

17th

SESSION IOCARIBE



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Intergovernmental
Oceanographic
Commission

Sub-Commission for the Caribbean
and Adjacent Regions

Subcomisión para el Caribe y
Regiones Adyacentes

Bogotá, Colombia
May 08 - 11, 2023

OBSERVATIONS FOR A **SAFE** TROPICAL AMERICAS AND CARIBBEAN OCEAN ICHEWS

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LEAD SAFE OCEAN WORKING GROUP OF THE IOCARIBE DECADE
PLANNING GROUP

INTERNATIONAL TSUNAMI INFORMATION CENTER – CARIBBEAN OFFICE

MARINE SCIENCE CONFERENCE – IOCARIBE-GOOS

MAY 8, 2023



GOBIERNO DE COLOMBIA



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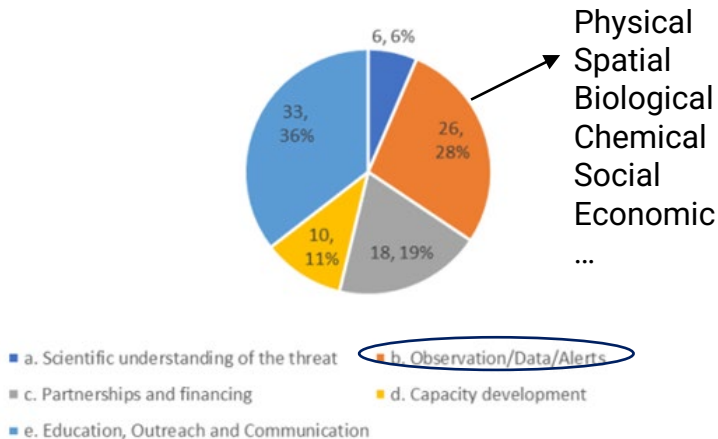
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CHALLENGE: BREAKING DOWN SILOS

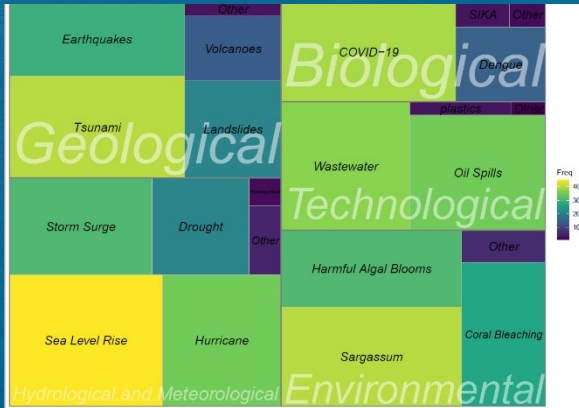


Silo Art Trail in Sea Lake of the Wimmera-Mallee, Australia (painted by Joel Fergie & Travis Vinson) as photographed by Julie Powell (<https://juliepowell2014.wordpress.com/2019/11/20/wimmera-mallee-silo-art-sea-lake/>)

Feedback from Safe Ocean survey conducted in April 2020 at the IOCARIBE Ocean Decade Planning Meeting



PRIORITIZATION OF HAZARDS (70 RESPONDENTS) –JUNE 2021



TOP SEVEN

- Sea Level Rise (Climate Change)
- Sargassum* Influx
- Tsunami
- COVID 19
- Waste Water
- Hurricanes
- Oil Spills

- **Safe Ocean - iCHEWS (Integrating Coastal Hazards Early Warning Systems in the Tropical Americas and Caribbean)**
 - IOCARIBE Lead
 - In 2022 Endorsed under the **CoastPredict** Programme
 - 4 main elements:
 - Risk Knowledge
 - Detection and Forecasting
 - Warning Dissemination and Communication
 - Preparedness, Response and Mitigation –
 - 2 Overarching elements:
 - Governance
 - Capacity Development



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2021 United Nations Decade
of Ocean Science
for Sustainable Development



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REGIÓN TROPICAL DE LAS AMÉRICAS Y EL CARIBE

RÉGION DE L'AMÉRIQUE TROPICALE ET DES CARAÏBES

Establish Governance and
Management framework

Alignment of activities
with existing Decade
Programmes and other
relevant Actions

Need to Know what
Observations the MS can
make available or will
have available by 2030

Define an Initial Activity -
eg. Blue Line
– What and Who are at
Risk from Coastal
Inundation

Initial Actions iCHEWS

One Planet, One Ocean / Un Planeta, Un Océano / Une planète, un océan

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OCEAN DECADE TSUNAMI PROGRAMME: Seeking Major Advances in SCIENCE and PREPAREDNESS

New observational and analysis technologies to move from a **high-uncertainty** assumption-based capability to a **low-uncertainty** dynamic-based capability

RESILIENCE!
Communities respond to tsunami threats by combining accurate
1. real-time impact forecasts
with
2. deep community preparedness.

Tsunami disaster impacts are minimized, enabling rapid restoration of critical infrastructure and services

Comprehensive institutional & community preparedness and capacity building efforts aimed at achieving **IOC Tsunami Ready** designation across all socio-economic categories



SMART REPEATERS ON SUBSEA CABLES

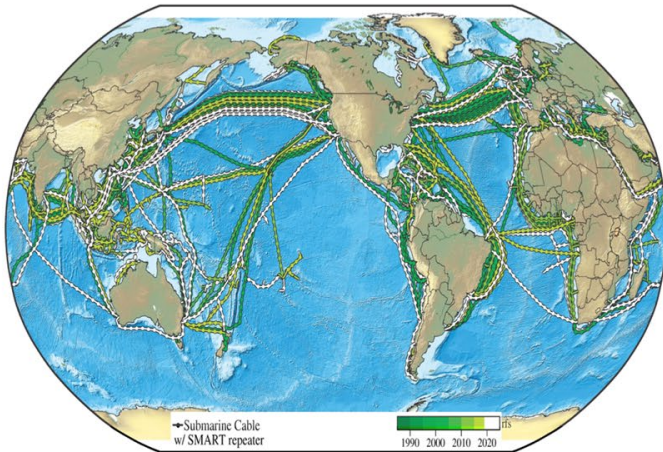
SMART = Science Monitoring And Reliable Telecommunications

- Subsea fiber comprises 95% of international Internet traffic
- 1.3M+ km total cable length
- Repeaters (amplifiers) located every 60-100 km along the cable (~20,000 at present)
- Virtually untapped for science and monitoring capabilities

SMART Cables: leverage commercial cable infrastructure

- Sensors (**pressure, temperature, seismic**) on some/all cable amplifiers (repeaters)
- Power & communications provided over cable
- Engineering / replenishment lifespan of ~25 years
- U.N. multi-agency Joint Task Force leading adoption push
- Hardware development underway by Subsea Data Systems
- Adoption by fiber cable suppliers required

Key opportunity to leverage commercial infrastructure for CARIBE-EWS earthquake and tsunami early warning

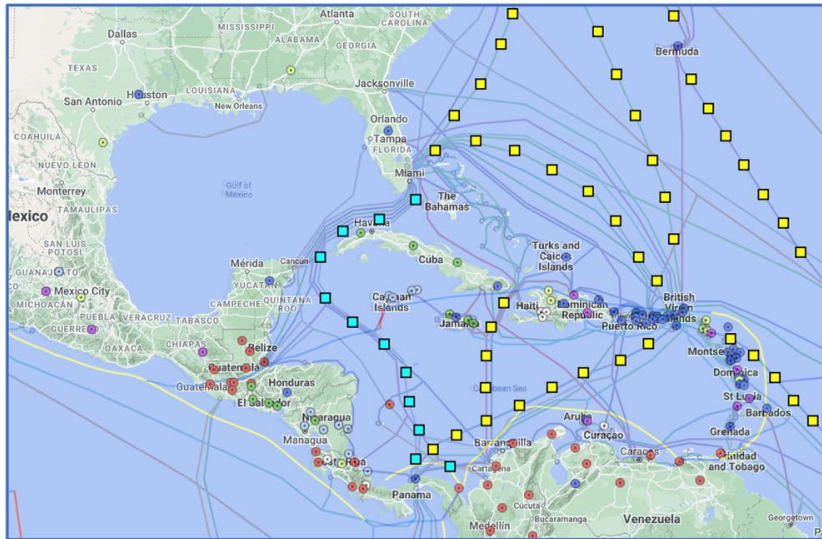


Submarine fiber optic cable network age progression
(Courtesy JTF SMART Cables)

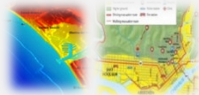
EXAMPLE CARIBE SMART CABLE CONCEPTS

(Courtesy Matt Fouch, Subsea Data Systems)

- Older cables in CARIBE-EWS region scheduled for replacement in next 2-7 years
- Prime opportunity to include SMART repeaters in region
- Enhance current CARIBE seismic and tsunami detection capabilities
- Improve societal resilience
- Protect / harden telecom infrastructure



Circles: Existing CARIBE-EWS seismic stations
Squares: Notional SMART Cable sensor-enabled repeaters



TSUNAMI READY INDICATORS	
I	ASSESSMENT (ASSESS)
1	ASSESS-1. Tsunami hazard zones are mapped and designated.
2	ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated.
3	ASSESS-3. Economic, infrastructural, political, and social resources are identified.
II	PREPAREDNESS (PREP)
4	PREP-1. Easily understood tsunami evacuation maps are approved.
5	PREP-2. Tsunami information including signage is publicly displayed.
6	PREP-3. Outreach and public awareness and education resources are available and distributed.
7	PREP-4. Outreach or educational activities are held at least three times a year.
8	PREP-5: A community tsunami exercise is conducted at least every two years.
III	RESPONSE (RESP)
9	RESP-1. A community tsunami emergency response plan is approved.
10	RESP-2. The capacity to manage emergency response operations during a tsunami is in place.
11	RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place.
12	RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place.

- ❑ **STRATEGY:**
Be Aware, Be Prepared
- ❑ **FRAMEWORK:**
 - Harmonized global guidelines UNESCO IOC Tsunami Ready
 - Performance-based Community Recognition
- ❑ **ACTION:**
 - National programs empower Communities,
 - Communities demand national actions
- ❑ **GLOBAL MEASURE**

RECOMMENDATIONS

- Noting that dozens of people were engaged in the co-design phase of the IOCARIBE Decade Projects
- Further Noting the endorsement of IOCARIBE actions in 2022 and 2023 under OD Programmes
- Additionally Noting the limited financial and human resources at the regional, national and local level to advance the implementation of the actions
- Requests that the Programmes under which the Projects are endorsed co-deliver an activity that engages and reengages the relevant national and local stakeholders in the regions by the end of 2030.
- Noting the significant seismic, sea level and temperature sensor coverage, redundancy and cost effectiveness of SMART (Science Monitoring and Reliable Telecommunications)
- Recommends IOCARIBE and its Member States exploring the possibility of densifying seismic, sea level and temperature network instrumentation with new sea-floor cable technologies (SMART);
- Noting the objectives of the Ocean Decade Tsunami Programme to advance observational capabilities and deep community preparedness,
- Requests the IOCARIBE Secretariat to enhance collaboration and coordination with the CARIBE EWS.



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The clock is ticking.....



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THANK YOU 

MUCHAS GRACIAS 

MERCI BEAUCOUP 

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