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Bringing user communities to cloud based Virtual Research Environments –The Co-ReSyF Experience

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In the last years there has been an increasing demand to develop geospatial data systems that provide users working with Earth Observation data the capability to access, visualise and process large volume EO datasets currently available (e.g. Copernicus and Sentinel) to develop their research activities or operational services.

The Coastal Waters Research Synergy Framework (Co-ReSyF) project tackles these issues, by introducing platform for combined data access, processing and visualisation in one place. Co-ReSyF is a Virtual Research environment to support the development of research applications using Earth Observation (EO) data for Coastal Water Research. Co-ReSyF provides a cloud platform, which simplifies integration of EO data use into multi-disciplinary research activities that fits the needs of inexperienced scientists as well as EO and coastal experts. Those components are complemented by a set of user support systems that helps guiding the researcher through the wide array of datasets, applications and processing chains. The platform is based on cloud computing to maximise processing effort and task orchestration. Co-ReSyF addresses issues faced by inexperienced and new EO researchers, and also target EO experts and downstream users.

We reach a wide community of coastal and oceanic researchers, who are offered the opportunity to experience, test and guide the development of the platform, whilst using it as a tool for their own research. The platform includes a set of 5 core Research Applications, developed under the project, and also a set of tools that the researchers can use to build their own applications in a user friendly manner. Each of these research applications consists of subcomponent modules, which users can apply to different research ventures. Additionally, other potential tools or applications can be added by the research community for sharing with other researchers that may find it useful. The set of core applications to be developed during the project lifetime are:

- Bathymetry Determination from SAR Images;
- Determination of bathymetry, benthic classification and water quality from optical sensors;
- Vessel and oil spill detection;
- Time-series processing for hyper-temporal optical data analysis;
- Ocean coastal altimetry

Additionally, a group of 8 Master/PhD students have been selected to use the platform and contribute with their own tools and/or applications to be incorporated into the platform.

Co-ReSyF provides flexible and scalable data access, visualisation and processing solutions to a network of user communities that already extends beyond Coastal Areas to other thematic fields like Agriculture, Disaster Risk Management, in the scope of other projects where Co-ReSyF expert partners are involved. These solutions will be fully adapted to their needs during the different stages of the EO product development cycle, from research to application development and operationalisation. This will provide a highly sustainable framework for their long term growth by assuring a continuous and steady increase of users as well as the number of shared datasets, tools, developed applications, and ultimately maximising collaborative research and scientific knowledge.

Topic Area

Data science and skills

Type of abstract

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