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EVDC

Experience in archiving and data management in the Calibration and Validation domain

ICHEC
Irish Centre for High-end Computing

NILU

evdc
esa eo validation data centre

esa

EVDC – Project history

- Envisat Validation Data Centre
- Set up to support the commissioning of the atmospheric instruments on-board the Envisat satellite.
- A database for all routinely acquired correlative geophysical data used in the Envisat Calibration and Validation
- Tools for the ingestion, quality control, and retrieval of data from this database.

EVDC – Project history

2000 (Envisat)

2016 (ESA)

2022
(towards EP)

- The new EVDC (ESA atmospheric Validation Centre) project
- Modernisation of the system.
- Online search tools for Cal/Val data
- Satellite data archive and catalogue (Sentinel-5P, Aeolus and MIPAS data).
- Orbit prediction tool
- Cloud processing for satellite products (subsetting etc.)
- ECMWF Forecast plots

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EVDC – Project history

- Important tool for the **Cal/Val community**
- Regularly used by **Sentinel-5 Precursor Mission Performance Centre** to retrieve regularly ground based Cal/Val data and Fiducial Reference Measurements for the routine validation of the satellite products
- Ongoing development towards the **data exploitation platform** model with the Cal/Val focus

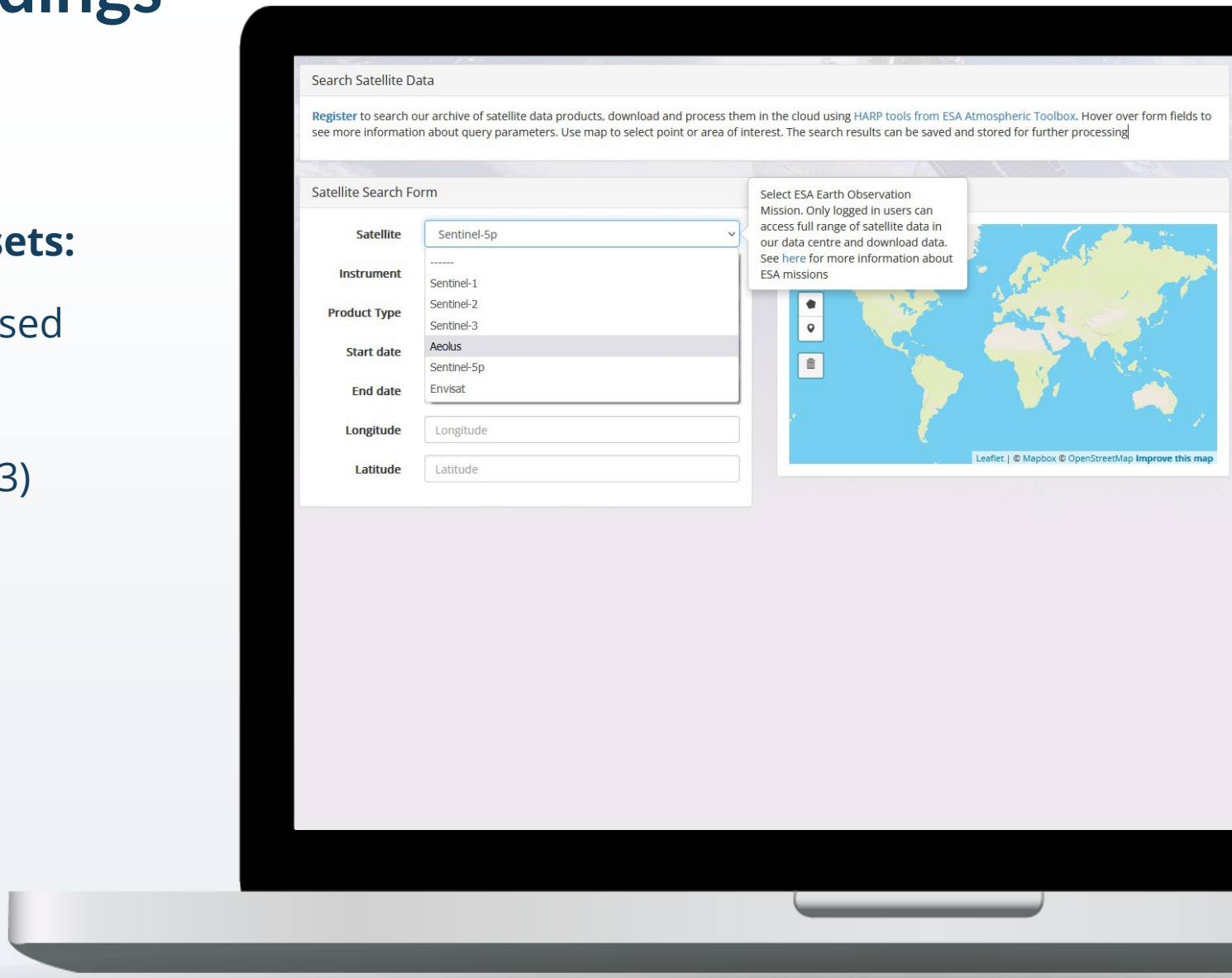
EVDC – Satellite Data Holdings

Current

- Sentinel-1
- Sentinel-2
- Sentinel-3
- Sentinel-5P
- Aeolus

Upcoming datasets:

- MIPAS reprocessed dataset
- EarthCARE (2023)

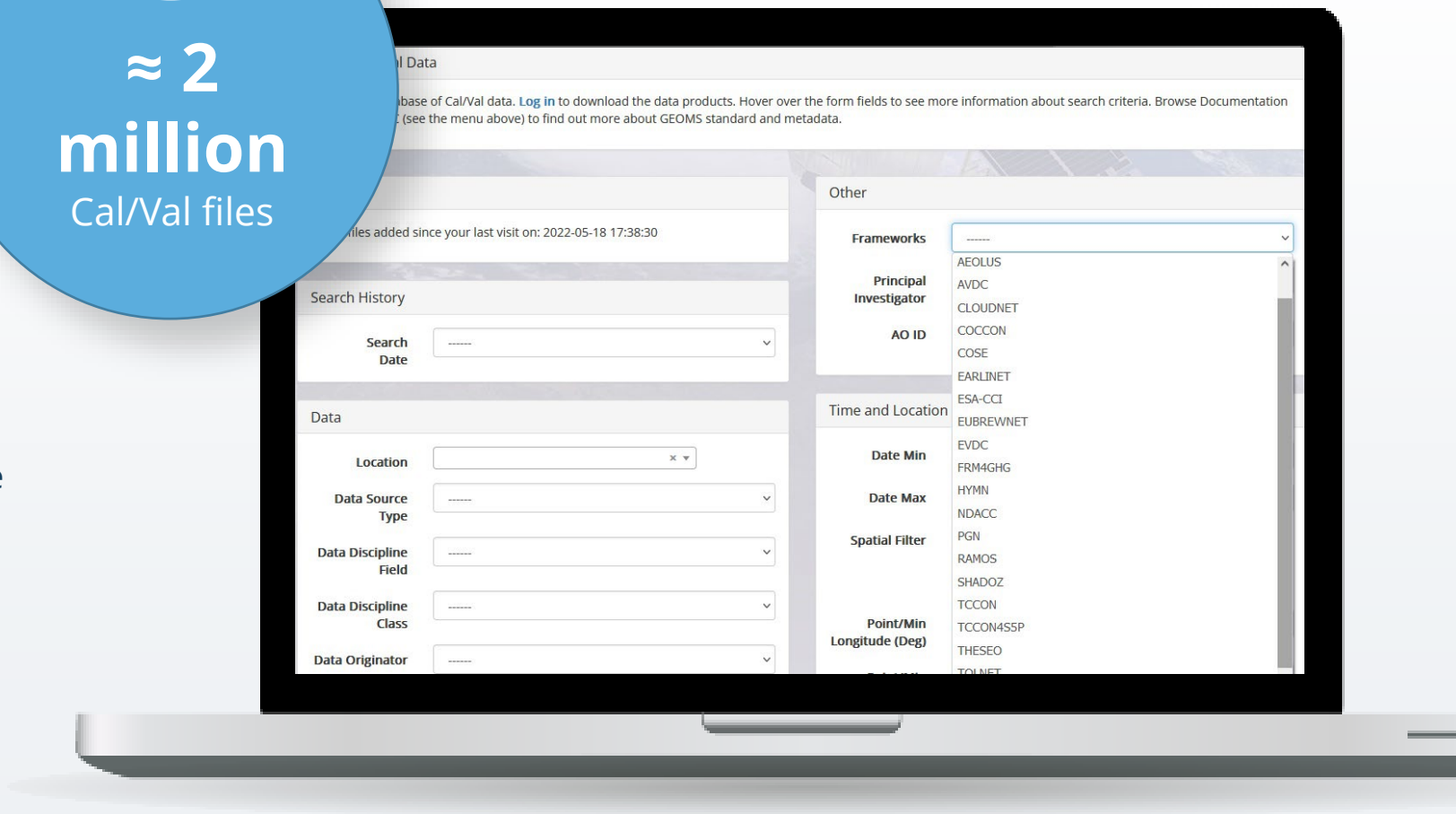


EVDC – Cal/Val Data holdings

EVDC covering networks:

- AVDC
- CLOUDNET
- COCCON
- EARLINET
- EUBREWNET
- FRM4GHG
- PGN (Pandonia)
- TCCON
- Numerous other ground-based and airborne campaigns

≈ 2 million
Cal/Val files



EVDC – Cal/Val Data holdings

- Ensures data ownership
- Prevents re-distribution to third parties
- Protects intellectual properties.

EVDC – Cal/Val Data holdings

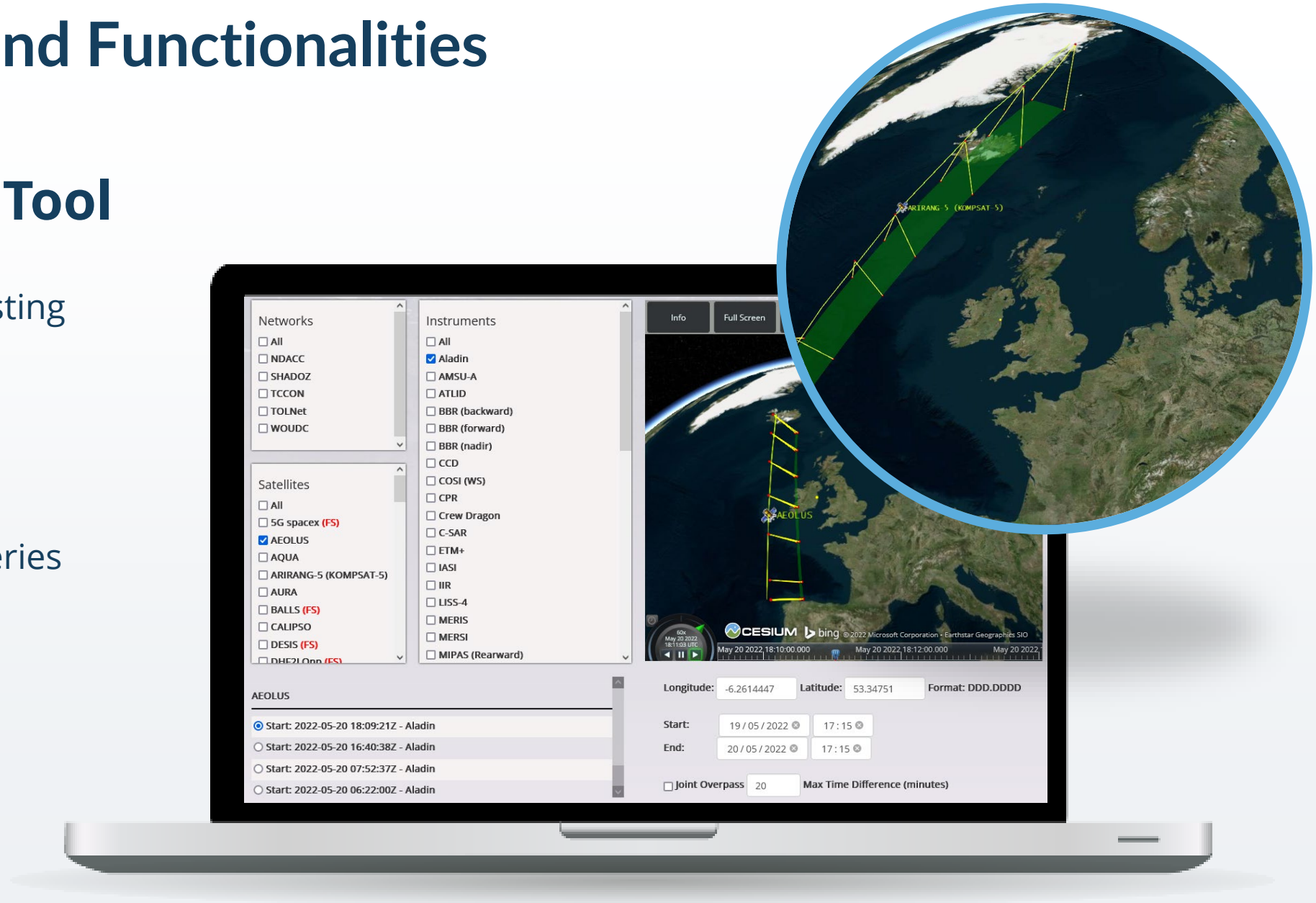
1. EVDC can issue DOIs for Cal/Val data products
2. DOIs are issued through DataCite metadata service
3. EVDC maintains landing pages for DOIs

DataCite
FIND, ACCESS, AND REUSE DATA

EVDC Services and Functionalities

Orbit Prediction Tool

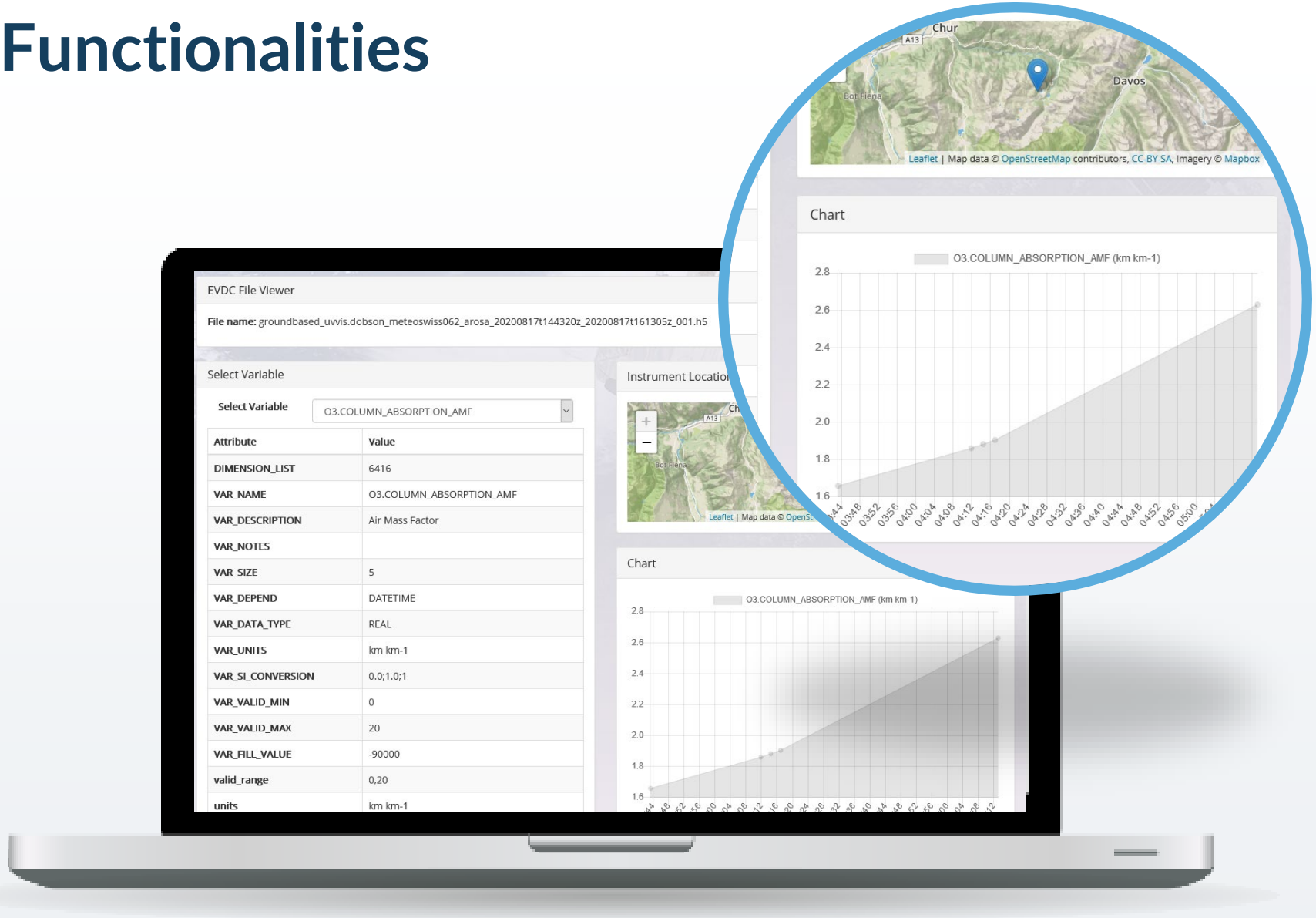
- Extensive number of existing and upcoming satellites
- Cal/Val Networks
- Future and historical queries
- JSON, CSV, KML outputs



EVDC Services and Functionalities

Cal/Val file viewer

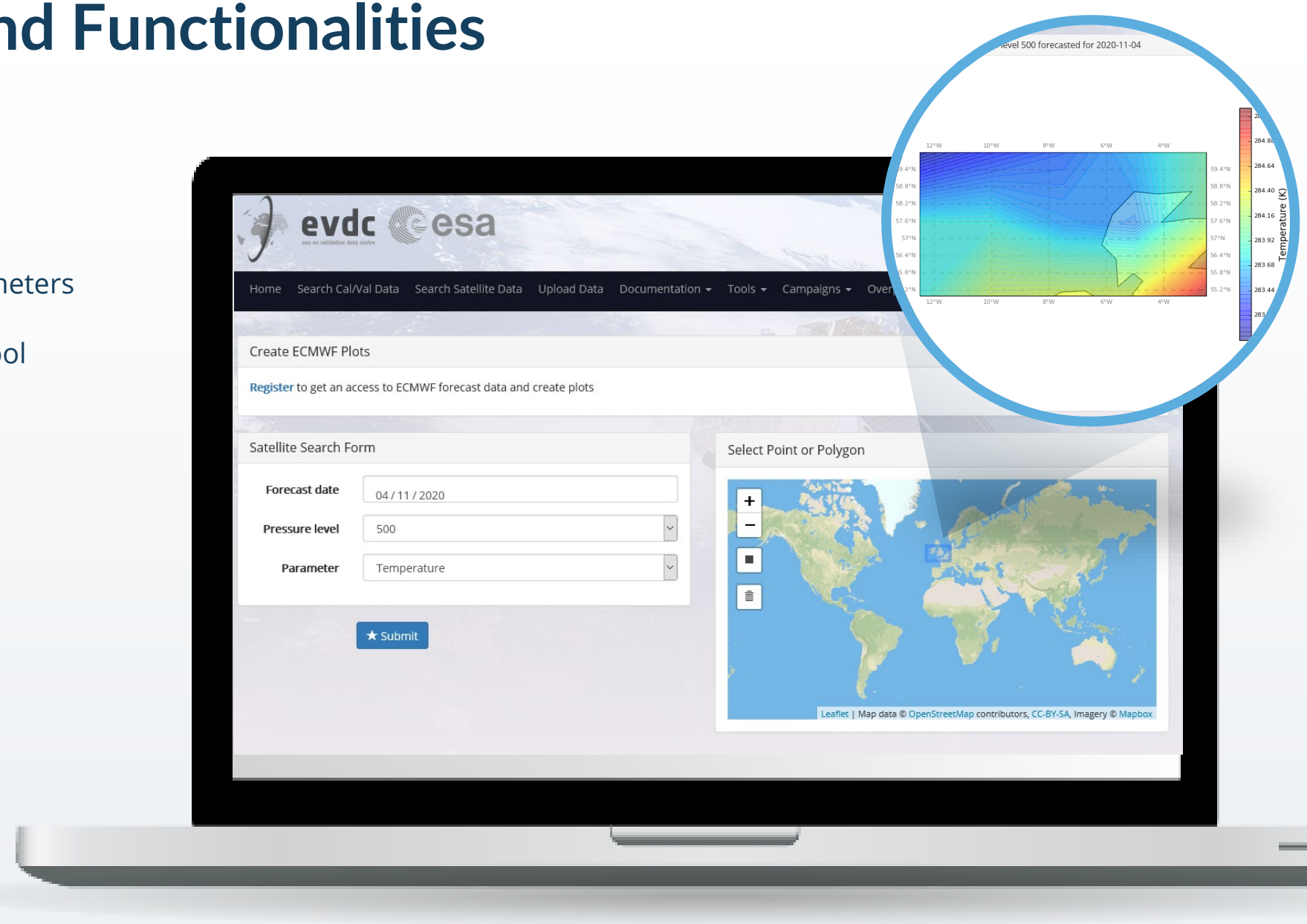
- Inspection of file contents
- Visualisation of variables



EVDC Services and Functionalities

ECMWF Plots

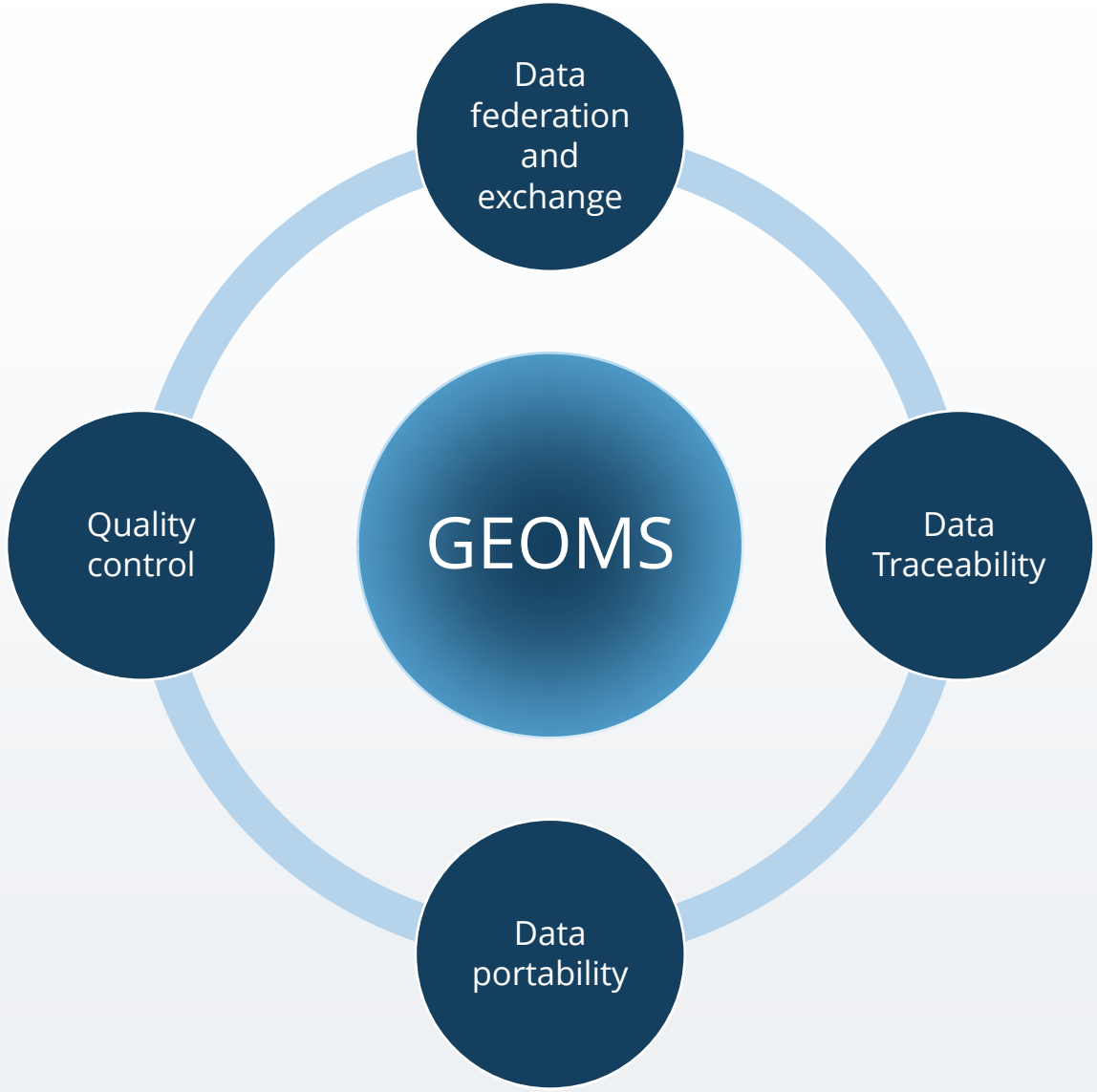
- Access to selected forecast parameters
- Spatial visualisations via online tool
- Data download



GEOMS – metadata standard

- EVDC actively promotes the use and adoption of GEOMS standard
- Extensive documentation on file formatting
- Development and maintanance of tools for reading, checking and writing GEOMS compliant HDF/NetCDF files
- Maintenance and creation of TAV templates for various instruments
- Online GEOMS tool for creating the standard compliant files
- File submission services

- The relational database has been designed to store the metadata and to allow extensive quality assurance (QA) and quality control (QC) of the submitted files, while enabling easy data mining and retrieval of selected datasets through the search interface.
- EVDC assist users with new metadata definitions and conversions from native format to GEOMS.
- Non-GEOMS data such as e.g. CloudNet data is made available via a metadata harvester API



EVDC - Outcomes/Lessons learned

One stop shop for data and tools supporting Cal/Val projects

- Satellite and Cal/Val data catalogues in one place
- Data federation
- Processing in the cloud
- Support for platform users
- Readiness for future satellite missions (EarthCare)

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EVDC - Outcomes/Lessons learned

GEOMS Standard

- Ongoing efforts to translate more and more datasets into GEOMS format
- Collaboration with other data centers
- Data Center Interoperability via harvesting and sharing
- Non-GEOMS data management
- Translations and unified catalogues
- Development of tooling for easier data formatting and conversion
- Documentation, video tutorials, support for data submitters

EVDC – evolutions in 2022 and 2023

Evolutions planned for new missions and in data management:

- EarthCARE preparations, including GEOMS evolutions and using DCIO to establish links to additional data centres relevant for the mission;
- Implementation of myEVDC functionality following a typical exploitation platform model;
- A potential pilot project to assess the inclusion of Cal/Val data in ESA's Data Information System;
- A Collocation Reference Database, with a major aim of improving delta validations of processor upgrades prior to systematic reprocessing.

Find us

https://evdc.esa.int

Video Tutorials

https://evdc.esa.int/documentation/evdc-video-tutorials/

Survey

Link on the homepage
(under 15 minutes to fill out)

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THANK YOU!