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OPENCoastS+: on-demand forecast of circulation and water quality in coastal regions

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OPENCoastS+ (https://opencoasts.a.incd.pt/) is an online service that assembles on-demand coastal dynamics forecast systems for selected areas and keeps them running operationally for a period defined by the user. This service provides a tool that targets the needs of different users, from researchers to coastal managers, anticipating natural disasters and contamination events from anthropogenic sources, helping in search and rescue operations, and supporting a better understanding of the physical and ecosystem dynamics in coastal areas, among other applications.
OPENCoastS+ extends from OPENCoastS to integrate water quality, and generates 2-day forecasts of water dynamics circulation variables (water levels, velocities, temperature, salinity, wave parameters) and water quality variables (Escherichia coli and enterococcus, or a user-specified generic tracer).The relevant physical and water quality processes are simulated using the modeling suite SCHISM.
The service integrates three main features: i) "Configuration Assistant", guiding the user in the creation of a new forecast system following 7-8 simple steps; ii) "Forecast Systems", which allows the users to manage their forecast systems; and iii) "Outputs Viewer", where the user visualizes the daily predictions for each forecast and compares model predictions with observations from EMODnet monitoring stations.
OPENCoastS+ service is provided through the European Open Science Cloud (EOSC) computational resources.
All software pieces of the OPENCoastS+ service are open-source (Apache license) and available in the https://gitlab.com/opencoasts repositories.
Herein, we will demonstrate the main features of OPENCoastS+ through selected coastal applications, as well as details about the service automated deployment using an Infrastructure as Code (IaC) approach.

Any relevant links

Topic

EOSC Compute Platform

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