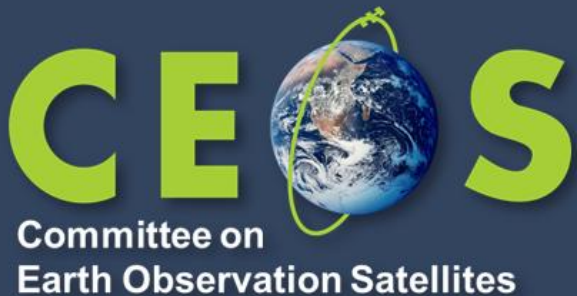
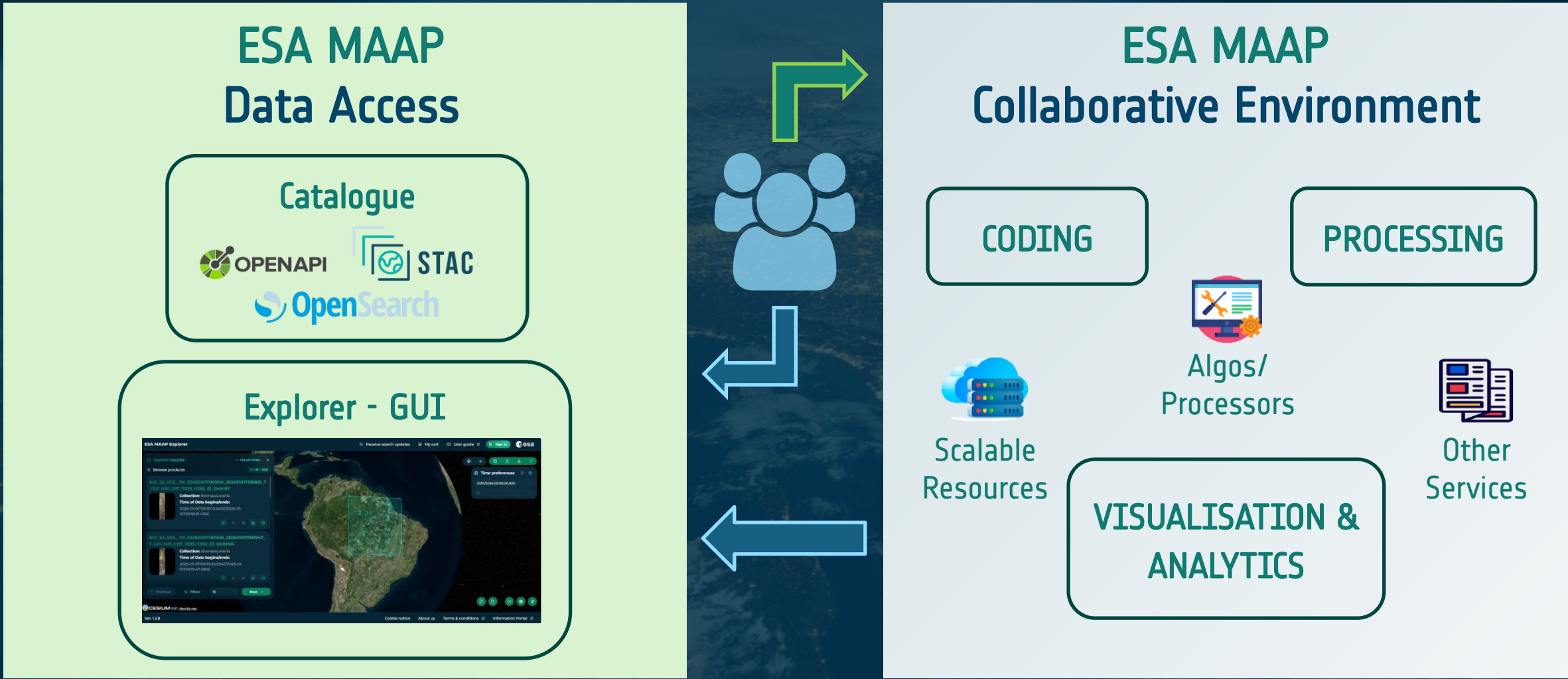


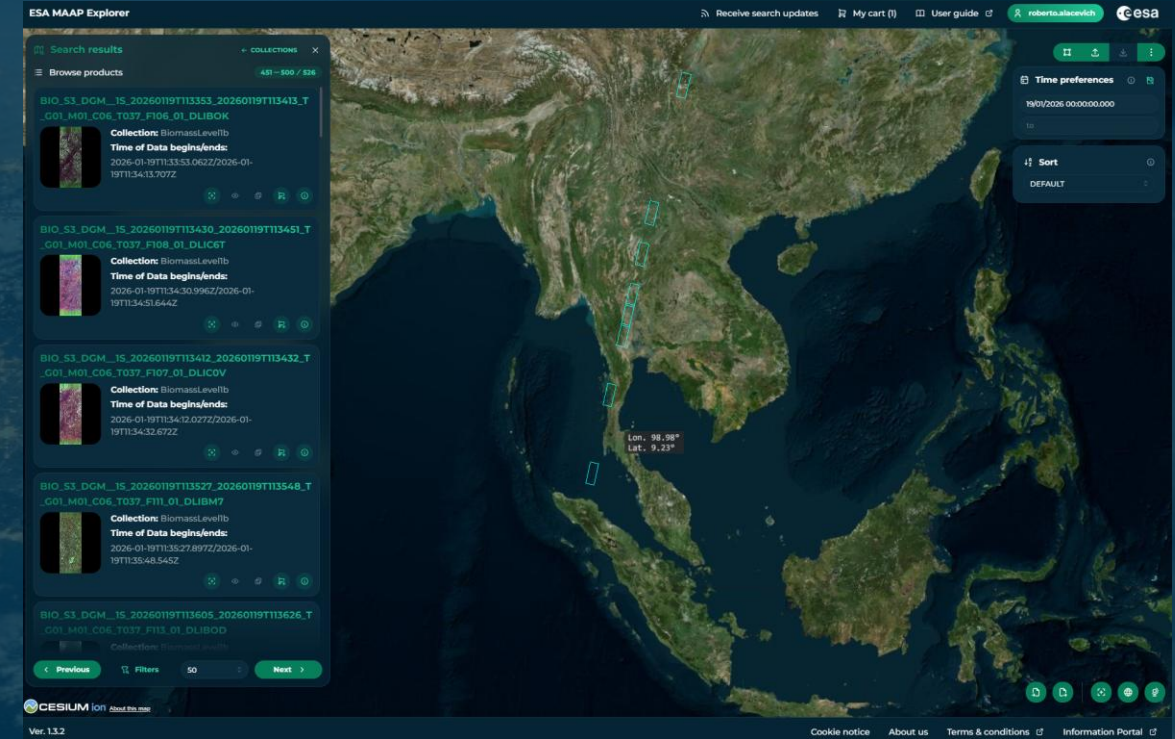
WGISS-61 ESA MAAP



R. Alacevich, ESA
Agenda Item 4.8
WGISS-61
16-20 March, 2026
Dehradun, India



- Interfaces: STAC API, OpenSearch, OpenAPI, ...



The **Explorer** offers a user-friendly interface for discovery, visualisation and access to the ESA MAAP data offer

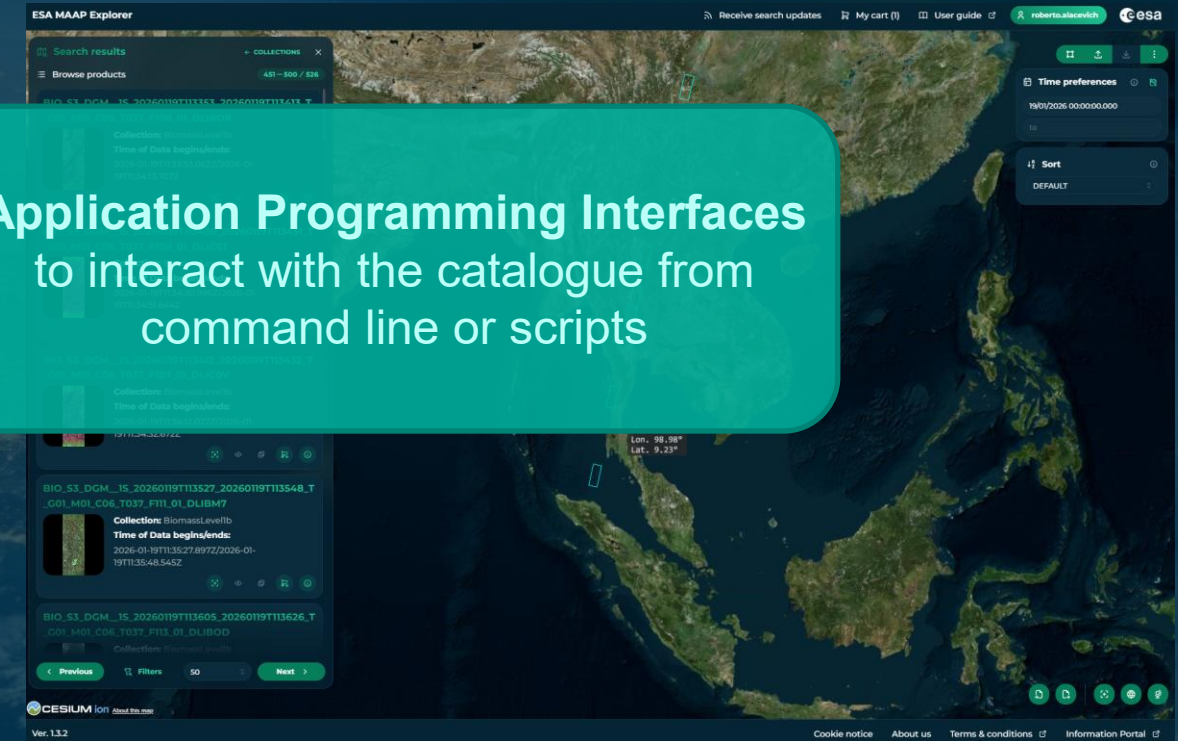
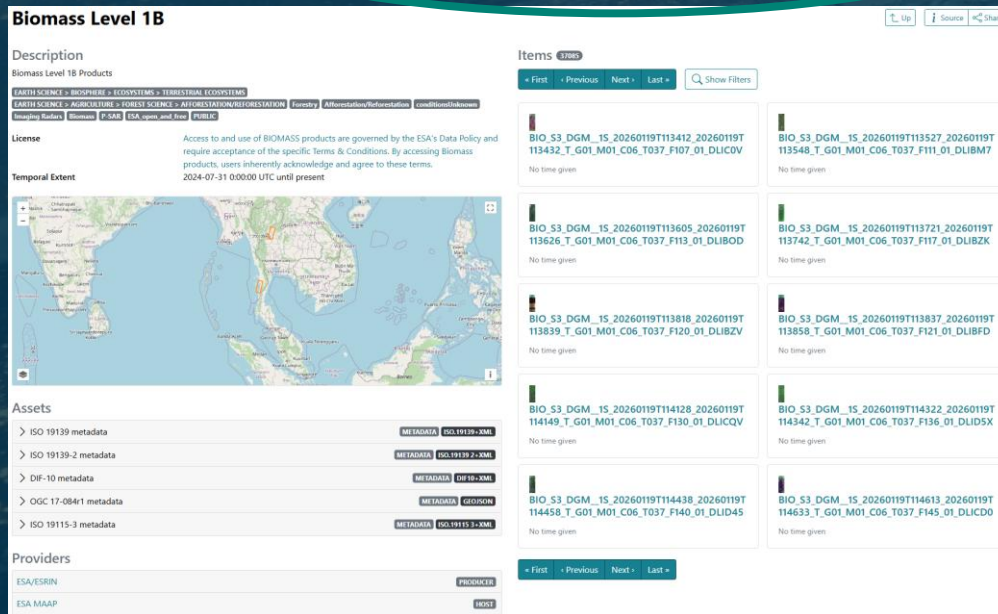
ESA MAAP Data Discovery and Access



The **Catalogue** is a central repository for managing federated and local collections / granules metadata

- Interfaces: STAC API, OpenSearch, OpenAPI, ...

Application Programming Interfaces
to interact with the catalogue from
command line or scripts



Data stored in **object storage** to provide fast access to products and subsets of products

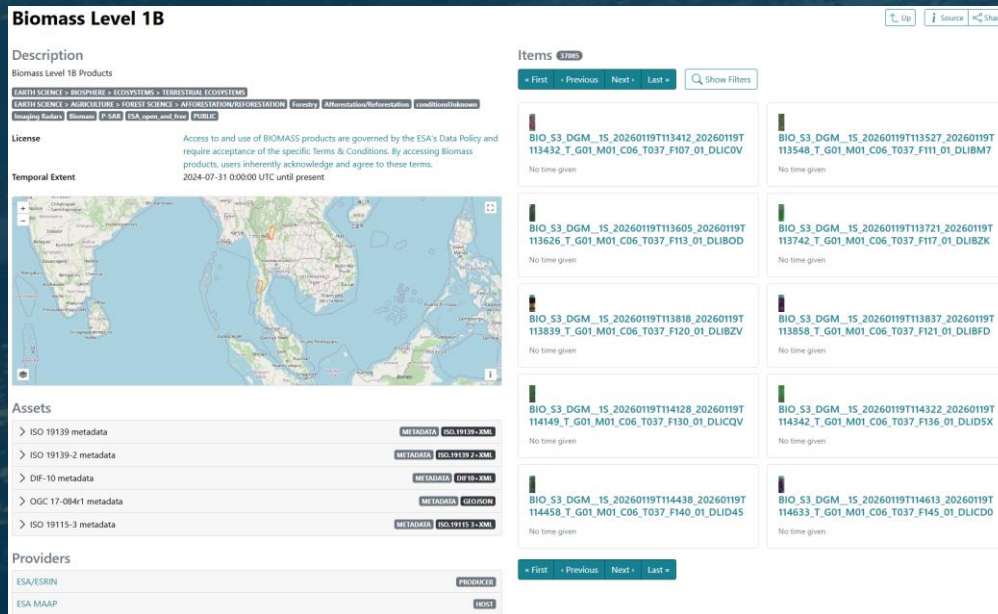
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ESA MAAP Data Discovery and Access

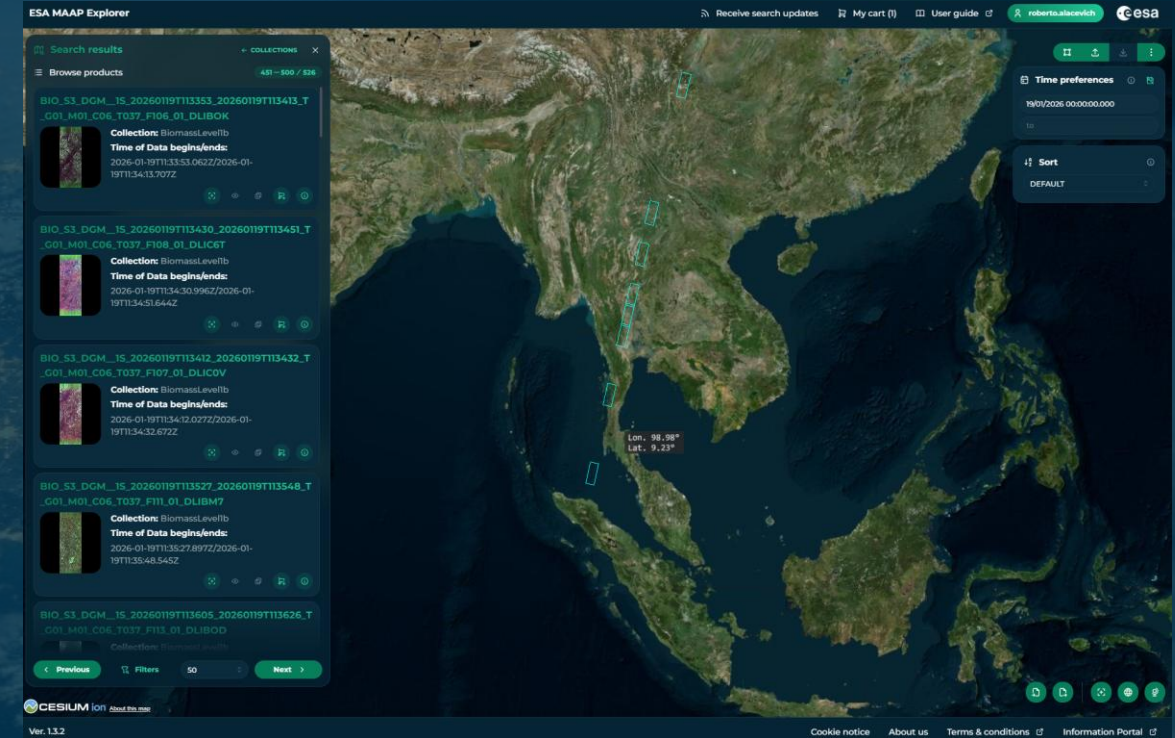


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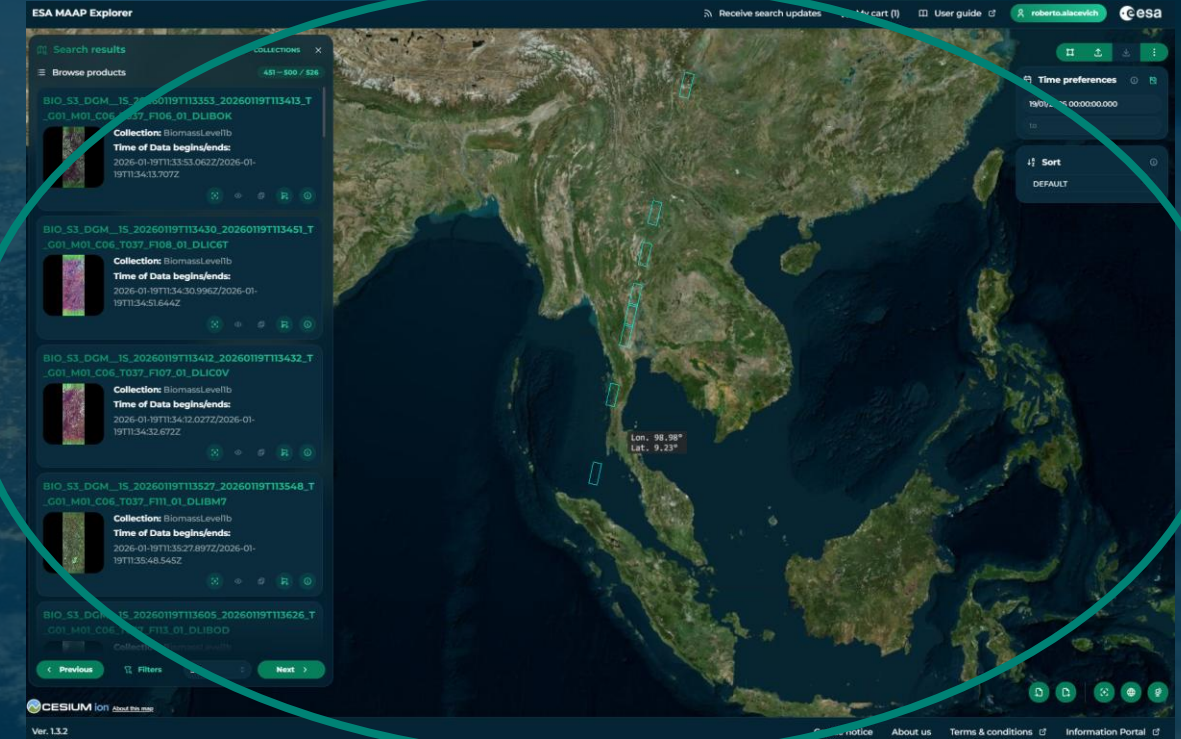
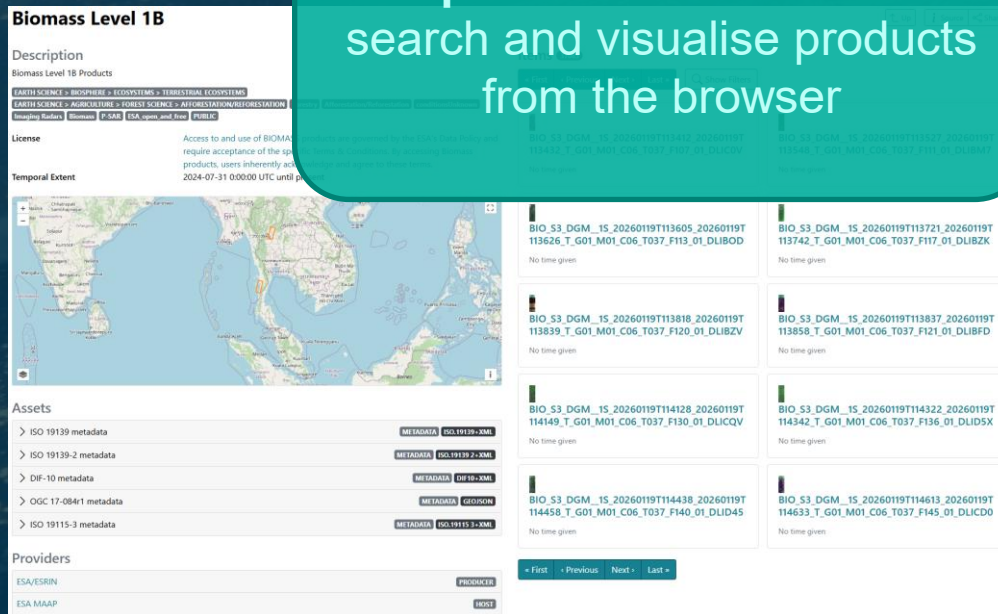
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ESA MAAP Data Discovery and Access



The **Catalogue** is a central repository for managing federated and local collections / granules metadata

- Interfaces: STAC API, OpenSearch, OpenAPI, **Graphical User Interface to search and visualise products from the browser**



The **Explorer** offers a user-friendly interface for discovery, visualisation and access to the ESA MAAP data offer

Data stored in **object storage** to provide fast access to products and subsets of products

ESA MAAP Advanced Data Access – scripts



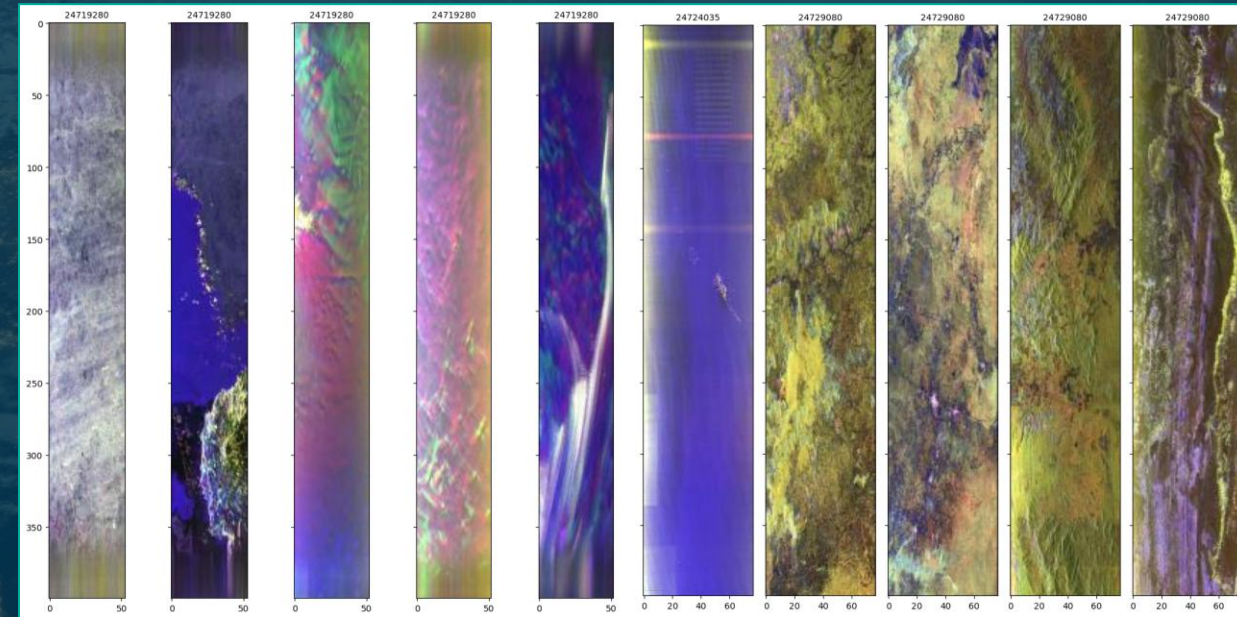
Unpacked products hosted on ESA MAAP to enable

- Downloading single file within a product
- Reading/Streaming full products or subsets of products **without needing to download**

Fetch and use your Token
(user's authentication and authorization)

```
headers = f"Authorization: Bearer {token}"  
  
# Add the url  
data_url = 'https://catalog.preop.esa-maap.org/data/cat-pre-data-02/BiomassLev'  
# Opens a GDAL environment that will attach the Authorization header to all HT  
with Env(GDAL_HTTP_HEADERS=headers):
```

```
with plt.fg:  # fig, axes = plt.subplots(1, len(df), figsize=(2 * len(df), 10), sharey=True)  
    for ax, row in zip(axes, df.iterrows()):  
        response = requests.get(row[1].thumbnail)  
        img = Image.open(BytesIO(response.content))  
        ax.imshow(img)  
        ax.set_title(row[1].dt_id, fontsize=10)  
  
plt.tight_layout()  
plt.show()
```



Read and Plot with Standard Library
(no need to download)

ESA MAAP EarthCARE Data Access from Explorer



First Step Search – Collections: [ESA MAAP Explorer](#)

ESA MAAP Explorer

My cart

User guide

Sign in

esa

Collections

Find collections

Search Terms

Biomass

COSMO-SkyMed

COSMO-SkyMed Second Generation

CryoSat-2

ERS-1 identifier

ERS-2

EarthCARE Platform

EarthCARE

Offering

Organisation name

Doi

Select option

Title

Enter text

Instrument

Select option

Item ID

Enter text

Classification

Enter text

Query

Enter text

Other constraint

Enter text

Use limitation

Select option

Modification date

Pick date & time

Time preferences

From

to

Sort preferences

SORT BY

Map controls

Full screen

Download

Share

Map style

Layers

Cesium ion

About this map

Ver. 1.5.2

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ESA MAAP EarthCARE Data Access from Explorer



Second Step Search – Products: [ESA MAAP Explorer](#)

ESA MAAP Explorer

Receive search updates

My cart

User guide

Sign in

esa

Search results

Bulk List

← COLLECTIONS

×

Select all

Deselect all

Add to cart

1 – 10 / 567,212

ECA_JXCB_CPR_NOM_1B_20250415T150924Z_20250415T165108Z_05005D

Collection: EarthCAREL1Validated_MAAP

Time of Data begins/ends:
2025-04-15T15:09:24.000Z/2025-04-15T15:21:11.000Z

Select

↻

📄

🛒

⌚

ECA_EXBA_MSI_RGR_1C_20240717T114448Z_20250620T123502Z_00771C

Collection: EarthCAREL1Validated_MAAP

Previous

Filters

10

Next

Time preferences

ⓘ

✕

From

to

Sort preferences

ⓘ

✕

Sort by

⌵

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ESA MAAP EarthCARE Data Access from Explorer



Discover and Access single files within a Product : [ESA MAAP Explorer](#)

ESA MAAP Explorer

Receive search updatesMy cartUser guideSign in

Product details

ECA_EXBA_MSI_RGR_IC_20240717T060838Z_20250620T124139Z_00767F

MetadataAdditional ResourcesAssets

OGC 10-157r4 metadata

ECA_EXBA_MSI_RGR_IC_20240717...

OGC 17-003r2 metadata

ISO 19139 metadata

ECA_EXBA_MSI_RGR_IC_20240717...

Download icons

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ESA MAAP EarthCARE Data Access from Explorer



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Product details

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MetadataAdditional ResourcesAssets

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ECA_EXBA_MSI_RGR_IC_20240717...

OGC 17-003r2 metadata

ISO 19139 metadata

ECA_EXBA_MSI_RGR_IC_20240717...

Product Metadata files

Different standards available

Ver. 1.5.2

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ESA MAAP EarthCARE Data Access from Explorer



Discover and Access single files within a Product : [ESA MAAP Explorer](#)

The screenshot displays the ESA MAAP Explorer web application. At the top, there's a navigation bar with links for 'Receive search updates', 'My cart', 'User guide', and a 'Sign in' button. The main content area shows 'Product details' for the product ID 'ECA_EXBA_MSI_RGR_IC_20240717T060838Z_20250620T124139Z_00767F'. Below the product ID, there are three tabs: 'Metadata', 'Additional Resources', and 'Assets'. The 'Assets' tab is active, showing a list of files. The first file in the list is 'OCA 10-157r4 metadata'. The second file, 'ECA_EXBA_MSI_RGR_IC_20240717...', is circled in red, and a red callout bubble points to it with the text '.h5 file'. Other files in the list include 'OCA 17-003r2 metadata', 'ISO 19139 metadata', and another instance of 'ECA_EXBA_MSI_RGR_IC_20240717...'. Each file has a download icon to its right. The bottom of the interface shows the 'CESIUM ion' logo, version 'Ver. 1.5.2', and links for 'Cookie notice', 'About us', 'Terms & conditions', and 'Information Portal'.

ESA MAAP EarthCARE Data Access from Explorer



Discover and Access single files within a Product : [ESA MAAP Explorer](#)

ESA MAAP Explorer

Receive search updatesMy cartUser guideSign in

Product details

ECA_EXBA_MSI_RGR_IC_20240717T060838Z_20250620T124139Z_00767F

MetadataAdditional ResourcesAssets

OGC 10-157r4 metadata

ECA_EXBA_MSI_RGR_IC_20240717...

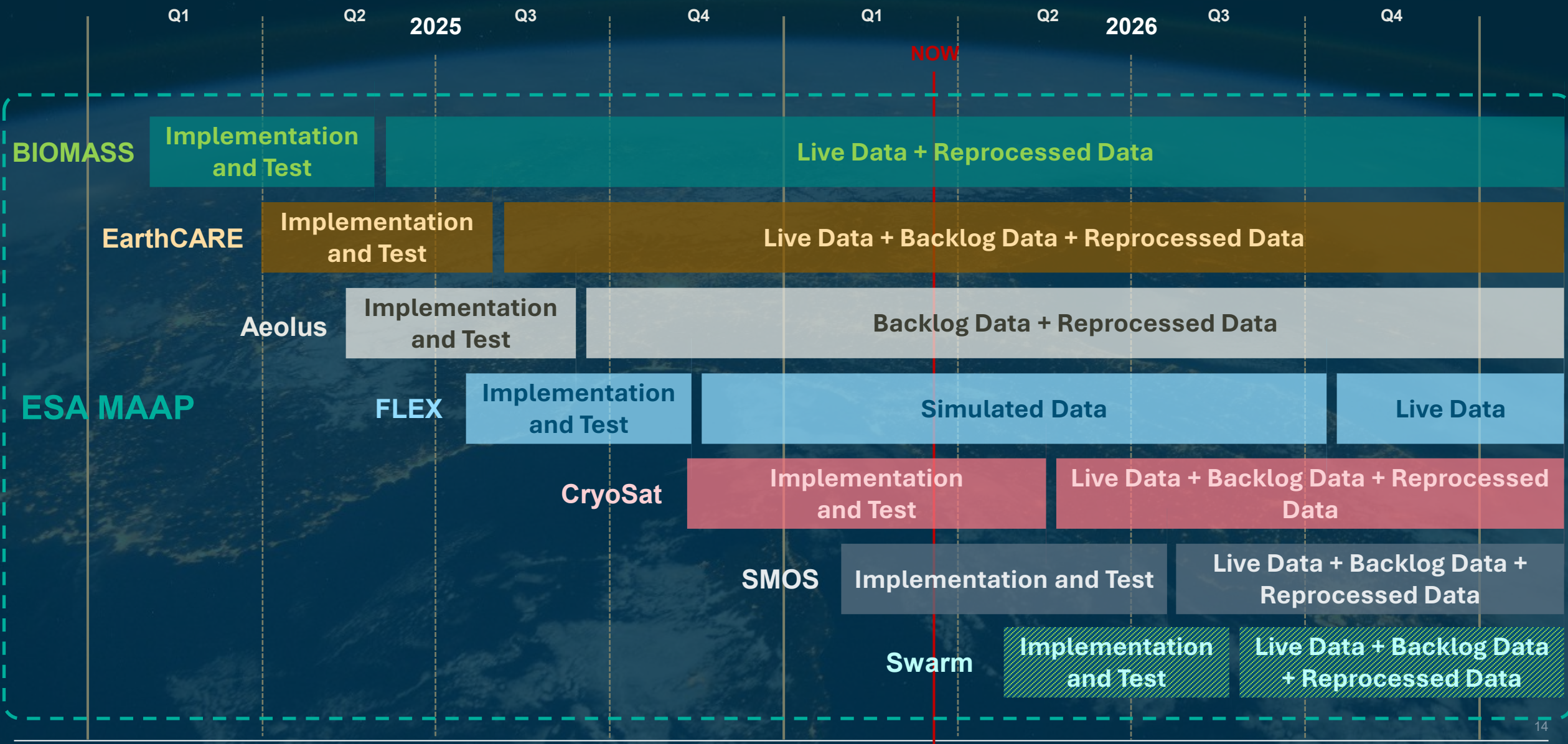
OGC 17-003r2 metadata

ISO 19139 metadata

ECA_EXBA_MSI_RGR_IC_20240717...

Download icons

.HDR file



The **Product Algorithm Laboratory (PAL)** is an environment that can be tailored to specific scientific community needs.

It offers **environments** for data management, algorithms execution and development, results visualisation and analysis, processing tasks execution, data and results sharing.

It supports **multi-tenancy** by allocating dedicated resources for each Collaborative Environment depending on specific needs.



- **Biomass MAAP** available since March 2025
- **EarthCARE MAAP** available since June 2025

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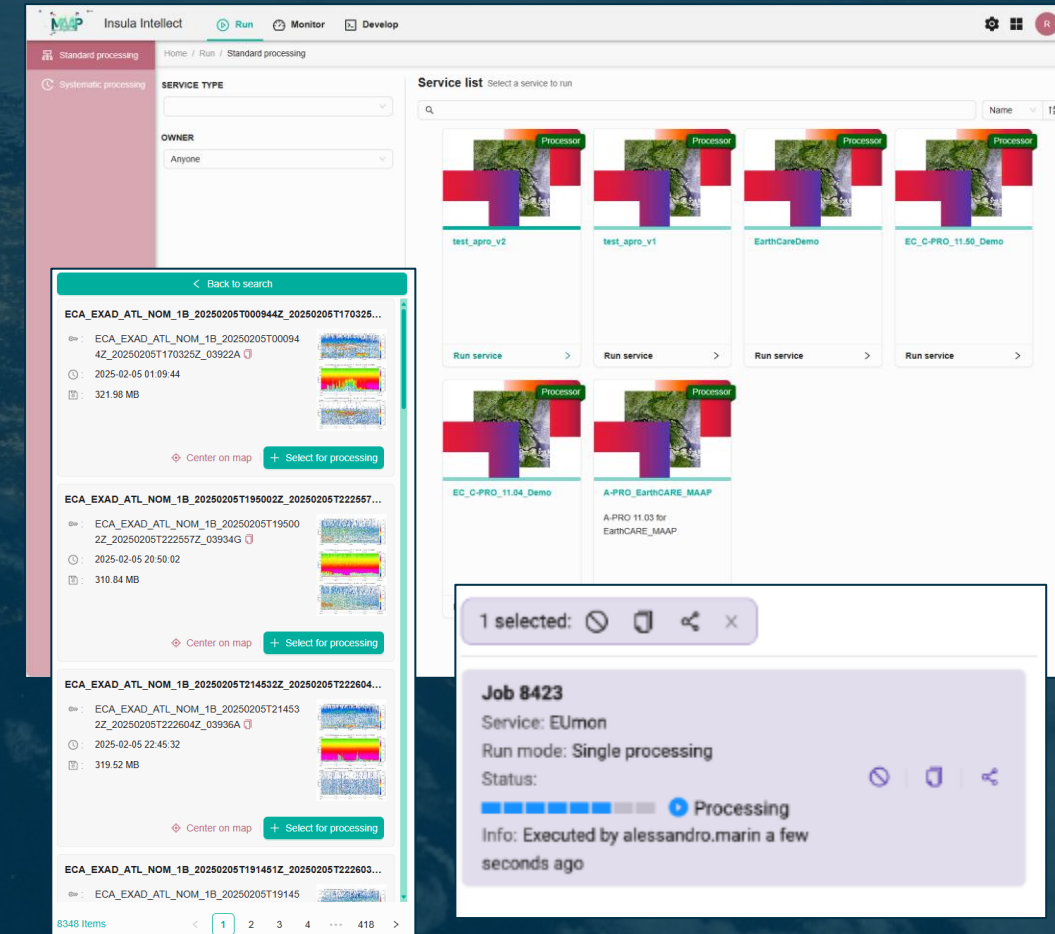
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PAL Processing Environment



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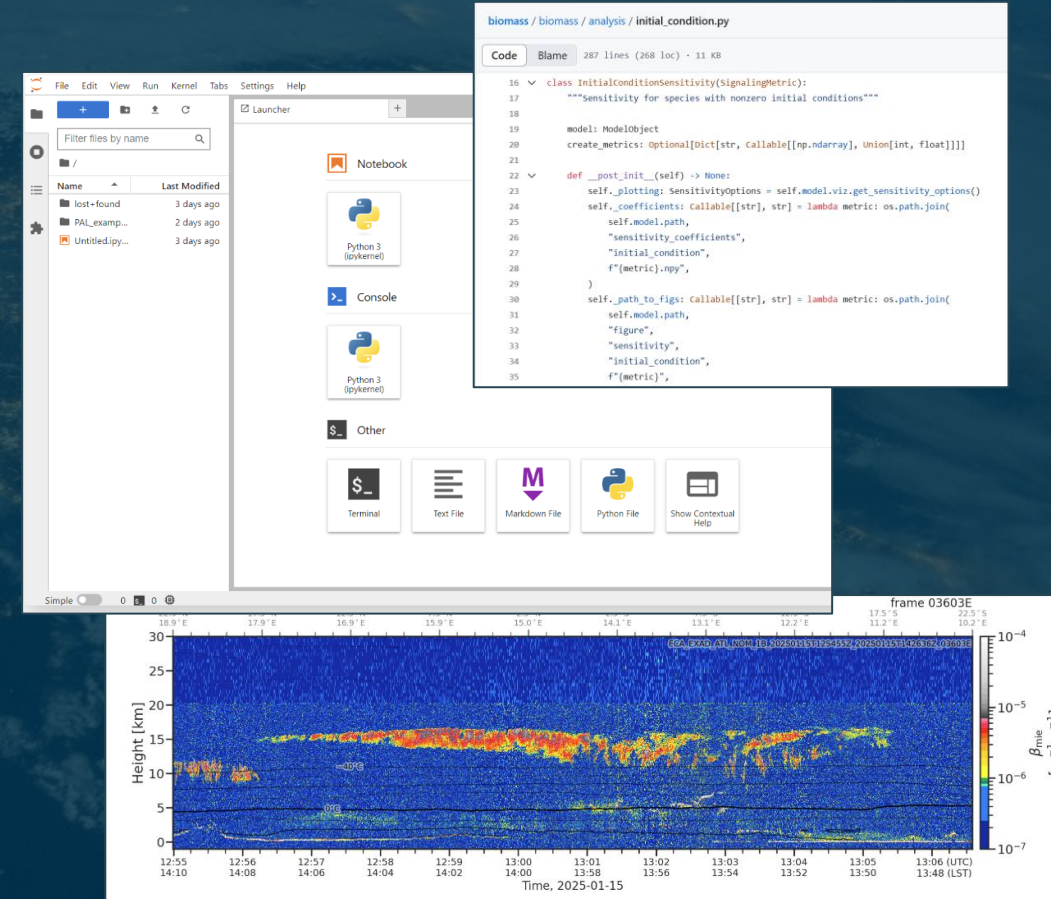
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PAL Coding Environment



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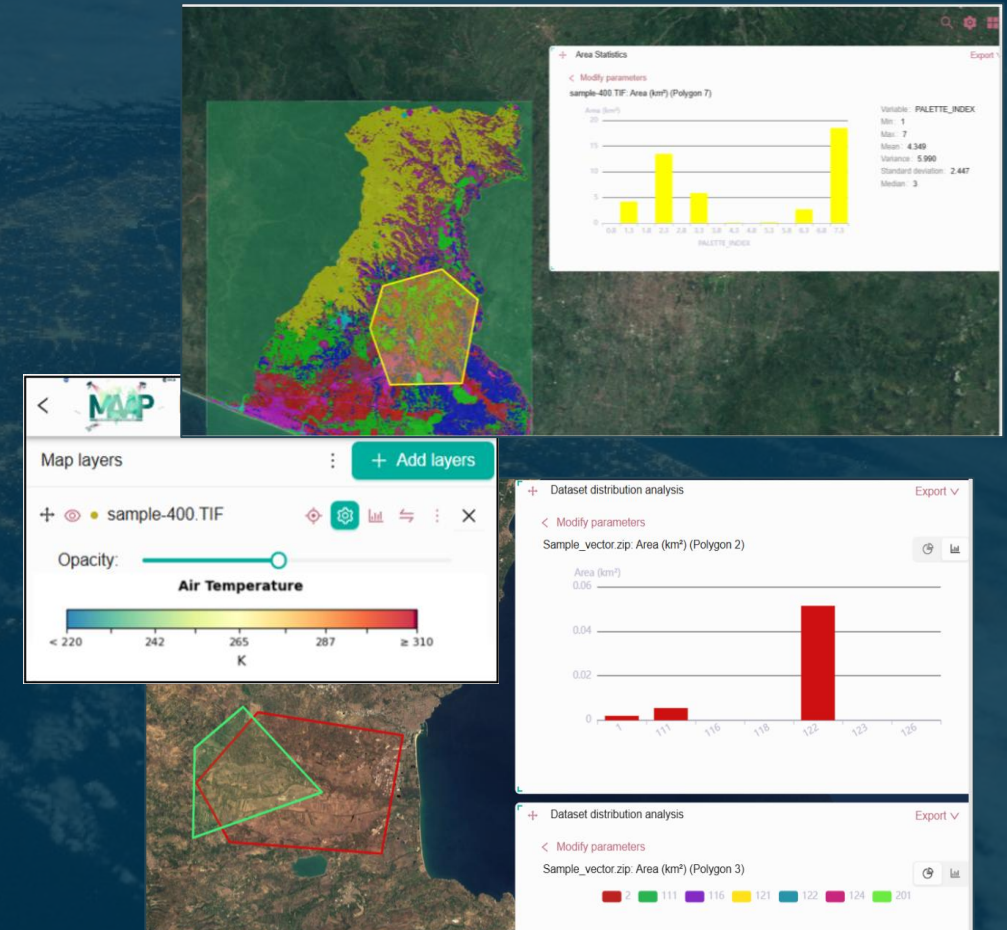
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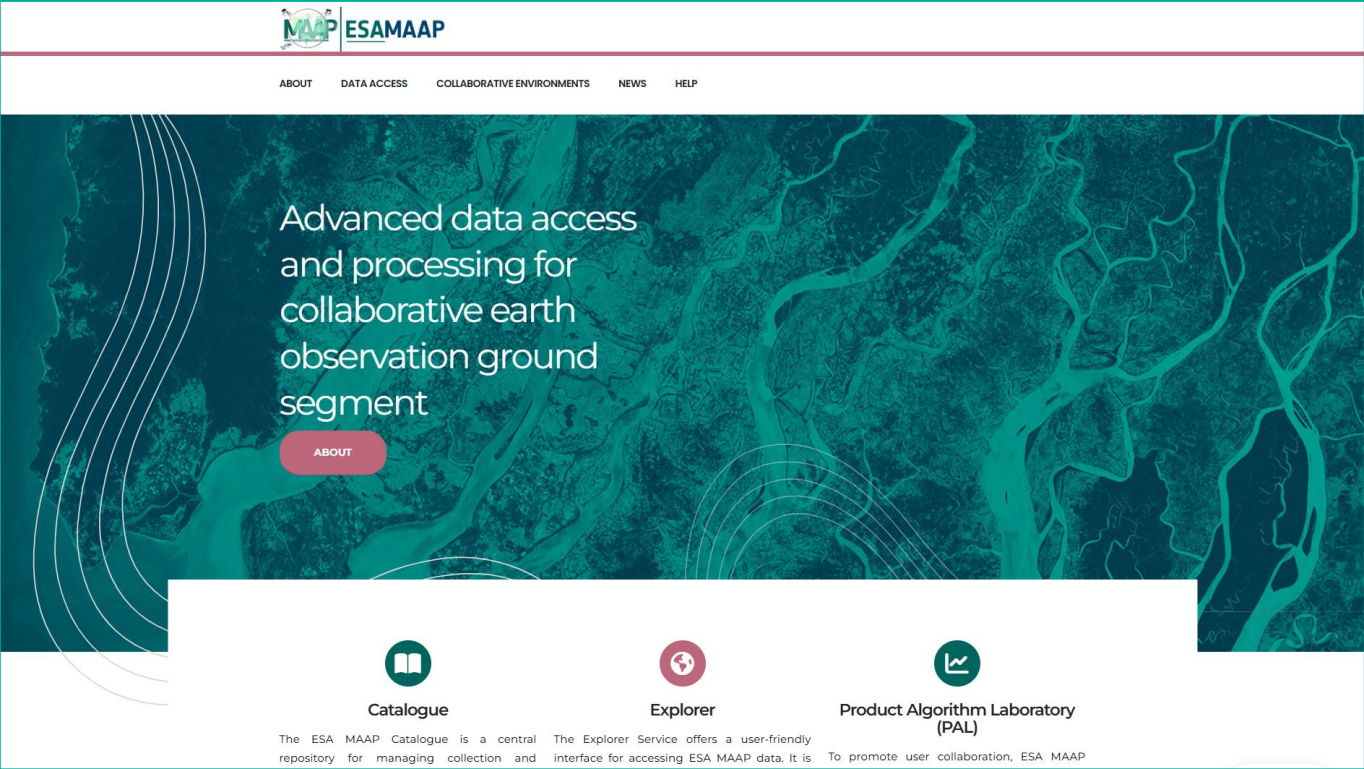
PAL Visualisation & Analytics Environment



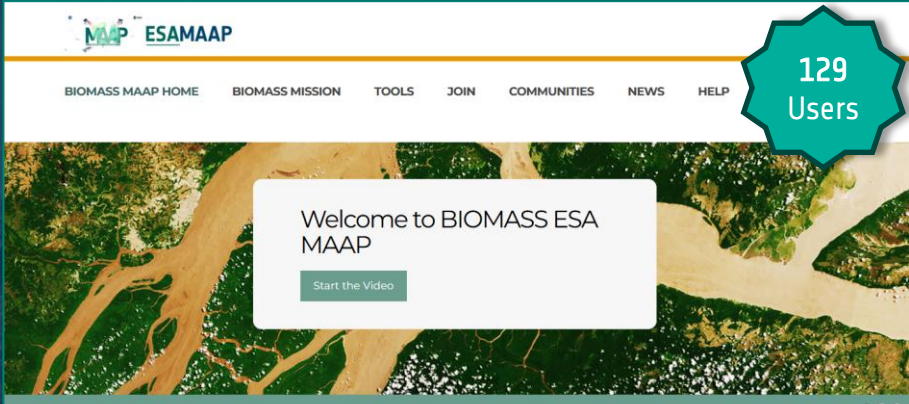
ESA MAAP Portal



The Portal is the central hub for internal and external users, providing access to all the services and collaborative environments



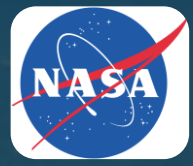
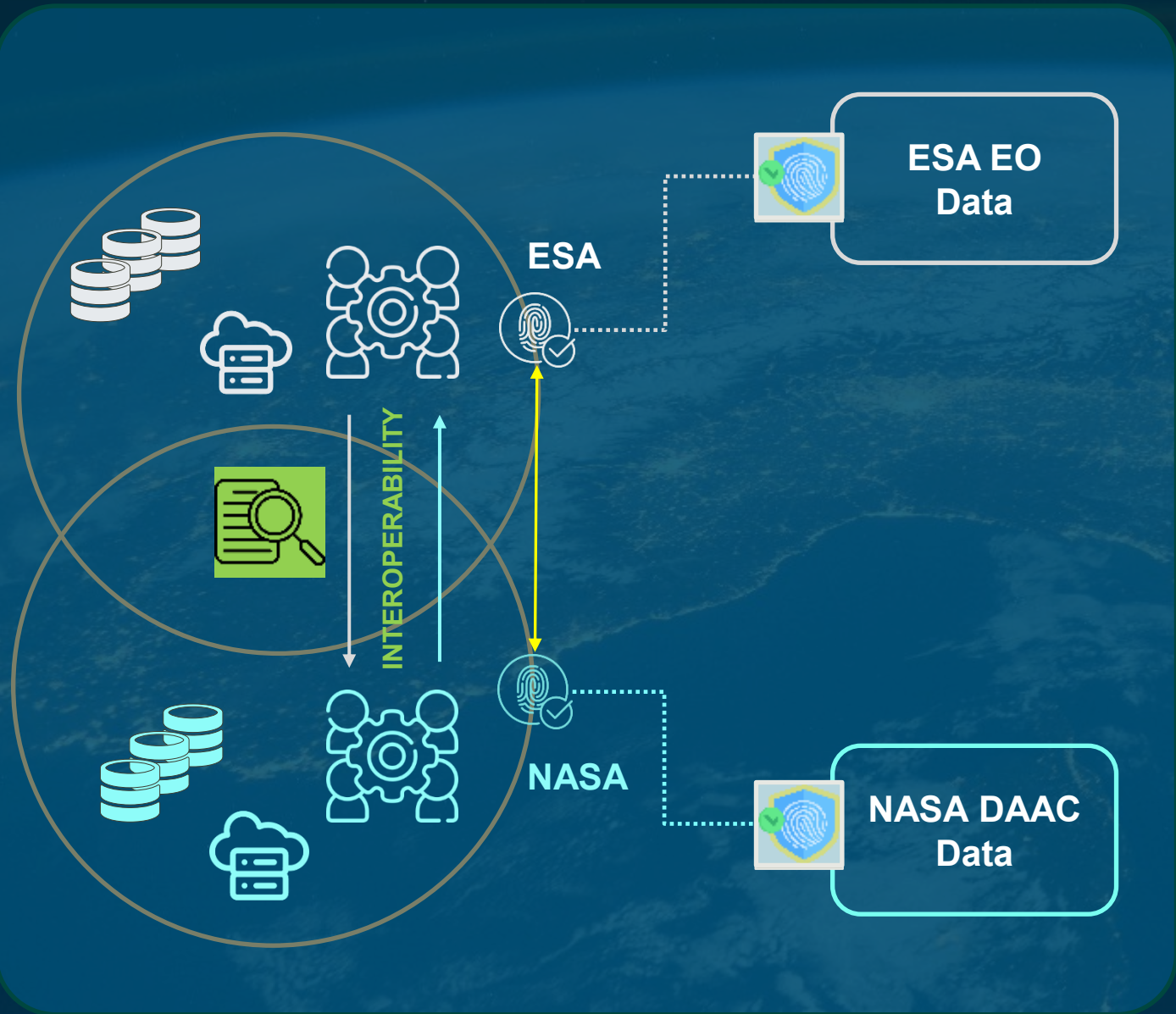
Biomass MAAP Portal



EarthCARE MAAP Portal



Biomass MAAP – ESA and NASA Collaboration

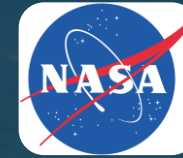
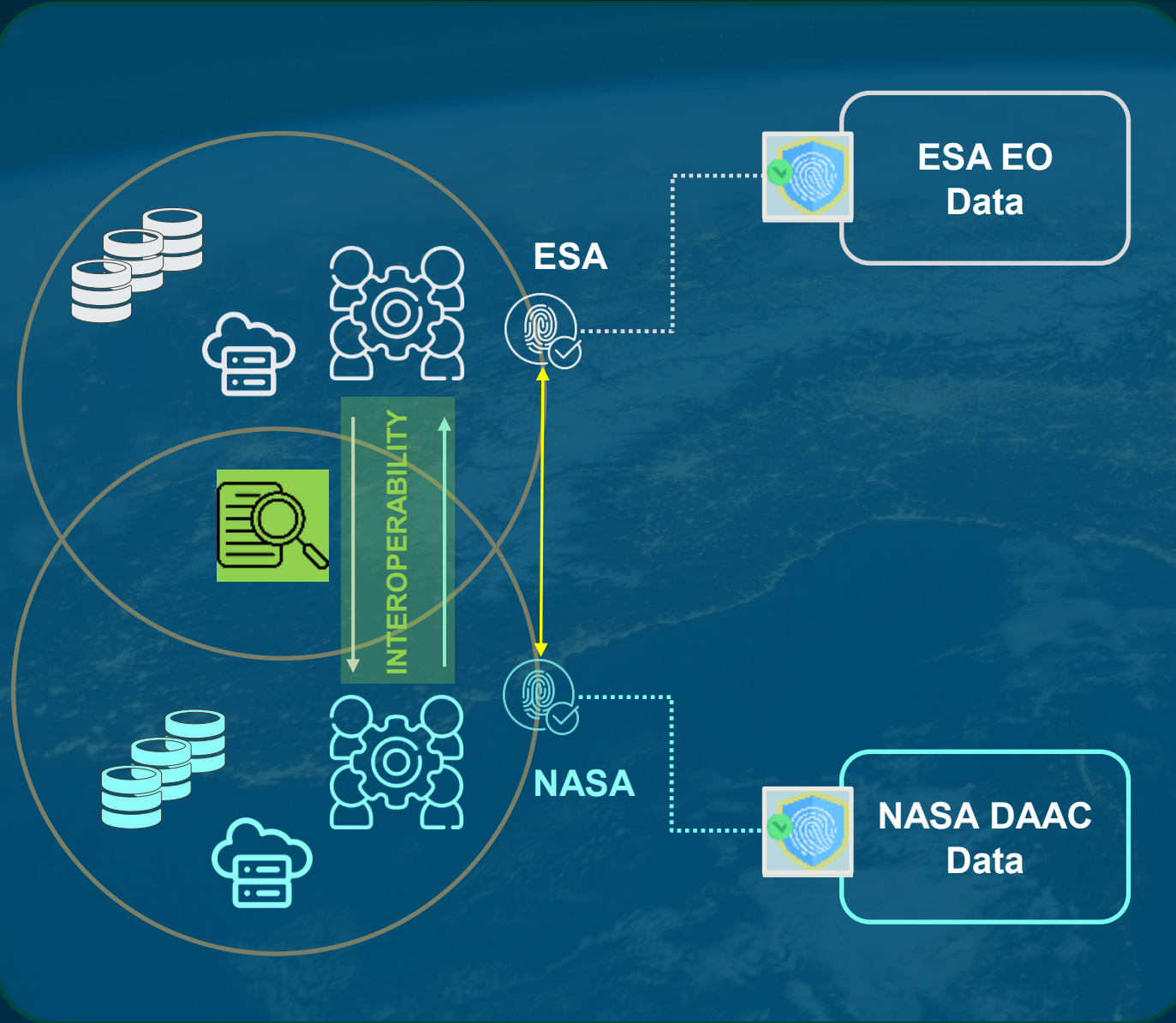


Joint Activity



- Co-design of Collaborative Environment

Biomass MAAP – ESA and NASA Collaboration



Joint Activity

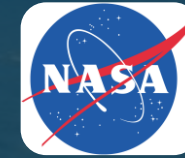
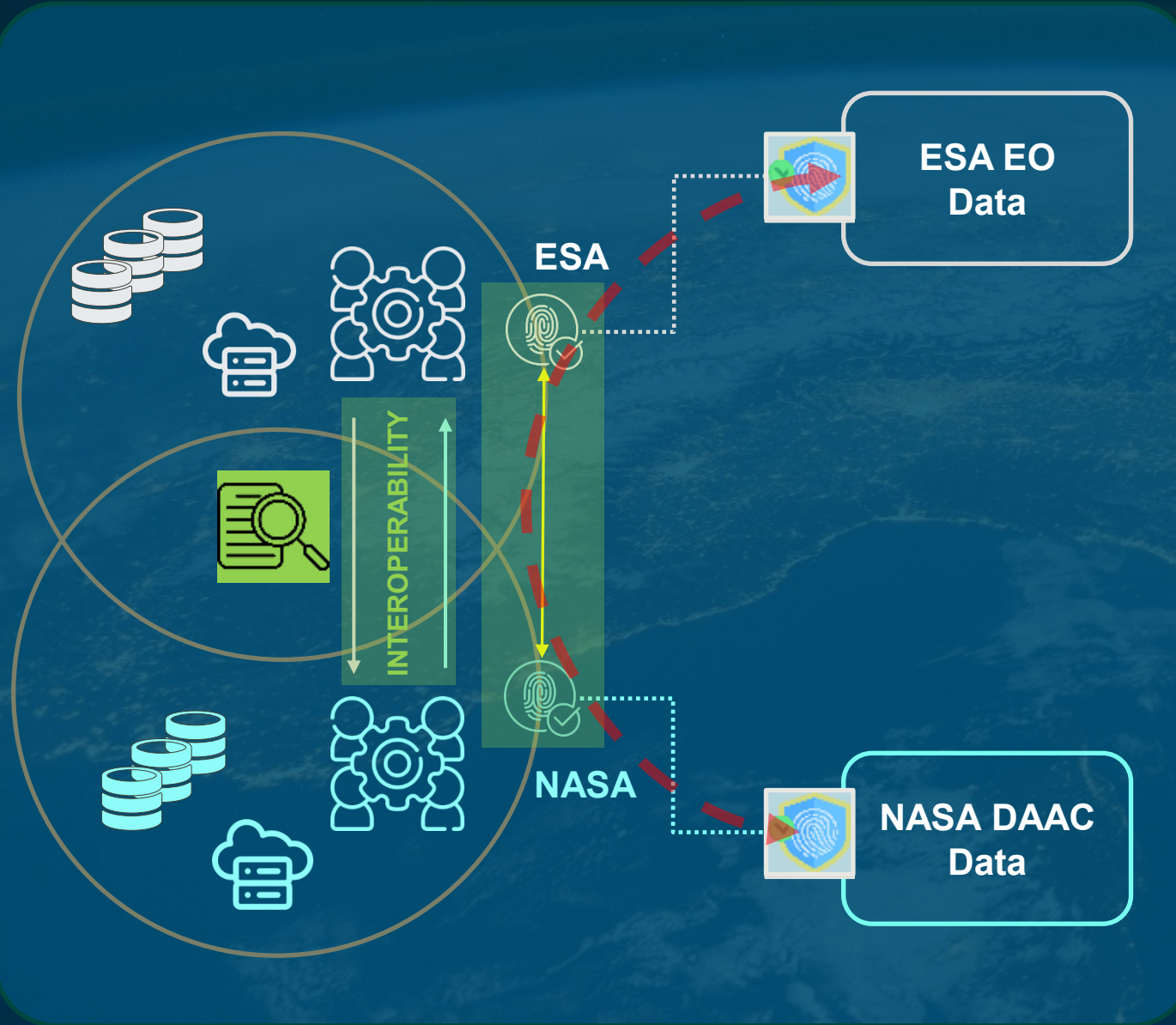


- Co-design of Collaborative Environment

PROCESSING INTEROPERABILITY

- Unified user access to functions of joint MAAP
- Execute same code on both MAAPs

Biomass MAAP – ESA and NASA Collaboration



Joint Activity



- Co-design of Collaborative Environment

PROCESSING INTEROPERABILITY

- Unified user access to functions of joint MAAP
- Execute same code on both MAAPs

CROSS-AGENCY DATA ACCESS

- ESA and NASA MAAP accounts federated
- Access to data by ESA and NASA users



EarthCARE MAAP – ESA & JAXA Collaboration



Joint Activity

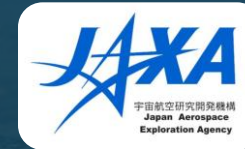
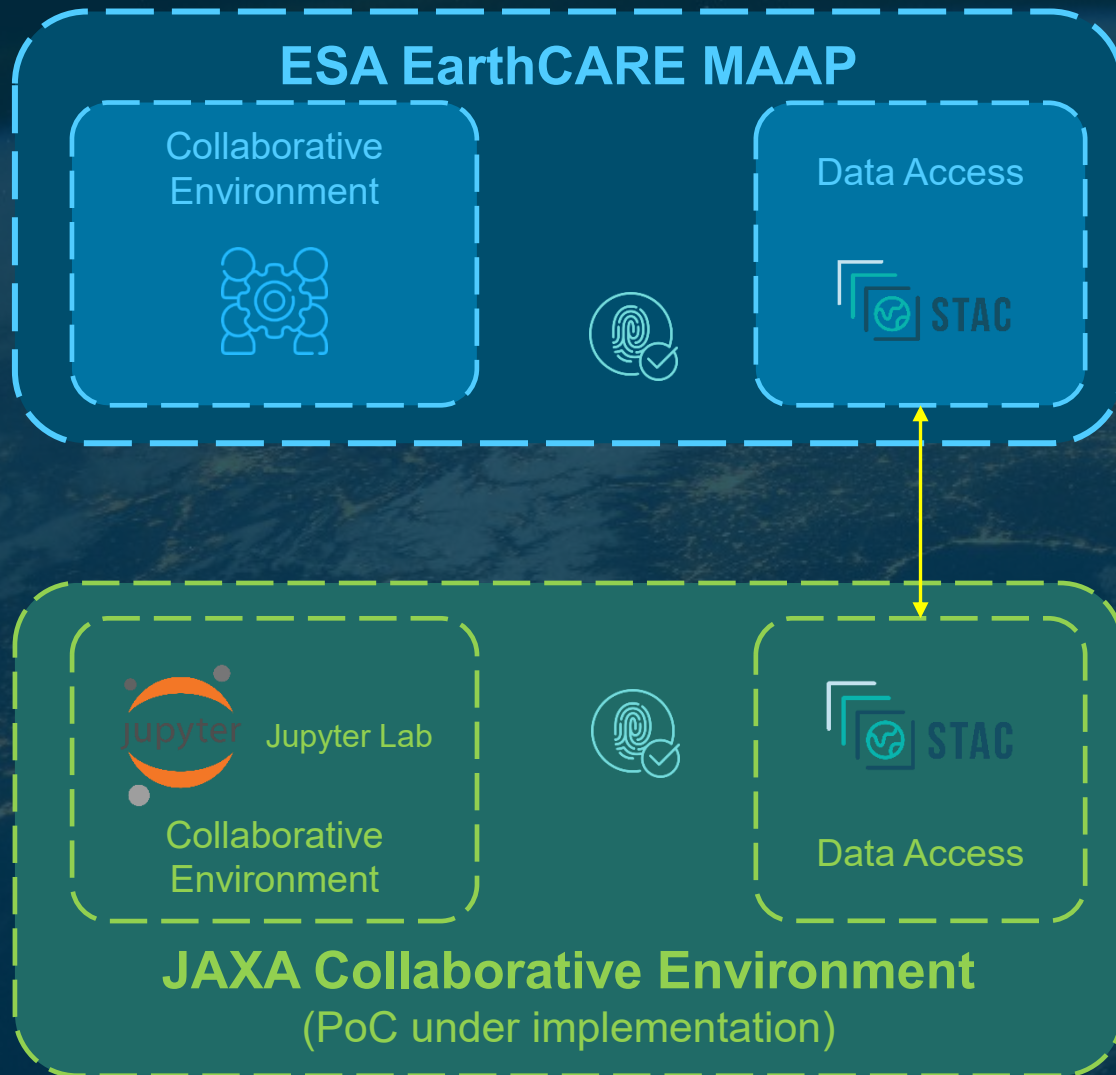


Successful outcome of **Biomass MAAP**
inspiring **new collaborations and joint efforts**



Further **ESA-JAXA SERVICES INTEROPERABILITY**
and **FEDERATED DATA ACCESS** will be enabled
by connecting the ESA EarthCARE MAAP and the
JAXA Collaborative Environment (under preparation)

EarthCARE MAAP – ESA & JAXA Collaboration



Joint Activity

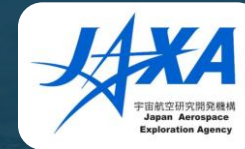
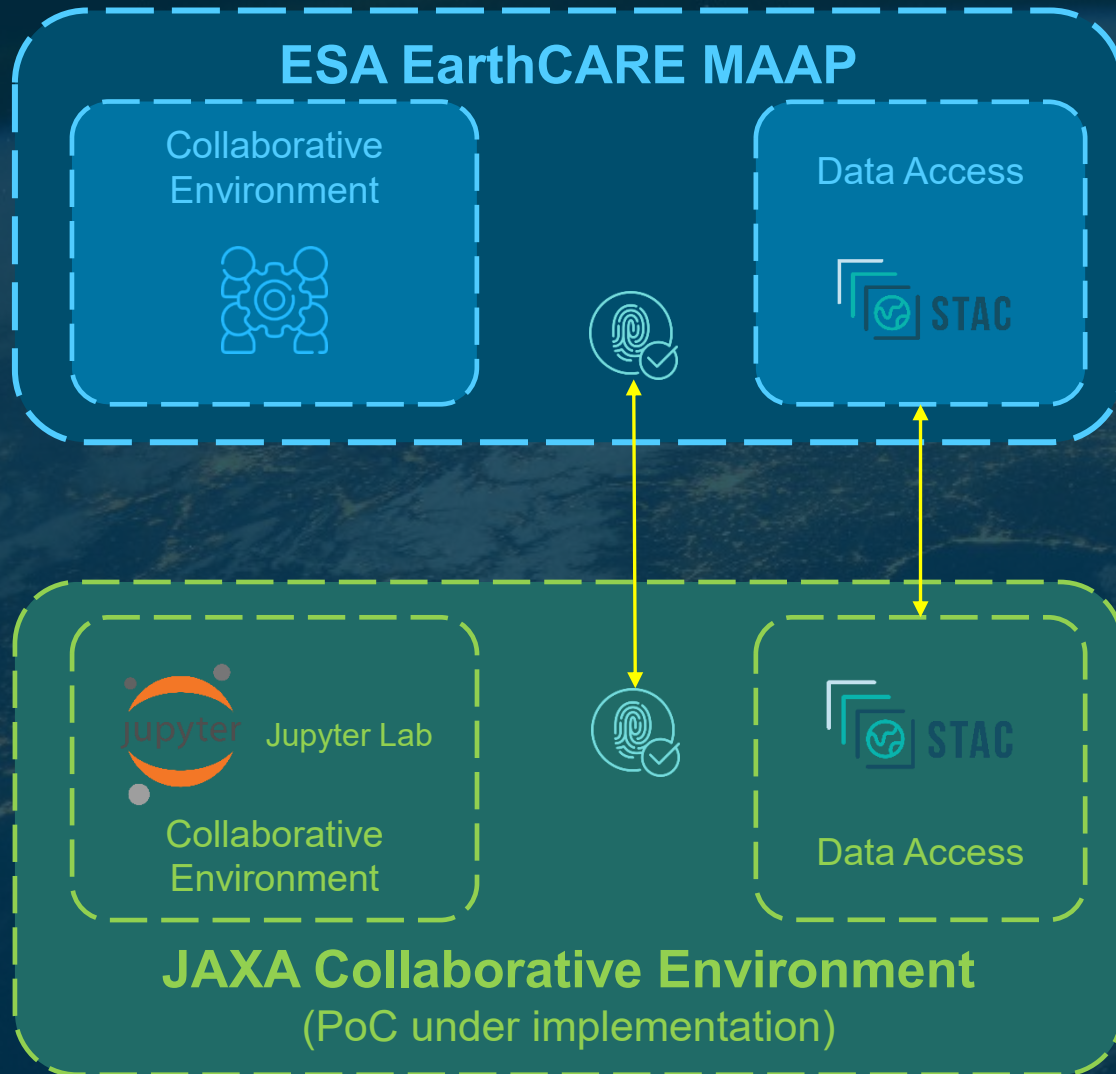


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- STAC Catalogue federation for Data Access

EarthCARE MAAP – ESA & JAXA Collaboration



Joint Activity

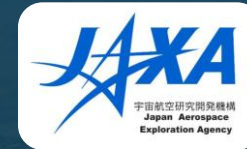
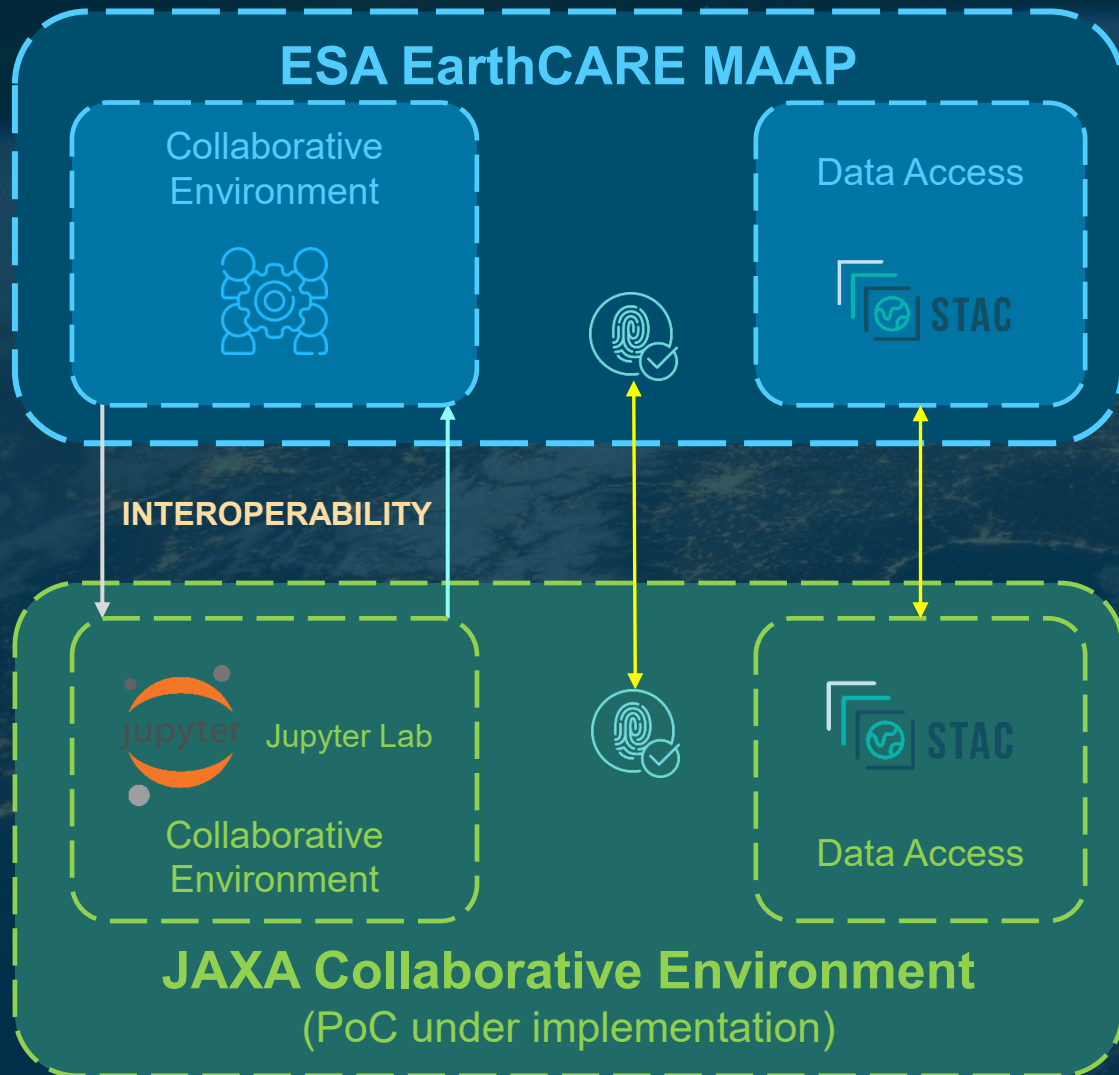


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- STAC Catalogue federation for Data Access
- IDP federation with Keycloak

EarthCARE MAAP – ESA & JAXA Collaboration



Joint Activity

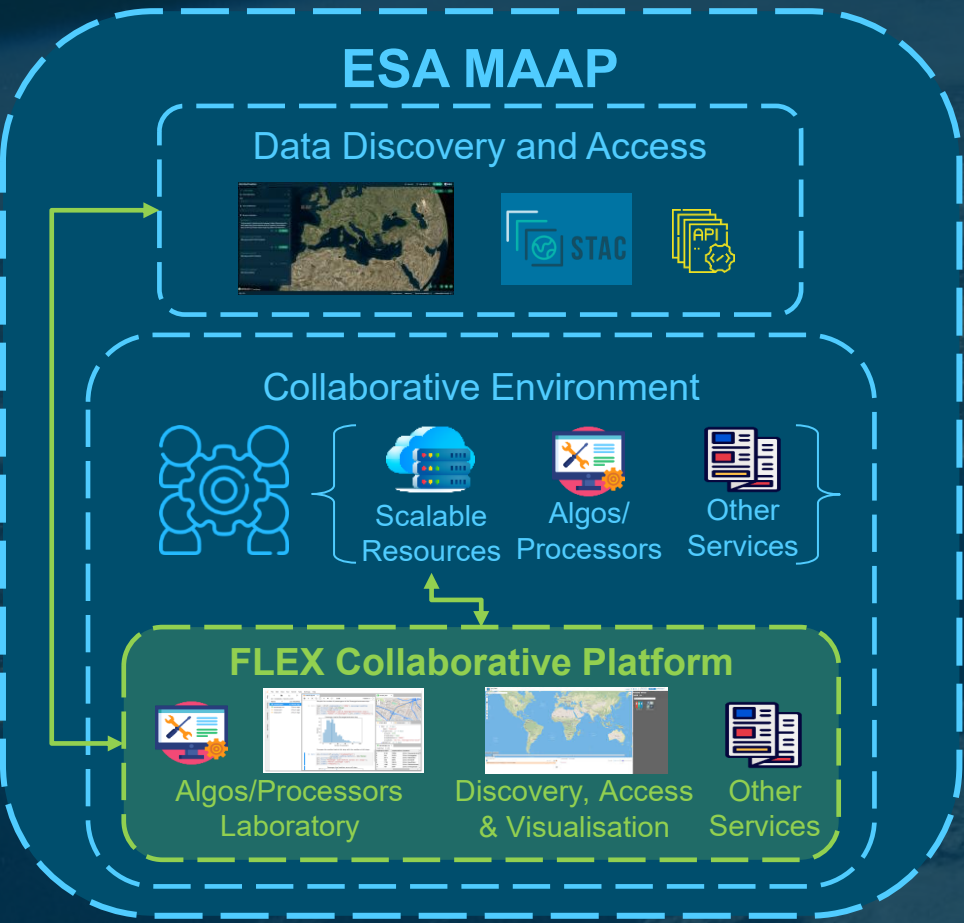


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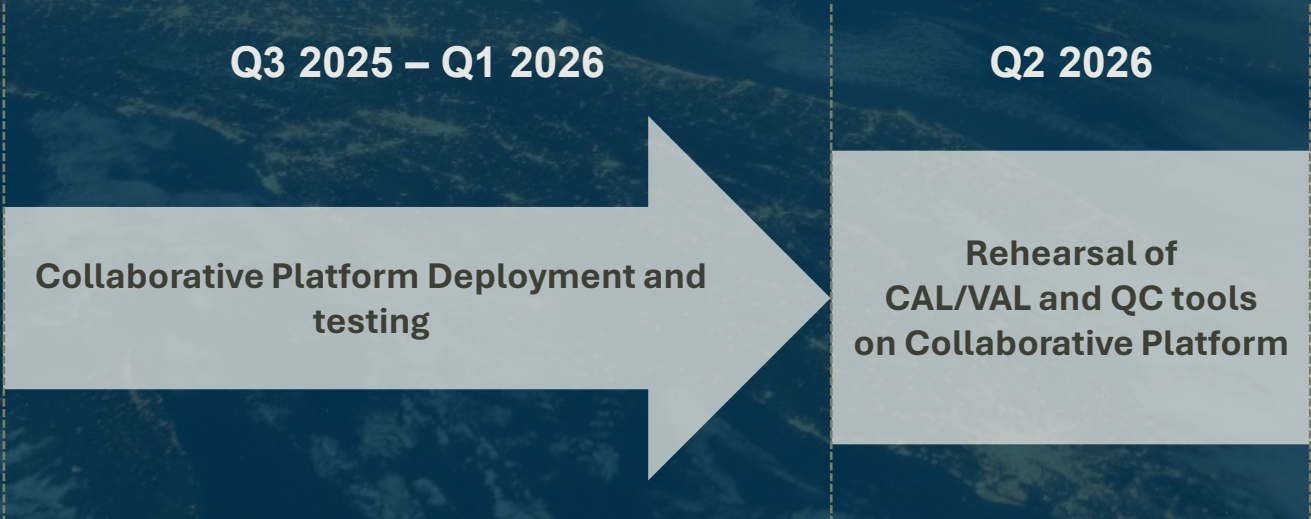
- STAC Catalogue federation for Data Access
 - IDP federation with Keycloak
- Services interoperability to ESA and JAXA users

FLEX MAAP – DISC Collaborative Platform



FLEX Collaborative Platform deployed on ESA MAAP

Data Access with Simulated Data on the operational platform for full interoperability with FLEX Collaborative Platform



ESA MAAP Timeline

