EARTH OBSERVATION SYMPOSIUM (B1)
Big Data, Data Cubes and new platforms to exploit large-scale, multi-temporal EO Data (6)

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THE GERMAN COPERNICUS DATA AND EXPLOITATION PLATFORM "CODE-DE"

Abstract

Copernicus establishes an operational European Earth Observation capacity. Data from multiple sources – first and foremost the Sentinel series of optical and radar satellite systems - feed services, providing users with reliable and up-to-date information regarding environmental and security issues. The main Sentinel data access infrastructure is implemented by ESA. In addition, several Copernicus Participating States establish national "collaborative ground segments", aiming at the additional use and distribution of Copernicus datasets focusing on their national demand. The German Copernicus Data and Exploitation Platform (CODE-DE) is an infrastructure for data access (Sentinel data, products from the Copernicus Services and national data), on-demand processing and value-added product generation. Since beginning of 2017 users can access data at code-de.org. At the end of 2017 an on-demand processing environment will be added to allow high performance computing directly next to the data.

The system design of CODE-DE includes a Search Portrayal interface featuring a Portal Website, a Marketplace and the Service Provisioning enabling the user to access all infrastructure elements, to publish user datasets/products and to deploy/launch own applications. For the on-demand processing CODE-DE will offer a Web GUI using CalValus and a Hadoop cluster as backend. Next to that, different open source tools and processors are offered comprising the Sentinel toolboxes, and docker containers as a tool to wrap executable processors. This flexible processing approach supports different use cases – allowing developers, processing experts and data experts to work on the platform directly with the data in support of their own processing scenarios. The download component contains a rolling archive providing fast access to the global and recent Sentinel mission data, a reload interface to the long term data archive for already evicted data, a local storage for value-added products and a catalogue service with an external interface for all the above. By 2020 all Sentinels alone will produce roughly 10 – 15 PB/year. Additionally the Copernicus Services generate 415 products. Intelligent data management, including storage, eviction and distribution services are therefore crucial for the data provision. Currently within the ESA access portal there are 60.000 registered users, the exploitation ratio for Sentinel-1 is 1:10, for Sentinel-2 1:8. Within CODE-DE we are expecting users from various communities featuring different knowledge in EO and different thematic and regional interests.

The presentation will discuss experience from the first months of operations of CODE-DE and how CODE-DE is cooperating in the European and international context.