Market Development and Access Development

Overview and Introduction

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Space

Copernicus EU
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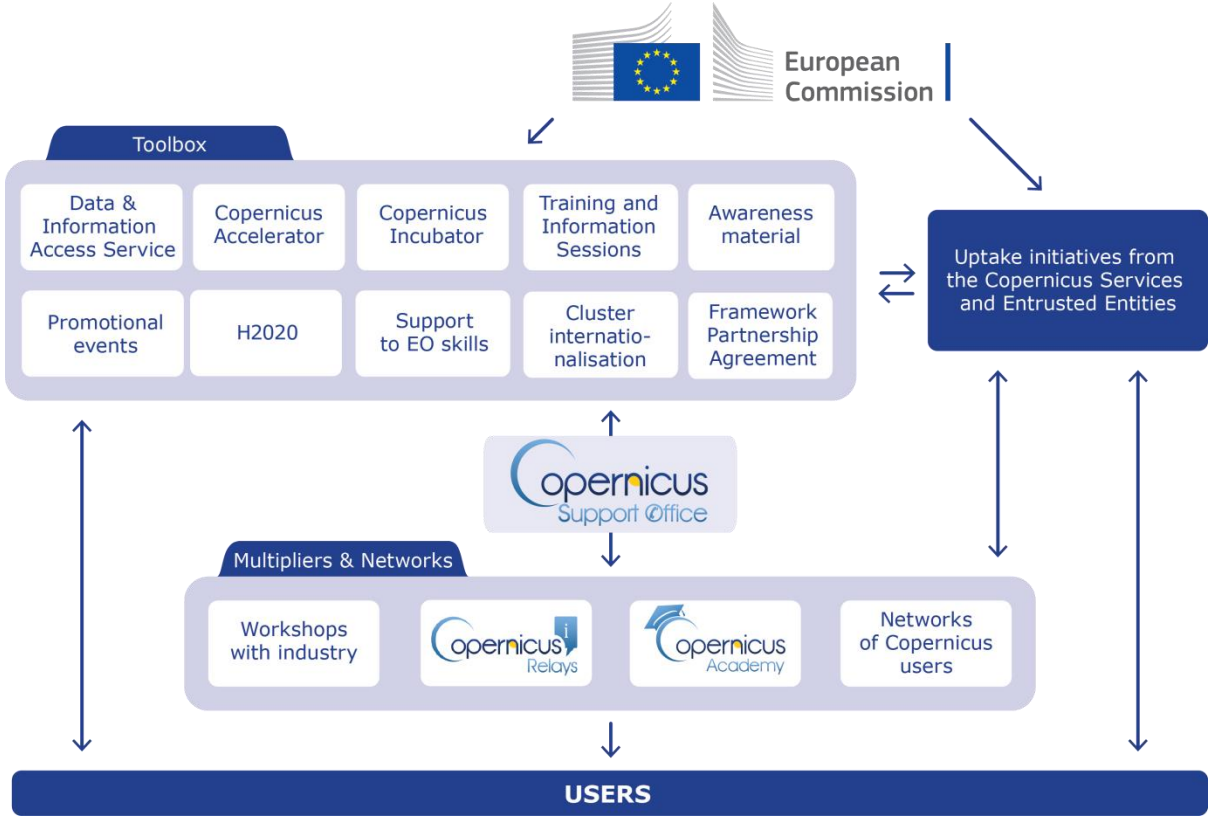
www.copernicus.eu

COPERNICUS USER UPTAKE INITIATIVES



User Uptake

Copernicus Data Access

- 10 European Access points
- Several national and private initiatives
- Research and User Support

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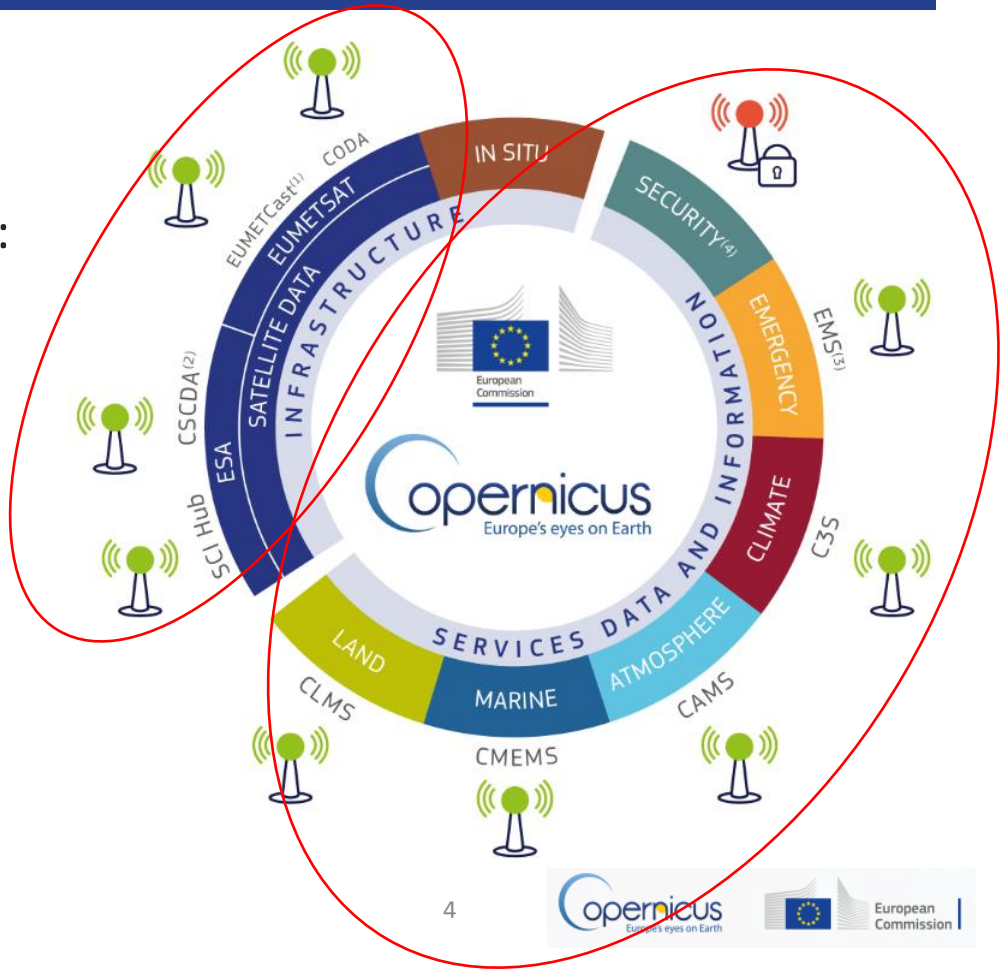
Copernicus Data Access Overview

10 European Data Access points:

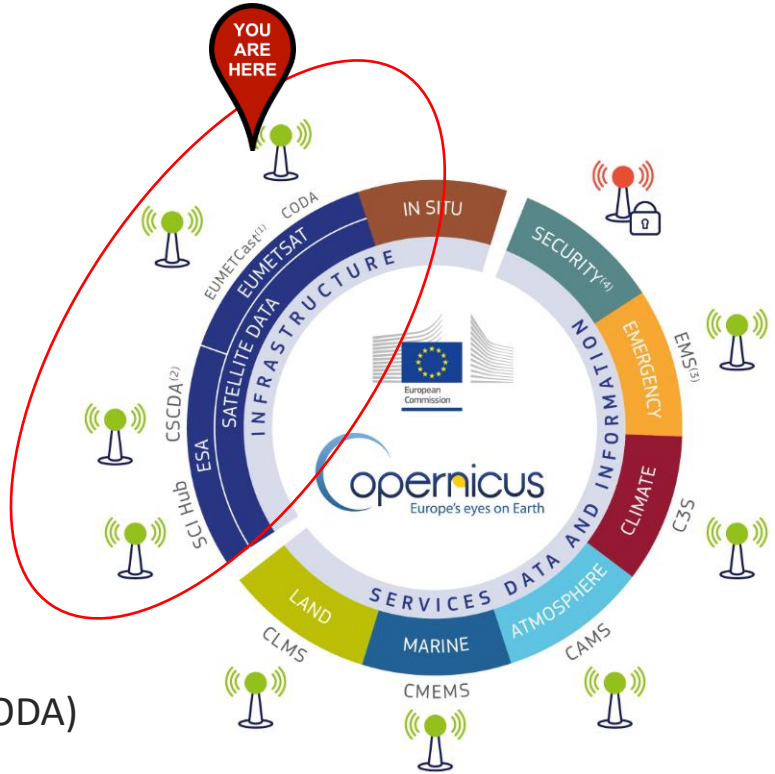
- 4 for Satellite Data
- 6 for Services Data and Information



Access to Satellite Data

Space Component

- 4 Satellite data Access Points:
- 2 managed by ESA:
  - Open Access Hub
  - Copernicus Space Component Data Access (CSCDA)
- 2 managed by EUMETSAT
  - EUMETCast
  - Copernicus Online Data Access (CODA)



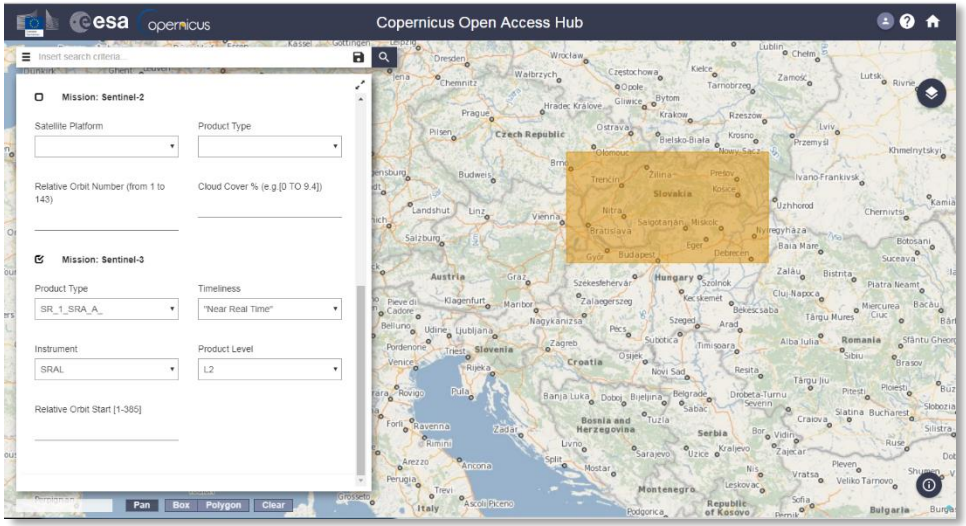
OPEN ACCESS HUB from ESA

Space Component

FULL, FREE AND OPEN

WHICH PRODUCTS :

- All Sentinel-1 products
- All Sentinel-2 products
- All Sentinel-3 Land products



ACCESS CONDITION :

- Self-registration
- Open to everybody

HOW TO USE IT :

- Graphical Interface
- API automatic download

WHERE : Go on https://scihub.copernicus.eu/

FULL, FREE AND OPEN

WHICH PRODUCTS :

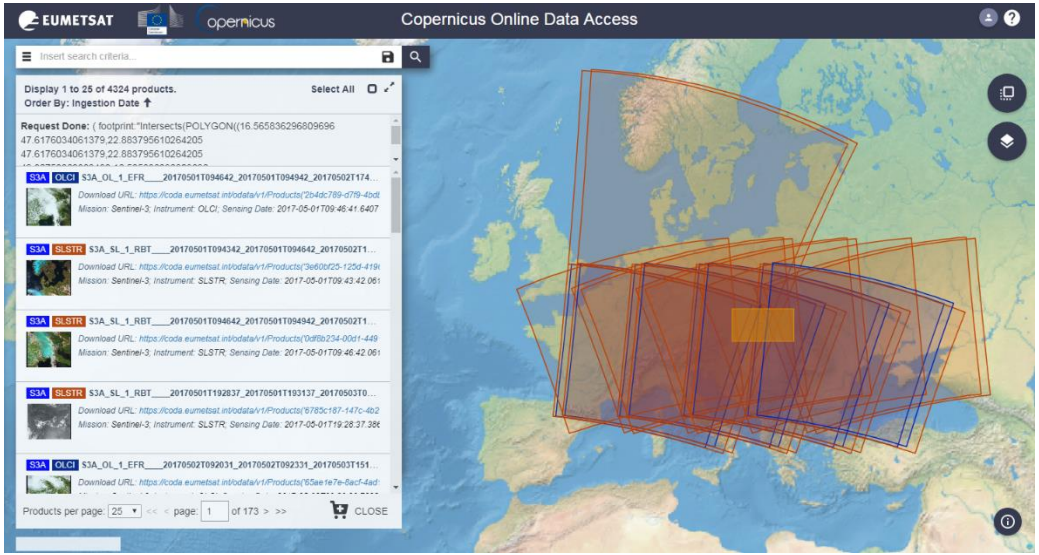
- All Sentinel-3 marine & atmosphere data

ACCESS CONDITION :

- Self registration
- Open for everybody

HOW TO USE IT :

- Graphical user interface
- FTP



WHERE :

- Go on https://coda.eumetsat.int/#/home

Space Component

Differentiated Access Levels*

WHICH PRODUCTS :

- Earth Observation data from a series of Copernicus Contributing Missions

ACCESS CONDITION :

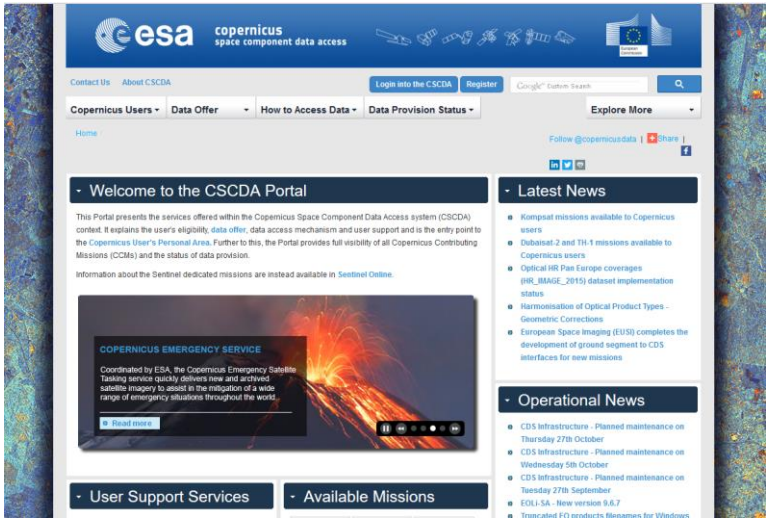
- Open to selected user category :

EU Public authorities and institutions,
EU Research projects, Copernicus Services

HOW TO USE IT :

- Data order
- No Graphical User interface

WHERE : Go on https://spacedata.copernicus.eu/



*depending on user category

EUMETCast from EUMETSAT

EUMETSAT

Space Component

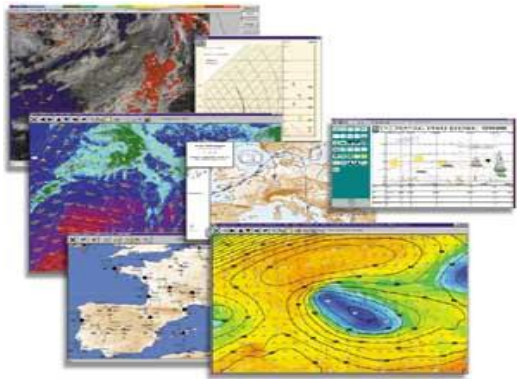
MOSTLY FREE AND OPEN

WHICH PRODUCTS :

- Near real time environmental data (380 products)
- Including Sentinel-3
- Including later Sentinel-4 & Sentinel-5
- Including a wide range of contributing satellite & 3rd parties missions (Meteosat, Metop, Jason2, Jason3…)

ACCESS CONDITION :

- Very wide audience
- Need of low-cost satellite receiving equipment



HOW TO USE IT :

- Registration needed on the EO portal
- Catalogue available with all the products

WHERE : Go on https://www.eumetsat.int/website/home/Data/DataDelivery/EUMETCast/index.html

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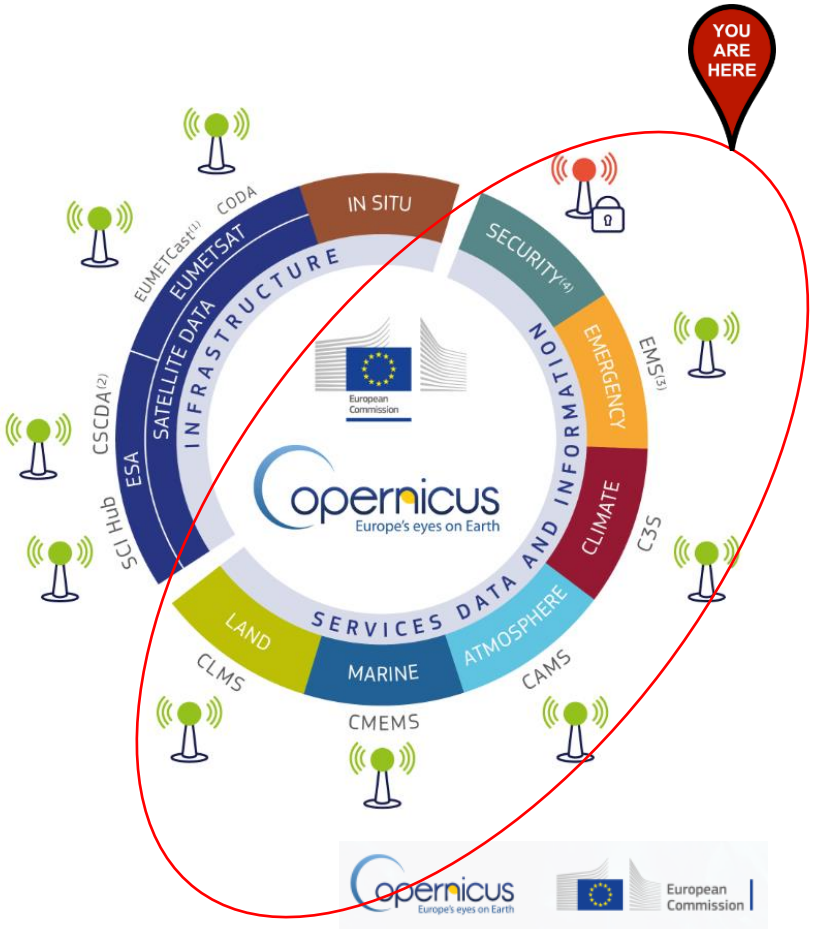
Access to Services Data and Information

- **6 Thematic Copernicus Services**

- 5 are under Full, free and open access:
  - Land
  - Marine
  - Atmosphere
  - Climate
  - Emergency

- 1 has restricted access
  - Security



User Uptake

Copernicus Access to Data

National and private Initiatives

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User Uptake

OTHER DATA ACCESS PUBLIC INITIATIVES

Initiative Name	Provider	Website and Target User Group
ESA Thematic Exploitation Platforms	ESA	• URL: tep.eo.esa.int • All user types
THEIA Land Data Centre	CEA, Cerema, CIRAD, CNES, CNRS, IGN, INRA, IRD, IRSTEA, Meteo France, ONERA	• URL: www.theia-land.fr • Scientific communities and public authorities
Center for Environmental Data Analysis - CEDA	CEDA, NCAS, NCEO	• URL: catalogue.ceda.ac.uk • All user types
USGS Earth Explorer	USGS	• URL: earthexplorer.usgs.gov • All user types
Alaska Satellite Facility	NASA University of Alaska Fairbanks	• URL: asf.alaska.edu/sentinel • Scientific users

User Uptake

OTHER DATA ACCESS PRIVATE INITIATIVES

Initiative Name	Provider	Website and Target User Group
CloudEO	CloudEO	• URL: cloudeo-ag.com • Users, developers and providers of geo data/ geo services; software developers
EOBrowser	Sinergise	• URL: apps.sentinel-hub.com/eo-browser/ • Users of geo data/ geo services
Geostorm platform	CS-SI	• URL: geostorm.eu • Users and developers of geo data/ geo services
Google Earth Engine	Google	• URL: earthengine.google.com • Scientists, researchers and developers
Planet platform	Planet	• URL: planet.com/products/platform/ • Users and developers of geo data/ geo services
Sentinel on AWS	Amazon	• URL: sentinel-pds.s3-website.eu-central-1.amazonaws.com • Developers, private/public downstream players

* The European Commission does not endorse any particular commercial solution

Copernicus / EO data challenge

Copernicus Data Context :

- Massive volume (data and information)
- Full, free and open access
- Issue: Ease of access and use

Ex: Over 10 Petabyte/year of new data with just Sentinel-1, -2 and -3 fully operational

&

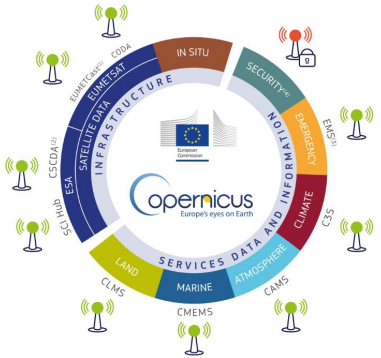
Technological Context :

- Different types of dissemination infrastructures across Europe
  - Separated distribution hubs for Copernicus data and information
  - Member States' Collaborative GS
  - Private EU and non-EU initiatives
- ICT and EO cross-fertilization
- Mature cloud and virtual machines technology
- Interoperability with non-EO datasets
- Growth and jobs in downstream sector

New Copernicus data approach

Dual approach:

1. Strengthening **Copernicus Distribution Services**
   - Improved robustness, availability and data throughput

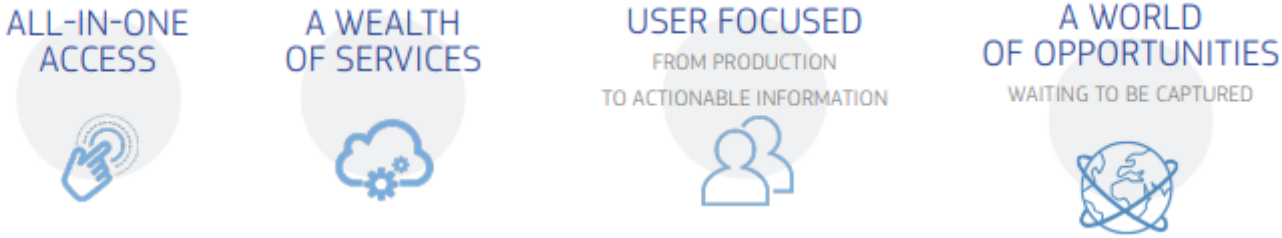


2. Setting up several **Data Access and Information Services (DIAS)**
   - Access to all Copernicus data and information collocated with computing resources
   - Allowing Big Data analytics without the need to download the data and information
   - Allowing data fusion with non-Copernicus, non-EO data and information

User Uptake

What is the Copernicus DIAS?

- 5 DIAS platforms
  - Full set of Copernicus data and information
  - Ability to process and combine it with data from other sources (space and non-space)
  - Develop and host new applications in the cloud



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User Uptake

DIAS: several user profiles

5 DIAS providers: Ensure availability of Sentinels data and Services information to accommodate third party services and data. Responsible for the provision of the DIAS underlying IT infrastructure and provider of IT resources to third parties.

Third-parties: Service providers who autonomously negotiate with DIAS provider(s) for infrastructure and services to be deployed in terms of storage, processing or service support for their own developments and operations.

End user: Any user accessing a front-office service supported by the DIAS framework.

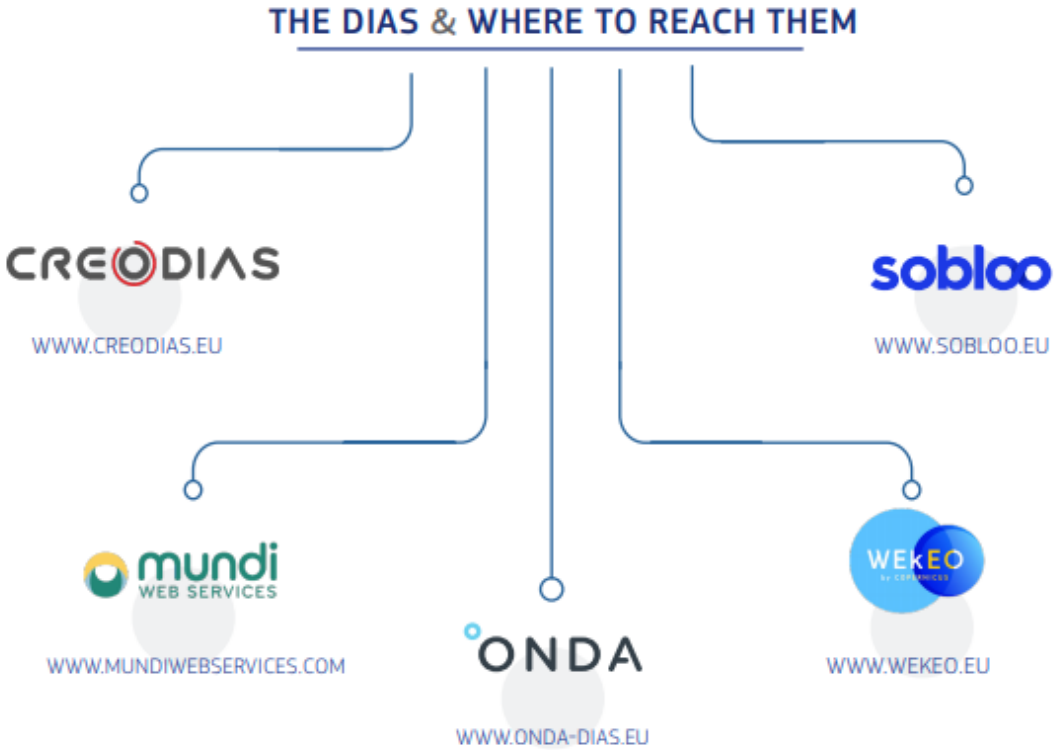
User Uptake

Launch of the DIAS

- 20 June 2018: Launch of the 5 DIAS in Baveno
- Next steps:
  - Gradual and incremental deployment process

User Uptake

W h o ?



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User Uptake

Why 5 DIAS?

- Competition supports creativity and quality service.

- Differences between the DIAS:
  - Different ancillary and complementary content, e.g. other EO and non-EO data
  - Different offer of tools
  - Different pricing policies
  - Different user experience
  - Different evolution regarding generic/thematic focuses

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User Uptake

What can you do with the Copernicus DIAS?

Scientific studies

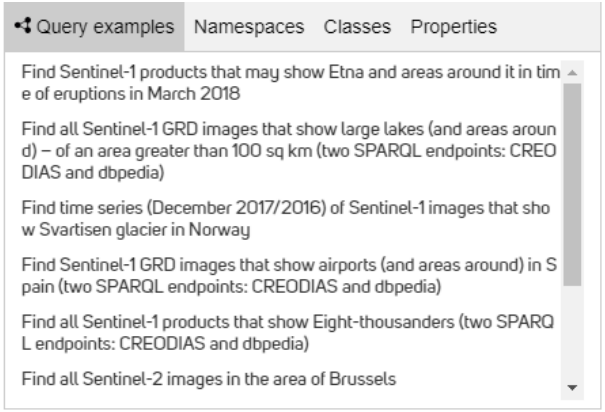
By offering satellite, in situ and numerical models

WEkEO

Semantic search

Through the datasets offered in the DIAS

CREODIAS



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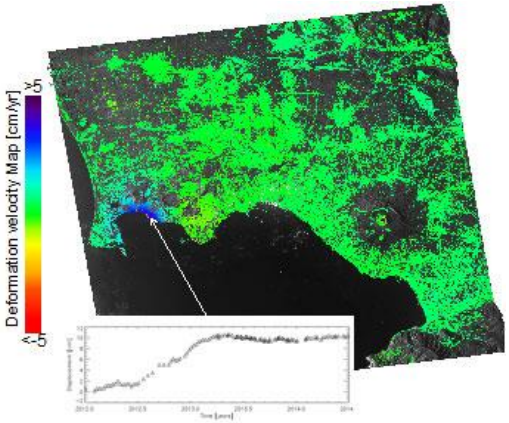
What can you do with the Copernicus DIAS?

Grassland monitoring

Analysis of mowing events occurred in a specific time window and verifies the compliance with regulations of this operation according to specific national criteria.

mundi WEB SERVICES



Earth surface deformation

Advanced interferometric techniques able to measure the Earth surface deformation and its temporal evolution with centimeter to millimeter accuracy, starting from satellite radar data

ONDA

Energy

Supporting an efficient exploitation of renewable energy sources, a sustainable energy forecasting, an optimized selection of sites, and biomass or water source monitoring.

sobloo

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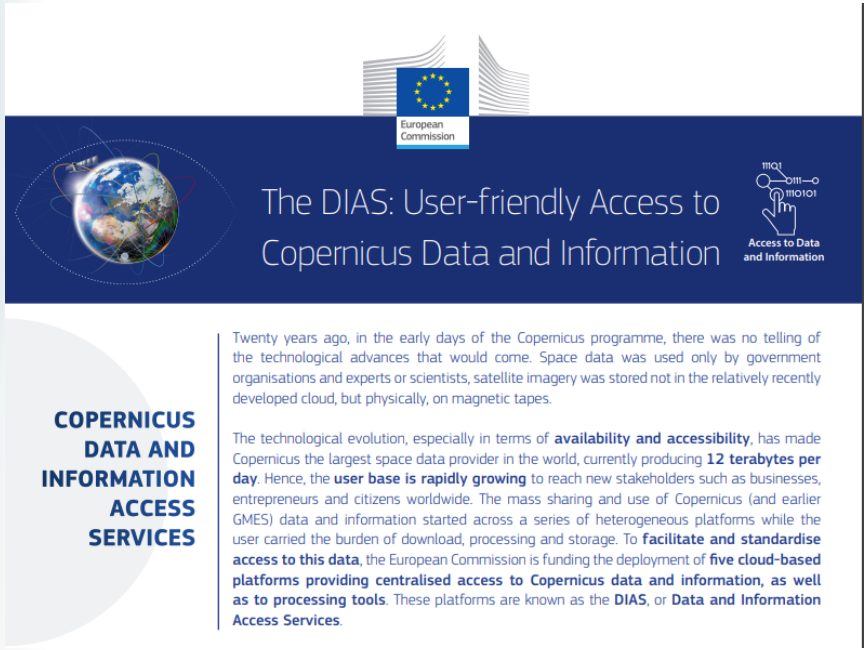
More information

User Uptake



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The DIAS: User-friendly Access to Copernicus Data and Information

Access to Data and Information

COPERNICUS DATA AND INFORMATION ACCESS SERVICES

Twenty years ago, in the early days of the Copernicus programme, there was no telling of the technological advances that would come. Space data was used only by government organisations and experts or scientists, satellite imagery was stored not in the relatively recently developed cloud, but physically, on magnetic tapes.

The technological evolution, especially in terms of **availability and accessibility**, has made Copernicus the largest space data provider in the world, currently producing **12 terabytes per day**. Hence, the **user base is rapidly growing** to reach new stakeholders such as businesses, entrepreneurs and citizens worldwide. The mass sharing and use of Copernicus (and earlier GMES) data and information started across a series of heterogeneous platforms while the user carried the burden of download, processing and storage. To **facilitate and standardise access to this data**, the European Commission is funding the deployment of **five cloud-based platforms providing centralised access to Copernicus data and information, as well as to processing tools**. These platforms are known as the **DIAS**, or **Data and Information Access Services**.

- Copernicus.eu http://copernicus.eu/data-access
- Copernicus Support Office support@copernicus.eu

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Research and User Support

Data Access

Copernicus
Europe's eyes on Earth

European Commission

Data Access

RUS: A NEW EXPERT SERVICE FOR SENTINEL USERS

- **RUS: Research and User Support for Sentinel Core Products**

- **Goal:** Foster the use of Sentinel Core products by providing several types of support to the Sentinel data users for free.

- **Project funded by EC and managed by ESA.**

RUS Copernicus

esa

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European Commission

Data Access

RUS: A NEW EXPERT SERVICE FOR SENTINEL USERS

https://rus-copernicus.eu/portal/

RUS
Copernicus

Non Commercial activities

Students, Trainers
Researchers
Decision-makers
R&D development

Free access

Powerful computing environment with scalable VMs & full support

Scientific Support

Support from experts in geospatial data processing

Process

Process large Sentinel datasets possible for any user

Training

Face-to-face sessions & webinars for all users

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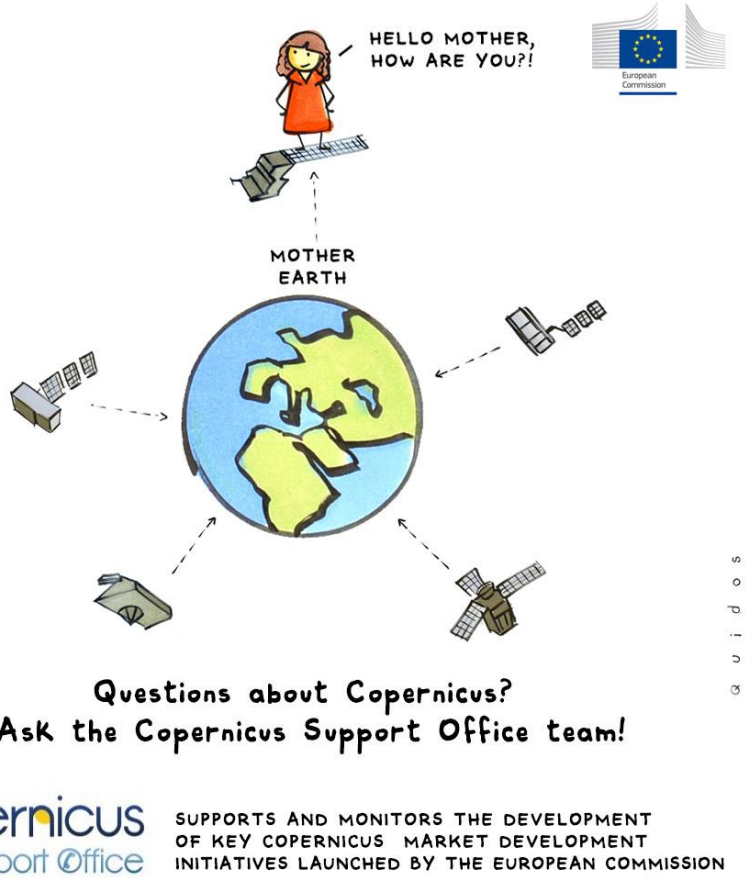

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