



PROGRAMME OF THE
EUROPEAN UNION



co-funded with



ESA Data Access

7th Sentinel-3 Validation Team Meeting

Jolyon Martin

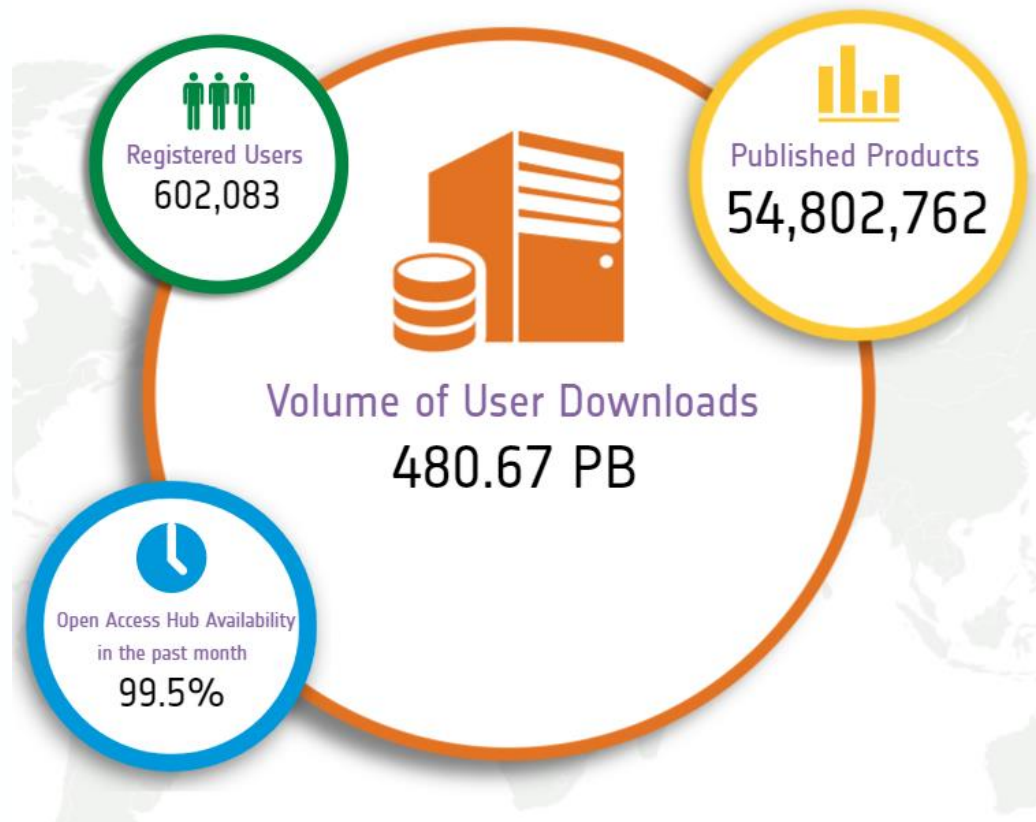
ESA/ESRIN

18/10/2022

ESA UNCLASSIFIED – For ESA Official Use Only



→ THE EUROPEAN SPACE AGENCY



Statistics: 7th October 2022

ESA Data Access Services: key and critical elements of the Copernicus Space Component

Front-end services that provide free and open access to the Sentinel Data to various user communities

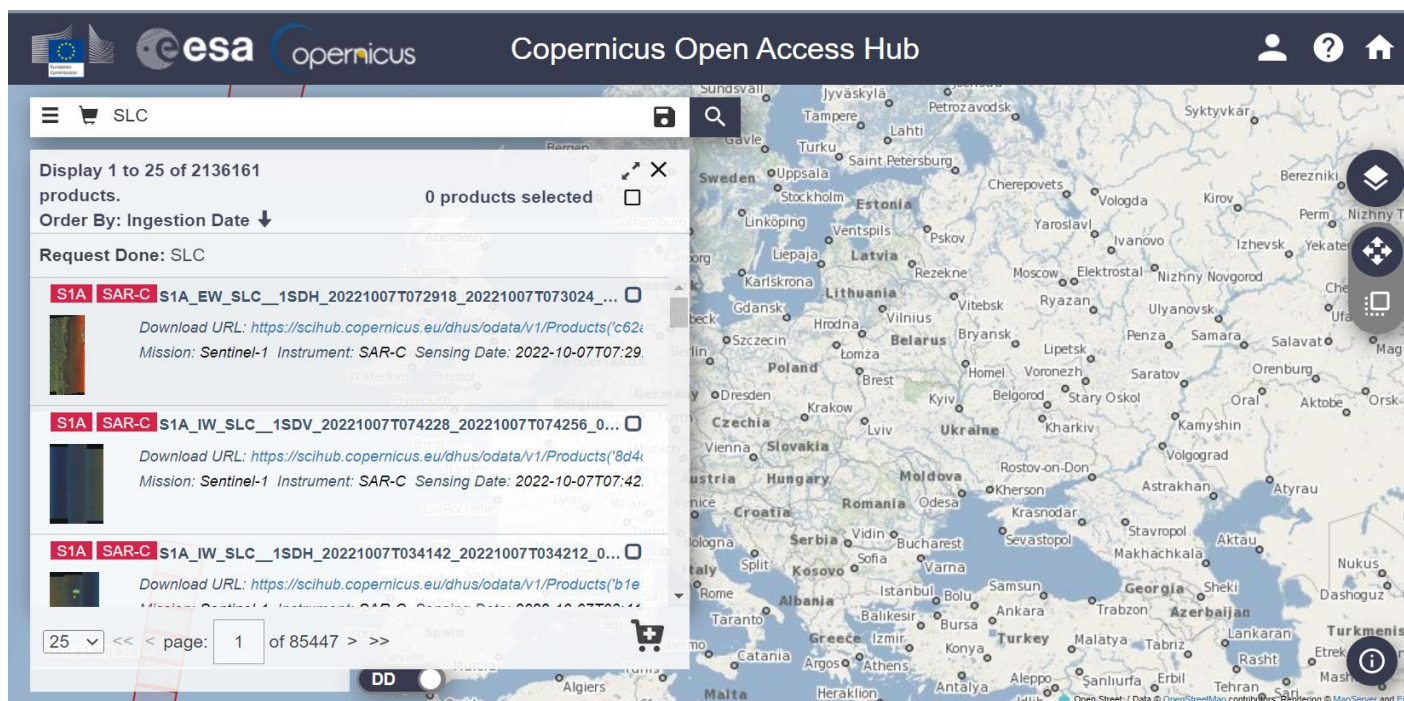
One of the largest distributors of Earth Observation Data worldwide

Copernicus Data Access: ESA Distribution Scheme (2)



ESA offers **open and free access** for all users to Sentinel user level data: immediate access to the most recent as well as deferred access to the complete historic dataset

Any user can self-register at <https://scihub.copernicus.eu/>

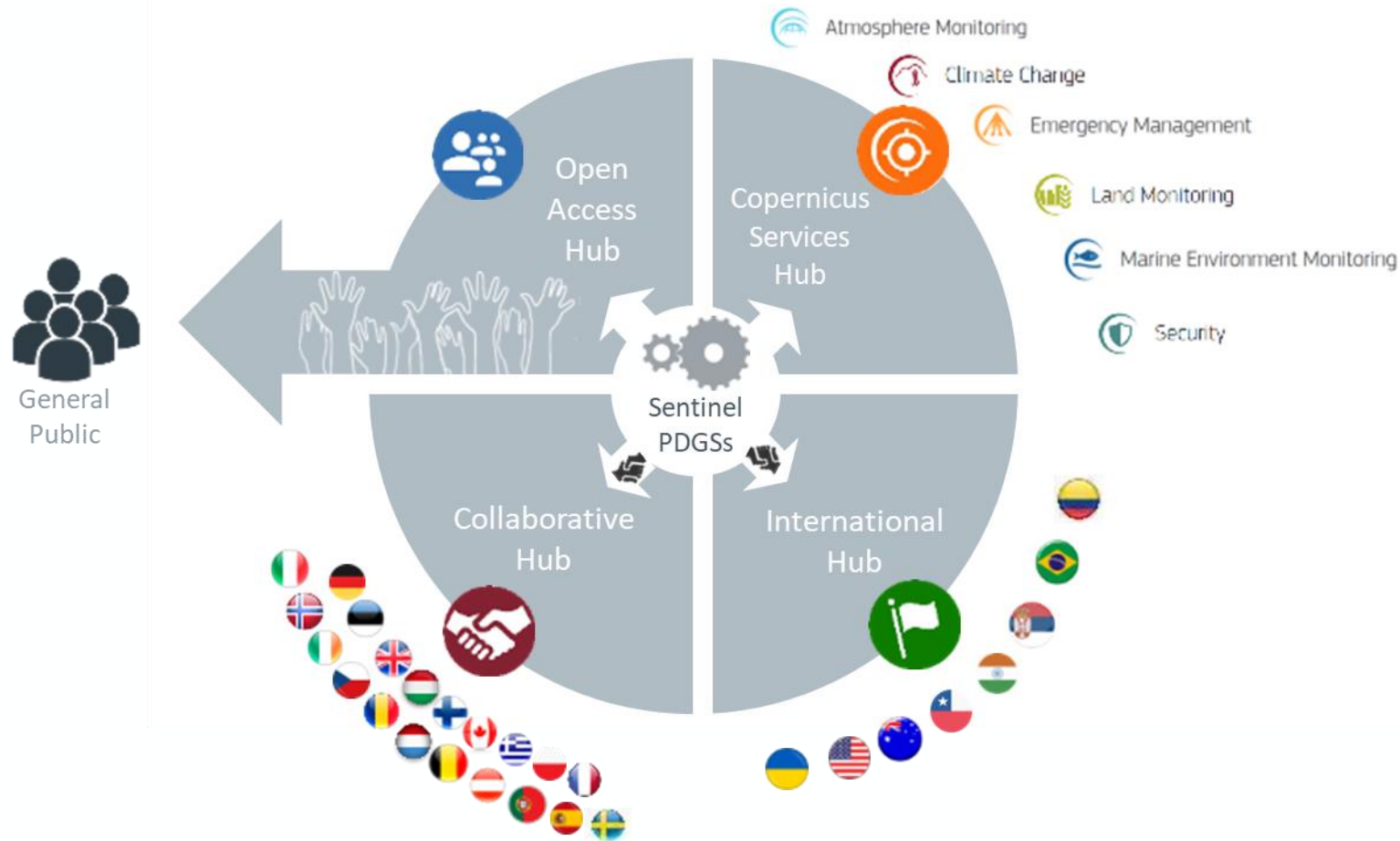


Users can set own scripts to automatically search filter (AOI, Mission, Product type etc...) and download products



Copernicus Data Access: ESA Distribution Scheme (3)

To facilitate the widest access to the Copernicus Data ESA operates a set of data access dedicated services towards various user typologies

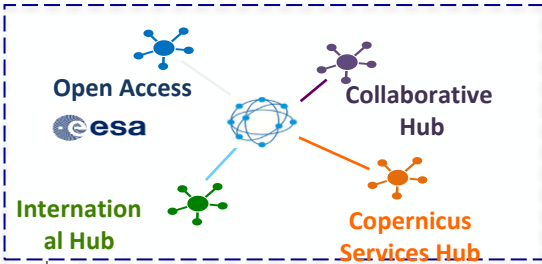


Copernicus Data Access – Redistribution and Access from the Cloud



Large and small private companies are redistributing Sentinel products via free and pay-per-use schemes

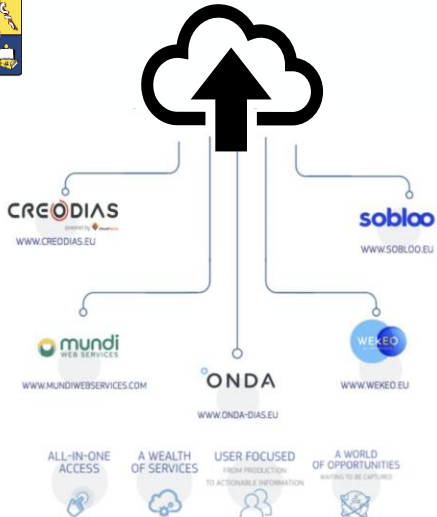
Collaborative mirror sites directly serve around 13,000 users (status end 2021)



Copernicus Services are providing their higher level products to more than 10,000 users (status Q1-2016)



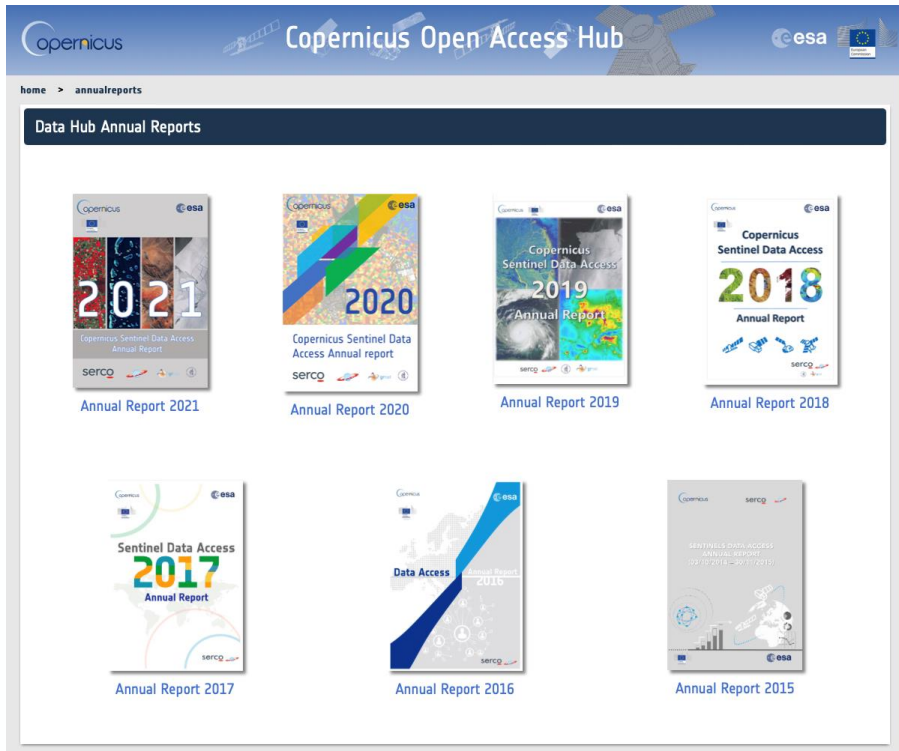
Since 2016, international partners mirror sites have started disseminating towards own national communities



The DIAS platforms allow for Cloud Computing with local access to Copernicus Sentinels Data



Since the start of the Sentinel operations ESA provides in-depth reporting on the take-up of the Sentinel data products



Instrument	Number of Published User-level data since Start of Operations	Number of Downloaded User-level data since Start of Operations	Archive Exploitation Ratio
OLCI	3,176,259	47,335,659	1 : 14.9
SLSTR	6,517,326	66,702,070	1 : 10.2
SRAL	1,565,947	16,579,251	1 : 10.6
SYNERGY	1,090,559	8,308,738	1 : 7.6

Table 10: Sentinel-3 User-level data Published, Downloaded and AER since the start of operations, per user-level data group

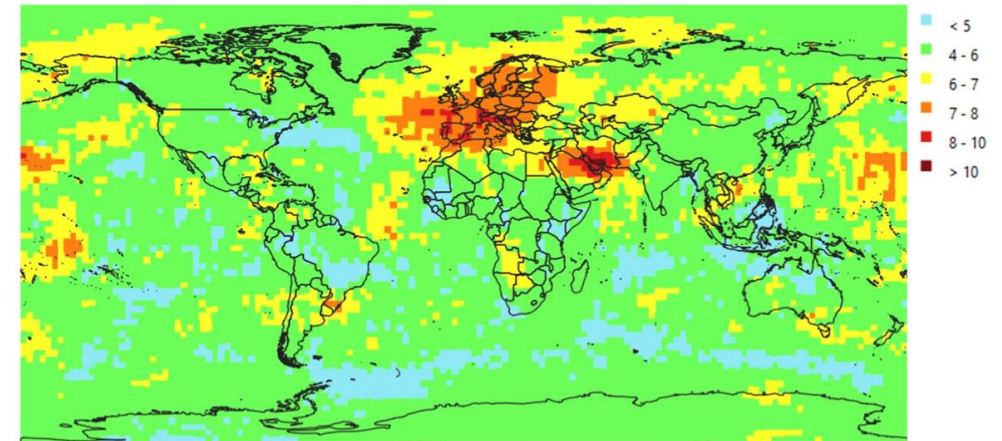


Figure 45: Heatmap showing the archive exploitation ratio for Sentinel-3 SLSTR Level-1 NTC user-level data during Y2021

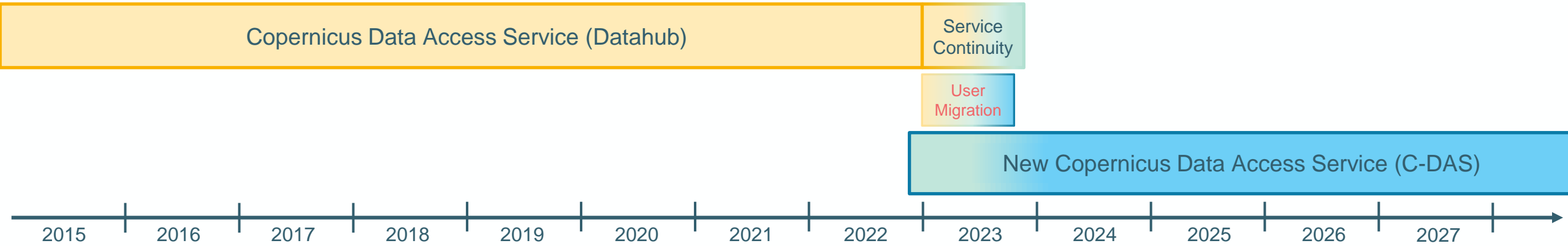
<http://sentinel.esa.int/reportsandstats/>

ESA Timeline for evolution of the Data Access Landscape

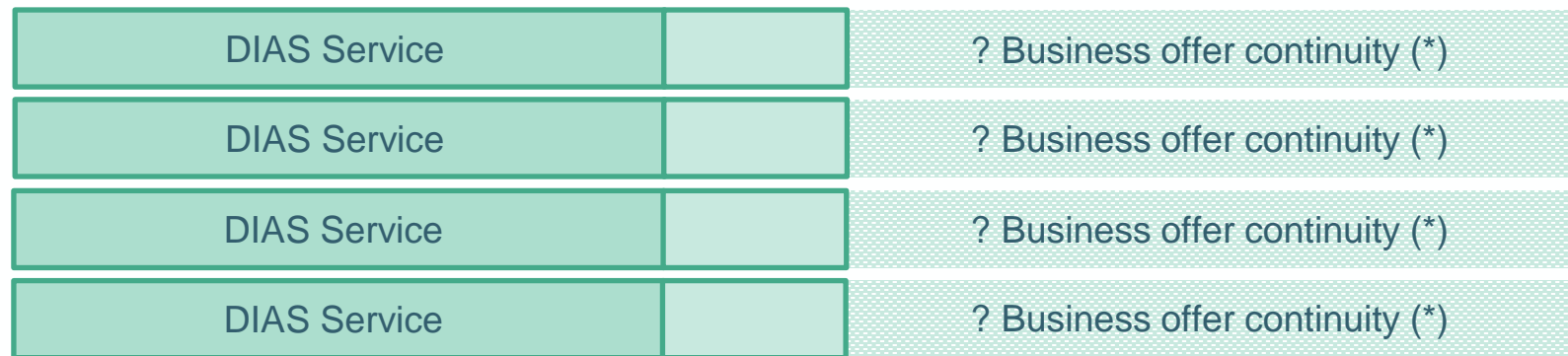


Copernicus Data Access Service in operations since 2014

Successfully ensuring massive daily data publication and user download



Data and Information Access Services (DIASs) in operations since mid 2018



Successfully combining access to **laaS** with access to **Copernicus data**

Specific Service Extension

(*) Potential continuity on self-sustainability basis

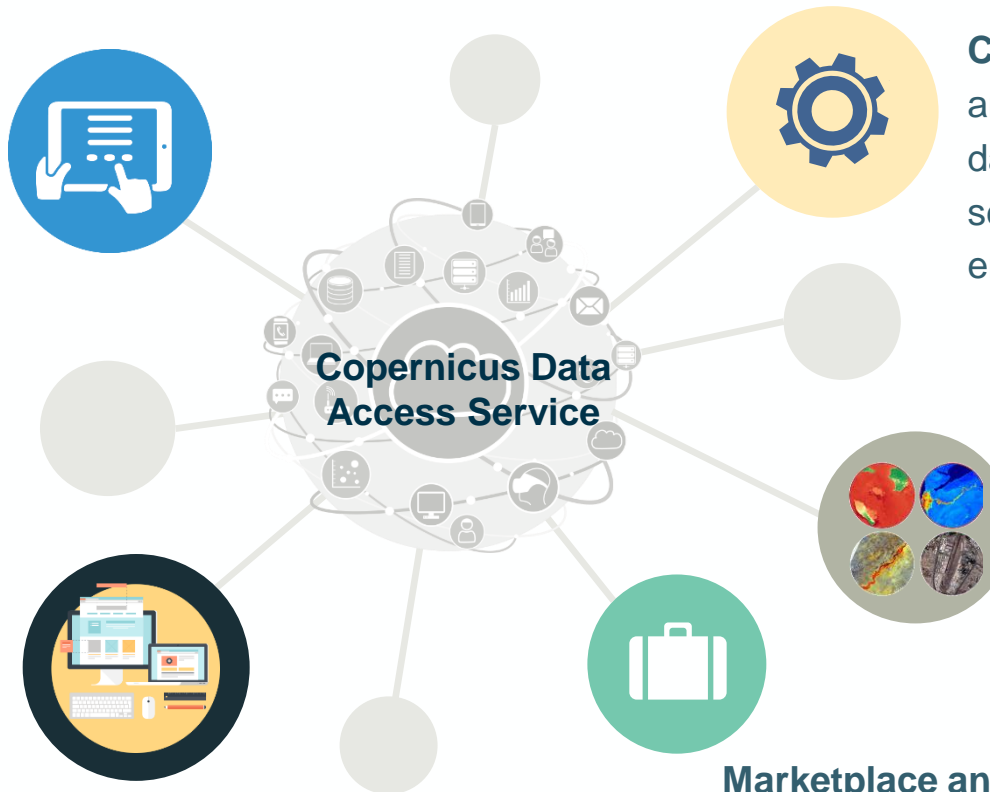


C-DAS embedding both Data Download and DIAS functionalities

Open **Ecosystem** on a public cloud

Unified User Management

opening access to complementary services such as IaaS, PaaS or SaaS based on the same digital identity



Cloud infrastructure services (storage, network and processing resources on the cloud) for user data processing and third-party applications and services, offering users a data exploitation environment

Copernicus data availability & retrieval (Sentinels User Level Data and Copernicus Contributing Mission data available for download and accessible directly using the IaaS/PaaS services)

Applications, services, documentation and software repository available for re-use by third-party users to facilitate the deployment of their own services within the Copernicus Data Space

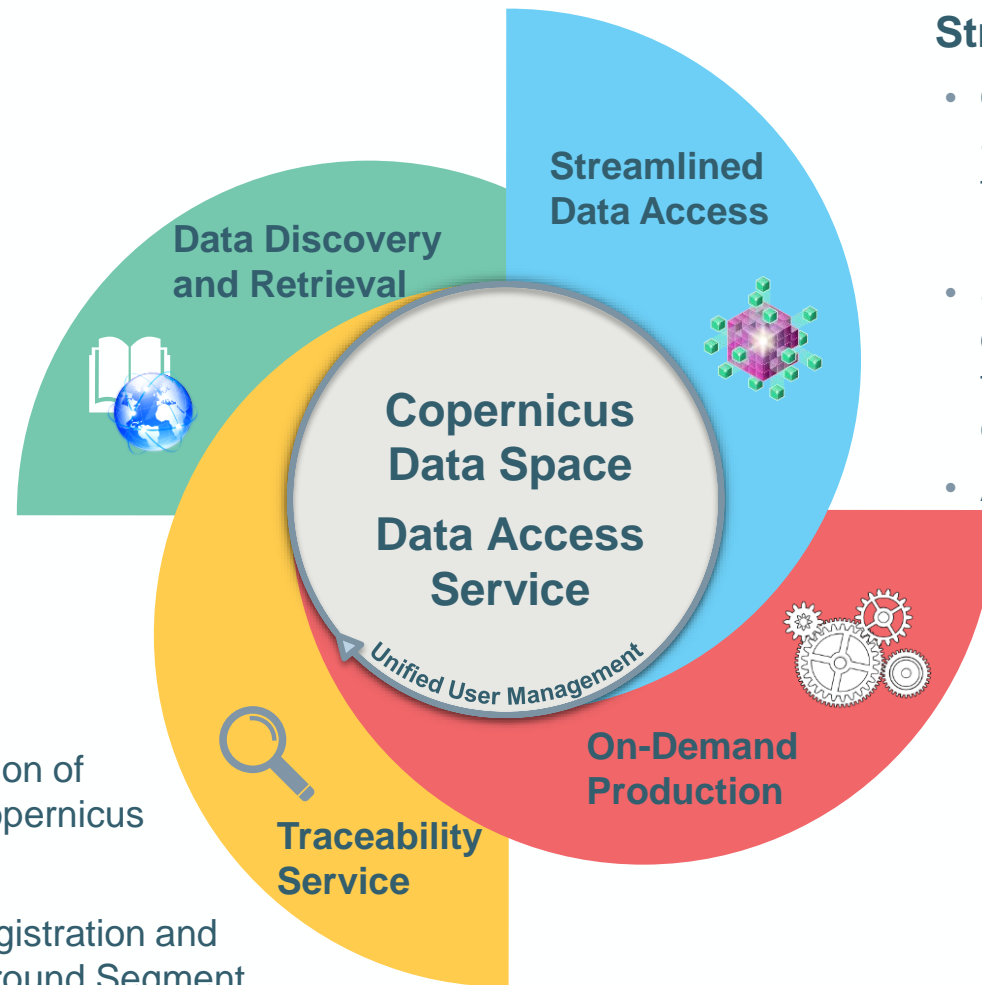
Marketplace and support to Third-Party services

Data Discovery and Retrieval

- Open and Free Access to ALL Sentinel User Level Data and Copernicus Contributing Missions Core Data Sets for download and direct access using IaaS resources.
- Large data set available for immediate access
- Catalogue, View, Discovery
- APIs + GUI

Traceability Service

- Allowing registration, access and verification of traces for the Copernicus Sentinel and Copernicus Contributing Mission data.
- Open to the entire Ecosystem for trace registration and verification (e.g. free use by other ESA Ground Segment services).

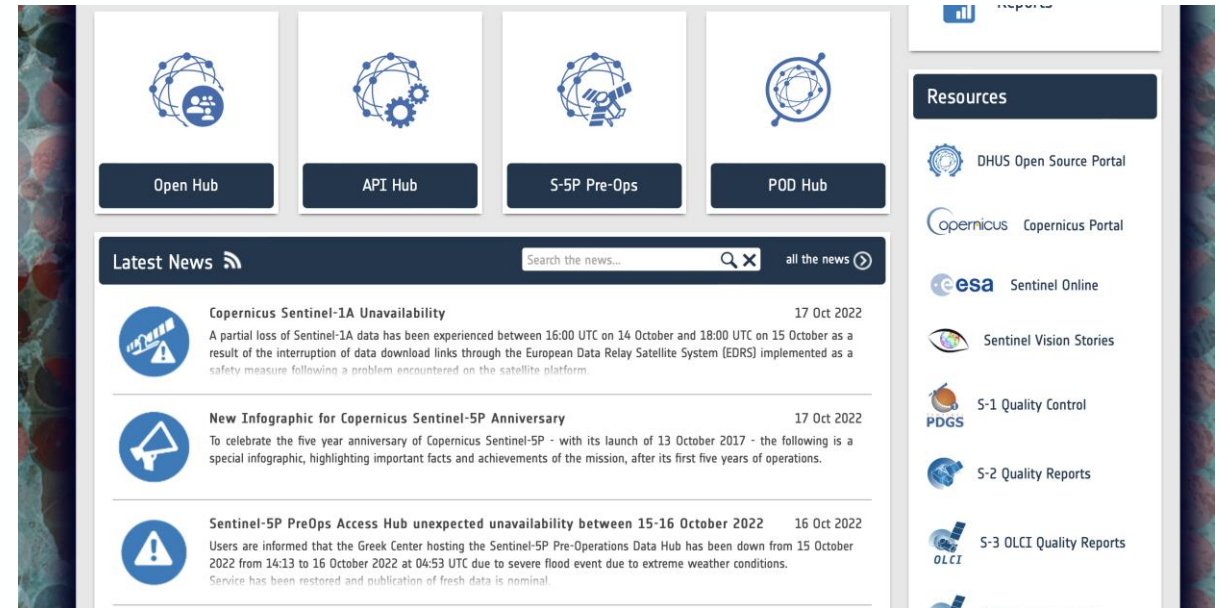
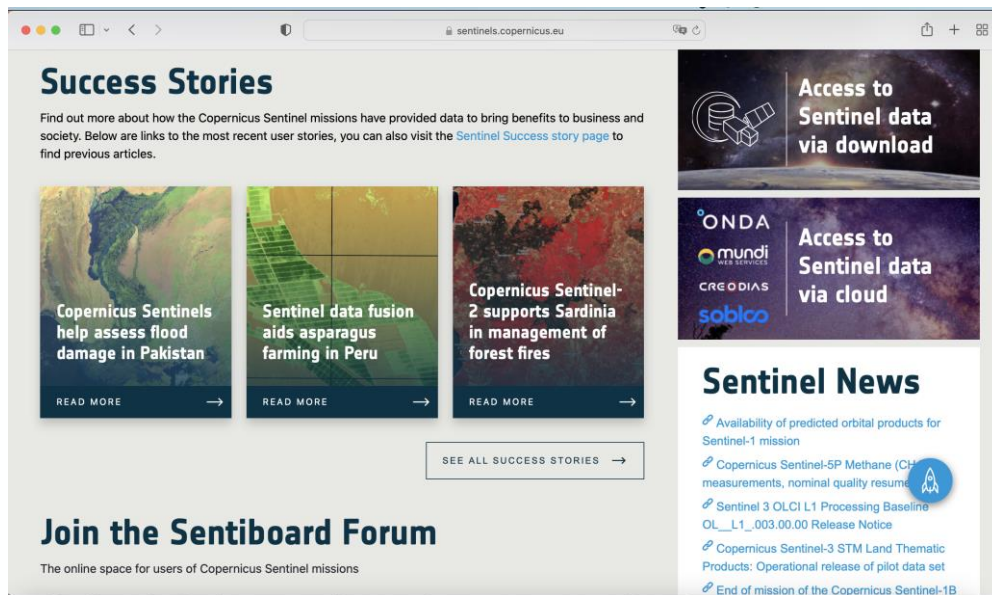


Streamlined Data Access

- Open and free Harmonised access to specific Sentinel Data collections, allowing efficient temporal and spatial access via dedicated API (e.g. OpenEO).
- Streamlined data representation and organisation including necessary data transformations (e.g. resampling, tiling using a common reference grid).
- Accessible via IaaS, Jupyter, advanced APIs

On-Demand Production Service

- Open and free access to on-demand Sentinel-1/2/3 L1 and L2 User Level Data for different processing baselines.
- Using the ESA operational processors.



<http://sentinel.esa.int>

<http://scihub.copernicus.eu>

- News and further information regarding the ESA data access and the evolution of the Copernicus Data Access Services available soon.