



DIGITAL OCEAN SYSTEMS TO SUPPORT AND STRENGTHEN IMPLEMENTATION OF THE SUSTAINABLE DEVELOPMENT GOALS

An official side event of the UN Ocean Conference 2022



27 June - 18h45-20h30 (GMT+1)
Pavilhão de Portugal
Parque das Nações (Lisbon)

Summary Report

A standing-room only crowd of more than 80 participants gathered at the Pavilion of Portugal to discuss '[Digital Ocean Systems to Support and Strengthen Implementation of the Sustainable Development Goals.](#)'

This side-event, co-organized by [Mercator Ocean International](#), the [European Commission](#), the [Intergovernmental Oceanographic Commission of UNESCO](#), and the [UN Environment Programme](#), brought together experts in international ocean governance and sustainable development with experts in ocean science and digital ocean systems to initiate dialogues on how to design new digital ocean tools to meet information needs for a sustainable ocean economy, climate change impacts & adaptation, coastal resilience and disaster risk reduction, and food security and ocean health.

This side event contributed to the 2022 UN Ocean Conference themes of

- Leveraging interlinkages between Sustainable Development Goal 14 and other Goals towards the implementation of the 2030 Agenda,
- Managing, protecting, conserving, and restoring marine ecosystems, and
- Increasing Scientific Knowledge and Developing Research Capacity and Transfer of Marine Technology.

The goal of the side event was to initiate dialogues and new partnerships at the science-policy interface across the SDGs to:

- review and assess resources, mechanisms and opportunities for the transfer of blue knowledge across the science-policy interface,
- co-design digital Ocean prediction systems that respond directly to Ocean diplomacy, governance, and management needs for a sustainable Ocean stewardship, and
- develop new tools and resources for scaling up Ocean action informed by the best-available data, science and innovation.

1. OPENING AND WELCOME

The event was opened by the Honorable **Jose Maria Costa**, Secretary of State for the Sea, Portugal. He described how digital ocean systems are an important layer to increase scientific knowledge on complex systems needed for decision making and ocean governance, and how

these new innovations will bring together science and technology to support the Sustainable Development Goals.

Charlina Vitcheva, Director-General of the European Commission Directorate for Maritime Affairs and Fisheries (MARE) addressed international ocean governance and ocean prediction in Europe. She noted that an EU Digital Twin Ocean is not only needed to better reveal the state of our Ocean but also to multiply our capacity to reverse the damage, adapt to climate change, and use ocean resources sustainably.

John Bell, Director for 'Healthy Planet', European Commission Directorate for Research and Innovation (RTD) discussed Europe's international coordination for digital ocean prediction systems. He informed participants that the ocean is central to the EU's Green Deal and the Mission Restore our Ocean and Waters by 2030, and he emphasized that the EU's highly innovative core DTO service is a public infrastructure project providing a public service to enable all who need to make decisions for sustainable ocean management.

2. KEYNOTE ADDRESSES

2.1 The Future of Ocean Prediction to Support Sustainable Development Goals.

Pierre Bahurel, Director-General of Mercator Ocean International, provided a keynote address on the future of ocean prediction to support sustainable development goals. He noted that the President of the European Commission, Ursula von der Leyen, called for the development of a European digital twin of the ocean at the 2022 One Ocean Summit, and he presented an overview of the core digital twin ocean based on European public infrastructures currently under development. He described how the development of the EU DTO requires a pooling of skills of ocean experts and operational assets, and described the evolution from our current ocean prediction capabilities to a fully-integrated ocean knowledge system needed for SDG implementation. He noted that the DTO would be an open-access system for citizens, scientists and policymakers around the world and that it represents a platform for international cooperation.

2.2 Ocean Science, Data, and Services for the UN 2030 Sustainable Development Goals.

Karina von Schuckmann, Ocean Climate Monitoring, Mercator Ocean International, provided a keynote presentation on [Ocean Science, Data, and Services for the UN 2030 Sustainable Development Goals](#) based on her 2020 Journal of Marine Policy paper co-authored with Elisabeth Holland, Peter Haugan, and Peter Thomson (JMP 121 104154). She informed participants that the Ocean offers opportunities to face the causes and consequences of climate change, globally and locally, calling for a dramatic scaling up of efforts towards ambitious mitigation and adaptation. She noted that the Ocean has been elevated to a prominent role in global diplomacy and that policy, management, and governance instruments require sustainable Ocean stewardship informed by the best available Ocean science, data, and services to meet SDG targets. She described how SDGs are interconnected and how SDG 14 supports all of them, and stressed that digital ocean systems will allow us to improve the delivery of Ocean information with products developed specifically to inform Ocean stewardship, policy, and governance, and supported by a blue dialogue.

3. DIGITAL OCEAN SYSTEMS TO SUPPORT SDGS

The main session of the event, moderated by **Enrique Alvarez**, Technical Director, Decade Collaborative Centre for Ocean Prediction, paired experts in ocean governance with experts in digital ocean systems to address 4 key SDG themes:

Sustainable Ocean Economy - **Peter Haugan**, Programme Director, Institute of Marine Research, Norway and Chair of the Group of Experts of The Ocean Panel, and **Francisco Campuzano**, Researcher and Numerical Modeler at +ATLANTIC CoLAB, Portugal, exchanged views on the needs for ocean information to support the ocean economy (particularly the energy sector) and the digital ocean tools that are under development to provide decision-making support for government and industry.

Climate - **Joanna Post**, Programme Officer, UNFCCC ocean action lead, and **Johnny Johannessen**, Research Coordinator, Nansen Environmental and Remote Sensing Centre and University of Bergen, Norway, lead a discussion on the new ocean dialogue in the UNFCCC and needs for ocean information for climate, with a special focus on the challenges of modeling and forecasting the Arctic environment.

Coastal Resilience and Disaster Risk Reduction - **Elisabeth Holland**, Director, Pacific Centre for Environment and Development, Fiji, and **Nadia Pinardi**, Director, Decade Collaborative Centre for Coastal Resilience, University of Bologna, discussed coastal resilience, understanding the needs of local coastal communities, and how to provide information and services to support sustainable practices.

Food Security and Ocean Health - **Vera Agostini**, Deputy Director, Fisheries and Aquaculture Division, UN Food and Agriculture Organization, and **Jorn Schmidt**, Chair, ICES Science Committee, discussed ocean information and prediction needs for food security and the digital tools being developed to address them, including the role of ocean information and prediction in sustainable fisheries and adapting tools and information services to local capacities.

4. PANEL DISCUSSION

Following this series of exchanges, all panelists were convened for a panel discussion moderated by **Francoise Gaill**, Vice-President, Ocean and Climate Platform, centered around 2 main questions:

- How do we ensure that Ocean science and digital Ocean systems are designed to respond to SDGs and Ocean governance / policy needs?
- How do we deliver Ocean knowledge products that are targeted, findable, and useable for governance and policy ?

The video recording of the panel discussion is available at:

https://www.youtube.com/watch?v=TIshLg_Y_A

Key discussion points and recommendations

- Developers of digital ocean systems must engage in dialogues and collaborations directly with stakeholders such as fishers and coastal zone managers to develop targeted digital Ocean applications in SDG areas.
- We need science that weaves information into transformative action in the policy space. There are growing opportunities for the ocean community to bring information directly to decision makers and provide indicators to evaluate progress on climate change targets.
- We need to rethink the way we think about science. We need scientists to keep doing cutting edge research but we also need science that is targeted to user needs (policy, public, and industry), and scientific experts who can be the bridge between the community and decision makers. We need for the scientific 'establishment' to recognize

and value science that is focused on applications to SDGs and not only to cutting edge peer reviewed science. This will require transformations in the way we do science.

- We need to gather case studies of science informing policy from which we can learn. We also need to establish reciprocal dialogues between science, policy, and society to go beyond the 'science push' to a policy and science 'pull'.
- We need to target the policy-to-action interface, not just science to policy. That often requires a different smaller scale of dialogues and partnerships at the local level. Much can be done now with the information available if it is used to meet local needs.
- Recognizing that 'innovation' does not necessarily mean technological advances but rather doing things in a new way, digital ocean system developers should assist nations to access and use existing digital Ocean information tools and services.
- Developers of digital ocean systems must foster dialogues at the science-policy interface to inform decision-makers at global to national levels about digital Ocean information tools and services that exist to support international Ocean governance issues, and to ensure that services developed are fit-for-purpose.

5. CLOSING REMARKS

Pascal Lamy, Vice President of Europe Jacques Delors Institute and President of the European *Starfish* Mission, presented some closing remarks on science-policy dialogues and the importance of digital ocean systems in the framework of the EU mission: “Restore our Ocean & Waters by 2030”. He noted that many countries are now moving forward to invest in the Ocean as part of the Decade, and that improving knowledge of the Ocean requires the development of a digital twin. He stressed that the EU digital twin of the ocean will connect to those of the rest of the world, and that we must plan the interaction and interoperability of these twins from the beginning.

Hartwig Kremer, Chief, Global Environment Monitoring Unit, UNEP, provided an overview of the role of the Ocean in SDGs and UNEP's GEMS Ocean programme. He described the UNEP mandate and actions to build global partnerships to distill from available information what we know about pollution, biodiversity, and climate, and to work with local communities to understand their needs to inform transformative actions. He noted that UNEP and its networks are stakeholders for the services that can be provided by a digital twin ocean, and stressed that we need to target not only the science to policy dialogue but also the policy to action interface.

Vladimir Ryabinin, Executive Secretary, IOC-UNESCO, provided closing remarks with a brief overview of the importance of digital ocean systems for the UN Decade of Ocean Science for Sustainable Development and the SDGs. He stated that managing the ocean on the basis of data is what we need to move forward, describing how sustainable ocean planning is needed to address issues of climate, biodiversity, and pollution. He explained that the Ocean Decade provides a framework for global cooperation to improve a 3–4-dimensional quantitative understanding of what is happening in the ocean, and highlighted the important role of the Decade Collaborative Centres for Ocean Prediction and Coastal Resilience to take this work forward.