Geophysical Research Abstracts
Vol. 19, EGU2017-10700, 2017
EGU General Assembly 2017

eodataservice.org: how to enable cross-continental interoperability of the European Space Agency and Australian Geoscience Landsat datacubes

Simone Mantovani (1,2), Damiano Barboni (1), Stefano Natali (1,2), Ben Evans (3), Adam Steer (3), Patrik Hogan (4), and Peter Baumann (5)

(1) MEEO S.r.l., Ferrara, Italy (mantovani@meeo.it), (2) SISTEMA GmbH, Vienna, Austria, (3) NCI at Australian National University, (4) NASA Ames Research Center, USA, (5) JACOBS University, Bremen, Germany

Globally, billions of dollars are invested annually in Earth observations that support public services, commercial activity, and scientific inquiry. The Common Data Framework [1] for Earth Observation data summarises the current standards for the international community to adopt a common approach so that this significant data can be readily accessible.

Concurrently, the "Copernicus Cooperation Arrangement" between the European Commission and the Australian Government is just one in a number of recent agreements signed to facilitate Satellite Earth Observation data sharing among the users' communities. The typical approach implemented in these initiatives is the establishment of a regional data access hub managed by the regional entity to collect data at full scale or over the local region, improve access services and provide high-performance environment in which all the data can be analysed. Furthermore, a number of datacube-aware platforms and services have emerged that enable a new collaborative approach for analysing the vast quantities of satellite imagery and other Earth Observations, making it quicker and easier to explore a time series of image data.

In this context, the H2020-funded EarthServer2 project brings together multiple organisations in Europe, Australia and United States to allow federated data holdings to be analysed using web-based access to petabytes of multidimensional geospatial datasets. The aim is to create and ensure that these large spatial data sources can be accessed based on OGC standards, namely Web Coverage Service (WCS) and Web Coverage Processing Service (WCPS) that provide efficient&timely retrieval of large volumes of geospatial data as well as on-the-fly processing.

In this study, we provide an overview of the existing European Space Agency and Australian Geoscience Landsat datacubes, how the regional datacube structures differ, how interoperability is enabled through standards, and finally how the datacubes can be visualized on a virtual globe (NASA - ESA WebWorldWind) based on a WC(P)S query via any standard internet browser.

The current study is co-financed by the European Space Agency under the MaaS project (ESRIN Contract No. 4000114186/15/I-LG) and the European Union's Horizon 2020 research and innovation programme under the EarthServer-2 project (Grant Agreement No. 654367)

[1] Common framework for Earth-Observation data, March 23, 2016 (https://www.whitehouse.gov/sites/default/files/microsites/ostp/common_framework_for_earth_observation_data.pdf)