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From HPC to EOSC to DestinE: Leveraging Pangeo in the Global Fish Tracking System for Impactful Marine Conservation

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The Global Fish Tracking System (GFTS) is a use case from the European Space Agency's DestinE Platform. It leverages the Pangeo software stack to enhance our understanding of fish habitats, and in particular Seabass and Pollack. By addressing a data gap highlighted by the International Council for the Exploration of the Sea (ICES), the project combines various data sources, including data from DestinE Climate Adaptation Digital Twin, data from Copernicus marine services, and biologging data from sea bass tracking.
The 'Pangeo-fish' software, a key part of GFTS, improves data access and usage efficiency. Initially developed for HPC, it was ported for cloud infrastructure because of the versatility of the Pangeo ecosystem. This system's model and approach can be adapted for wider marine ecosystem conservation efforts across different scales, species and regions.
The GFTS system was also tested on Pangeo@EOSC. This Pangeo platform, deployed in collaboration with the EGI-ACE and C-SCALE projects, offers Pangeo notebooks with a Dask gateway for comprehensive data analysis at scale. An equivalent system was implemented on the OVH cloud, to prepare for future porting on the DestinE Platform.
Reflecting its original Pangeo ecosystem, GFTS follows open science guidelines. It includes a Decision Support Tool (DST), which enables users to understand complex results and make informed decisions. Accessibility, usability, and data sharing compliance with FAIR principles are prioritised.
In conclusion, GFTS represents a perfect blend of careful management of data and computational resources, a strong commitment to improving ocean conservation, and their habitats, and the efficient use of advanced technology for data analysis and modelling. The presentation will delve into the project's achievements and challenges, providing valuable insights into the practical benefits of incorporating Open Science practices for marine ecosystem preservation.

Topic

Environmental informatics: Climate Change/Environment

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