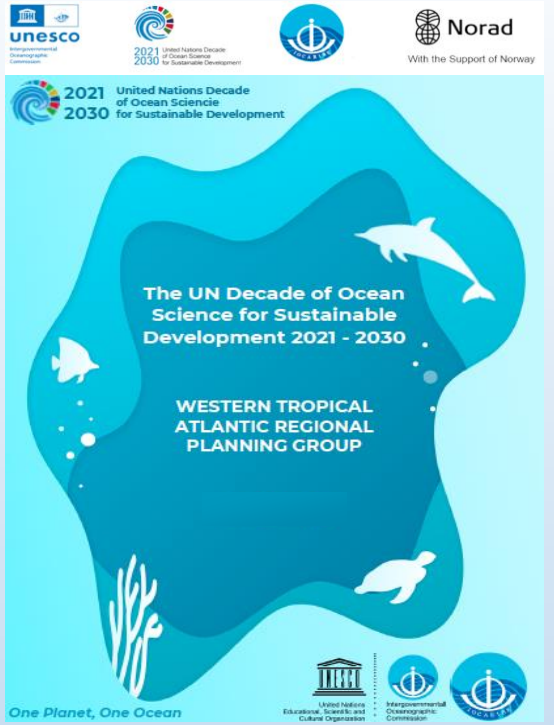
An Ocean Observing and Forecasting System for the Tropical Americas and Caribbean Region

Doug Wilson



A REGIONAL PLANNING GROUP was formed, an initial workshop was held (November 2020), and during July – October 2021, seven regional co-design workshops were held with OCEAN DECADE OUTCOME themes.

A PREDICTED OCEAN workshop was held in September 2021 as part of the workshop series.

A regional Ocean Decade Kickoff Conference summarizing the workshops and suggesting ways forward was held in December 2021.

Included in the Conference Recommendations – Essential Infrastructure WG - was the statement that ***"Ocean observations, data management, analysis, models and products, are foundational to our approach to sustainable development."***

Based on Workshop's co-designed outcomes, Kickoff Conference discussions, and in consultation with the Regional Planning Group, it was recommended to submit a proposal for an Ocean Decade Action in support of ***An Ocean Observing and Forecasting System for the Tropical Americas and Caribbean Region.***

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The Action was endorsed by the UN Ocean Decade Coordination Unit in September 2022.

The Action is intended to provide a roadmap to a Regional System that meets the operational ocean observing goals of IOCARIBE-GOOS, while considering

- Suggestions and ideas from Workshop participants
- Advancements in observing system expansion, capabilities, and interest within the region
- Evolution of the Global Ocean Observing System and associated Programs
- Advances in Ocean Observing technology, methods, and best practices
- Lessons learned from the previous IOCARIBE-GOOS experience
- Opportunities to collaborate with other UN Decade activities

“During preliminary workshops among constituents in the Tropical Americas and Caribbean (TAC), the need was expressed for the co-design and operation of a sustained integrated ocean observation and forecasting system for the region that will provide essential information for the sustainable development, well-being, prosperity and safety of the region’s oceans. The system will be in alignment with the GOOS 2030 Strategy, using a Value Chain approach, connecting OBSERVATIONS through DATA MANAGEMENT for use in ANALYSES and MODELS to create APPLICATIONS.”

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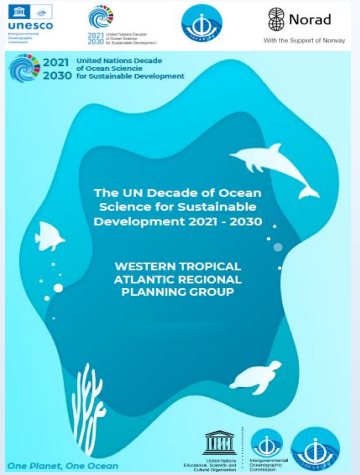

Proposed next steps:

- Form a management and advisory structure based on recommendations of 2020-2021 regional co-design workshops, a preliminary group of experts and representatives of organizations as a Technical Observing Council advise on establishing the Initial Observing and Forecasting System Framework that is the first priority TAC-OOFS activity.

- ***Technical Observing Council*** will work regionally along with UN Decade and GOOS Programmes to develop a long-term system governance and management framework and an initial Strategic Plan.

- Framework structure will be composed of both national and organizational decision-makers; groups of regional and non-regional experts on observations, modeling and forecasting, products, and data management activities.

A high priority will be the promotion of data and product sharing and reciprocal data collection agreements associated with membership in the System, with a task team specifically assigned to this aspect.

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- Develop initial tasks (and corresponding task teams as required) including outlining initial projects of importance, strategy for their implementation, and funding sources for initial and long-term sustainability of the Project.

- Design and Implementation of a representative 'skeleton' demonstration System, using existing assets and filling gaps as necessary, that demonstrates multiple aspects of the system (including data and knowledge sharing), targets Essential Ocean Variables, links to other regional projects, and creates a framework for expansion.

- Support the co-design of National Observing and Forecasting Systems along GOOS principles.

- Accomplish the integration of related Decade Programs into the TAC-OOFS implementation framework.

- Promote data and product sharing and reciprocal data collection agreements associated with membership in the System.

- Create a robust program of capacity building and training to enable sustainable National Systems and contribute to the success of the Regional System.

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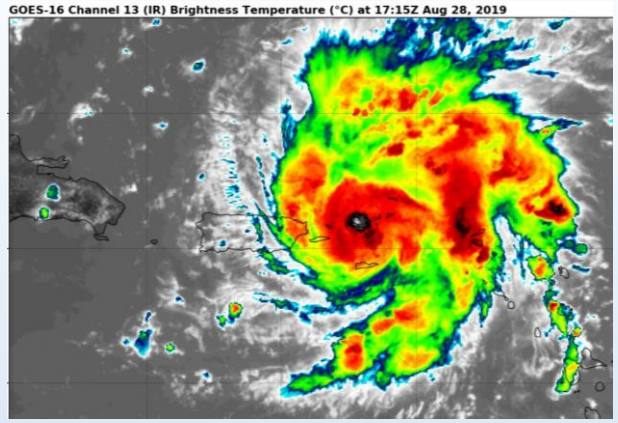

Dorian forms over St. Thomas, USVI, August 2019

The Observing Council will consider existing and potential observation networks, modeling and forecasting groups, information and data management entities and specialists, to develop an Initial Observing and Forecasting System Framework that can be quickly established.

Recommended participants in this Initial System:
* Denotes 'existing regional networks'

* CARICOOS
* GCOOS
* CoastPredict
* CIMH
* NOAA Gobal Ocean Monitoring and Observing (GOMO)
NOAA Atlantic Oceanographic and Meteorological Laboratory
* Colombia (CIOH)
* Brazil
* CICESE (MX)

[Other National Observing Systems]
    Cuba
    FR, UK, NED representatives in the Caribbean
* WMO
 * Global/Regional Ocean, atmosphere, climate modelers
    US NOAA
    US Navy
    ECOFS
    CIMH
    Copernicus
* JCOMM OCEAN OPS

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The Initial System will aggregate, integrate, and deliver a range of useful data and products that –

- Are of use to a range of stakeholders,
- Can be used to build and support smaller scale regional and local observing systems
- Can be used to grow ocean observing and forecasting capacity

Using a value chain approach, the Observing Council will

- Identify gaps in the network and how they may be addressed
- Share experiences, lessons learned, best practices
- Form a task team to carry out capacity building, outreach, and education activities including communication, social science and ocean literacy within the region.

A high priority will be the promotion of data and product sharing and reciprocal data collection agreements associated with membership in the System, including ways to collectively facilitate domestic marine scientific research clearances for instrument deployments, with a task team specifically assigned to this aspect.

Building an initial **TAC** Regional **O**cean **O**bserving and **F**orecasting System (1)

The task is to establish a framework that quickly delivers useful **OOF** products, is easily expandable, and forms the basis for an inclusive, sustainable IOCARIBE-GOOS.

Please provide thoughts on the following – actionable suggestions with details are always the most welcome.

1. What are the most important capabilities **for the framework system?**
   [Add / Rank / Comment / Expand]

   a. A widely available web-based system for product delivery and visualization
   b. A data intake system to facilitate contributions
   c. Access to data through easy / common methods
   d. Access to visualizations and output from multiple (regional, subregional, local) dynamic models and forecasts.
   e. Access to visualizations and output from multiple (regional, subregional, local) existing observing platforms and systems (in situ, satellite/remote sensing)
   f. Other…

   Please expand on these, and for 1d and 1e please provide specific examples of desired data sets and models to include.

Building an initial **TAC** Regional **O**cean **O**bserving and **F**orecasting System (2)

2. What are the most important activities to accompany development of **the framework system?** [Add / Rank]

- Outreach on product usage
- Outreach on ocean observing to contribute to system
- Needs assessments
- Co-designed initial product suite
- Other…

How should these activities be carried out?

3. What initial regionwide new or enhanced systems or programs might be considered ?

Consider value, cost, potential funding availability. [Add to list]

- Regionwide glider and upper ocean observations for hurricane forecast improvement (GOOS Co-Design Tropical Cyclone Exemplar)
- Sargassum forecasting
- Other…

Building an initial **TAC** Regional **O**cean **O**bserving and **F**orecasting System (3)

4. What ongoing Ocean Decade activities can contribute? [add to list]
   What is their contribution? How do we engage and integrate them?

- Coastpredict
- Regional Coastal Hazards Early Warning System
- Other…

- IF you had order of $100,000 – $500,000 to spend on implementing an initial OOFS, what would be your recommended priorities.

6. We are suggesting an Ocean Observing Council to oversee/manage the operational Observing and
   Forecasting System .
   What role do you see yourself playing in this council?
   What can your organization / agency offer (assuming available appropriate support)?

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