

BigDataCube

Big Earth Datacube Analytics Made Easy

Project brief:

Title: BigDataCube

Start: 01 Jan 2018

Duration: 18 months

Find us:

www.bigdatacube.de

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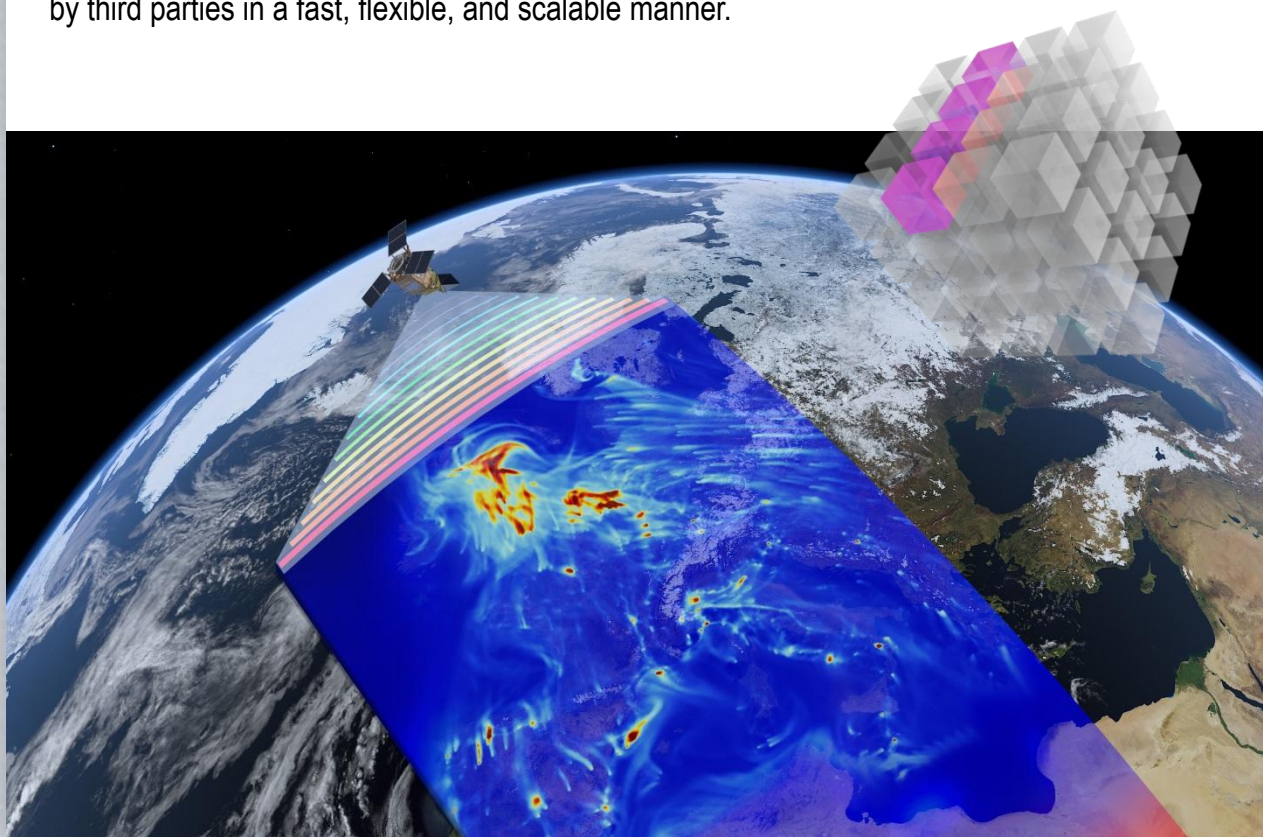
The **BigDataCube** project is developing flexible and scalable services for massive spatio-temporal Earth Observation (EO) data, offered as datacubes.

Technical approach: The project deploys the European Datacube, rasdaman, in two infrastructures:

- The public service of CODE-DE, the German Copernicus hub, will complement the batch-oriented Hadoop service with interactive extraction and processing along the paradigm of “any query, any time, on any size”.
DLR will exemplarily plug in a weather and ocean analytics tool.
- The commercial hosted processing environment of CloudEO.
Novel datacube access control and quota will safely handle both free and proprietary data.

These CODE-DE and CloudEO datacube services will be federated, allowing users to combine datacubes from both services without the need for downloading them first.

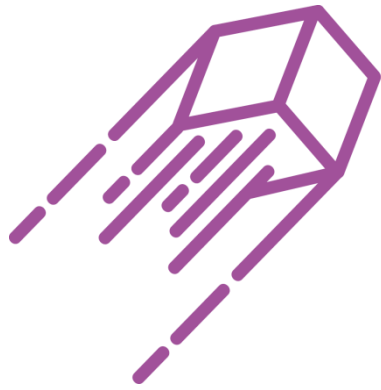
Benefit: Through the federated **BigDataCube** platform novel services can be established by third parties in a fast, flexible, and scalable manner.



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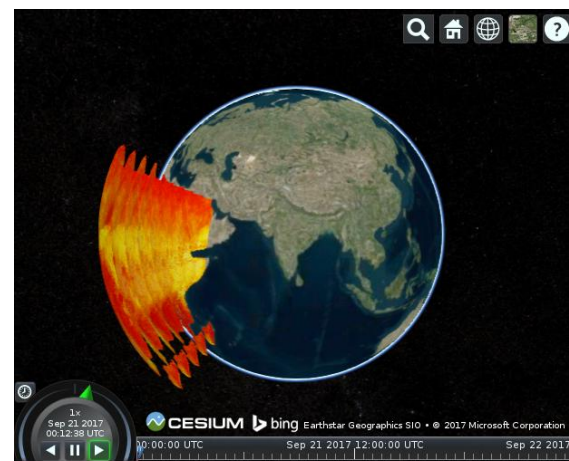
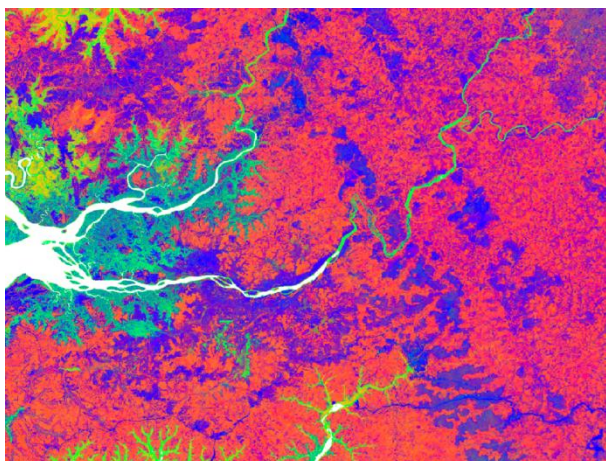
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Datacubes: Instead of the millions of EO files provided earlier, a few massive multi-dimensional space/time objects, such as 3D image timeseries and 4D weather forecast cubes, get offered. This way, raster data get ready for spatio-temporal analysis in the large. Federations enable fusion of datacubes across different data centers – no need for users to know where data sit.

Goal: BigDataCube leverages datacubes for enhancing Earth data access and paving the way for collaboration across disciplinary and geographical boundaries for industry and research. The massively simplified, accelerated Big Data handling benefits many markets, such as agro-informatics: providers don't need to develop or deploy complex technology, but can use and serve data readily, thereby freeing resources for their core business.

Partners: Internationally recognized experts are teaming up:

- **Jacobs University** (project coordinator) and **rasdaman GmbH** are leading Datacube experts and active shapers of OGC, ISO, and INSPIRE datacube standards. They contribute the scalable rasdaman datacube engine for interactive datacube processing and federation.
- **CloudEO** is a leading specialist in scalable geo-infrastructure, bringing together data, software and processing power with its **GeoMarketplace** as one-stop shop for geo services.
- The **Maritime Safety and Security Lab** of the **DLR Earth Observation Center (EOC)** has special expertise in EO-based near-real-time ocean condition assessment. In **BigDataCube**, DLR provides maritime wind and sea state products derived from ESA's Sentinel-1 satellites.



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