

Copernicus Space Data Ecosystem

Data access and processing capabilities



Magdalena Fitrzyk
RSAC c/o ESA

ESA UNCLASSIFIED – For ESA Official Use Only



First Generation Sentinels: a wealth of data for the users

Copernicus is the largest producer of EO data in the world

All global landmass is observed every 5 days at 10m resolution

>20 TB of Daily Data Production by Sentinels

~250 TB of Daily Sentinel Products Disseminated for Services to Society

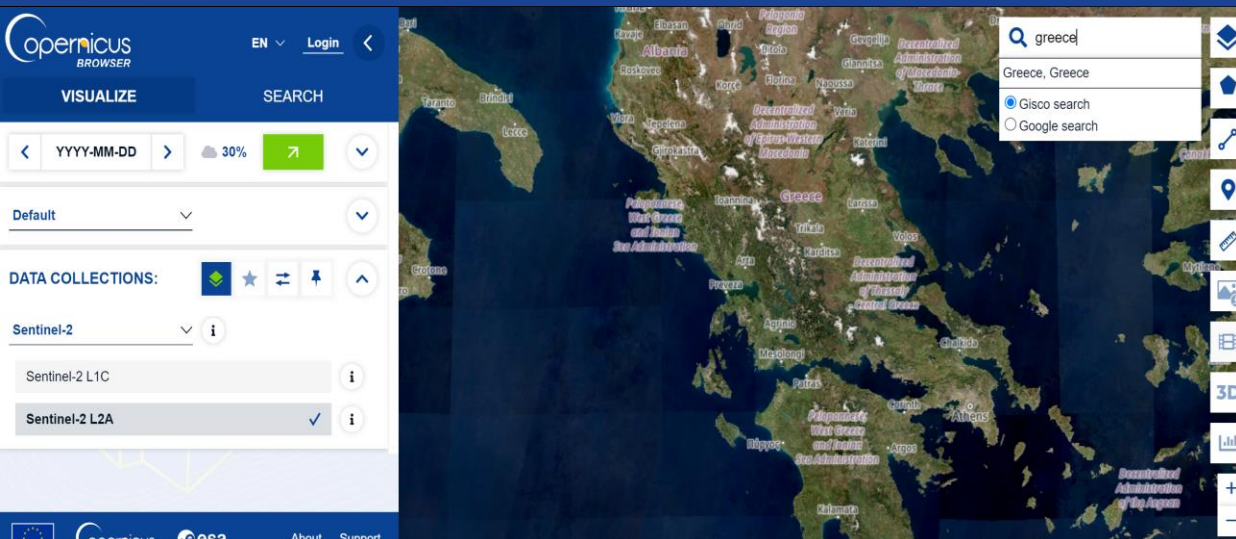
> 750.000 Registered Users
(>180.000 since new CSDE)

Supporting 6 operational services

 Land	 Atmosphere	 Ocean
 Climate	 Disaster	 Security



The Copernicus Data Space Ecosystem is now the principal entry point for Sentinel data




Downloaded volume
since the start of operations
725 PB


Total number of published products
since the start of operations
112.08M


Total volume of published products
since the start of operations
78 PB


Total number of registered users
from January 2023
185 198

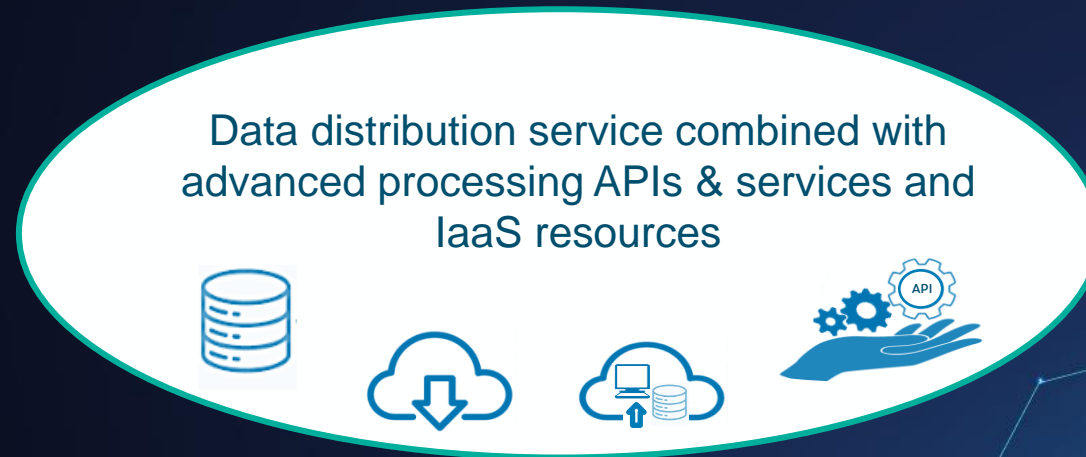
<https://dataspace.copernicus.eu>

Status 8 July 2024



CDSE Main Principles and Features

- Contribute to building an **efficient** and **attractive** European solution to access and process Copernicus Sentinel data
- Increase **user direct interaction** with the data – processing the data directly in the Ecosystem
- Provide a long-term perspective **building trust** with users and developers



- Open Ecosystem:
 - **Open and free** public services under fair use policy, adjustable capacity and performance
 - Capability to deploy **public** and **3rd party services** – one of the main Ecosystem goals

Sentinels: Immediately Available Data

>78 PB immediately available (>110 Million products)

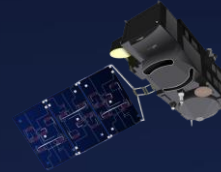
■ Sentinel-1

- GRD SAFE-COG
- GRD SAFE (last year)
- OCN
- SLC
- L0 RAW (Europe full, ROW last year)



■ Sentinel-3 Land

- OLCI L1/L2 NRT and NTC (NRT last year)
- SLSTR L1/L2 NRT and NTC (NRT last year)
- SRAL L1/L2 NRT, STC and NTC (STC last month, NRT last year)
- SYN L2 STC, NTC (STC last month)



■ Sentinel-2

- L1C
- L2A



■ Sentinel-5P

- Level-1B NTC
- Level-2 NRT and NTC (NRT last month)

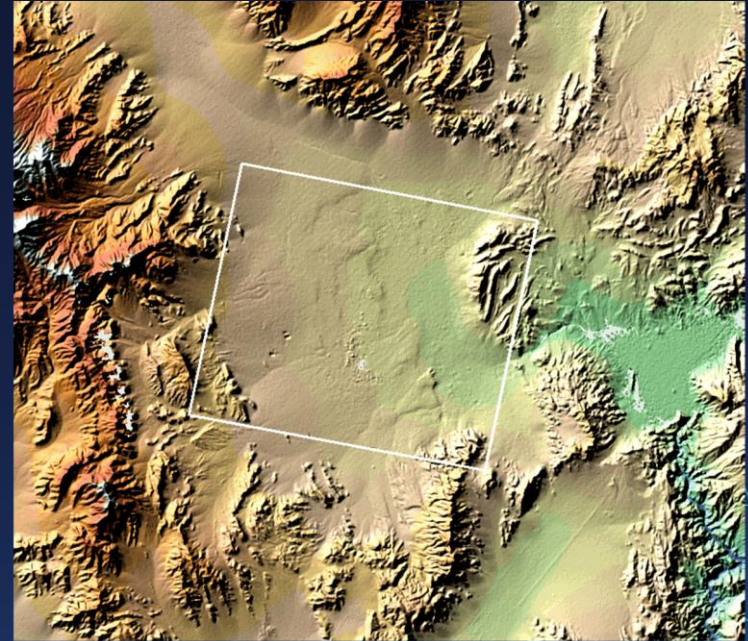
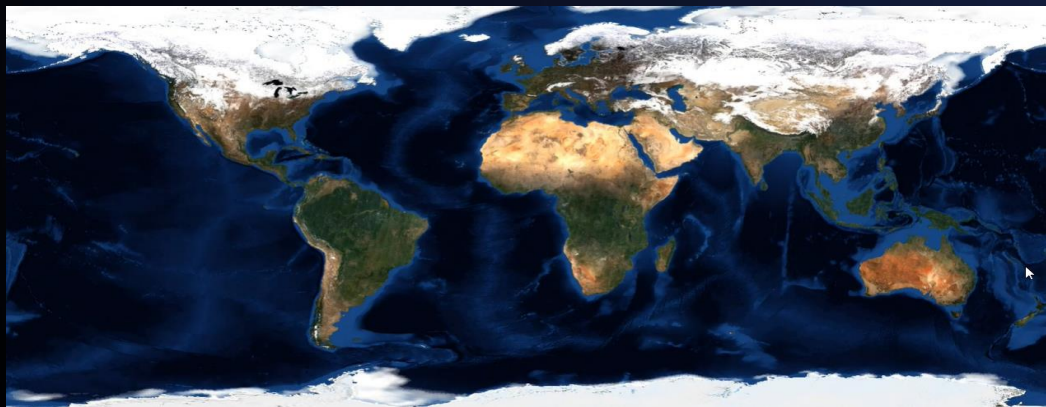


If not explicitly stated otherwise, worldwide coverage, full and up-to-date collection

Additional Data Offer

- Global Mosaics for Sentinel-1, Sentinel-2
- Copernicus Contributing Missions Data (e.g. VHR Europe, Copernicus DEM)
- Sentinel Auxiliary and Engineering Data
- Copernicus Services (CAMS, CEMS, CLMS, CMEMS)

and more...

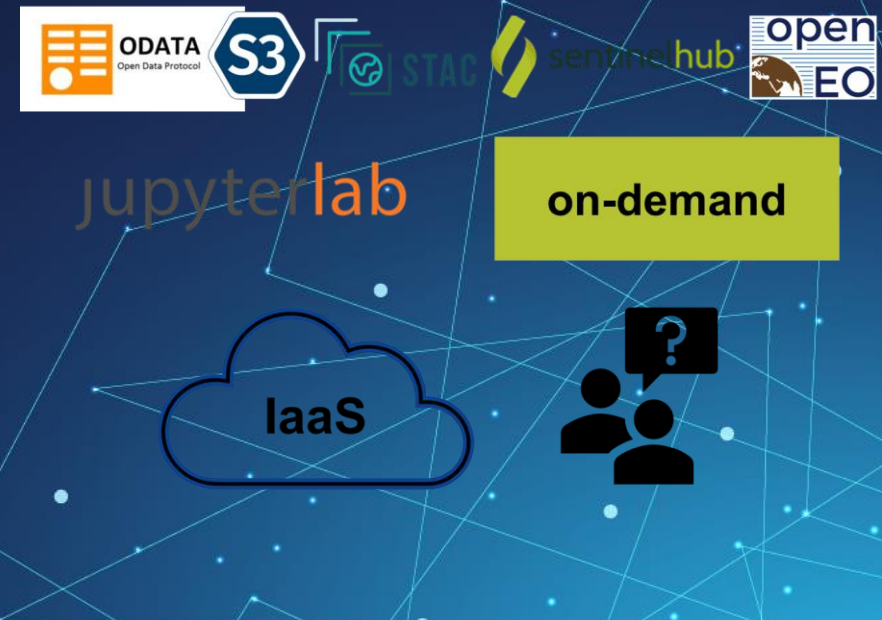
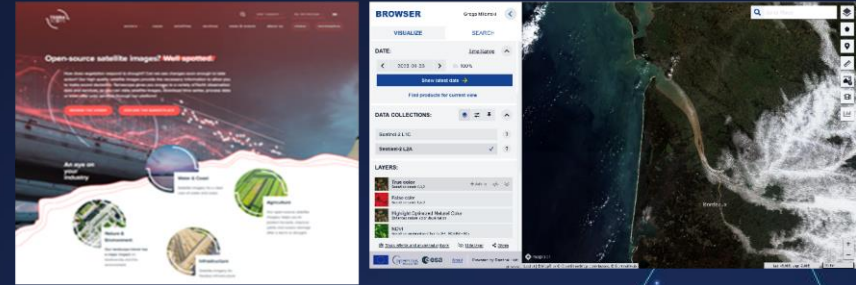


 Atmosphere	 Marine	 Land
 Climate Change	 Security	 Emergency

Large portfolio of data access interfaces and data exploitation services:

- **Copernicus Browser** for search, access and visualisation
- OData, STAC and S3 APIs for access to data files
- Sentinel Hub and openEO APIs for streamlined data access
- JupyterLab for hosted analysis and processing
- On-Demand Processing Service
- Traceability Service
- Infrastructure as a Service
- Public User Forum and Support Desk

dataspace.copernicus.eu



Search, query and download all User Level Data

BROWSER Grega Milcinski <

VISUALIZE **SEARCH**

Go to search

Showing 50 results of 141

S2A_MSIL2A_20230212T101131_N0509_R022_T32TPQ_20230212T142159.SAFE
Mission: SENTINEL-2 **Instrument:** MSI **Size:** 1183MB
Sensing time: 2023-02-12T10:11:31.024Z

SENTINEL-2 MSI S2MSI2A [i](#) [+](#) [d](#)

S2A_MSIL2A_20230212T101131_N0509_R022_T32TQQ_20230212T142159.SAFE
Mission: SENTINEL-2 **Instrument:** MSI **Size:** 1039MB
Sensing time: 2023-02-12T10:11:31.024Z

SENTINEL-2 MSI S2MSI2A [i](#) [+](#) [d](#)

S2A_MSIL2A_20230212T101131_N0509_R022_T32TNR_20230212T142159.SAFE
Mission: SENTINEL-2 **Instrument:** MSI **Size:** 563MB
Sensing time: 2023-02-12T10:11:31.024Z

SENTINEL-2 MSI S2MSI2A [i](#) [+](#) [d](#)

S2A_MSIL2A_20230212T101131_N0509_R022_T32TPR_20230212T142159.SAFE
Mission: SENTINEL-2 **Instrument:** MSI **Size:** 1171MB
Sensing time: 2023-02-12T10:11:31.024Z

SENTINEL-2 MSI S2MSI2A [i](#) [+](#) [d](#)

S2A_MSIL2A_20230212T101131_N0509_R022_T32TQS_20230212T142159.SAFE
Mission: SENTINEL-2 **Instrument:** MSI **Size:** 1200MB
Sensing time: 2023-02-12T10:11:31.024Z

SENTINEL-2 MSI S2MSI2A [i](#) [+](#) [d](#)

[About](#) Powered by Sentinel Hub

map.tiler
Leaflet | © MapTiler © OpenStreetMap contributors
Lat: 46.250, Lng: 8.878
20 km

Interactive visualisation and analysis of most important data collections

BROWSER

Grego Milcinski

VISUALIZE SEARCH

DATE: Time Range

< 2022-06-16 > 10%

Show latest date →

Find products for current view

Sentinel-2 L2A ⓘ

LAYERS:

- True color
Based on bands 4,3,2
- False color
Based on bands 8,4,3
- Highlight Optimized Natural Color
Enhanced natural color visualization
- NDVI
Based on combination of bands (B8 - B4)/(B8 + B4)
- False color (urban)
Based on bands 12,11,4
- Moisture index
Based on combination of bands (B8A - B1...

Show effects and advanced options Hide layer Share

Basic Analytical **High-res print**

Image download

Image format: TIFF (16-bit)

Image resolution: MEDIUM
1083 x 736 px

Coordinate system: UTM 31N (EPSG:32631)
Projected resolution: 12 m/px

Clip extra bands ⓘ

Visualized	Raw
<input type="checkbox"/> True color	<input type="checkbox"/> B01
<input type="checkbox"/> Highlight Optimized Natural Color	<input type="checkbox"/> B02
<input type="checkbox"/> Scene classification map	<input type="checkbox"/> B03
<input type="checkbox"/> False color	<input type="checkbox"/> B04
<input type="checkbox"/> False color (urban)	<input type="checkbox"/> B05
<input type="checkbox"/> NDVI	<input type="checkbox"/> B06
<input checked="" type="checkbox"/> Moisture index	<input type="checkbox"/> B07
<input type="checkbox"/> SWIR	<input type="checkbox"/> B08
<input type="checkbox"/> NDWI	<input type="checkbox"/> B09
<input type="checkbox"/> NDSI	<input type="checkbox"/> B11
	<input type="checkbox"/> B12
	<input type="checkbox"/> B8A

Preview

Go to Place

3D

Lat: 52.00930, Lng: 5.12687 1 km

Export subset of the data (also in print quality)

BROWSER Grega Milcinski <

VISUALIZE SEARCH

DATE: Time Range ^

< 2022-06-16 > ☁ 10%

Show latest date →

Find products for current view

Sentinel-2 L2A i ↕ ↶ ↷

LAYERS:

- True color
Based on bands 4,3,2
- False color
Based on bands 8,4,3
- Highlight Optimized Natural Color
Enhanced natural color visualization
- NDVI**
Based on combination of bands (B8 - B4)/(B8 + B4)... + Add to </> ∨
- False color (urban)
Based on bands 12,11,4
- Moisture index
Based on combination of bands (B8A - B11)/(B8A + B11)

Show effects and advanced options Hide layer Share

maptiler Leaflet MapTiler OpenStreetMap contributors Sentinel Hub

Go to Place

0.26 km²

Sentinel-2 L2A - NDVI x

Value

Recalculate

Hej-en Lat: 51.97072, Lng: 4.97595 1 km

Comparison, time-lapses, area analysis
and more...



3D exploration and visualization

BROWSER Grega Milcinski

VISUALIZE SEARCH

DATE: Time Range
2022-06-23 10%
Show latest date →
Find products for current view

Sentinel-2 L2A

LAYERS:

- True color (Based on bands 4,3,2)
- False color (Based on bands 8,4,3)
- Highlight Optimized Natural Color (Enhanced natural color visualization)
- NDVI (Based on combination of bands (B8 - B4)/(B8 + B4))
- False color (urban) (Based on bands 12,11,4)
- Moisture index (Based on combination of bands (B8A - B11)/(B8A + B11))

Lat: 45.93670, Lng: 6.91995, Eye height: 2.66 km



Documentation

Welcome

- Service description and evolution roadmap >
- User registration and authentication
- Data >
- APIs >
- Applications >
- Quotas and Limitations
- Access through Research Network
- Jupyter Notebook Samples
- FAQ
- Support

Welcome to the [Copernicus Data Space Ecosystem](#) Documentation Portal

We're delighted you signed up!

Now, let's explore our extensive documentation to gain insights into our comprehensive Earth Observation data collection and the array of data access and data processing capabilities.

Our documentation is a living resource, continuously updated to provide you with the latest information.

Discover within this documentation:

- [Data](#): Explore large amounts of open and free Earth Observation datasets, including Sentinel Data, Copernicus Contributing Missions, Federated Datasets, and Complementary Data, with detailed information.
- [APIs](#): Find the perfect interface for your needs in our suite of APIs. Whether you seek catalog access, product downloads, data visualization, or processing capabilities, our offerings encompass a range of options, including S3, STAC, openEO, and Sentinel Hub APIs.
- [Applications](#): Simplify your satellite data journey and engage with data using our user-friendly applications for searching, visualizing, modifying, and downloading data effortlessly.

<https://documentation.dataspace.copernicus.eu>



Ecosystem Help Center - Community Forum



PROGRAMME OF THE EUROPEAN UNION Copernicus ESA

Welcome to our revamped community forum! ☀️ Step into a world of enhanced engagement and interaction as we unveil this fresh platform. Dive in, explore its intuitive features, and join the vibrant conversation shaping our community's future. Together, let's make this space thrive!

all categories ▾ all tags ▾ Latest Top Categories + New Topic

Topic	Replies	Views	Activity
Downloading a Sentinel 5p raster as a .tif openEO	12	7	8m
Sentinel data in QGIS 1 QGIS Plugin	2	12	2h
Time series only showing 3 of 23 geometries openEO API	7	23	3h
Inquiry About Data Access in the New Copernicus Dataspace (CSV, Metadata Details) APIs	2	13	23h
S3 eodata returns forbidden on sentinel 1 grd cog products S3 Access	2	13	1d
Sentinel 1 ETAD API APIs	1	10	1d
Full-scene Sentinel-2 scan APIs	1	11	1d

<https://forum.dataspace.copernicus.eu>

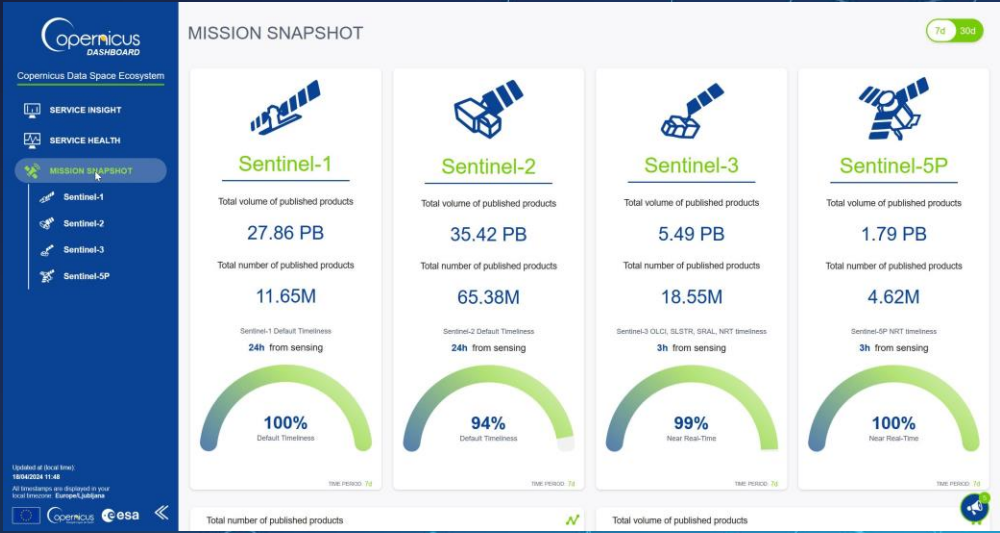
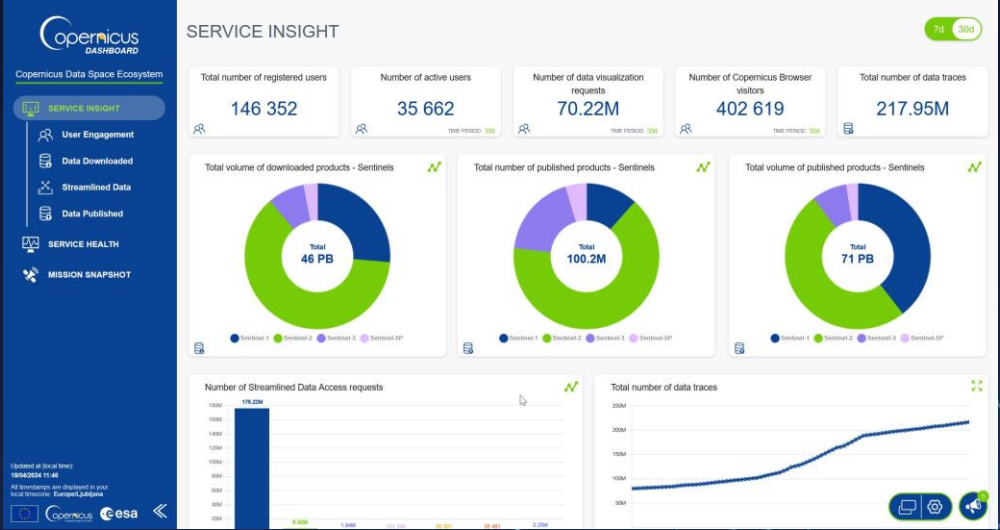


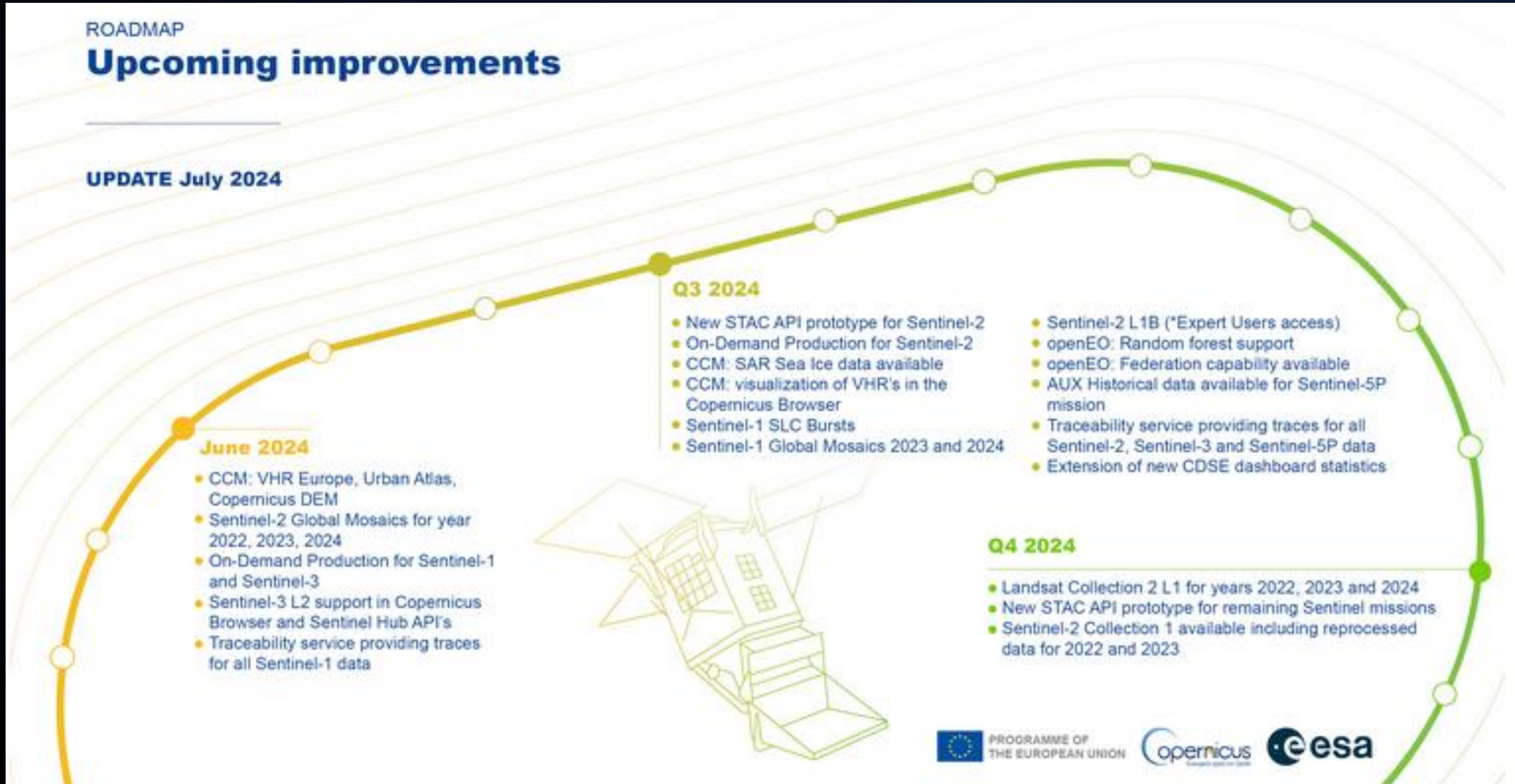
Ecosystem Dashboard



Real-time dashboard for following ecosystem health and use:

- Instant service news banner
- General information about users
- Published and downloaded data volumes
- Streamlined data access
- Service health
- Earth Observation Mission snapshot





Explore the Copernicus Data Space Ecosystem

Welcome to the Copernicus Data Space Ecosystem, an open ecosystem that provides free instant access to a wide range of data and services from the Copernicus Sentinel missions and more on our planet's land, oceans and atmosphere.

The Copernicus Data Space Ecosystem not only ensures the continuity of the open and free access to Copernicus data but also extends the portfolio for data processing and data access possibilities.

LOGIN 

