Geophysical Research Abstracts
Vol. 20, EGU2018-13038, 2018
EGU General Assembly 2018

Open Source Data Hub System: free and open framework to enable cooperation to disseminate Earth Observation data and geo-spatial information

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Key-Words: Open Source Data Hub System (OS DHuS), dissemination, Earth Observation (EO), geo-spatial information, Sentinels, Copernicus, European Space Agency (ESA).

Abstract:
Our planet is facing exceptional environmental, climatic, and anthropogenic changes, which require analysis and monitoring at local, continental and global scale, thus resulting in a great number of new Earth Observation (EO) satellite sensors.
The Copernicus Programme [1] [2] promotes free and open access policy and creates new opportunities for both industry and scientific communities to fully access and exploit satellite Earth Observation and in situ (non-space) data to provide services to end-users and citizens.
In this context, characterized by high complexity the major challenges are the democratization of access to data, their efficient exploration and the timely delivery of meaningful extracted information.
This paper presents the Open Source Data Hub System (OS DHuS) [3] a software developed by Serco-Gael consortium with the purpose of supporting the ESA Copernicus data access.

The OS DHuS provides a simple web interface to allow interactive Earth Observation data and geospatial information discovery and download, and a powerful Application Programming Interface (API) that allows users to access the data via computer programs and scripts thereby automating and integrating the download within their workflow. The software is available directly in public GitHub repositories [4]; it is the same one used in Copernicus Open Access Hub COAHub [5] the access point for all Sentinel missions.

In this work, we will firstly introduce Open Source DHuS context including the governance model that describes the roles that project participants can take on, the communication and decision making processes and the developer guidelines that regulate the contribution process and its workflow. Then, we will present our pilot projects such as OS DHuS integration in Docker technologies and multi-mission access. We will finally explore our next objectives are as creating a community of pro-active users, composed not only by the space specialists but also by experts from a wide range of other sectorial activities.

[1] http://copernicus.eu
[2] http://www.esa.int/Our_Activities/Observing_the_Earth/Copernicus
[3] http://sentineldatahub.github.io/DataHubSystem/
[4] https://github.com/SentinelDataHub
[5] https://scihub.copernicus.eu