Contribution ID: **41**   Type: **Poster**

Computational services in support of Coastal Digital Twins

Tuesday, 20 June 2023 19:40 (1h 5m)

Digital Twins integrate continuously, in an interactive, two-way data connection, the physical and the virtual world. They provide a virtual representation of a physical asset enabled through data and models and can be used for multiple applications such as real-time forecast, system optimization, monitoring and controlling, and support enhanced decision making. The development of Digital Twins, targeting user creation of knowledge and products, along with the development of global initiatives for virtual representation of the Earth (DestinEarth) and oceans in particular (Digital Twins of the Ocean - EDITO model lab and Iliad projects) have set the stage for a user-centered digital vision for support of all coastal and ocean interventions and knowledge creation.

Actions within Digital Twins are materialized through computational services, devoted to address specific concerns, such as operational prediction of water dynamics. The concept of web-based coastal computational services, available through user-friendly interfaces, have promoted their usefulness for coastal knowledge creation and coastal management.

Herein, we showcase three computational services for coastal dynamics developed at LNEC and LIP: OPEN-CoastS (https://opencoasts.ncg.ingrid.pt/), for on-demand forecasting of coastal dynamics, WORSICA (https://worsica.incd.pt/), for Sentinel2 image processing for inland and coastal water bodies delimitation, and jUMP (http://jump-app.lnec.pt/index/), for simulation of underwater noise propagation. Three applications of these services will presented aiming at illustrating their importance for creating reliable and accurate services within Coastal Digital Twins.

Other key topic

Key Topic

Digital Twins

Primary authors: OLIVEIRA, Anabela (National Laboratory for Civil Engineers); AZEVEDO, Alberto (LNEC - Laboratório Nacional de Engenharia Civil); RODRIGUES, Marta (LNEC - Laboratório Nacional de Engenharia Civil); Dr FORTUNATO, André B. (National Laboratory for Civil Engineering); MARTINS, Ricardo (Laboratório Nacional de Engenharia Civil); Dr JESUS, Gonçalo (National Laboratory for Civil Engineering); BERNARDO, Samuel (LIP)

Session Classification: Posters