Poster Presentation

IN55C-10 - Innovative Sentinel 5P Level 3 Atmosphere Products: Will Become Accessible Through Innovative Technologies and Interfaces at DLR's Geoservice

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Abstract

The EOC Geoservice (https://geoservice.dlr.de) operationally provides access to innovative Level-3 Products from Copernicus Sentinel 5P, a variety of atmosphere-related Level-3-products from GOME-2/MetOp-A/B/C and a variety of land-surface products such as the world settlement footprint (WSF) and other specific Sentinel-2-products.

For >10 years, the EOC Geroservice is operational and provides access to all its hosted data collections and products via the OGC compliant interfaces WMS and WCS (data cube). ISO metadata on data collections and products are exposed via compliant catalogue services.

In order to better support the currently arising needs for interoperability and for the analysis of long EO timeseries (big data analytics), innovative technologies and interfaces for data discovery, access and analysis are investigated.

To facilitate improved metadata discovery, the OpenSearch API and the Spatio Temporal Asset Catalogue (STAC) are both integrated. Globally unique Digital object identifiers (DOIs) for collection metadata are routinely assigned and registered at the responsible DOI Registration Agencies.

To enable fast server-based EO big data analytics, OGC's data analysis and processing API (DAPA) will be integrated into the EOC Geoservice. DAPA brings the algorithms to the data: Algorithms can partly be executed (e. g. on time-slices at the data's storage location), reducing data transfers. Prerequisite for the efficient combination of different thematic layers in a data cube is the capability to make them accessible on an identical grid: An implementation of OGC's Discrete Global Grid System (DGGS) is used for this purpose.

For all technologies, the GeoServer is the technical backbone. Throughout the above mentioned 10-years-period, DLR has significantly supported its further-development as open-source software. Its most recent improvements (integration of STAC and DAPA interface) have been funded in the framework of the ESA GSTP-project "Technologies for the Management of Long EO Data Time Series" (LOOSE). Integration of all innovative interfaces into an operational data discovery, access and analysis service (EOC Geoservice and DataCube) is supported by the DLR programmatic project "Innovative Produktentwicklung zur Analyse der Atmosphärenzusammensetzung" (INPULS).