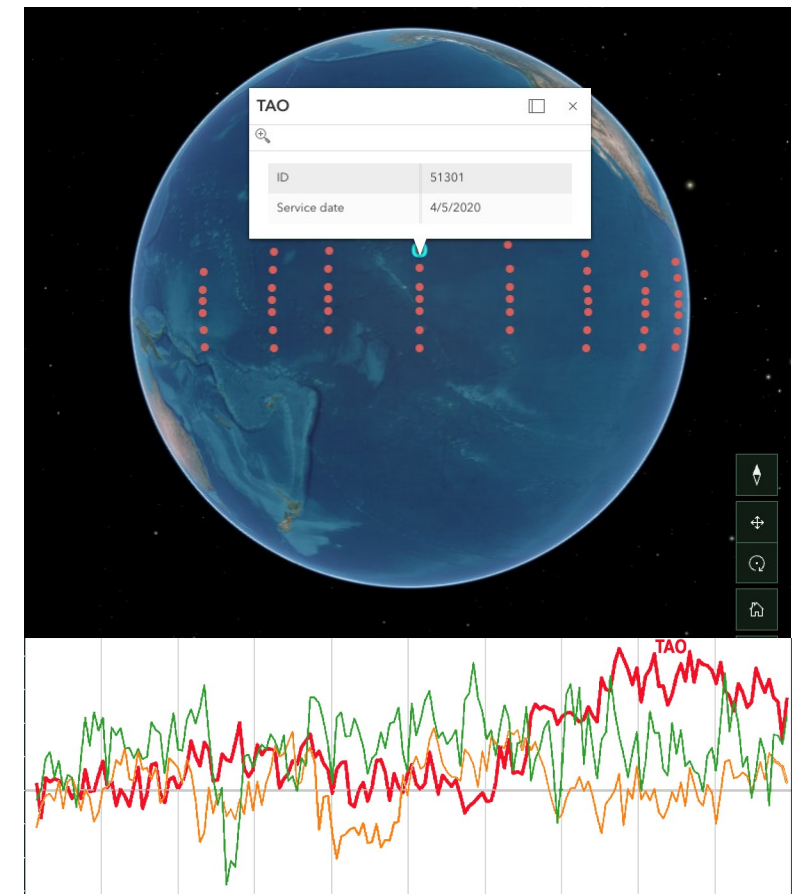
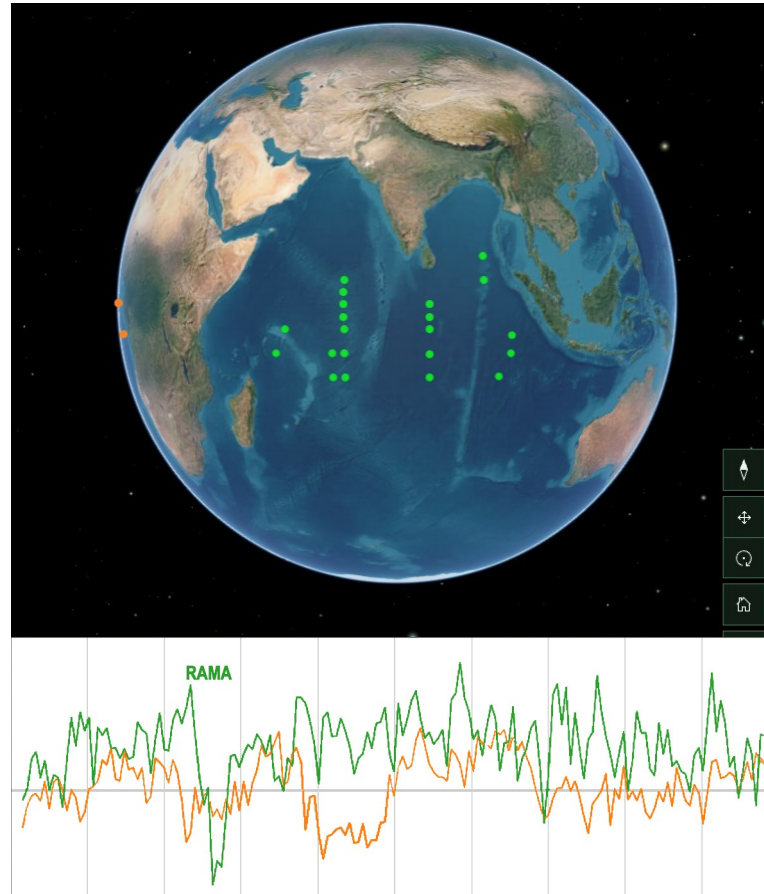
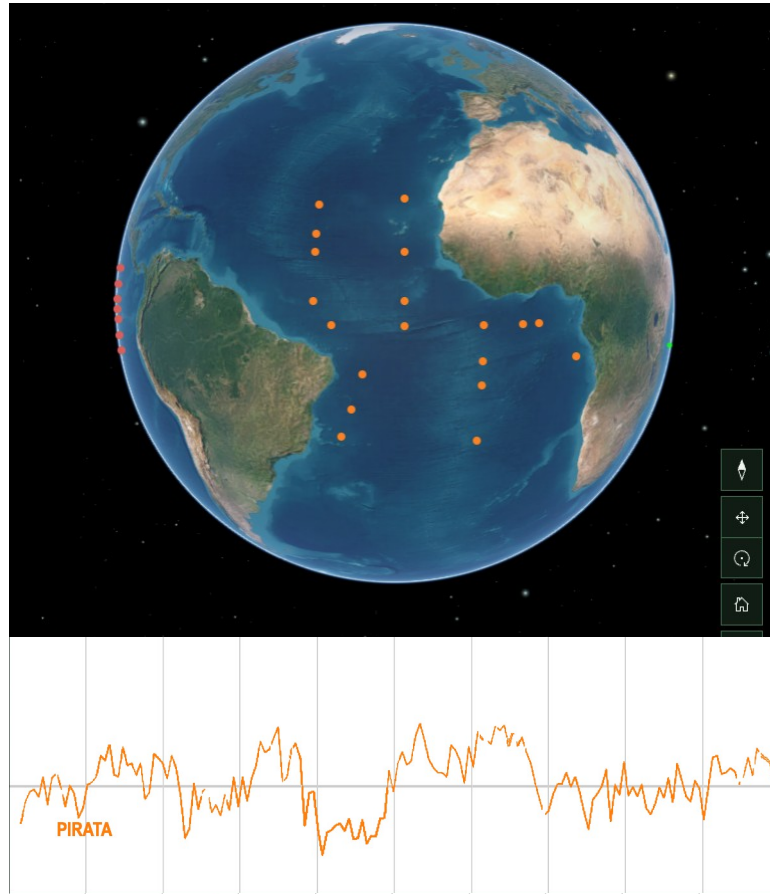
#2 We Can Create an Interactive Story Based on a Publication or Other Topic

- ✓ Describe satellite and buoy data matchups
- ✓ Present an annotated time series, highlighting the jump in wind speed first detected in 2020
- ✓ Include a slider so users can interactively compare wind speeds before & after buoy servicing



#2 We Can Create an Interactive Story Based on a Publication or Other Topic

- ✓ Provide a “tour” of global buoy arrays: PIRATA, RAMA and TAO
- ✓ Have clickable TAO buoy markers indicating service date
- ✓ End with a link to the original publication



Ricciardulli, L., Manaster, A. and Lindsley, R. (2025)
*Investigation of a calibration change in the ocean surface
wind measurements from the TAO buoy array*, Bull. Amer.
Meteor. Soc., doi: 10.1175/BAMS-D-24-0072.1.

Interested in Expanding the Impact of Your Research?

Please feel free to contact us

Annette deCharon  avdecharon@gmail.com

Mark Bourassa  bourassa@coaps.fsu.edu

Thanks for listening!