UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT 2021–2030 TROPICAL AMERICAS AND THE CARIBBEAN REGION TECHNICAL REVIEW COMMITTEE MEETING

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2021 2030 United Nations Decade of Ocean Science for Sustainable Development

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PROPOSALS SUBMITTED TO THE OCEAN DECADE COMMISSION:

ESSENTIAL INFRASTRUCTURE

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

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.

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TROPICAL AMERICAS AND THE CARIBBEAN REGION

REGIÓN TROPICAL DE LAS AMÉRICAS Y EL CARIBE

RÉGION DE L'AMÉRIQUE TROPICALE ET DES CARAÏBES

OBJECTIVES

Sustained operation of an integrated ocean observation and forecasting System for the Tropical Americas and Caribbean providing essential information for the sustainable development, prosperity and safety of the region's oceans, responsive to the needs of the regional community;

A System providing critical ocean information needed to generate reliable environmental forecasts, protect ocean health, mitigate and adapt to climate change and support sustainable growth;

A System sharing and promoting Best Practices to ensure efficient data and information sharing, data quality, ease of data sharing, and standard knowledge and training;

A Governance and Management structure ensuring sustainability, regional engagement and participation, data and information sharing, and collaboration with the global ocean community.

A System aligned with the GOOS 2030 Strategy, using a Value Chain approach, connecting OBSERVATIONS through DATA MANAGEMENT for use in ANALYSES and MODELS to create APPLICATIONS.

KEY OUTCOMES 1

Sustained long-term high-quality observations of marine and coastal environments, including human interactions, creation and operation of models based on stakeholder needs, and delivery of forecast and decision-support tools that help fulfill the multiple sustainable development goals of the Decade.

Observations, Forecasts and Products that address Essential Ocean Variables as determined by regional needs, including Biological and Ecological Variables useful for ecosystem management and the generation of ocean health indicators,

Widely available ocean and marine Products that contribute to Tropical Americas and Caribbean ocean health, safety of life and property, and stakeholder needs.

A System that delivers measurable benefits to the region's social, environmental, and economic welfare.

KEY OUTCOMES 2

A System that delivers observations, data, forecasts, and products targeted to support other Tropical Americas and Caribbean Outcomes and Actions

Open access to data, information, and technologies.

Standardization and best practices for coordinated data collection, management, and use

Multidisciplinary partnerships to integrate earth system/social sciences, and cross-sectoral participation to mobilize constituencies for national policy and community decision-making processes.

A system with Project components to be co-designed, but including at least components focused on regional Ocean Observations; Modeling, Forecasts, and Products; Data Management; and Capacity Building.

PARTNERS

GOOS (Global Ocean Observing System) and GOOS Decade Programmes

World Meteorological Organization

Ocean Best Practices for the Decade

CoastPredict

ForeSea

Copernicus / Mercator / EMODNET

Horizon Europe Ocean and Climate Missions

Ocean Decade Technology and Innovation Informal Working Group

International Hydrographic Organization

JCOMM OceanOps

GEO Blue Planet

Regional National Ocean Decade Programs (US, Mexico, Colombia, Brasil, …)

Regional National GOOS Programs (US IOOS/CARICOOS, others)

Ocean monitoring and prediction network for the sustainable development of

The Gulf of Mexico and the Caribbean (OMPNetGC) (An Ocean Decade Project)

Digital Twins of the Ocean

Integrating Coastal Hazard Early Warning Systems and Services for the Tropical Americas and Caribbean Region

Participants in TAC workshops recommended the Co-Design, Co-Production and Co-Delivery of Integrated Multiple Coastal Hazard Early Warning System and Services for the Tropical Americas and Caribbean (TAC). The project will prioritize the integration of existing and new coastal hazards early warning systems and services considering four components: Monitoring and Warning, Risk Knowledge, Warning Dissemination and Communication, and Response Capabilities, supported by capacity development. Linkages to regional and international efforts and national and local priorities would be maximized and strengthened. Many ocean-related hazards and their impacts would be considered, including Tropical Cyclones , Climate Change, Tsunami, Sargassum, Wastewater, Oil Spills, and Coral Bleaching, mindful of the impacts and lessons from COVID-19. Regional, national and local impacts will be identified and common features of the underlying infrastructure elements will be enhanced and optimized.

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OBJECTIVES

Risk-informed sustainable development in the TAC through evidence- and impact-based integrated Coastal Hazards Early Warning System and Services (iCHEWS-TAC) addressing four key elements: Monitoring and Warning, Risk Knowledge and Understanding (complexities and cascading impacts), Warning Dissemination and Communication (before-during-after, consistent, actionable, language sensitive and robust technology through regional, national and local levels), and Response Capabilities.

Enhanced resilience to Coastal Hazards: Tropical Cyclone impacts, Climate Change and Sea Level rise, Tsunami, Sargassum, Wastewater, Oil Spills, and Coral Bleaching, considering lessons from COVID 19.

Protection of life and livelihood of those at risk by addressing threats, their direct and cascading impacts, cultural, political, economic and social diversity, social capital, capacity development, human and environmental sustainability requirements, and engagement and inclusion of the most vulnerable.

KEY OUTCOMES 1

A safe Tropical Americas and Caribbean ocean region where life and livelihoods are protected from ocean-related hazards through the development and sustained implementation of an evidence- and impact-based integrated Coastal Hazards Early Warning System and Services (iCHEWS-TAC). The iCHEWS-TAC would include four key elements: risk knowledge, monitoring and warning service, dissemination and communication, and response and resilience capability and a tightly connected structure of Regional to National to Local Governance Warning Systems.

Coastal Hazards in the Caribbean share many common impacts and affect common populations and geographies. Forecasting, warning, and response for various coastal hazards also share common resource requirements. Addressing and leveraging commonalities would bring together various existing regional disaster reduction activities into an efficient integrated impact-based integrated Coastal Hazards Early Warning System and Services for the TAC.

KEY OUTCOMES 2

Given the complexities, the existing initiatives for early warning for individual hazards, a broad group of stakeholders and regional scope of the activities, the iCHEWS-TAC would be a significant “Project” level UN Ocean Decade Action. iCHEWS-TAC can utilize elements of and contribute to several Ocean Decade Programmes and related Actions.

The iCHEWS-TAC will integrate infrastructure within a value chain approach, as in the Global Ocean Observing System (GOOS) 2030 Strategy, connecting OBSERVATIONS through DATA MANAGEMENT for use in ANALYSES and MODELS to create APPLICATIONS. For the Impact Based iCHEWS, the APPLICATIONS can be the critical forecasts and risk analysis and education and communication products.

PARTNERS 1

Regional Office for the Americas and the Caribbean, UN Office of Disaster and Risk Reduction (UNDRR)

Caribbean Disaster and Emergency Management Agency (CDEMA)

Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC)

Etat-Major Interministériel de la Zone de Défense et de Sécurité Antilles (EMIZA)

Intergovernmental Coordination Group for Tsunami and Other Coastal Hazards Early Warning System for the Caribbean and Adjacent Regions (UNESCO/IOC ICG CARIBE-EWS)

Caribbean Tsunami Information Center (UNESCO/IOC)

WMO Regional Association III (South America)

WMO Regional Association IV (North America, Central America and the Caribbean)

Global Ocean Observing System (IOC-WMO-UNEP-ICSU)

Sargassum Information Hub (GEO Blue Planet, IOCARIBE, AtlantOS, and the AIR Center)

Pan American Health Organization

Regional Early Warning Systems Consortium

CREWS (Climate Risk Early Warning System)

Caribbean Institute for Meteorology and Hydrology

Caribbean Meteorological Organization

PARTNERS 2

Meso America and Caribbean Hydrographic Commission

Red Cross, and International Federation of Red Cross

Central America Tsunami Advisory Center (CATAC at INETER, Nicaragua)

US NOAA National Hurricane Center

CCCCC (Caribbean Community Center for Climate Change)

National HYDROMET Services (NHMS)

National Disaster Management Organizations

National Tsunami Warning Centers

Local Emergency Management Organizations

University of the West Indies (Seismic Research Center, Trinidad and Tobago; Jamaica)

University of Puerto Rico (Mayaguez, School of Medicine, Public Health, Rio Piedras)

National University Costa Rica (SINAMOT-UNA)

French West Indies University (Guadeloupe)

National University of Mexico (Sea Level and Seismic Centers)

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