The development of cloud and web based Geospatial Data Access, Visualisation and Processing Infrastructures

The experience of Deimos Engenharia

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Deimos Engenharia has been committed to developing Geospatial Data Access, Visualization and Processing Web Based Infrastructures that leverage on the open satellite based data streams currently available through programs such as Copernicus and Sentinel and the ever increasing cloud processing capabilities to deliver web based platforms that are able to provide robust virtual research and service development and operationalization environments.

Those efforts started in 2012 with the H2020 project SenSyF, aimed at the development of new processing chains for Sentinel data to deliver higher-level Earth Observation products in the scope of pre-operational services using a cloud based processing infrastructure. Those services included Land Cover Classification, Agricultural Monitoring and Monitoring of Fresh Water.

The SIMOcean (System for Integrated Monitoring of the Ocean) project (National EEA grants funded project) that started in 2015 and is now finishing, developed further those capabilities. The project aimed at the harmonization and integration of different observational, satellite and model datasets related to marine environment monitoring, managed by the Portuguese Sea and Atmosphere and the Hydrographic Institutes. Those datasets where then used to develop services such as a Sea State Index for Harbors and Potential Fishing Areas characterization to contribute to improve the National marine management and monitoring capabilities.

Co-ReSyF (Coastal Waters Research Synergy Framework H2020 project), started in 2016 and that will continue until December 21018, is extending the capabilities of the Deimos platform to deliver a Virtual Research Environment for the use of Earth Observation (EO) data in Coastal Areas. The main evolution is that it will provide researchers with different EO expertise the flexibility to develop and test their own processing chains or use and customize the ones already available in the platform. Non-expert researchers will find it easier to use EO data through its user-friendly data search and processing workflow interface and the inclusion of an Expert Center. Several image processing chains and tools are going to be made available to all users by project partners working in research fields such as Bathymetry Extraction and Coastal Altimetry.

All this experience was harnessed by the NextGEOSS H2020 project that started this year and will end in May 2020. This project presents a new vision of the Group on Earth Observations System of Systems (GEOSS) open data exploitation for innovation and business. It focuses on optimizing the connectivity of the European and global data centers with new discovery and processing methods. It exploits the latest advances in data management using Web and Cloud technologies to offer seamless access to all relevant data repositories as well as efficient operations (search, retrieval, processing, visualization and analysis). NextGEOSS will create a European data hub that demonstrates the potential this type of platforms to help develop and deploy new services requiring a wide variety of data sources.

In this presentation we aim to provide an overview of the outcomes of those projects, its future developments, share our experiences and provide our view on how private and public institutions could take advantage of these infrastructures for their activities.

PALAVRAS-CHAVE

Geospatial Data Access, Visualization and Processing Cloud Based Infrastructures, Earth Observation, Copernicus, Sentinel, Open Data, Virtual Research Environment.

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