



NOAA's Atlantic Oceanographic
and Meteorological Laboratory
U.S. Department of Commerce

Strategic Plan 2022 - 2026

Oceanic and Atmospheric Research



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Letter from the Director

The Atlantic Oceanographic and Meteorological Laboratory (AOML) studies the Earth system, focusing on the Atlantic Ocean's role in climate change and the impacts of global changes on the Atlantic Ocean region. These changes impact extreme weather and ocean events, influencing the frequency of tropical storms and hurricanes and the chemistry of the ocean and its ecosystems. Americans and global citizens continue to see the impacts of rising sea levels, more frequent extreme weather events, and changing ocean currents on their physical and economic well being. Informing and combating these trends in the region, the nation, and globally requires effective planning and preparation informed by the latest atmosphere, ocean, and marine ecosystems research.

AOML works across NOAA, the broader weather enterprise, and the international scientific community to deliver data, assessments, insights, and models to decision makers and the public. AOML's portfolio of research spans atmospheric, ocean, and marine ecosystem disciplines—focusing on their interactions—to contribute to the understanding and prediction of climate, weather, and other environmental events. Our focus on the Atlantic Ocean region is critical to understanding broader impacts on the Earth system. Hurricanes, coral reefs, the Atlantic Meridional Overturning Circulation, ocean acidification, and fish migratory patterns are amongst science areas that will have wider impacts on the Earth system and regions beyond the Atlantic Ocean, so monitoring and assessing them is critically important.

In support of NOAA's mission of Science, Service, and Stewardship, AOML is dedicated to using its scientific research and understanding of the Atlantic Ocean ecosystem and the Earth system

as a whole to keep decision makers and the public informed and empowered with accessible, world-class research. Our unique combination of rich scientific expertise in these intersecting fields gives AOML the ability to shape the course of weather and climate understanding and preparedness, inform US policy and investments, and create a better world for future generations.

This strategic plan sets forth our vision and mission for FY 2022 through FY 2026, with goals and objectives to guide our progress towards the future. This strategy is written so that our goals and objectives can encompass a wide variety of global and regional topics, thus giving the lab the flexibility to focus on the most pressing and relevant science over time and the mandate to innovate for the future.

First and foremost, our people are the foundation of the lab's ability to innovate and discover. The success of all activities executed by AOML is driven by a diverse and forward-thinking workforce. Our collective expertise is what will allow AOML to observe the Earth system, assess and model impacts, and transition our research in support of NOAA's mission. Our strategy is critical to delivering timely and relevant atmospheric, ocean, and marine ecosystems knowledge to our stakeholders, and holding the lab accountable to the American people.

Sincerely

A handwritten signature in blue ink that reads "John Cortinas".

-John Cortinas



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WHO WE ARE

Our Vision:

Be the leader in Earth system research in the Atlantic Ocean region, providing trusted scientific data and knowledge to predict changes in weather, climate, oceans, and marine ecosystems.

Our Mission:

To conduct and transition world-class Earth system research, with a focus on the Atlantic Ocean region, to inform: the accurate forecasting of extreme weather and ocean phenomena, the management of marine resources, and an understanding of climate change and associated impacts, thereby improving ocean and weather services for the region, the nation, and the world.





WHO WE ARE

Our Lab:

AOML is a federal research laboratory in Miami, Florida. As part of NOAA's Oceanic and Atmospheric Research (OAR), we study hurricanes, extreme weather, marine ecosystems, ocean physics, ocean chemistry, ocean ecology, and climate change over time, with an emphasis on the Atlantic Ocean region. We work collaboratively with OAR laboratories and programs; NOAA offices; cooperative institutes and cooperative science centers; federal, state and local government; academia; industry; and international partners to support NOAA's mission and improve prediction and management services for the nation. We strive to build and maintain trust in the integrity and equity of our science and in our accountability to a diverse American population.

Our Research:

AOML's research portfolio encompasses hurricanes, extreme weather, ocean physics, ocean chemistry, and ocean ecology studies to deliver NOAA's mission by transferring Earth systems research into operations and applications. We focus on improving the prediction of tropical weather systems, learning about the ocean's role in climate and extreme weather events, and understanding the impacts on marine ecosystems of multiple stressors (e.g. ocean acidification, pollution, fishing, extreme weather), all with the primary aim of providing information to help protect the safety and quality of life of the American people. AOML leads many international efforts to maintain, optimize, and interpret global observations from ships, satellites, aircraft, drifting buoys, moored instruments, and floats. These observations—especially those that are concurrent between the atmosphere and ocean—are the foundation of what we do and support our understanding and prediction of weather and ocean from minutes to decades.

Our People:

AOML is dedicated to the empowerment of our current and future employees, creating an environment where they are able to contribute their talents and feel welcome, supported, and inspired to deliver the mission for AOML, OAR, and NOAA. We believe that the best results come from a diverse set of perspectives. We seek to attract and develop talent from all walks of life and career stages with different perspectives, experiences, and values.





AOML's Goals and Objectives



Empower Our Team

Create an inclusive and cutting-edge environment that fosters discovery, exploration, and success.



Observe the Earth System

Collect and evaluate ocean, atmosphere, and marine ecosystem observations that contribute to the body of scientific knowledge of the Atlantic Ocean region to improve the ability to better assess and predict the Earth system.



Assess and Model the Earth System

Understand the Earth system by creating accurate, predictive, high-fidelity models that characterize and assess change and predict future Atlantic Ocean regional and global outcomes.



Transition Our Research

Empower end users with research and knowledge that enables decision-making, drives outcomes for operational partners, and advances scientific knowledge.



Empower Our Team

1

GOAL

Create an inclusive and cutting-edge environment that fosters discovery, exploration, and success. AOML will emphasize a “One Team” perspective that empowers its scientists, managers, and support staff to deliver high-quality science expanding our knowledge of the atmosphere, ocean, and marine ecosystems. AOML will continue to focus on workforce initiatives that create the environment necessary for our team of world-class federal, university, and contract employees to make new discoveries, push boundaries, and extend horizons.

A Create opportunities for collaboration that drive discovery and innovation through cross-lab, inter-agency, external, and international teaming and partnering.

B Empower individuals and groups to pursue individual talent development, and honor the value our teammates’ unique skills and abilities contribute to AOML and its future.

C Champion a diverse workforce that values an array of talents and backgrounds, seeks diversity of perspective, ensures equity in all spaces, and supports NOAA’s Diversity and Inclusion (D&I) vision.

D Provide our workforce with cutting-edge technology and facilities that enable them to perform their duties effectively and efficiently.

E Identify, attract, and develop the next generation workforce that will deliver AOML’s future.

AOML’s world-class team of scientists, managers, and support staff make up its most important asset in securing the lab’s future; leveraging their diverse talents, experiences, and skills will remain at the forefront of the lab’s identity.



2

GOAL

Observe the Earth System

Collect and evaluate ocean, atmosphere, and marine ecosystem observations that contribute to the body of scientific knowledge of the Atlantic Ocean region to improve the ability to better assess and predict the Earth system. AOML will seek opportunities to assess, expand, and improve its observations and data collected across atmosphere, ocean, and marine ecosystems, focusing on the interactions that contribute to assessments and forecasts. AOML will explore the full breadth of the Atlantic Ocean region, identify where there are gaps in observations, and employ new techniques and partnerships to enhance its current research portfolio.

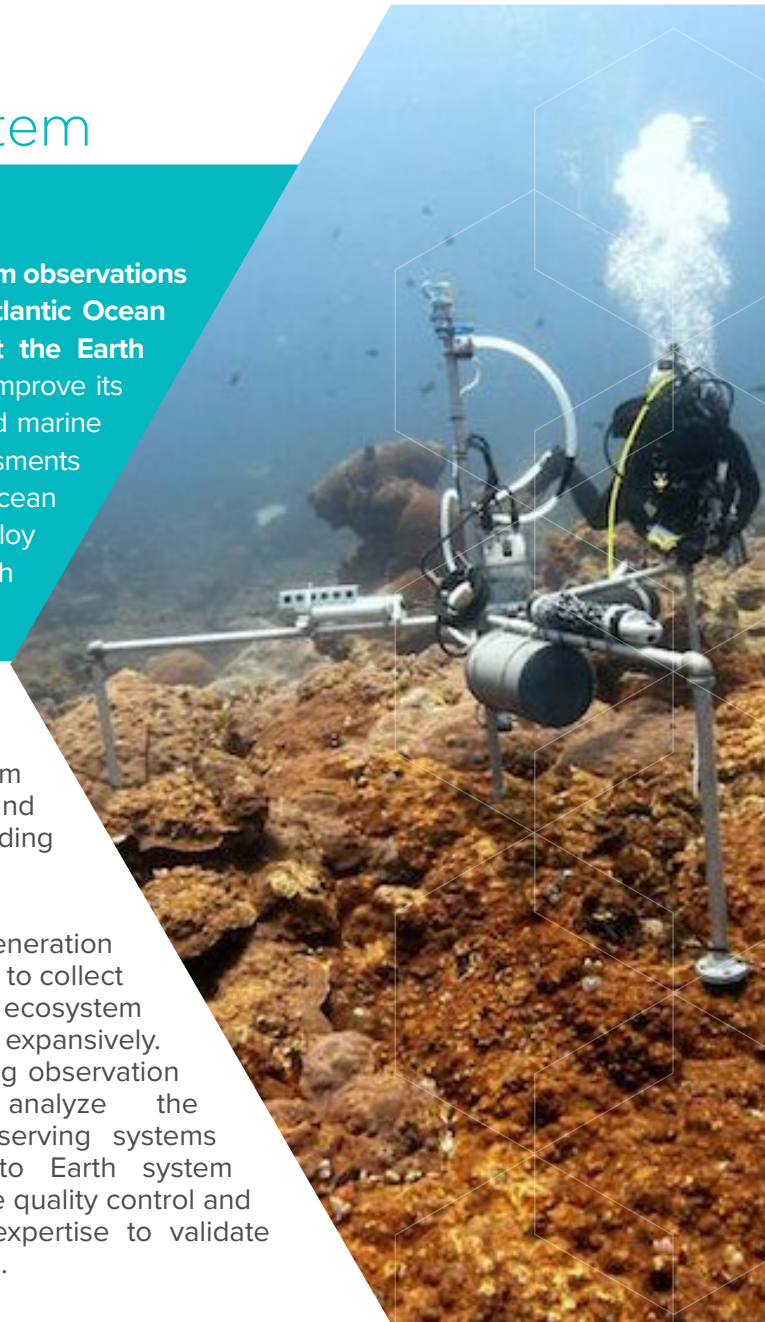
A Focus on the collection of targeted and long-term observations that detail the nexus of atmosphere, ocean, and marine ecosystem phenomena to improve our understanding of Earth system processes and enable better predictions.

B Identify and implement next generation technologies and approaches to collect co-located air, sea, and ecosystem data more efficiently and expansively. Test and deploy emerging observation technologies and analyze the impact of future observing systems on improvements to Earth system predictions. Provide quality control and active scientific expertise to validate new approaches.

C Expand the geographic reach of AOML's portfolio of observations to include a greater emphasis on the whole of the Atlantic Ocean region, increasing our ability to understand and characterize regional events, global linkages, and impacts on the nation.

D Seek opportunities to make AOML observational data available, accessible, and usable through a shared data repository for internal and external NOAA partners both domestically and internationally.

AOML's comprehensive observations and data on atmosphere, ocean, and marine ecosystems are critical to characterizing and predicting processes essential to NOAA's and the nation's understanding and forecasts of the dynamics of the Atlantic Ocean region, weather and climate events, and the Earth system as a whole.



Assess and Model the Earth System

3

GOAL

Understand the Earth system by creating accurate, predictive, high-fidelity models that characterize and assess change and predict future **Atlantic Ocean regional and global outcomes**. AOML will contribute to and improve NOAA operational models based on atmosphere, ocean, and marine ecosystem observations. We will incorporate AOML data into modeling efforts to increase understanding through improved prediction and forecasting of events in the Atlantic Ocean and in surrounding areas of high societal impact across both short and long timescales.

A Characterize and understand the processes and dynamics of the Earth system through the study of foundational atmospheric, ocean, and marine ecosystem interactions in order to advance regional and global predictive models.

B Contribute to assessments that will communicate new knowledge and create actionable information for socially and economically valuable areas across the Atlantic Ocean region.

C Promote and facilitate collaboration across the lab's science disciplines to improve understanding of short-term events and long-term climate impacts (e.g., inundation from hurricanes and impacts of sea-level rise on ecosystems) to create outlooks and forecasts that improve resource management decisions and community resilience.

D Expand and track AOML data assimilated into NOAA modeling efforts to understand and increase their impact on predictive outcomes. Seek new opportunities for AOML data and understanding of atmosphere, ocean, and marine ecosystem phenomena to contribute to improved Earth system models across NOAA.

E Unify AOML's modeling efforts into an interdisciplinary Earth system modeling approach that leverages AOML's atmosphere, ocean, and marine ecosystem expertise to accurately capture the interdependence of multi-way coupling.

Given the critical importance of NOAA's weather and climate analyses for the Atlantic Ocean region and the associated societal risks, AOML provides NOAA with the very best assessments and models based on cutting-edge, validated science.

4

GOAL

Transition Our Research

Empower end users with research and knowledge that enables decision-making, drives outcomes for operational partners, and advances scientific knowledge. AOML is committed to promoting and transitioning meaningful research that contributes to NOAA's operations, needs, and objectives and to communicate the value and utility of its findings. We will nurture the critical partnerships needed for successful transitions of appropriate research, to increase the overall efficiency of the transition process, to improve the ease of access to relevant scientific research, and to link research with applied knowledge in the Atlantic Ocean region and the world.

A

Define, implement, and utilize a documented, simplified, and flexible transition process that enables ease of access to information and findings and supports the frequent transition of research to operational partners and the scientific community.

B

Work alongside operational partners to understand their needs, strive to better support their objectives, and ultimately deliver tools and products that meet their expectations.

B

Effectively and efficiently communicate AOML research findings and data through peer-reviewed publications and other broad engagement methods to ensure accessibility to wide and diverse audiences.

C

Track the impact of AOML research, insights, and transitions on users and partners to create a deeper understanding of the role and value of the lab's work and the usefulness of the transition process.

AOML is uniquely capable and positioned to improve the knowledge base and decision making related to the Atlantic Ocean and Earth system by ensuring effective transition of appropriate and meaningful scientific data and products into the hands of researchers, decision makers, and the American people.



NEXT STEPS



Our leadership and workforce are driven to deliver research and scientific advancement to the community and to our partners, both those internal and external to NOAA. In support of this, AOML is committed to measuring success and implementing this strategic plan over the FY 2022 – FY 2026 period. This plan is intended as a first step and call to action to better synchronize the components of AOML in achieving our vision and mission. It should guide existing and new programs and drive conversation and collaboration across the lab and with its partners.

Subsequent steps to implement the strategic plan will require all components across AOML to draw upon their unique knowledge and capabilities and seek out opportunities to collaborate on shared priorities. To further support this effort, each goal and objective will be linked to implementation actions and monitored to ensure progress and accountability.

When successful, our research, activities, and investments will represent a coherent portfolio in pursuit of our strategic direction and for the benefit of the American public and the world.