



CARICOOS

CARIBBEAN COASTAL OCEAN OBSERVING SYSTEM

Facilitating CARICOOS Goals and Activities for Coastal Ocean Observing in the US Virgin Islands

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LONG-TERM GOALS

Facilitating CARICOOS goals and activities for coastal ocean observing in the US Virgin Islands while promoting understanding and maximum participation of USVI principals in all aspects of ocean, atmosphere and coastal observing and devising specialized approaches (technological, educational and managerial) to address local needs.

MILESTONES / OBJECTIVES

In accordance with the Scope of Work approved for inclusion under CARICOOS grant # NA16NOS0120026, the following categories of service cover the objectives intended for primary focus during this performance period: (1) Extending education and outreach to the community with emphasis on educating the public more thoroughly, developing more local expertise such as can support ocean observation, and on providing access to CARICOOS information and observations during the hurricanes [Education & Outreach]; (2) Monitoring the functionality of observational assets and assisting in their restoration [Restoring Assets]; (3) Facilitating stakeholder use of buoys and observational assets and addressing their unmet information needs [Facilitating Use of Assets]; and (4) Applying new technology to match stakeholders needs and new frontiers in the IOOS mission [Technology Advancement].

In addition, OCOVI commits to assisting CARICOOS Headquarters in interacting with local, regional and federal interactions as well as international neighbors and in facilitating governance when requested.

WORK COMPLETED

Education & Outreach

- Completed YouTube Video on the 2019 Hurricane Glider project [See below];
- Secured training opportunities for OCOVI staff, student interns and stakeholders as follows: Rutgers COOL Summer AUV Glider Camp; Ad hoc Training by Teledyne Marine in technology of *Silbo* Slocum glider; NOAA-AOML glider workshop and OCOVI-led training on assembly and operation of mini-ROVs;

- Assisted collaborators, such as UVI's Virgin Islands Marine Advisory Service in providing training and experience opportunities for youth;
- Provided subject matter expertise for programs for coastal hazard awareness and responding to the USVI community's request for knowledge and data, through discussions and presentations and through OCOVI's web and Facebook pages and through publications and poster presentations at national and local conferences. (See OCOVI web page, www.ocovi.org, for listing).
- Extended awareness of ocean observing skills and appreciations by engaging more schools and clubs in OCOVI's Hands-on ROV program with focus on investigations for advanced youth and on assembly and piloting for pre-secondary youth;
- Delivered the CARICOOS message to relevantly focused organizations such as the U.S. Drought Monitor and the Southeast & Caribbean Regional Collaboration Team;
- Initiated planning for broadening outreach and education activities that simultaneously provide useful observations in collaboration with new partners such as the Sea Grant's Virgin Islands Marine Advisory Service and Coral World marine park, where providing useful observations will be linked to public education.

Restoring Assets

- Surveyed all CARICOOS assets for damage in the wake of Hurricane Dorian;
- Conducted unscheduled repairs on Weatherflow® meteorological station at Mountain Top, St. Thomas;
- Continued addressing the queries of stakeholders (fishers and recreational sailors) about the "St. Thomas Buoy" (NDBC # 41052) through the period of its disablement and subsequent return to service.

Facilitating Use of Assets

- Continued to inform the public about the availability of CARICOOS information and services through public exhibits, the OCOVI web page serving as a portal to CARICOOS.org, and by personal outreach to stakeholders;
- Continued to address stakeholders requests for easier access to CARICOOS online information and also historical databases;
- Addressed stakeholders requests for deployment of additional assets, such as current measuring buoy for St. Croix's northern coast or meteorological stations on eastern St. John and eastern St. Croix (OCOVI's approach has been to encourage synergistic use of existing platforms and/or identify third-party funding sources).

Technology Advancement

- Secured 6 month lease from the West Indian Company and secured funds for preparing warehouse space for an AUV glider warehouse/operating center near the dock at the Havensight Mall;
- Secured five Trident model mini-ROVs for both educational and investigative use;

- Secured approval and a draft lease from USVI Department of Property and Procurement for locating a CARICOOS high-frequency station on Government controlled property on Water Island;
- Secured drawings for HFR installation;
- Addressed design needs for the platform of Spotter® wave buoy to address visibility and collision-avoidance issues.

MAJOR OUTCOMES

- A substantial data base has been created by the 2019 hurricane glider exercises;
- A significant number of UVI staff, OCOVI student interns and others have been trained in AUV glider technology and operations;
- A high-quality video, prepared for YouTube and elsewhere, is now available to educate about and publicize hurricane glider operations in the USVI;
- A physical facility now exists for glider operations in the region;
- Three students are poised to benefit from the Vembu Subramanian Award;
- New useful relationships are now established -- with Rutgers University and NOAA-AOML and with certain agencies in the British Virgin Islands and Anguilla.

RELATED PROJECTS

- OCOVI is facilitating CARICOOS goals with respect to outreach to non-US neighboring countries, in particular by engaging the British Virgin Islands and Anguilla in AUV glider missions (for which international permits were requested and received.)
- OCOVI supports UVI researchers (as stakeholders) by offering collaborations to utilize CARICOOS data and services and to apply ocean observing assets to UVI research and educational activities;
- OCOVI continues to support UVI-CARICOOS in its completion of its mission projects such as the Crown Bay current meter and meteorological observations station.
- OCOVI invited Teledyne Marine to inform UVI students and OCOVI personnel about the technical particulars of the mission and recovery of its trans-Atlantic AUV named *Silbo*.

WORK PLAN FOR UPCOMING PERFORMANCE PERIOD (December 1, 2019 – May 30, 2020)

- Developing ocean obs related human resources -- Continue publicizing, recruiting, training and otherwise addressing the insufficiency of human resource necessary to pursue and achieve IOOS, CARICOOS and OCOVI objectives in the USVI;
- Finalize Environmental Assessment Report for the mooring of the Spoodrift® wave buoy to cover Hull and Magens Bays with deployment of this Wave buoy by March 1, 2020;



- Planning for 2020 season of AUV glider deployments on hurricane intensification studies – through May 2020;
- Return the remaining disabled CARICOOS WeatherFlow® station(s) to full service – by February 27, 2020;
- Resume Hands-on ROV activities with old and new stakeholders – starting with issuance of ROV assets to St. Croix Central High School and UVI undergraduate Oceanography class – by March 1, 2020;
- Continue advancing partnerships with Rutgers University, NOAA-AOML, CARICOOS Headquarters, and others to extend Hurricane Glider methodology to climate studies and other ocean-observational purposes;
- Preparing a proposal to go before the 33rd Virgin Islands Legislature for its approval of USVI Department of Property and Procurement's lease to OCOVI to allow Government controlled property on Water Island for emplacing a CARICOOS high-frequency station (February 2020);
- Final installation of HF Radar on Water Island – by March 1, 2020
- Resume negotiations for the CARICOOS-Coral World Observational Functional Exhibit – anticipating facilities planning and formal agreements completed by May 1, 2020;

REFERENCES

- OCOVI web page: <http://www.ocovi.org>
- Camp Umoja's web page: <http://climatechangevi.org/our-projects/>

PUBLICATIONS & PRODUCTS

Meiling, Sonora, Coral Disease continues spreading across St. Thomas Reefs, **Latest Updates**, OCOVI web page, <http://ocovi.azurewebsites.net/documents/coral-sickness-191115B.pdf>, November 2019.

Mele, Daniel, OCOVI Hurricane Gliders in 2019, **YouTube**: https://www.youtube.com/watch?v=ZruURL_JfRgM, November 2019.

Townsend, Joseph, New major disease strikes St. Thomas corals, **Latest Updates**, OCOVI web page, [http://ocovi.azurewebsites.net/documents/SCTLD_OCOVI_D2_Townsend%20Fin\[2923\].pdf](http://ocovi.azurewebsites.net/documents/SCTLD_OCOVI_D2_Townsend%20Fin[2923].pdf), September 2019.

Wilson, W. Douglas, Anegada Passage CHALLENGER International Glider Mission 2019, **Mission Report**, OCOVI web page: http://ocovi.azurewebsites.net/documents/ru29_update_2019-11-12.pdf, November 2019.

Wilson, W. Douglas, *et al.*, International Hurricane Glider Missions in the Virgin Islands, Poster under development for **Oceanology International**, March 2020.