Geophysical Research Abstracts
Vol. 18, EGU2016-16841, 2016
EGU General Assembly 2016

SIMOcean: Maritime Open Data and Services Platform for Portuguese Institutions

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Portugal is the country with the largest EEZ in the EU and the 10th largest EEZ in the world, at 3,877,408 km2, rendering the existence of an integrated management of Portuguese marine system crucial to monitor a wide range of interdependent domains. A system like this assimilates data and information from different thematic areas, ranging from ocean and atmosphere state variables to higher level datasets describing human activities and related environmental, social and economic impacts.

Currently, these datasets are collected by a wide number of public and private institutions with very diverse purposes (e.g., monitoring, research, recreation, vigilance) leading to dataset duplication, inexistence of common data and metadata standards across organizations, and the propagation of closed information systems with different implementation solutions. This lack of coordination and visibility hinders the marine management, monitoring and vigilance capabilities, not only by making it more difficult to access, or even be aware of, the existence of certain datasets, but also by minimizing the ability to create added value products or services through dataset integration from different sources. Adopting Open Data approach will bring significant benefits by reducing the cost of information exchange and data integration, promoting the extensive use of this data.

SIMOcean (System for Integrated Monitoring of the Ocean), co-funded by the EEA Grants Programme, is integrated in the initiative of the Portuguese Government to develop a set of coordinated systems providing access to national marine data. These systems aim to improve the Portuguese marine management, monitoring and vigilance capabilities, aggregating different data, including specific human activities datasets (vessel traffic, fishing records, oil spills), and environment variables (waves, currents, wind). Those datasets, currently scattered among different departments of the Portuguese Meteorological (IPMA) and the Navy's Hydrographic (IH) Institutes, will be brought together in the SIMOcean Open Data system.

The SIMOcean system will also exploit this data in the following three flagship value added services: 1) Characterisation of Fishing Areas; 2) Wave Alerts for Sea Ports; and 3) Support to Search and Rescue Missions. These services will be driven by end users such as Civil Protection Authorities, Port Authorities and Fishing Associations, where these new products will lead to a significant positive impact in their operations.

SIMOcean will be based on open source web based GIS interoperable solutions, compliant with OGC and INSPIRE directive standards to support the evolution of a set of open interfaces and protocols in the development of a common European spatial data infrastructure. The Catalogue solution (based on ckan) will consider the Portuguese Metadata Profile for the Sea developed by SNIM@R project, the guidelines provided by the directive 2013/37/EU and the Goldbook provided by the European Data portal. The system will be based on SenSyF approach of a scalable Cloud Computing system, providing authorised entities a single access point system for data catalogue, visualisation, processing and value added service deployment. It will be used by the two of the main Portuguese sea data providers with operational responsibilities in marine management, monitoring and vigilance.