



INTERNATIONAL DIGITAL TWINS OF THE OCEAN SUMMIT (4-5 May) 2022 VIRTUAL SATELLITE EVENTS

28 April – 12 May 2022 4-5 MAY 2022



LIVE STREAM 4-5 May
Q&A



IN-PERSON 4-5 May 2022,
CENTRAL LONDON, UK



VIRTUAL
SATELLITE EVENTS
28 April-12 May 2022



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PROGRAMME

| Date & Time | Type of the event | Title of the event linked to Eventbrite page | Target Group | Abstract | Co-Convener |
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| Thursday 28 April 2022, 0400 GMT | Workshop We are planning a 1 hour event to Introduce the concept of DITTO to the Australian marine community. It will consist of Introductory presentation (30 mins) followed and Q&A (30 mins). This will set the scene for those interested to sign up for the launch. | DITTO Down Under | Government research scientists, academia, students | The awareness of the Australian science community to DITTO is very low. Although there are 2 people (Pattiaratchi and Heupel) are in the International Steering committee not many people are aware of DITTO. The aim of this event is to increase this awareness, get people interested and advertise the launch so that those who are interested in finding out more would follow the launch and get more information. We will advertise the event in Australia through the extensive contacts developed through IMOS and other sources including the Australian professional societies such as AMOS and AMSA. | Charitha Pattiaratchi Michelle Heupel The University of Western Australia |
| 2 May 2022 from 12:00pm (GMT) until 5 May 2022 | Hackathon The Hackathon will be a 4-day | <u>Generating and Exploring Ideas for Developing a Global</u> | Early Career Ocean Professional (ECOP) Research/Science Business/industry | The GO2DAT-Hackathon encourages ocean oxygen data sharing, the use of new digital technologies and an entrepreneurial spirit. It will improve the oxygen data quality assurance and quality control. | Andreas Oschlies (GEOMAR Helmholtz Centre for Ocean |

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| <p>to 12:30pm (GMT)</p> <p>*Day 1 (2 May 2022) – Introduction and agenda setting 12:00 - The idea behind the Global Ocean Oxygen Database and ATlas 12:30 - Main goal of Hackathon and way forward 13:30 - Hackathon challenges and introduction of respective teams 14:00 - Introduction to data sets by data coaches and Q&A session 16:00 - Virtual Ice Breaker – Connecting the teams</p> | <p>event with 48 hours non-stop time for developing a prototype in a team and to think about its use, using various digital data related to ocean oxygen.</p> <p>The winning teams will present their results virtually at the 53rd International Colloquium on Ocean Dynamics / 3rd GO2NE Oxygen Conference which is taking place from 16 to 20 May 2022. This will allow them to connect with the international scientific</p> | <p><u>Ocean Oxygen Database and ATlas (GO2DAT)</u></p> | <p>Others</p> | <p>The resultant projects will enhance the value of a marine oxygen database, which is needed for developing and improving models and information products for decision-making processes.</p> <p>*Challenges GO2DAT-Hackathon 2022* The Hackathon 2022 will be a step towards to the improvement of models and data sciences as basis for Digital Twins. A fundamental component of Digital Twins is the value added to observations through predictive and data-driven modelling to create information about the future that meets the users' needs. Thus, the following challenges shall be addressed and solved by the teams who will apply for their Hackathon participation:</p> <ol style="list-style-type: none"> 1) Data Exploitation: Fully exploit data of (new) observing platforms with oxygen sensors to enhance monitoring and prediction capacities of ocean oxygen on coastal, regional and global scales. 2) Quality Standards and O2 Global Data Assembly Centre (GDAC): An O2 GDAC receives and assembles marine O2 data and metadata from the many data streams, coming from different types of observation platforms, that are part of the Hackathon. Methodologies are needed for checking consistency within and across platforms, identify duplicates, make sure that the data are quality controlled according to standards and | <p>Research Kiel), Kirsten Isensee (UNESCO), Marilaure Gregoire (Uliece), Veronique Garcon (legos)</p> |
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| <p>*Day 2 (3 May 2022) – Start of 48-hour Hackathon 8:00 - Opening of break out rooms for Hackathon Teams for 48 hours - Availability of data coaches (24hours) 17:00 - Idea of virtual evening meet&greet between Early Career Ocean Professionals and Senior Professionals</p> <p>*Day 3 (4 May 2022) – Continuation Hackathon 8:00 - Short update of plan for the day</p> | <p>community that is interested in the prototypes and will offer the start of further collaborations. Additionally, all teams will be connected to the UN Ocean Decade DITTO Programme.</p> | | | <p>methods, provide feedback to the source of data regarding quality issues, make data accessible and metadata available through the envisioned GO2DAT data portal.</p> <p>3) Integrating Coastal Ocean Data in GO2DAT: The open data sharing concept needs to be advanced in support of coastal communities and, particularly, from National Ocean Data Centers and national and local organizations funding monitoring programs. With the existing services to facilitate and streamline the ingestion of coastal data the Hackathon teams shall investigate opportunities for easy integrations and showcasing the value added by these data to all data providers.</p> <p>*Background Information* The need for a standardized, well-documented, high-quality, and comprehensive database integrating O2 data and other environmental variables from multiple sources is growing rapidly with the increasing threat of ocean deoxygenation for marine ecosystems and delivery of their associated services to society. Sustaining a healthy, productive and resilient ocean as prioritized by the UN Decade of Ocean Science for Sustainable Development and the 2030 Agenda requires sound environmental mapping and modeling capabilities of known quality. requires sound environmental mapping and modeling capabilities of known quality.</p> | |
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| <p>- Availability of data coaches (24hours) 8:30 - Question session and leaving for break out rooms afterwards</p> <p>*Day 4 (5.5.2022) – Hackathon Outcomes 8:00 - Closing of Hackathon 8:30 - Team presentations (by challenge) 10:00 - Selection of winning teams 12:00 - Announcement of winning teams</p> | | | | <p>The activities and actions planned within the UN Ocean Decade Programme “Global Ocean Oxygen Decade” (GOOD) will raise global awareness about ocean deoxygenation, provide knowledge for action and develop hypoxia mitigation and adaptation measures through local, regional and global efforts, including intensified monitoring, transdisciplinary research, bi-directional knowledge transfer among stakeholders and scientists, innovative outreach and ocean education and literacy. The high-level objective of GOOD is to provide data, knowledge and best practices to enable society, stakeholders, and scientists to co-design and develop measures that can mitigate the drivers and impacts of ocean deoxygenation and provide appropriate adaptation measures where mitigation is not possible. The development of GO2DAT is proposed as one of the outcomes of the GOOD programme.</p> | |
| <p>3rd May 2022, 8:30AM - 10:30AM (GMT)</p> <p><u>Agenda:</u> - Introduction and Welcome: (5mn, Marjolaine Krug)</p> | <p>Workshop</p> <p>The virtual event will host a number of key presentations on key capabilities developed in</p> | <p>Southern African Requirements and Existing Capabilities for Digital Twins of the Ocean</p> | <p>The Satellite event “Southern African Requirements and Existing Capabilities for Digital Twins of the Ocean” is open to all members of the public. Stakeholders working</p> | <p>A Digital Twin of the Ocean (DTO) is a virtual representation of the real ocean that has a two-way connection with it. Observations from the real ocean, in combination with models, data science and artificial intelligence, are used to create a digital twin that adapts as the real world changes. Manipulating the twin to address 'what if' scenarios can provide information for decision-</p> | <p>Marjolaine Krug (Department of Forestry, Fisheries and the Environment)</p> |

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| <p>- Presentation 1: (10mn, Nikki Funke) Implementing the All-Atlantic Ocean Data Space: an initiative of the AANChOR Coordination and Support Action</p> <p>- Presentation 3: (10mn, Matt Carr) Ocean modelling in and for Southern Africa; towards operational modelling systems</p> <p>- Presentation 4: (10mn, Marjolaine Krug & Riette Pretorius) OCIMS and MarCoSouth as examples of ocean services provision in Southern Africa</p> | <p>southern Africa which could provide foundation blocks for future DTOs. The presentations will then be followed by a Q&A session. The event will be 90mn long with 40 minutes reserved for presentations and 40 minutes set aside for discussion. The virtual event will be chaired by Dr Marjolaine Krug and the discussion will be facilitated by a panel of experts. All presentations will be made available publicly following the virtual event.</p> | | <p>in the ocean domain from industry, academia, government and non-profit organizations are invited to engage in discussions on the potential benefits and applications of ocean digital twins for southern Africa and help us identify key priority areas for the developments.</p> | <p>making and highlight regions of the real ocean in need of better or different observations. The proposed virtual event on “Southern African Requirements and Existing Capabilities for Digital Twins of the Ocean” is a contribution to the International Digital Twins of the Ocean Summit 2022. This virtual event aims to promote conversations on the existing capabilities supporting the development of DTOs in southern Africa as well as discuss user needs for DTO in the region. Several presentations on existing infrastructure, expertise and services provided in the southern African regions will be given to illustrate some of the existing capabilities. The presentations will then be followed by a discussion on remaining gaps and user requirements for DTOs as well as potential mechanisms to promote the development of DTO in southern Africa. The Satellite event “Southern African Requirements and Existing Capabilities for Digital Twins of the Ocean” is open to all members of the public. Stakeholders working in the ocean domain from industry, academia, government and non-profit organizations are invited to engage in discussions on the potential benefits and applications of ocean digital twins for southern Africa and help us identify key priority areas for the developments.</p> | |
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| <p>- Presentation 5: (10mn, Jamila Janna) Traditional knowledge turning the tide - Q&A and discussion: (40mn, all participants) - Conclusion: (5mn, Marjolaine Krug)</p> <p>Panel members: Dr. Tammy Morris, Mr. Tshikana Rasehlomi, Dr. Jennifer Veitch, Dr. Stewart Bernard</p> | | | | | |
| <p>Thu, May 12, 2022 12:30 PM - 15:30 PM</p> | <p>Workshop</p> | <p><u>Digital Twin Interoperability - Architectures of Digital Ocean Twins (by TURTLE)</u></p> | <p>TURTLE consortium (10-15) Ocean industry stakeholders that operate in different ocean areas (1-5) Governmental stakeholders (1-5)</p> | <p>As initiatives around the globe begin to enhance ocean-oriented digital capacity, we have unprecedented opportunities to power digital twinning. In the EU: ILIAD, the EDITO EU Mission Infrastructure, the ESA Digital Twin Earth, the FAIR European Open Science Cloud ecosystem to name a few, internationally: ESRI Digital Twins, the G7</p> | <p>Ute Brönnner (Fraunhofer IGD Rostock), Arne Jørgen Berre (sintef, Norway)</p> |

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| | | | <p>GAIA-X / IDS community (1-5) Oceanographers / environmental modellers / researchers (5-10)</p> | <p>Future of Seas and Oceans Initiative, the Ocean Data Action Coalition, the IOC/IODE Ocean Data and Information System (ODIS), GOOS/IODE, Ocean Best Practices System (OBPS) and many more.</p> <p>DITTO's Priority Activities include a) Articulate and advance a common understanding of Digital Twins of the Ocean architecture; b) Advance a number of "use case" prototype Digital Twin applications across the spectrum from science, engineering and operations; and c) Encourage the formulation of DITTO related Decade Projects.</p> <p>Motivated by this, we - a group of partners that submitted a Decade action to DITTO, named TURTLE (INTEROPERABILITY ARCHITECTURE FOR DIGITAL Twins of the OCEAN) - want to discuss existing architectures of Digital Ocean Systems to address priority activity a) and work towards a common Digital Twins of the Ocean interoperability architecture.</p> | |
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