



CARICOOS

CARIBBEAN COASTAL OCEAN OBSERVING SYSTEM

NOAA-AOML – U.S. NAVY – CARICOOS Hurricane Underwater Gliders Operations

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Performance Period: December 1, 2019 – May 31, 2020

LONG-TERM GOALS

Our long-term goal is to continue the collaborative efforts with NOAA/AOML and U.S. Navy by assisting with the operational component of the project (deployments, recoveries, piloting, and refurbishment) of the underwater gliders. The gliders deployed during the 2019 hurricane season carried out upper ocean observations of temperature and salinity in support of hurricane intensity (intensification and weakening) studies towards improving operational forecasts.

MILESTONES / OBJECTIVES

MILESTONE / TASK	Q1	Q2	Q3	Q4	EXPECTED COMPLETION DATE	CURRENT STATUS	NOTES
MONITORING UPPER OCEAN PROPERTIES AND CLIMATE VARIABILITY							
Deployment and retrieval of NOAA-AOML and U.S. Navy gliders					November 2019	Completed	
Secure and equip a facility to operate as a glider maintenance, storage, and ops center					May 2020	Delayed	Delayed due to major earthquake and COVID-19 lockdown
Shipment of NOAA/AOML and US Navy gliders to the manufacturer or owner for an extensive checkout (i.e., internal/external sensors checks)					March 2020	Completed	
Seaglider refurbishment and piloting training sessions at CARICOOS-UPRM facilities.					May 2020	Delayed	Delays in the shipping of internal sensors (SeaBird CT sail and Kongsberg VBS) due to the ongoing coronavirus outbreak.

WORK COMPLETED

February 3, 2020

One underwater glider was shipped to the manufacture, Kongsberg, for repair electronics damaged during the last mission.

February 11-12, 2020

- Technical training on how to refurbish the equipment was provided by NOAA-AOML personnel to members of CARICOOS in February 2020 in Puerto Rico. During the



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training, personnel participating noticed that the SeaGlider (SG664) endcap was leaking oil, therefore it was removed and sent to the manufacturer for repair (on February 19, 2020).

March 6, 2020

- U.S. Navy gliders (NG278 and NG231) were shipped to Stennis Space Center, MS.

April, 2020

- The purchase order for CARICOOS Hydroid SeaGlider has been issued. The shipping date for the new equipment has been delayed due to the restrictions related to COVID-19 outbreak.

MAJOR OUTCOMES

- The 8 gliders deployed in the US Caribbean waters (5 NOAA-AOML and 2 U.S. Navy) and the Dominican Republic EEZ (1 NOAA-AOML) during the 2019 hurricane season successfully measured subsurface ocean properties in the Caribbean Sea and tropical North Atlantic Ocean.
- NOAA-AOML SeaGlider (SG665) managed to get upper layer salinity and temperature data of hurricane Dorian as it passed over the equipment.
- U.S. Navy glider (NG282) was lost just off the coast of La Parguera, Lajas, Puerto Rico. The glider had communication issues.
- Glider based data have been used to evaluate the performance of current and experimental numerical models simulating the upper ocean temperature and salinity structure as well as mesoscale processes.

CHANGES/PROBLEMS

Due to the coronavirus outbreak, the following milestones/tasks have been delayed:

- Equip CARICOOS glider operation center for the operation, maintenance and storage of underwater gliders.
- Refurbish the NOAA-AOML seagliders safely stored in CARICOOS glider operation center.

WORK PLAN FOR UPCOMING PERFORMANCE PERIOD (January 1, 2020 – May 31, 2020)

- Together with NOAA/AOML and U.S. Navy, CARICOOS personnel will coordinate and execute the deployments and recoveries of six (8) gliders in the US Caribbean waters (Puerto Rico and US Virgin Islands) and two (2) in the Dominican Republic EEZ.
- CARICOOS personnel will complete the refurbishment of four underwater gliders to prepare them for the 2020 Atlantic hurricane. The refurbishment will involve the replacement of batteries, compass calibration and ballasting.