



# Copernicus DIAS

User-friendly Access to Copernicus Data and Information



Copernicus EU



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[www.copernicus.eu](http://www.copernicus.eu)

Space





Data  
Access

# 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

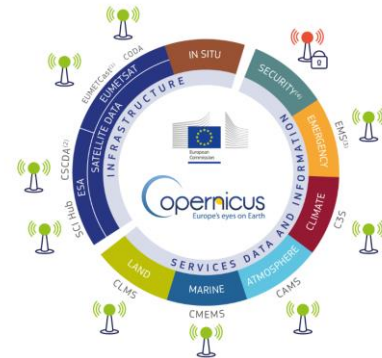


Data  
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# New Copernicus data approach

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





Data  
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# 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

ALL-IN-ONE  
ACCESS



A WEALTH  
OF SERVICES



USER FOCUSED  
FROM PRODUCTION  
TO ACTIONABLE INFORMATION



A WORLD  
OF OPPORTUNITIES  
WAITING TO BE CAPTURED





Data  
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## 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.



Data  
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# Launch of the DIAS

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



European  
Commission



# Who?



Data  
Access

## THE DIAS & WHERE TO REACH THEM

CREODIAS

[WWW.CREODIAS.EU](http://WWW.CREODIAS.EU)

sobloo

[WWW.SOBLOO.EU](http://WWW.SOBLOO.EU)

mundi  
WEB SERVICES

[WWW.MUNDIWEBSERVICES.COM](http://WWW.MUNDIWEBSERVICES.COM)

ONDA

[WWW.ONDA-DIAS.EU](http://WWW.ONDA-DIAS.EU)

WEKEO  
BY COSMOS

[WWW.WEKEO.EU](http://WWW.WEKEO.EU)



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## 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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# What can you do with the Copernicus DIAS?



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## Scientific studies

By offering satellite, in situ and numerical models



## Semantic search

Through the datasets offered in  
the DIAS

CREODIAS

Query examples Namespaces Classes Properties

Find Sentinel-1 products that may show Etna and areas around it in time of eruptions in March 2018

Find all Sentinel-1 GRD images that show large lakes (and areas around) – of an area greater than 100 sq km (two SPARQL endpoints: CREODIAS and dbpedia)

Find time series (December 2017/2016) of Sentinel-1 images that show Svartisen glacier in Norway

Find Sentinel-1 GRD images that show airports (and areas around) in Spain (two SPARQL endpoints: CREODIAS and dbpedia)

Find all Sentinel-1 products that show Eight-thousanders (two SPARQL endpoints: CREODIAS and dbpedia)

Find all Sentinel-2 images in the area of Brussels



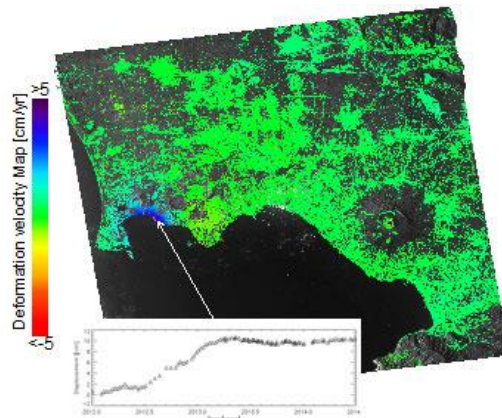
Data  
Access

# 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.



## 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



## Energy

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



## National Initiatives- Collaborative Ground Segment (examples)

Initiative Name	Initiative Leader	Website and Target User Group
THEIA Land Data Centre	CEA, Cerema, IRSTEA, IRD, CNRS, INRA, IGN, Meteo France, CIRAD, ONERA	<ul style="list-style-type: none"> <li>• URL: <a href="http://theia-land.fr">theia-land.fr</a></li> <li>• Scientific communities and public authorities</li> </ul>
NOA Hellenic National Sentinel Data Mirror Site	NOA, IAASARS	<ul style="list-style-type: none"> <li>• URL: <a href="http://sentinels.space.noa.gr">sentinels.space.noa.gr</a></li> <li>• Scientific communities, public authorities, private industry players</li> </ul>
CATAPULT Satellite Applications and CEDA	UK Space Agency	<ul style="list-style-type: none"> <li>• URL: <a href="http://sa.catapult.org.uk">sa.catapult.org.uk</a></li> <li>• Scientific communities, public authorities, private industry players</li> </ul>
ESA Thematic Exploitation Platforms	ESA	<ul style="list-style-type: none"> <li>• URL: <a href="http://tep.eo.esa.int">tep.eo.esa.int</a></li> <li>• All user types</li> </ul>
CODE-DE	DLR	<ul style="list-style-type: none"> <li>• URL: <a href="http://code-de.org">code-de.org</a></li> <li>• Scientific communities, public authorities, private industry players</li> </ul>

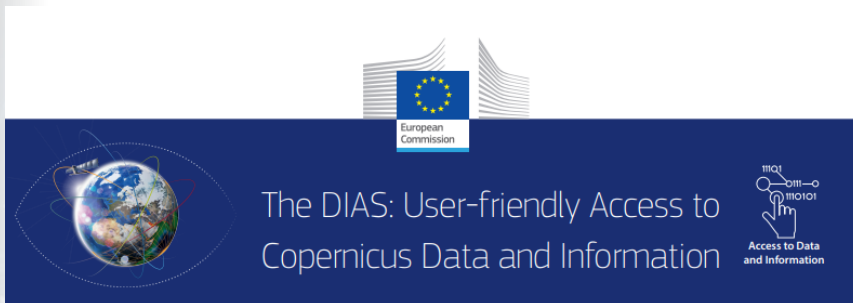


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## More information



### 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](mailto:support@copernicus.eu)