



Deltares



Copernicus - eoSC AnaLytics Engine

Enabling Copernicus Big Data Analytics through EO SC – Vision and Mission

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Workshop: Open Platforms for Digital Transformation of Earth Observation

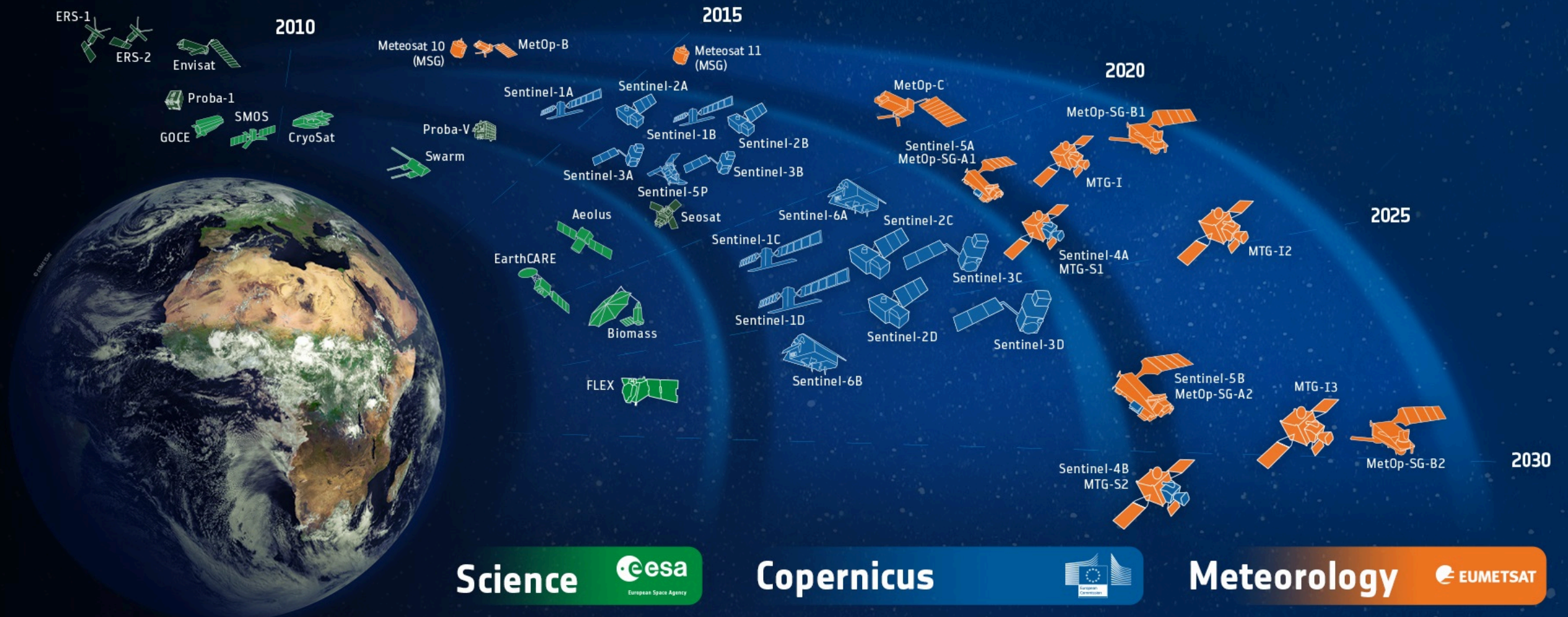
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Enormous increase in satellites and data

Taken from ESA Φ -WEEK, openEO platform Side Event, Patrick Griffiths, ESA



Copernicus | Problem Statement



- **EU Copernicus programme**: key global source for high resolution EO data
 - Copernicus is the largest producer of EO data in the world
 - Daily data volume: **20 TB per day from the Sentinel mission**
 - Significant contribution to the *digital twin Earth* vision of EU
- There is **no single European processing back-end** that serves all datasets of interest
 - **limits the integration** of these data sources in science and monitoring applications
- **Big (Copernicus) Data Analytics** require a federated infrastructure with a core cloud computing and storage architecture optimised for very large data handling and fast user query response.



Project Mission



Vision

To empower European researchers, institutions and initiatives to easily discover, access, process, analyse and share Copernicus data, tools, resources and services through the EOSC Portal in a way that can be seamlessly integrated into their processes and research practices.



Objectives

- O1: **Scale-up** the EOSC Portal integrating pan-European computing and data resources for Copernicus
- O2: **Federate** Copernicus resources with EOSC computing and storage providers
- O3: Piloting the provision of a distributed online **Sentinel long-term archive** in EOSC
- O4: **Co-design** of the federation with relevant scientific communities across Europe



Mission

- Enhance EOSC Portal with pan-European **federated data and computing infrastructure** for Copernicus
- **Integrate cross-/inter- disciplinary EOSC services**, ensuring **interoperability** between distributed data catalogues, computational tools and infrastructure
- **Increase the service offer of the EOSC Portal** providing state-of-the-art research enabling services to its users.

Service provisioning

The C-SCALE federation will make available a suite of three services in through the EOSC Portal:

C-SCALE EO Data Archive

- Access and download data through the C-SCALE EO Data archive



C-SCALE Compute Services

- Access large C-SCALE compute services through standard interfaces near to the data



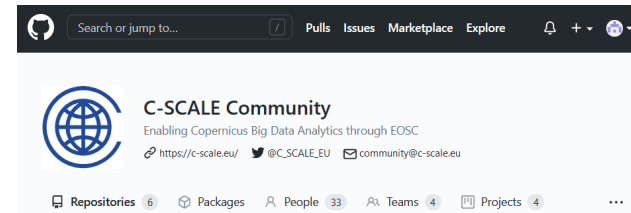
C-SCALE Analytics Platforms

- Seamlessly deploy data analytics on top of the C-SCALE EO Data Archive and Compute Services



The C-SCALE federation services will be available in the EOSC Portal in the second half of 2022.

User engagement



User forum and functional co-design

- **C-SCALE community:** <https://github.com/c-scale-community/discussions>
- encourages advanced users to become **active participants** in the development of the future C-SCALE services
- mechanism to engage with the **national and international organizations** invested in Copernicus services



Early Adopter Programme

- **Open call:** <https://c-scale.eu/call-for-use-cases/>
- **Aim:** expand the user community and further enable the co-design of C-SCALE components



Outreach activities

- increase **awareness** of Copernicus-related EOSC services and broaden the user community

Conclusions



- C-SCALE puts together **EO** and the **e-infrastructure partners** to:
 - Facilitate the exploitation of Copernicus data leveraging on large resources and advanced technologies from e-infras and EOSC
 - Make Copernicus resources easily accessible to new research areas and EOSC in general
- C-SCALE will deliver a **federation of EO** and **e-infrastructure services and resources**
 - Create a very large distributed repository of EO data close to compute resources
 - EO data will be FAIR through the federation
 - Federation services accessible through the EOSC Portal
- C-SCALE federation will be **co-designed with researchers**
- C-SCALE also provides a link to the recently launched **openEO platform**, see <https://openeo.cloud/>
- Large amount of resources available through the **Virtual Access** mechanism



Thank you for your attention.

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 <https://c-scale.eu>

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