

Project Readiness Level (RL) Report for AOML Lab Review

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Project Title	Current RL
2021 State of The Climate Report AOML & PMEL Oceans Chapter Co-Author Contribution	RL9
2020 State of The Climate Report AOML & PMEL Oceans Chapter Co-Author	RL9
Commercial Weather Data Numerical Weather Prediction Data Assimilation Optimization	RL9
Accelerating Research and Developments of the Hurricane Analysis and Forecast System Version 2	RL9
2022 State of The Climate Report AOML & PMEL Oceans Chapter Co-Author Contribution	RL9
AOML Contribution to the Hurricane Analysis and Forecast System's Initial Operational Capability	RL9
2024 Commercial Weather Data Numerical Weather Prediction Data Assimilation Optimization	RL9
2023 State of The Climate Report AOML & PMEL Oceans Chapter Co-Author Contribution	RL9
FY22 State of the Climate: Quarterly Reports of the Meridional Heat Transport in the Atlantic Ocean	RL9
FY23 Quarterly Reports of the Meridional Heat Transport in the Atlantic Ocean	RL9
FY24 Quarterly Reports of the Meridional Heat Transport in the Atlantic Ocean - Module 4	RL9
AOML Contribution to CPCs Operational Sub-Basin Seasonal TC Outlook (Module 2a - Knowledge Transfer)	RL9
AOML Contribution to CPCs Operational Basin-Wide Tropical Cyclone Outlook (Module 1 - Knowledge Transfer)	RL9
2024 AOML Contribution to the NOAA Glider Fleet for Tropical Cyclone Forecast Improvements - Module 2	RL9
Evaluation of the 3G ESP LRAUV to Provide Autonomous 'Omics Capacity in Ocean Environments (Module 2)	RL9
Evaluation of the 3G ESP LRAUV to Provide Autonomous 'Omics Capacity in Great Lakes Environments (Module 3)	RL9
Development of a Surface Plasmon Resonance Sensor Chip to Detect Microcystis Toxin (Microcystin) to Build Autonomous 'Omics Capacity (Module 4)	RL9
2017-2023 AOML Contribution to the NOAA Glider Fleet for Tropical Cyclone Forecast Improvements - Module 1	RL9
FY21 State of the Climate: Quarterly Reports of the Meridional Heat Transport in the Atlantic Ocean	RL9
AOML Contribution to the CPC Operational Seasonal Hurricane Outlook - Basin-Wide Tropical Cyclone Activity (Module 2b - R2O)	RL8
2025 AOML Contribution to the NOAA Glider Fleet for Tropical Cyclone Forecast Improvements - Module 3	RL8
Optimization of COSMIC-2 Radio Occultation Impacts through Data Assimilation Software Improvements	RL8
Real-Time Dissemination of Hurricane Observations from Airborne GPS Dropwindsondes	RL8
Annual Atlantic Hurricane Season May Outlook	RL8
Atlantic Hurricane Season Outlook August Update	RL8
AOML U.S. Argo Program - Global Observations for Understanding and Prediction of Climate Variability	RL8

AOML CWOW Atlantic Node (OceanWatch)	RL8
AOML XBT Network	RL8
AOML Southwest Atlantic Meridional Overturning Circulation (SAM)	RL8
AOML Surface Drifter Program	RL8
AOML Western Boundary Time Series in the Atlantic Ocean	RL8
AOML PIRATA Northeast Extension	RL8
AOML Deep Argo	RL8
Real-Time Dissemination of Hurricane Wind Fields Determined from Airborne Doppler Radar Data	RL8
Use of Small Uncrewed Aircraft Data in AWIPS-II for National Hurricane Center Tropical Cyclone Situational Awareness (Volume 2 of Umbrella Project #20511)	RL7
Volume 1-B AOML-NHC Uncrewed Observations of the Upper Ocean and Near-Surface Atmosphere for Improved National Hurricane Center Analysis	RL7
Developing an operational Sargassum Harmful Algal Bloom monitoring and forecasting system for the southeastern US and US Caribbean waters	RL7
Air-Deployed sUAS and StreamSonde Measurements of Turbulence in the High Wind Tropical Cyclone Surface Layer - Volume 1C of Umbrella (#20511)	RL7
A Catastrophe Model for Assessing Wind and Flood Hazard Risk for Florida	RL7
NOAA's Globally Operational Surface Ocean CO2 Observing Network (SOCNET)	RL7
Using Biogeochemical-Argo to Monitor Ocean Health in the Gulf of Mexico	RL7
Barataria Basin IEA	RL7
Juvenile Sportfish Monitoring in Florida Bay	RL7
Utilization of Andural Altius 600 to Enhance Thermodynamic and Kinematic Observations in the Tropical Cyclone Boundary Layer (Volume 1A of Umbrella Project #20511)	RL7
Utilization of Black Swift Technologies S0 to Enhance Thermodynamic and Kinematic Observations in the Tropical Cyclone Boundary Layer (Volume 1B of Umbrella Project #20511)	RL7
Sargassum Inundation Reports	RL7
AOML Contribution to: Integration of a Fully Functional Atmospheric UFS-HAFS into JEDI with Weakly Coupled Ocean Data Assimilation Capability	RL6
Research to Operation Transition of Hurricane sUAS	RL6
Coupling the Next-Generation Ocean Model for HAFS	RL6
Vector Autoregressive Spatiotemporal (VAST) Modeling in Support of the Assessment of Effects on Aquatic Resources for the Proposed Mid-Breton Sediment Diversion	RL6
sUAS Data Assimilation Capability and Enhancement of the Existing Coupled TC Forecast Modeling System (Volume 3 of Umbrella Project #20511)	RL6
Characterizing the biodiversity and variability of the biological carbon pump in the Northern Gulf of Mexico	RL6

Integrated Ecosystem Assessments for Atlantic and Gulf of Mexico NMS	RL5
The Impact of Targeted Synoptic Dropsondes on Tropical Cyclone Forecasts in HAFS	RL5
AOML Contribution to Real-time Visualization and Interpretation of the Hurricane Wind Structure and Intensity: From Flight Level to the Surface	RL5
AOML Contribution to Forecaster Support Products for Analysis of Tropical Cyclone Intensity and Structure from Aircraft Reconnaissance Observations	RL5
2024 State of The Climate Report AOML & PMEL Oceans Chapter Co-Author Contribution	RL5
Tropical Atlantic Current Observations Study (TACOS)	RL5
GOMO-AOML: Ocean Carbon Inventories and Fluxes	RL5
Assessing Coastal Water Quality for FKNMS and Everglades Restoration	RL5
Develop a prototype Hazardous Weather Testbed experiment focused on products and services associated with a landfalling tropical cyclone	RL5
Advancing seasonal outlooks of landfalling hurricanes for the U.S. Atlantic and Gulf Coasts - Base Project	RL4
AOML Omics Analysis in Support of the NOAA Mussel Watch 2020 Southeast Project	RL4
Development of IOLA- Indian Ocean-Land-Atmosphere Coupled mesoscale prediction System for ocean state and coastal hazards over the Indian region (Monsoon Mission 3)	RL4
AOML Contribution to Building a Comprehensive Capability in HAFS/JEDI to Assimilate All Available Tropical Cyclone Aircraft Observations	RL4
AOML Contribution to a Scale-Aware Three-Dimensional Sub-Grid Scale Turbulent Mixing Parameterization for the Hurricane Analysis and Forecast System	RL4
Application of Machine Learning Techniques to the Automated Quality Control of Airborne Doppler Radar Data Used in Operational Analysis of Hurricane Winds and Reflectivity	RL4
Investigating interactions between the tropical cyclone inner core and near environment and their impacts on intensity change (TCRI) and the evolution of the tropical marine boundary layer across transitional boundaries of African easterly waves and the S	RL4
Use of Dragoon sUAS to Enhance Thermodynamic and Kinematic Observations in the Tropical Cyclone Boundary Layer (Volume 1D of Umbrella Project #20511)	RL4
Development of a surface water CO2 reference network SOCONET	RL4
Global ocean genomic observatories to support NGI and NOAA missions	RL4
AOML Contribution to CPCs Operational Landfalling/Regionalized Seasonal TC Outlook (Module 3a - Knowledge Transfer)	RL4
AOML Contribution to CPCs Operational Seasonal Sub-Basin Tropical Cyclone Outlook (Module 3b - R2O)	RL4
AOML Contribution to CPCs Operational Landfalling/Regionalized Seasonal Tropical Cyclone Outlook (Module 4 - R2O)	RL4
AOML's Contribution to Operational Implementation of the Hurricane Analysis and Forecast System Version 3	RL4
Development of the 3G ESP SeaTrac to demonstrate potential use of autonomous eDNA measurements in the Great Lakes (Module 5)	RL4
AOML Reef Acidification Experimentation (AOML FY24-FY26)	RL4

Volume 1-A AOML-EMC Uncrewed observations of the upper ocean and near-surface atmosphere for improved hurricane intensity prediction	RL4
Development and Initial Testing of an Autonomous eDNA Sample Acquisition and Preservation System Using an AUV (Module 1)	RL4
Assessment of Emerging Technology Platforms to Improve Resolution of Tropical Cyclone Wind Observations (Umbrella)	RL4
AOML Development of NOAA Seasonal Severe Weather (SSW) outlook for the US	RL4
Identification of SCTLD Pathogen through Flow Cytometry & High Throughput Sequencing	RL3
GOFFISH Consortium - AOML Contribution	RL3
Toward building a subseasonal-to-seasonal red tide and hypoxia warning system for the West Florida Shelf fisheries: Part I. hindcast simulations and validation	RL3
Hurricane glider observations and data impact studies in support of hurricane intensity forecasts	RL3
Intercalibrating Aircraft Wind Observations to Statistically Consistent 1-minute Sustained Winds for Improved Analysis of TC Intensity and Structure	RL3
Tropical Cyclone Wind Gust Guidance for National Weather Service Operations	RL3
Probabilistic Forecast of Tropical Cyclone-Driven Extreme Wave Heights	RL3
Innovative analysis of deep and abyssal temperatures from bottom- moored instruments	RL3
AOML-NGI South Florida Water Quality Data Analysis: Phase 2	RL3
Enhancing subseasonal severe weather predictions through the variable-resolution UFS - AOML contribution	RL3
Improving Wind Speed and Rain Rate Estimates from the SFMR	RL2
Attribution of past present and future sea-level changes along the United States east seaboard for Infrastructure Investment and Jobs (Act IIIJA)	RL2
Global eDNA partnerships supporting Atlantic and global biodiversity monitoring	RL2
Merging eDNA observations with concurrent satellite remote sensing data and plankton imagery to support biodiversity monitoring	RL2
Assessing refugia potential of marginal and urban reef corals in southeast Florida with population genetics	RL2
Microbial indicators of stony coral tissue loss disease (SCTLD) exposure in corals and associated fomites	RL2
Effects of local and global stressors on Orbicella faveolata susceptibility to SCTLD	RL2
Monitoring Mission Iconic Reefs Restoration using eDNA with SAs	RL2
Modeling ocean biogeochemical patterns in the Southeast U.S. Coast, Gulf of Mexico, and Caribbean Sea	RL2
Assessing the use of XBT/XCTD observations to investigate the link between barrier layers and hurricane intensity changes	RL2
Developing a more resilient Southwest Atlantic Meridional overturning circulation (SAM) array	RL2
Sustained monitoring and analysis of western boundary currents in the subtropical North Atlantic	RL2
Characterizing and forecasting coastal ecosystem responses to multiple stressors for management applications in South Florida	RL2
Unique Turbulence Dynamics in Hurricane Boundary Layers and Improving Their Parameterizations in Numerical Weather Prediction Models	RL2
Leveraging Transfer Learning on GraphCast to Improve GFS Forecasts	RL2

Supporting Decision Making for designating new National Marine Sanctuaries: an Integrated Ecosystem Assessment approach	RL2
Development of protocols for biomonitoring Mission Iconic Reefs using eDNA	RL2
Reefs on the Edge Molecular Insights from Corals in Extreme Environments	RL2
Resilience. Molecular mechanisms behind AOML's CRCP Restoration Pillar.	RL2
Environmental DNA Enhancement of Fisheries Independent Monitoring Cruises for Ecosystem Based Fisheries Management	RL2
Omics Testing to Address Stakeholder Concerns: Potential Co-occurrence of Pathogens with Red Tide	RL2
Assessment of Water Quality and Habitat Conditions in the Coral Gables Waterway to Inform Management and Restoration	RL2
Port Everglades Ecosystem Response Study	RL2
Asymmetric influences of the Pacific and Atlantic Oceans on the decadal drought frequency in the southeast U.S.A	RL2
Total	Count 115
