

Caribbean Sea Digital Twin Prototype(CSDTp)

Hackathon Announcement,

3rd -5th October 2023

Oranjestad, Aruba

Background

The **Global Environment Monitoring Services for the Ocean and Coasts** (GEMS Ocean) Programme is a transdisciplinary partnership convened by **UNEP**. GEMS Ocean focuses on integrating global observation systems to provide fit-for-purpose information and data to its member states and regional bodies for the conservation, restoration, and management of coastal and marine ecosystems. The **UN Ocean Decade secretariat** endorses GEMS Ocean as an official program of the UN Ocean Decade.

The GEMS Ocean **Caribbean Sea Digital Twin prototype** (CSDTp) initiative aims to develop and use Digital Twin of Ocean (DTO) concepts and technologies to improve the understanding and management of the Caribbean region's coastal and ocean environment and its unique biodiversity. The initiative also connects the CSDTp to other Digital Twins for the Ocean (DTO) initiatives worldwide.¹

Hackathon

The GEMS Ocean / CSDTp initiative is organizing a two-and-a-half-day Hackathon (interactive design workshop) in the margins of the **Cartagena Convention** (COP 2023) on the Island of Aruba (Kingdom of the Netherlands in the Caribbean).

A Digital Twin of the Caribbean Sea must integrate many different data sources and information from various stakeholders. A Digital Twin of the Caribbean Sea should provide a comprehensive, data-driven, dynamic platform for monitoring, analysing, and planning human activities, ecological services, and marine conservation measures in the Caribbean Sea region.

The workshop brings together around 20 participants with varying backgrounds and expertise in the **Caribbean Community** (CARICOM). The invited maritime spatial planners, data experts, policymakers, and stakeholders will explore the concept and designs of a Caribbean Sea Digital Twin prototype.

In the Hackathon, participants will identify the critical elements of a Caribbean Sea DTp, such as the selection and representation of different subregions, the data (layers) for viewing and analysis, the models, and simulations for assessing the impact of human activities, user interaction, and use cases.

The results of the Hackathon – the initial design and recommendations – will be presented at the High-Level meeting of the responsible ministers on Friday, 6 Oct 2023.

¹ See for instance: <https://ditto-oceandecade.org/> AND https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/restore-our-ocean-and-waters/european-digital-twin-ocean-european-dto_en

To make the Hackathon productive, interactive, and engaging, we will use the **Marine Spatial Planning (MSP) Challenge simulation platform** (visit: www.mspchallenge.info). The MSP Challenge simulation platform integrates the best available geo, maritime, and marine data with simulation models for ecology, shipping, and energy production. Using advanced game technology and game thinking, the MSP Challenge is designed to engage and immerse users, making it a perfect environment for stakeholder engagement, planning through co-design, learning, and education.

Objectives:

1. Develop (together) a first basic concept and value proposition of a (future) Caribbean DTO.
2. Design (together) one or more prototypes of a (future) Caribbean DTO using the MSP Challenge simulation platform as a canvas (sketch board).
3. Identify and sketch (together) possible use cases for an MSP Challenge Caribbean edition.
4. Identify and sketch (together) the critical design elements of an MSP Challenge Caribbean edition: data layers, models and simulations, and user interaction.
5. Identify (together) the key actors and actions needed to develop a (future) Caribbean Sea DTO / MSP Challenge Caribbean edition.
6. Initiate a Caribbean community of practice that can be involved in regional initiatives for developing a (future) Caribbean DTO / MSP Challenge Caribbean edition.

The MSP challenge editions inspire DTO initiatives in different regions, such as a North Sea Ed., a Baltic Sea Ed., and Mediterranean Sea Ed, but also a Fishery Management Ed. and Sand Extraction Ed. One or more of these editions will be used as a canvas for sketching a Caribbean Sea edition. The MSP Challenge is also one of the platforms used in ILIAD Digital Twin of the Ocean initiative.

Ms. Joana Akrofi (UNEP) is the principal chair of the Hackathon. Prof. dr. Igor Mayer will moderate the interactive design sessions and discussions. Mrs. Magali Goncalves (Breda University of Applied Sciences, the Neth.) is an expert in geo-information systems and will moderate the use of the MSP Challenge platform. The organization will provide a "who's who?" at the start of the workshop.

The secretariat of the Hackathon can be reached:

Ms. Joana Akrofi

Early Warning and Assessment Division (EWAD)

United Nations Environment Programme (UNEP)

Email: joana.akrofi@un.org

Other information:

Participants are requested to bring their laptop, with an adapter and mouse, to connect to the MSP Challenge server. Participants will have to download client software. This can be done previously or at the start of the Hackathon. Security, safety, and privacy protocols are guaranteed. For more information and early download, see: <https://community.mspchallenge.info/wiki/Welcome>

The organization will have limited laptops available for participants who cannot use their work or private laptops. Participants do not need technical or particular computer skills or experience with geo-information systems. Most of the interactive design work is analogue.

The primary conversation language will be English. However, during break-out sessions, participants are free to use another language. One of the technical moderators, Mrs Goncalves, is proficient in French and Portuguese and speaks some Spanish.

Organizers and sponsors

UNEP-Global Environment Monitoring Services on Ocean and Coasts (GEMS-Ocean), UNEP's Cartagena Convention Secretariat/Caribbean Environment Programme (CEP), UNESCO-IOC (IOCARIBE), Breda University of Applied Sciences (BUAs), and The Netherlands Ministry of Infrastructure and Water Management (IWM).

Partners

Mercator Ocean International (MOi) and the Ocean Prediction Decade Collaborative Centre (OP DCC), World Resources Institute (WRI), Caribbean Community Climate Change Centre (CCCCC), University of West Indies (UWI), Caribbean Institute for Meteorology and Hydrology (CIMH), Caribbean Coastal Data Centre (CCDC), Caribbean Community (CARICOM), Organization of Eastern Caribbean States (OECS), Global Ocean Observing System (GOOS), Digital Twins of the Ocean (DITTO), CoastPredict, Instituto de Investigaciones Marinas y Costeras (INVEMAR), Institute of Marine Affairs (IMA), Ocean InfoHub, HUB Ocean and FUGRO.

Program (subject to change)

Day 1, Tuesday 3rd Oct 2023

Time	Activity	Responsible/Lead
08:45	Registration	All participants, and organizers
09:00	Welcome and a short introduction	Joana Akrofi (UNEP-GEMS Ocean) Igor Mayer (BUAs) Magali Goncalves (BUAs)
09:15-11:15	Introduction participants and topic. Playing the MSP Challenge Board Game.	Igor Mayer
11:30	Coffee, tea break	
11:45 – 12:00	Presentation of the key findings of GEMS Ocean/ WRI Survey <i>on the Data challenges that affect ocean governance in the Caribbean.</i>	Joana Akrofi
12:00-13:00	Lunch	
13:00 – 13:30	Introduction DTO Instructions workshop	Igor Mayer
13.30	Demonstration of MSP challenge simulation platform	Magali Goncalves
14.30-16.30	Interactive session 1: Play with the MSP Challenge simulation platform	All participants and organizers
16:40- 17:15	Debriefing and wrap-up	All participants and organizers

Day 2 – Wednesday 4th Oct 2023

08:45	Arrival with coffee and tea	All participants, and organizers
9.00	Start of the day.	Joana Akrofi Igor Mayer
09:15 – 11.00	Short presentations about MSP in the Caribbean	Invited participants
11:00-11:15	Coffee, tea break	
11:15 – 12.15	Interactive session 2: Use cases for CSDTp	Group work
12:15 – 13.00	Feedback session: Present results	Plenary
12:00 – 14:00	Lunch	
14:00 – 15:30	Interactive session 3: Data and data layers	
15:30 – 16.15	Feedback session: Present results	
16.15-17.00	Go to Renaissance hotel for interaction with COP and social evening	

Day 3 Thursday Oct 5th 2023

08:45	Arrival with coffee and tea	All participants, and organizers
9.00	Start of the day.	Joana Akrofi Igor Mayer
9.15 – 10.15	Interactive session 3: User interaction	
10.15-10.30	Coffee, tea break	
10.30– 12:30	Interactive session 4: Integrated design: bringing it all together	
12.30-13.00	Pitches	
	Closing Hackaton	
	Lunch and Afternoon to visit CoP or Aruba	

Friday 6 Oct 2023

15-minute presentation of the results to the High-Level meeting of ministers. Attendance by invitation only.

Face-to-Face-List of Participants

	Name	Institution/Country	Email/Address	Remarks
1.	Mrs. June Henrietta Charmaine Masters	Caribbean Regional Fisheries Mechanism (CRFM)	secretariat@crfm.int ; june.masters@crfm.int TEKA Building, Arnos Vale, Office: +784 4584269 Cell: 7845322798	Completed
2.	Dr David Anthony Farrell	Caribbean Institute for Meteorology and Hydrology (CIMH)	dfarrell@cimh.edu.bb Husbands Office: 246-425-1362 Cell: 246-231-3456	Completed
3.	Mr Courtney Stevenson Forde	Caribbean Institute for Meteorology and Hydrology (CIMH)	cforde@cimh.edu.bb Centre for Water Resources, Hydrology, Geo-science, and Earth Observation Application Hydro informatics 133 Surfview Row, Atlantic Shores, Christ Church Office: 12464251362 Ext. 1263 Cell: 12462665255	Completed
4.	Mr Daison Arvin Lowe	Caribbean Institute for Meteorology and Hydrology (CIMH)	dlowe@cimh.edu.bb #56 Bannatyne Gardens, Christ Church Office: +12464251362	Completed

			Fax: +12464244733 Cell: +12462369308	
5.	Ms Allison Linnette Wiggins,	Coastal Zone Management Unit, Barbados	awiggins@coastal.gov.bb 8th Floor, Warrens Tower II, Warrens Office/Fax: 535-5700 Cell: 246-233-7511	Completed
6.	Mrs Kadean Nadeisha Blake	Department of Marine Resources St. Kitts and Nevis	kadeanblake@gmail.com C. A. Paul Southwell Industrial Park Mobile: (869) 763-2505	Completed
7.	Dr Rahanna Juman	Institute of Marine Affairs -IMA Trinidad and Tobago	rajuman@ima.gov.tt	Completed
8.	Mr Pavel Morales Diaz	GAMMA-CUBA	pavel@gamma.com.cu 14th Street #308. Miramar. Playa. Cell: +53 5 813 9362	Completed
9.	Ms Osatohanmwun Dianna Iyahun	UN Ocean Decade, Early Career Ocean Professional (ECOP) Prospective Barbados	oiyahun@yahoo.com "Somerset", Maxwell Gardens Cell: (246) 239 4071	Completed
10.	Ali Leisel Hochberg	UN Ocean Decade, Early Career Ocean Professional (ECOP) Bermuda	ahocherg@bermudaoceanprosperity.org	Completed
11.	Genesis Lopez	UN Ocean Decade, Early Career Ocean Professional (ECOP) Puerto Rico	gennlopez64@gmail.com	Completed
12.	Carolyn Savoldelli	World Resources Institute	Carolyn.Savoldelli@wri.org	Self-finance
13.	Maité VERDOL	French Ministry of Maritime Affairs, fisheries, and aquaculture	maite.verdol@developpement-durable.gouv.fr	Invitation sent willing to attend Meeting on Monday
14.	Chris Corbin	UNEP-CEP	Chris.corbin@un.org	COP 2023
15.	Dr Lorna Veronica Inniss	IOC-UNESCO (IOCARIBE)	L.inniss@unesco.org IOC of UNESCO Sub-Commission for the Caribbean and Adjacent Regions	Completed

			Edificio Chambacu, Cra. 3B # 26-78 Cell: +57 3106059228	
16.	Igor Mayer	Buas	Mayer.I@buas.nl i.s.mayer@hotmail.com	Facilitator
17.	Magali Patrocínio Gonçalves	Buas	Goncalves.M@buas.nl	Facilitator
18.	Joana Akrofi	UNEP-GEMS Ocean	Joana.akrofi@un.org United Nations Environment Programme, P.O Box 30552-00100 Office: +254207623503 Cell: +254723539399	Organizer