*We are pleased to invite you to the meeting with **prof. Prof. Dr. Martin Visbeck** that will be held on **Friday 18 November 2022** at **3.00 pm** in the **Aula Morin** (Room 2A - H2 Bis building) of the University of Trieste.*

*The meeting entitled:*
"***Digital Twins of the Ocean - Opportunities to Future Proof Sustainable Development***"
*will begin with a brief introduction by prof. **Nicolas Segebarth**, Policy Officer of the European Commission.*

*You are asked to confirm your presence by sending an email to the email address of Prof. Maria Cristina Pedicchio*

***pedicchi@units.it***

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***Digital Twins of the Ocean - Opportunities to Future Proof Sustainable Development***

*Prof. Dr. Martin Visbeck*
*GEOMAR Helmholtz Centre for Ocean Research Germany Kiel*

*Digital twins are fine-grained digital replicas of physical objects and systems which have been widely applied in the engineering realm for tasks such as engine optimization and port management. Recently, digital twins have also caught the attention of marine scientists as a solution to socio-environmental problems. By bundling and providing access to observational data, models, and simulations, digital twins allow users to explore current and future 'what-if' scenarios, especially related to human interactions with the ocean. High-value application areas include fisheries and mariculture, marine protected areas, ocean-based tourism, ecological forecasting, nature-based solutions, marine infrastructure development, and the interactions between all of these with an ever-growing collection of data streams.*

*In the context of the UN Decade of Ocean Science for Sustainable Development, we launched the international programme "DITTO - The Digital Twins of the Ocean" (ditto-oceandecade.org) in May 2022. DITTO's mission is to develop and share a common understanding of Digital Twins of the Ocean, to establish best practice examples and to advance a digital framework to empower ocean professionals to effectively create their own application-focused digital twin. This powerful framework will enable users to visualize and explore ocean knowledge and empower ocean professionals and models, forecasts, citizen scientists, policymakers, and the general public alike.*

*A successful regional implementation of a Digital Twin depends on four aspects: A) a capable ocean observing system with covers ideally a wide range of dimension and subjects from dynamics, biogeochemistry, ecology, ocean-land interactions, coastal communities and the socio-economic dimension. B) An innovative ocean modeling and prediction capability with new opportunities provided by AI and ML methods with the possibility to ingest data and changes in boundary conditions representing interventions. C) An interoperable, shared and easily accessible data environment could be cloud based, networked cover all elements observations and model results which is sometimes called a 'data lake'. D) An interactive user interface to visualize, process twin results but also 'ask' the 'what if questions'.*

*To reach the **Sala Morin (room 2A - building H2 Bis)** please check the map below*