

# 18<sup>th</sup> SESSION IOCARIBE



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Intergovernmental  
Oceanographic  
Commission

Sub-Commission for the Caribbean  
and Adjacent Regions

Subcomisión para el Caribe y  
Regiones Adyacentes

## IOCARIBE-GOOS

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**Brasilia, Brazil**  
**April 23-25, 2025**

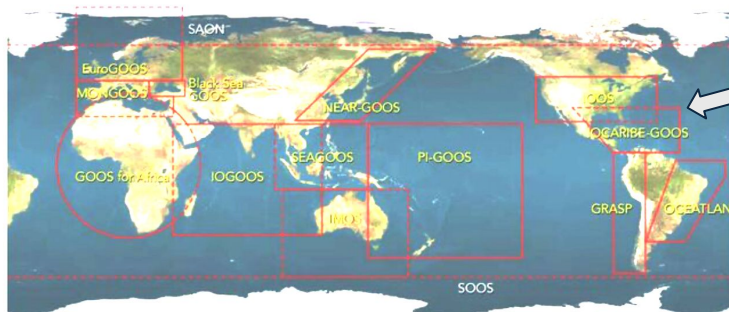
# IOCARIBE-GOOS



The Global Ocean Observing System

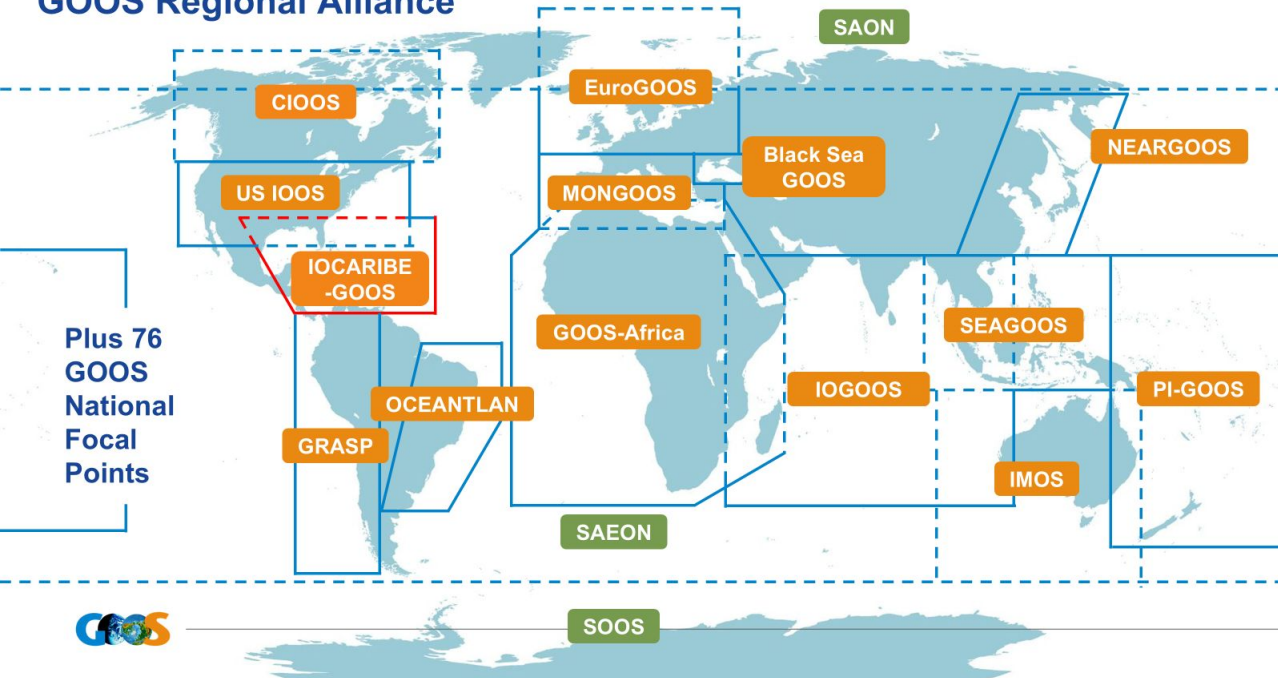
IOCARIBE-GOOS is the  
GOOS Regional Alliance for  
the Wider Caribbean Region.

Approved by GOOS in 2002



GOOS is “an ocean observing  
system that delivers the  
essential information needed  
for our sustainable  
development, safety, wellbeing  
and prosperity”.

# GOOS Regional Alliance



# IOCARIBE-GOOS – Decade actions

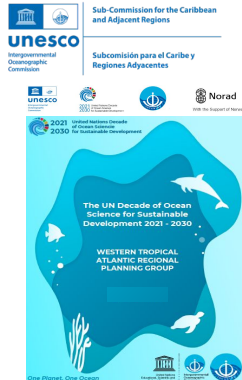
A REGIONAL PLANNING GROUP was formed, and conducted seven regional co-design workshops held with OCEAN DECIDE OUTCOME themes.

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

An Ocean Decade Regional Kickoff Conference summarizing the workshops and suggesting ways forward was held in December 2021 with the auspices of Colombia and Barbados.

Conference Recommendations – Essential Infrastructure WG - ***“Ocean observations, data management, analysis, models and products, are foundational to our approach to sustainable development.”***

Submission of an Ocean Decade Action in support of ***An Ocean Observing and Forecasting System for the Tropical Americas and Caribbean Region (TAC-OOFS)***



# Review of IOCARIBE XVII 2023 Recommendations



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- i) Vote on the permanent coordinator for IOCARIBE GOOS; **(COMPLETED)**
- ii) Support the re-establishment of a sustained regional ocean observing and forecasting system and nominate experts to the working group of IOCARIBE GOOS through a Circular Letter; **(COMPLETED)**
- iii) Identify and inventory priority observational needs and develop a regional strategy for ocean observing and forecasting, including ways to collectively facilitate domestic marine scientific research clearances for instrument deployments. **(In Progress)**
- iv) Establish a sustainable governance structure that includes ECOPs, and develop ToRs for IOCARIBE-GOOS that amongst other issues provides mechanisms for sharing experiences and activities among Member States; **(COMPLETED)**



# IOCARIBE XVII Recommendations

v) Seek active representation and participation from each of the Member States in IOCARIBE GOOS; **(COMPLETED)**

vi) Leverage ongoing regional and international activities and partnerships, including Caribbean Institute for Meteorology & Hydrology (CIMH) and Caribbean Coastal Ocean Observing System (CARICOOS); **(In Progress)**

vii) Report metadata and other relevant information to OceanOPS (formerly JCOMMOPS).

XVII.6 align all threats that IOCARIBE is working on under a multi hazard framework, utilizing the Integrating Coastal Hazard Early Warning Systems for the Tropical Americas and Caribbean (iCHEWS) UN Ocean Decade endorsed project.



# • IOCARIBE-GOOS Recent activities

Created ToR and governance plan, solicited SC and GoE (WG)

IOCARIBE Working Group virtual meetings

WG will take advantage of existing National and Sub-regional observing systems in the IOCARIBE region (i.e., CIMH, CARICOOS, DIMAR, other national programs)

Liaison and active engagement with the OCG 16 (see Report)

Global collaboration w/ Decade Programmes, activities & other IOC / Decade programs  
– CoastPredict, GOOS co-Design TC Exemplar, GOOS OCG, FVON, IODE, Tsunami

Coordinator position now vacant due to the resignation of the elected coordinator



**Presentations and interactive workshop**

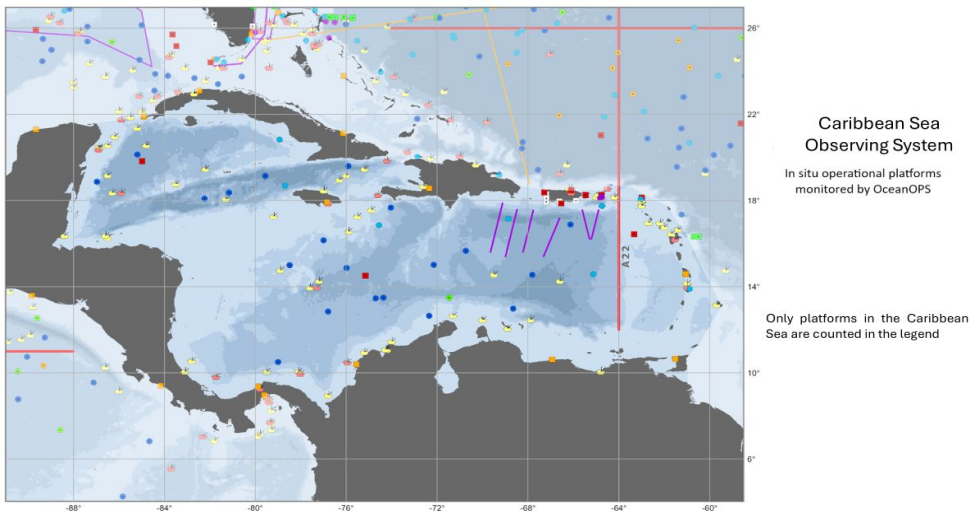
**Engaged OCG in collecting existing TAC regional data**

**New partnerships (FVON)**

**Potential funding sources discussed**

**Encouraging European engagement in IOCARIBE-GOOS, regional capacity development**

**Discussed methods of promoting operational observations across National Jurisdictions**



### Mobile systems

- Core floats - Argo (21)
- Deep floats - Argo (0)
- Biogeochemistry floats - Argo (1)
- Underwater gliders - OceanGliders (2)
- Drifting buoys - DBCP (8)

### Fixed systems

- Moored buoys - DBCP (9)
- Ocean reference stations - OceanSITES (0)
- Sea level gauges -GLOSS (9)
- High Frequency radars (5)

### Ship based measurements

- Automated weather stations - SOT/VOS (16)
- Manned weather stations - SOT/VOS (58)

### Reference lines and areas

- Repeat hydrography - GO-SHIP (1)
- eXpendable BathYThermographs - SOT/SOOP (0)
- Sampled sites - OceanGliders (5)



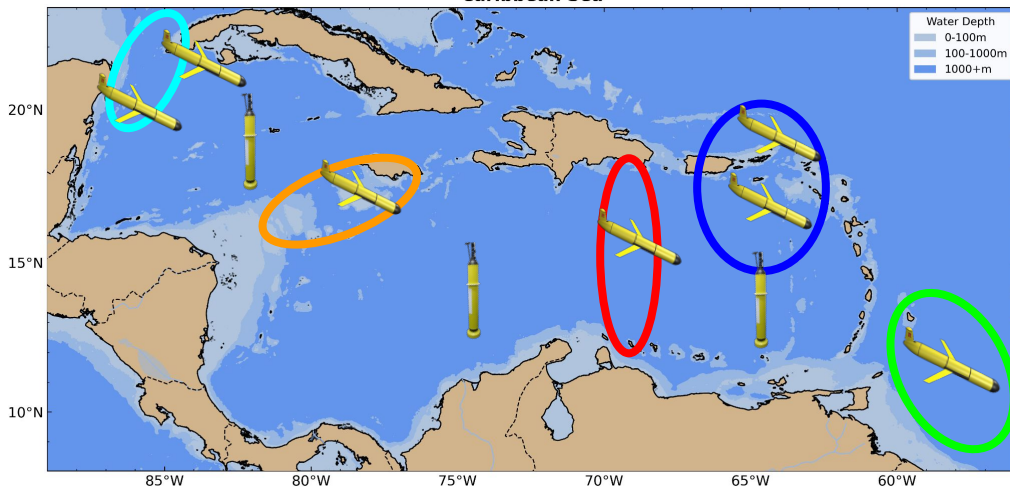


# 2025 Planned Caribbean Profile Observations

OceanGliders + Argo + Fishing Vessel Observation Network (FVON) provide real-time profile data for assimilation by hurricane forecast models

Slide by Scott Glenn, from 2025 WMO Region IV Hurricane Conference

Caribbean Sea



North Atlantic  
Inflow -  
PR-USVI-BVI  
(US Hurricane  
Gliders)

Throughflow -  
DR to Curacao  
(2024 Vetlesen to  
US NSF)

Throughflow -  
Pedro Bank (US  
NSF)

Yucatan Outflow -  
Mexico  
(US NAS/ Mexico)

South Atlantic  
Inflow - Barbados  
to Guyana (2025  
Vetlesen)



# IOCARIBE-GOOS Implementation



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Need IOCARIIBE-GOOS Coordinator

Continue Governance, ToR development

Build steering Committee / GoE to develop initial Implementation plan bringing together present active ocean observing SMEs & managers using TAC-OOFS framework

Design and Implement a representative 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.

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





# IOCARIBE-GOOS Implementation



Sub-Commission for the Caribbean  
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## TAC-OOFS Observing System Framework steps and priorities

### Capacity/Stakeholder Needs Survey

- Inventory of existing observing networks

- Understand member state/user priorities

- Gauge stakeholder capacities (technical/staff) & gaps

### Challenges

- Focus on operational observations, products, and forecasts

- Consolidate existing Systems (interoperability issues)

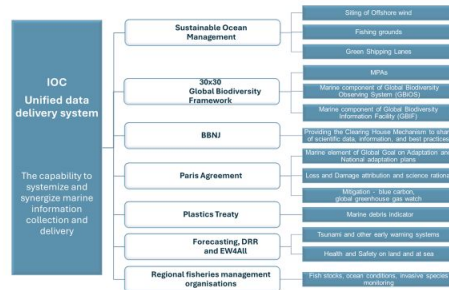
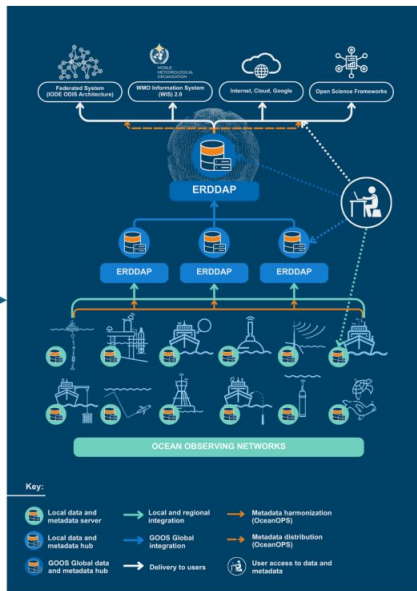
- Develop region wide product distribution networks

- Promote data sharing

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

- Integrate related Decade Programs into the TAC-OOFS framework

# Data



## IOE Integrated Data Ecosystem (proposed)

- With close collaboration with IODE and OceanOPS, relevant IOE sections, DCO-data, DCO- observation and DCC-prediction, WMO, OBIS, ODIS, etc.
- Set in place a process for clear provenance of GOOS EOVS data.



# IOCARIBE-GOOS Recommendations at IOCARIBE XVIII



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1. Identify National IOCARIBE-GOOS Focal Points for remaining Member States not currently represented in the Working Group
  - a. Nominate a WG member OR
  - b. Identify a Focal point for Obs policy reference in that member state
2. Explore how to address issues associated with *Ocean Observing Platforms in National Jurisdictions in the TAC*
3. Endorse and support the the GlobalCoast / CoastPredict Initiative UN Decade Programme and pilot sites for the Adaptation Fund
4. Establish Partnership with the Fishing Vessel Ocean Observing Network (FVON) and other emerging or existing networks as part of the GOOS-Observations Coordination Group
5. Nominate and select IOCARIBE-GOOS Chair for the Intersessional period



# GOOS National Focal Points (NFPs)

## GOOS National Focal Points in IOCARIBE Member States

Continent States	GOOS NFPs	Island States	GOOS NFPs
Belize		Antigua & Barbuda	N/A
Brazil	Y	Bahamas	
Colombia	Y	Barbados	
Costa Rica		Cuba	
France	Y	Dominica	
Guatemala		Dominican Rep.	
Guyana		Grenada	
Honduras		Haiti	
Mexico	Y	Jamaica	
Netherlands	Y	St Kitts And Nevis	
Nicaragua		St Lucia	N/A
Panama		St Vincent	N/A
Suriname	Y	Trinidad & Tobago	Y
UK	Y		
USA	Y		
Venezuela Bolivarian Rep.			

- 76 GOOS National Focal Points globally

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**THANK YOU  
MUCHAS GRACIAS  
MERCI BEAUCOUP**

**Recalling** its commitment to advancing the objectives of the Global Ocean Observing System (GOOS), the United Nations Decade of Ocean Science for Sustainable Development (2021–2030), and the Early Warnings for All (EW4ALL) initiative;

### **Further Recalling**

- (i) *The IOC Assembly Decision A-32/4.8.2 (2023), pertaining to Ocean Observations in Areas under National Jurisdiction, and the decision to establish an ad hoc intersessional Working Group on Ocean Observations in Areas under National Jurisdiction;*
- (ii) *The IOC Executive Council Decision EC-57/4.2. (2024) pertaining to the Progress Report of the IOC Ad hoc Intersessional Working Group on Ocean Observations in Areas under National Jurisdiction.*
- (iii) *IOCARIBE Recommendation SC-IOCARIBE-XVII.6 (2023) relating to enhance IOCARIBE Member State relationships with international programmes, projects and initiatives to foster the opportunity for collaboration among groups, reduce duplication, and encourage collaborative efforts and the production of knowledge, applications, services, tools and products; and aligning all threats that IOCARIBE is working on under a multi hazard framework, utilizing the Integrating Coastal Hazard Early Warning Systems for the Tropical Americas and Caribbean (iCHEWS) UN Ocean Decade endorsed project;*



*(iv) IOCARIBE Recommendation SC-IOCARIBE-XVII.10 (2023) pertaining IOCARIBE GOOS.*

***Recognizing*** the need for enhanced regional coordination, stakeholder engagement, and operational support to strengthen ocean observing and forecasting capacities in the recommendations and outcomes of the 16th Session of the GOOS Observations CoordIOCARIBE region;

***Takes note*** of the Ination Group (OCG) and the IOCARIBE-GOOS Workshop held on 9 April 2025.

***Further takes note*** of the GlobalCoast/CoastPredict UN Decade Programme regional initiative addressing climate change and coastal resilience challenges, seeking to enhance regional disaster preparedness, foster ecosystem restoration, and support sustainable development in the IOCARIBE Region.

## Recommendations 3

**Recognizes** the importance of the GlobalCoast / CoastPredict initiatives and the affiliated project in the region as key contributions to the Ocean Decade, and their alignment with regional priorities for advancing coastal resilience, operational oceanography, and multi-stakeholder collaboration;

**Acknowledges** the efforts undertaken to formulate and promote regional endorsement and ownership of these initiatives through the development of coastal pilot sites and proposals;

**Further recognizes** the need for enhanced coordination and clearance mechanisms in Areas of National Jurisdiction (ANJ), as highlighted by the Ocean Observing in National Jurisdiction (OONJ) group endorsed by the IOC Assembly in 2023;

**Welcomes** the activities undertaken to develop and promote the GlobalCoast / CoastPredict initiative in the region, and **supports** continued efforts to align these with regional and national priorities.

**Supports** the project proposal under the GlobalCoast / CoastPredict Decade Programme to be submitted to the Adaptation Fund, including support for the implementation of pilot sites in the region, and **invites** Member States to actively participate and contribute to the project proposal and submission process.



## Recommendations 4

***Endorse the activities undertaken to develop and promote the GlobalCoast / CoastPredict initiative in the region, and support continued efforts to align these with regional and national priorities.***

***Endorse the Adaptation Fund proposal under the GlobalCoast / CoastPredict Decade Programme, including support for the implementation of pilot sites in the region.***

***Invites Member States to continue supporting activities related to GlobalCoast / CoastPredict in the Region, particularly those advancing pilot implementation, national engagement, and the formulation of regional strategies under the UN Ocean Decade endorsed projects such the iCHEWS.***

***Further supports the establishment of a sub-regional framework or working arrangement among countries to facilitate national-level clearance for ocean observing activities in Areas of National Jurisdiction.***





# Recommendations 5

**Approves** the establishment of a Regional Task Team under the IOCARIBE-GOOS Working Group, in collaboration with the IOCARIBE Secretariat and legal advisors, to:

- (i) *Draft and propose a multilateral [agreement] [framework] for facilitating ocean observing operations in Areas of National Jurisdiction.*
- (ii) *Identify clearance processes aligned with national policies.*
- (iii) *Coordinate the involvement of legal and technical experts from Member States.*

**Invites** Member States to submit nominations of relevant national experts—both legal and technical—to join the Regional Task Team supporting the IOCARIBE-GOOS efforts.



# Recommendations 6

***Further invites*** Member States to designate or confirm a National Focal Point for ocean observations and ocean resilience coordination.

***Requests*** the IOCARIBE Secretary to:

*Establish a partnership framework with the Fishing Vessel Ocean Observing Network (FVON) to enable cooperation in regional observation efforts under IOCARIBE- GOOS.*

*Encourage continued collaboration with FVON and other partners in support of IOCARIBE-GOOS to:*

- (i) Co-develop observing system components.*
- (ii) Provide technical assistance.*
- (iii) Deliver capacity development opportunities, including joint technical training facilitated by IOCARIBE-GOOS and the Capacity Development Working Group, targeting Caribbean institutions and stakeholders.*



# Discussion on Recommendations

How to we get permission to roam for uncrewed systems (ie. like how Argo has permission to roam)?

- What would the process be to do that through David and Caricom:
- David/(CIMH is part of Caricom):

Caricom has heads of government has committee of foreign ministers, we need to get ministers to agree that this should be allowed

- If a number of regional institutions agree, then the head of gov usually approve if the foreign ministers agree/sign off.
- Frame it across regional priorities: as in disaster risk reduction, to bring .. to the table

If we drafted that would it come through IOCARIBE?

Go through OECS and could go through CARICOM

Is it better to go through institutions themselves? ie. Universities, orgs, if they support it it's easier to get foreign ministers to agree that it's necessary.



# New Opportunities

Value chain element	What resource would be needed?
Observations implementation	As requested by IOCARIBE XV to enhance observations on: Hurricane intensity; sargassum; oil spills; ocean acidification; and set-up coral monitoring standards
Data management	To work with IODE to enhance data management in the Region
Initial Regional Obseving and Forecasting System	As requested by IOCARIBE XV to enhance observations on: Hurricane intensity; and To implement CIFDP-C in 2 countries in the next 3 years.
Service / information delivery	Continue with the Multi-hazard Information and Forecasting System for the Wider Caribbean development. Strengthen Caribbean Marine Atlas



# Possible Ideas for Future Engagement (2/2)

Value chain element	What resource would be needed?
Capacity development of members	IODE training activities in the Region, ODIS, OBIS (IOC Coordinate with HFR and Glider Community to train experts and technicians of those partner countries.
Outreach / ocean literacy	Collaborate with Develop and implement the website for the Information System

AtlantOS





**Losses & Damages:** Without proper earth systems monitoring, data collection and integration to risk-inform early warning systems, planning and decision-making, national and community resilience will be unattainable leading to loss of life and livelihoods and resulting in persistent poverty. Reparations for incurred damage and loss will be unattainable and environment and climate justice elusive for the victims of loss.

EW4LL



Maria, Dominica



Rosebank, St. Vincent

Significant  
Psycho-Social  
Health Impacts

### Mandate of the CIMH

“... to assist in improving and developing the Meteorological and Hydrological Services as well as providing the awareness of the benefits of Meteorology and Hydrology for the economic well-being of the 16 CMO Member States. This is ***achieved through training, research, investigations and the provision of related specialized services and advice***”.

CIMH is (i) an Institution of the Caribbean Community, (ii) the technical Organ of the Caribbean Meteorological Organization and (iii) an affiliate of the University of the West Indies.

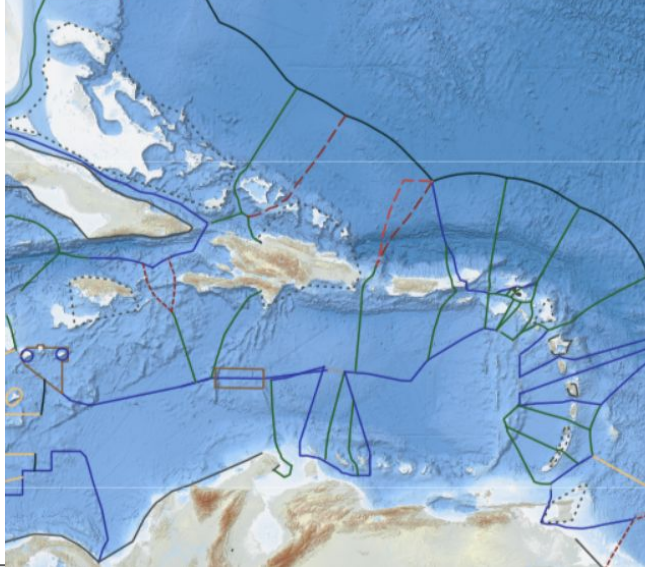


CARIBBEAN INSTITUTE FOR  
METEOROLOGY AND HYDROLOGY



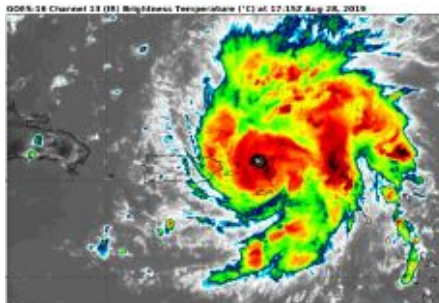
# Global Partnerships - Collaboration on Policy and Technical initiatives

- GOOS + OCG:
  - **Technical support for development of initial Observations / products Framework system**
  - **Shared governance best practices across GRAs**
- GOOS GRAs:
  - Global GOOS-facilitated regional technical workshops or trainings
  - Cross-representation among GRAs - have a Working Group rep attend neighboring GOOS meetings (Brazil, Argentina, US IOOS, etc)
  - Facilitating collaborative guidance across GRAs for common issues: (ie. navigating EEZs, legal support, resource mobilization)
- IOC - collaborate with OONJ Task teams



# Work Plan 2025 and Onward

1. Capacity/Stakeholder Needs Survey
  - Inventory of existing observing networks
  - Understand member state/user priorities
  - Gauge stakeholder capacities (technical/staff) & gaps
2. Develop and maintain partnerships
  - Identify shared goals/priorities
  - Adaptation Fund Pilot program - CoastPredict
3. Write the new **Work Plan 2025-2027** document
  - Utilizing survey results, Strategy Document, and GOOS 2030 Roadmap to develop IOCARIBE-GOOS two year plan
  - Plan 2025 virtual and in-person WG meetings - possible technical workshop as funding allows
4. Development of the Initial Observing and Forecasting System (Led by TAC-OOFS, Task Teams)



Dorian forms over St. Thomas, USVI, August 2019

# Challenges & Opportunities

## Opportunities

Global collaboration Decade Programmes, activities & other IOC programs

- I.e. CoastPredict, GOOS co-design, IODE, Tsunami

IOCARIBE regional program collaborations

- Capacity Development Working Group, EW4ALL, Ocean Literacy
- Strong existing National and Sub-regional observing systems in the IOCARIBE region

Developing MOU for regional OCG observations across National Jurisdictions

- Proposing initial framework, and suggesting a Task Team formation at the IGM

## Challenges

Funding availability

Leadership Turnover

Large number of member states (need to build strength at sub regional level)

Observations in EEZs approval process takes a long time

- Need to improve message to focus on safety and security,
- Results based message for shared goals to improve forecasting