AOML KEYNOTES

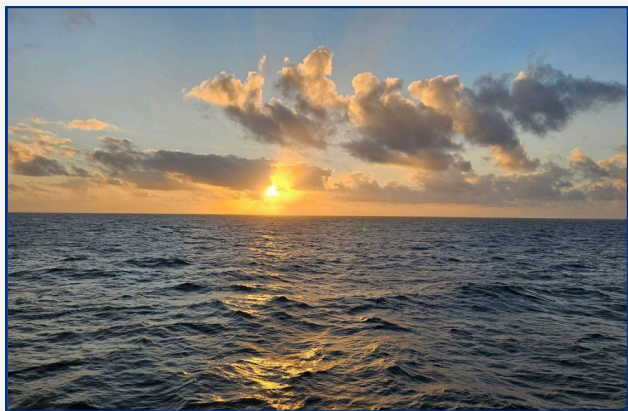## NOAA's Atlantic Oceanographic and Meteorological Laboratory

### April 2025 - June 2025 Publication

RECENT NEWS

OCEAN MONTH: HOW AND WHY WE INVESTIGATE OCEAN ACIDIFICATION

The ocean and the atmosphere are constantly seeking balance. Gases like oxygen, nitrogen, and carbon move between the ocean's surface and the atmosphere by billions of metric tons every year. [Continue Reading]

MONITORING VITAL SIGNS: TOOLS AND TECHNOLOGIES AT THE HEART OF PHYSICAL OCEANOGRAPHY

In 2018, an Australian couple curiously stumbled upon a bottle of gin washed ashore in Wedge Island, Australia. Yet, there was no gin inside. Rather, preserved within the bottle was a note with the date June 12th, 1886; the name of a German barque, Paula; the ship's departure and arrival ports; and the exact coordinates... [Continue Reading]


Image Credit: NASA
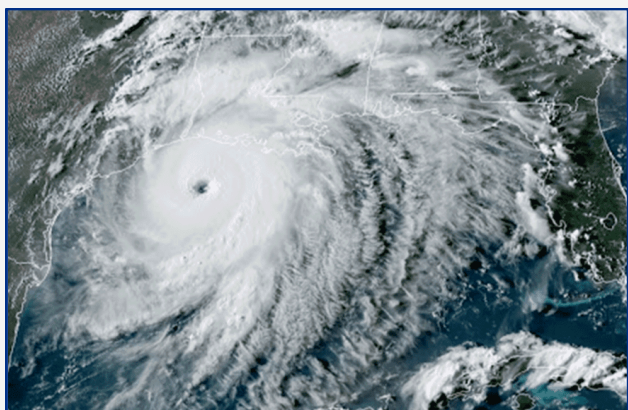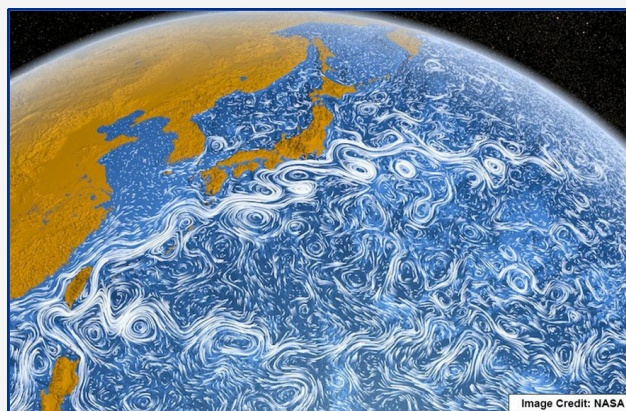
OCEAN MONTH: IDENTIFYING THE OCEAN'S ROLE IN FUELING HURRICANES

Join us as we celebrate and learn about our world ocean throughout National Ocean Month. June 1st not only marks the start of National Ocean Month, it also is the first day of hurricane season. To kick off this year's Ocean Month, we are looking at the major role the ocean plays in the formation... [Continue Reading]

AOML SCIENTISTS PREPARE FOR AN ACTIVE 2025 HURRICANE SEASON

The 2025 Atlantic hurricane season started on June 1 and runs through November 30. NOAA predicts a 30% chance of a near-normal season, a 60% chance of an above-normal season, and a 10% chance of a below-normal season in the Atlantic basin this year... [Continue Reading]

Season Probability

30%

60%

10%

Above Normal   Near Normal   Below Normal
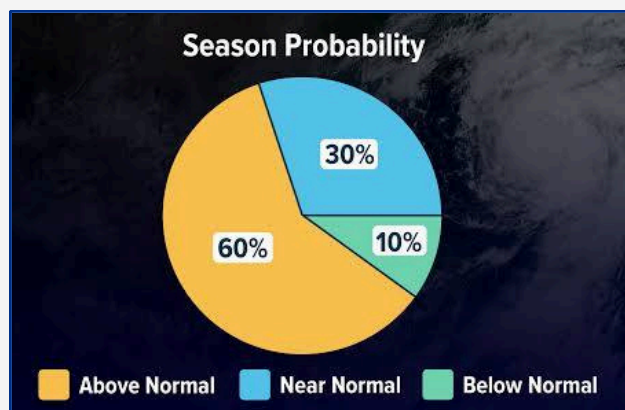
A NEW MODEL PREDICTS DYNAMIC SEAWATER CHEMISTRY ON FLORIDA'S CORAL REEFS

Water masses move over reefs, seagrass beds, and sandbanks – and as they do, the seawater chemistry changes. In the Florida Keys, changes in coral reef carbonate chemistry are driven by benthic metabolism, the origin of the water mass, and the connectivity of habitats. [Continue reading]

AUSTRALIA TO THAILAND: I09N GO-SHIP CRUISE COMPLETES VOYAGE

After nearly 40 days at sea, the I09N GO-SHIP cruise (short for "Global Ocean Ship-based Hydrographic Investigations Program") aboard the R/V Thomas G. Thompson arrived in Phuket, Thailand on April 27th, successfully completing its mission surveying both the Indian Ocean and Bay of Bengal. [Continue reading]

DIVE INTO URBAN CORALS WITH AOML'S NEWEST VR EXPERIENCE

For the past three years, scientists at AOML and CIMAS have been uncovering the secrets behind the extraordinary resilience of corals in PortMiami. Now, you can dive into their groundbreaking research like never before with a new virtual reality experience… [Continue reading]

WHAT WAS THE BUMPIEST HURRICANE FLIGHT EVER? SCIENTISTS NOW HAVE THE ANSWER WITH NEW FLIGHT BUMPINESS MEASUREMENT SYSTEM

Original article published by NOAA Research on March 31, 2025. Hurricane researchers know bumpy flights better than anyone else, but, after a particularly turbulent flight into Hurricane Ian, scientists were left wondering if it was the bumpiest flight on record aboard a NOAA WP-3D Orion hurricane hunter aircraft. [Continue reading]

FAREWELL

James "Jim" Farrington - *Logistics Management Specialist*

After more than 43 years of dedicated service working in the Physical Oceanography Division (PhOD), Jim Farrington is retiring from federal service. Jim has played a pivotal role in supporting AOML's XBT network and drifter projects, serving as a critical remote liaison with vessels from the Ship of Opportunity Program (SOOP) along the U.S. East Coast. His extensive fieldwork, reliability, and unmatched institutional knowledge have been vital to the success of NOAA's sustained ocean observing missions. Jim's legacy will be remembered through the continuity and excellence of the programs he helped to maintain.

Ramon Hurlockdick - *Administrative Specialist*

Ramon has been instrumental as the project lead for the admin system and the ticketing system. His diligent planning and guidance have helped to develop this crucial system. We'll certainly miss his dedication to delivering a valuable and effective tool for AOML.

John Gamache - *Meteorologist*

After 40+ years of federal service, John Gamache is retiring. John's dedication to advancing understanding of hurricanes through groundbreaking Doppler radar technology and analysis has left an enduring impact on tropical cyclone research. As a radar scientist on numerous hurricane flights, John helped refine the way we analyze storm structure, helping to shape the future of forecast models and the understanding of tropical weather. Through years of work and collaboration with other scientists, John and the radar team have demonstrated the immense value of radar data in reducing forecast errors and uncertainty, benefiting NHC forecasters.

Christian Labbe - *Network Administrator*

Farewell to Christian Labbe who will be departing AOML after over 33 years of federal service. It's been a pleasure working alongside Chris, AOML's Network Administrator. His expertise has been the backbone of our smooth operations, keeping us all connected and secure. We'll miss his calm demeanor under pressure, his knack for troubleshooting network issues, and his dedication to keeping our systems running like a well-oiled machine. We wish Chris all the best in his next chapter and thank him for his invaluable contributions to the team.

Esa Peltola - *Oceanographer*

Farewell to Esa Peltola who is retiring from Federal Service. Esa started at AOML through CIMAS in the Ocean Carbon Cycle group in 1997 and became a Federal employee in 2001. While working for the ocean carbon cycle group, he frequently went to sea for GO-SHIP cruises and worked to build and maintain instrumentation. About 15 years ago, Esa took over budgeting for OCED where he was known for his detailed spreadsheets and blunt communication of everyone's budget standing.

Elizabeth "Liz" Perez - *Acquisition Management Specialist*

Congratulations and farewell to Elizabeth Perez who will be retiring after 39 ½ years of federal service. Liz started her federal career at the Department of the Interior, followed by the US Customs Service, before joining the Department of Commerce in 2000. She worked at the Southeast Fisheries Science Center for 14 years as an administrative assistant and then the purchasing agent. At AOML she has been an integral part of the admin team since 2018, supporting our scientific research efforts as our acquisition management specialist.

Claudia Schmid - *Oceanographer*

Farewell to Claudia who has been a federal employee at AOML since 1997. As the co-PI and manager of AOML's Argo Data Assembly Center (DAC) since its inception, she has been instrumental in shaping the US and international Argo Program's success. Under Claudia's guidance, the U.S. Argo DAC has become a model for excellence in ocean data management, supporting operations and researchers worldwide with timely, high-quality observations. Claudia has participated in 17 cruises (6 of them as chief scientist) and published over 87 papers focused on South Atlantic overturning circulation and boundary currents, intermediate and deep circulation and water mass pathways, and tropical Atlantic ocean variability.

Franz "Philip" Tuchen - *Oceanographer*

Farewell to Philip who joined PhOD in January 2022 as a NRC post doctoral fellow, and then became a CIMAS postdoctoral researcher in May 2024. Philip collaborated with Renellys Perez and Gregory Foltz and many of the other scientists in PhOD on various tropical Atlantic and Pacific ocean variability studies. During his postdoc, he authored 6 and co-authored 6 publications. Over the past three years, Philip has gone to sea on several field cruises including two PIRATA Northeast Extension (PNE) cruises, one Western Boundary Time Series (WBTS) cruise, and two German research cruises. He volunteered on six of Jim Happell's FLOTSUM cruises training UM undergraduates and helping them to develop fieldwork skills. To date, Philip has logged an impressive 432 days at sea!

Publications

Alvarez, O., Ma, C., ABERSON, S, et al. (2025) Vortex visualization of tropical cyclones by Liutex. *J Hydrodyn*. https://doi.org/10.1007/s42241-025-0018-1.

Baeza, J. A. & ROSALES, S. M. (2025) The complete mitochondrial genome of the 'maze' coral Meandrina meandrites (Scleractinia: Vacatina: Meandrinidae). *Mitochondrial DNA Part A*, 1–8, https://doi.org/10.1080/24701394.2025.2504422.

Blackwell, W. J., Braun, S., ALVEY, G., et al. (2025) High revisit rate tropical cyclone observations from the NASA TROPICS constellation mission. Proc. IEEE.

Chu, Y. F., LIN, G., Deng, M., et al. (2025) Characterizing seasonal variation of the atmospheric mixing layer height using machine learning approaches. *Remote Sensing,* 17(8), 1399; https://doi.org/10.3390/rs17081399.

Chu, Y. F., LIN, G., Deng, M., et al. (2025) Characteristics of Eddy Dissipation Rates in Atmosphere Boundary Layer Using Doppler Lidar. *Remote Sensing*, 17(9), 1652; https://doi.org/10.3390/rs17091652.

Grigoratou, M., Menden-Deuer, S., McQuatters-Gollop, A., et al. (2025) The immeasurable value of plankton to humanity. *BioScience*, https://doi.org/10.1093/biosci/biaf049.

HOOPER, J. A., BARINGER, M. O., & SMITH, R. H. (2025) Hydrographic measurements collected aboard the R/V *Endeavor*, 27 February - 16 March 2021: Western Boundary Time Series Cruise AB2102 (EN-663). NOAA Data Report OAR AOML ; 88, https://doi.org/10.25923/qc75-tw15.

Ito, K., Y. Miyamoto, C.-C. Wu, et al. (2025) Recent research and operational tools for improved understanding and diagnosis of tropical cyclone inner core structure. *J. Meteor. Soc. Japan*, 103, 147– 180, doi:10.2151/jmsj.2025-008.

John, E. B., Balaguru, K., Leung, L. R., et al. (2025) Faster recovery of North Atlantic tropical cyclone-induced cold wakes in recent decades. *Npj Clim Atmos Sci,* 8, 188, https://doi.org/10.1038/s41612-025-01029-5.

Kelliher, J. M., Aljumaah, M., Bordenstein, S. R., et al. (2025) Microbiome data management in action workshop: Atlanta, GA, USA, June 12–13, 2024. *Environmental Microbiome* 20, 40. https://doi.org/10.1186/s40793-025-00702-9.

KIM, D., LEE, S. K., LOPEZ, H., et al. (2025) Atlantic Niño increases early-season tropical cyclone landfall risk in Korea and Japan. *Npj Clim Atmos Sci,* 8, 240, https://doi.org/10.1038/s41612-025-01112-x.

Martínez-Mercado, M. A., Compaire, J. C., Hernández, F. J., et al. (2025) Basin-Wide morphology and metabarcoding-based comparison of Ichthyoplankton diversity and community structure in the Gulf of Mexico. *Progress in Oceanography* 235: 103482, https://doi.org/https://doi.org/10.1016/j.pocean.2025.103482.

Vieira, M., Soares, C. G., Guimarães, P. V., et al. (2025) Nearshore space-time ocean wave observation using low-cost video cameras, *Coastal Engineering*, 197, https://doi.org/10.1016/j.coastaleng.2024.104694.

Nickerson, A., ZHANG, J. A., Weisberg, R. H., et al. (2025) Rapid intensification of Hurricane Ian (2022) in high shear. *J. Geophys. Res. Atmo*., 130(13), https://doi.org/10.1029/2024JD042024.

Office of National Marine Sanctuaries. (2025) Gray's Reef National Marine Sanctuary condition report: 2008–2022. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service.

Sura, S. A., Czaja, R. E., Jr., Brugnone, N., et al. (2025) Science priorities to evaluate the effects of offshore wind energy development on fish and fisheries in the Gulf of America. *Marine and Coastal Fisheries*, 17(3), https://doi.org/10.1093/mcfafs/vtaf009.

Takahashi, M., Frøslev, T. G., Paupério, J., et al. (2025) A Metadata checklist and data formatting guidelines to make eDNA FAIR (Findable, Accessible, Interoperable, and Reusable). *Environmental DNA* 7(3), e70100, https://doi.org/10.1002/edn3.70100.

TUCHEN, F. P., FOLTZ, G. R., LEE, S.-K., et al. (2025) Record warmth and unprecedented drop in equatorial Atlantic sea surface temperatures in 2024. *Geophysical Research Letters*, 52(12), https://doi.org/10.1029/2025GL115973.

Wadler, J., Paaso, P., CIONE, J., et al. (2025) Development and validation of the Skyfora StreamSonde – A lightweight high frequency instrument to measure atmospheric soundings. *Journal of Atmospheric and Oceanic Technology*, 10.1175/JTECH-D-24-0054.1

Wadler, J. B., Villafane, L., CIONE, J., et al. (2025) What was the bumpiest flight ever on NOAA's WP-3D Hurricane Hunter aircraft?. *Bull. Amer. Meteor. Soc.*, 106, E849–E867, https://doi.org/10.1175/BAMS-D-24-0065.1.

ZHANG, X*.*, Tallapragada, V., Zhang, A., et al. (2025) Tropical cyclone modeling and prediction: advances in model development and its applications. *Front. Earth Sci.* 13:1615811. doi: 10.3389/feart.2025.1615811.