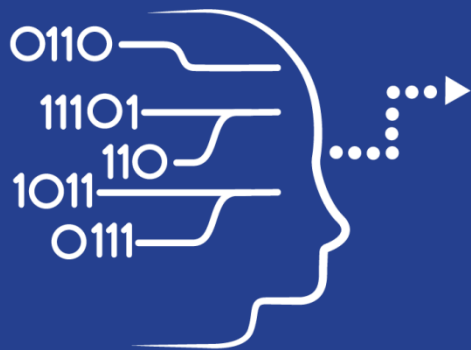




Access to Copernicus Data

Overview and Introduction



User Uptake

Copernicus Data Access

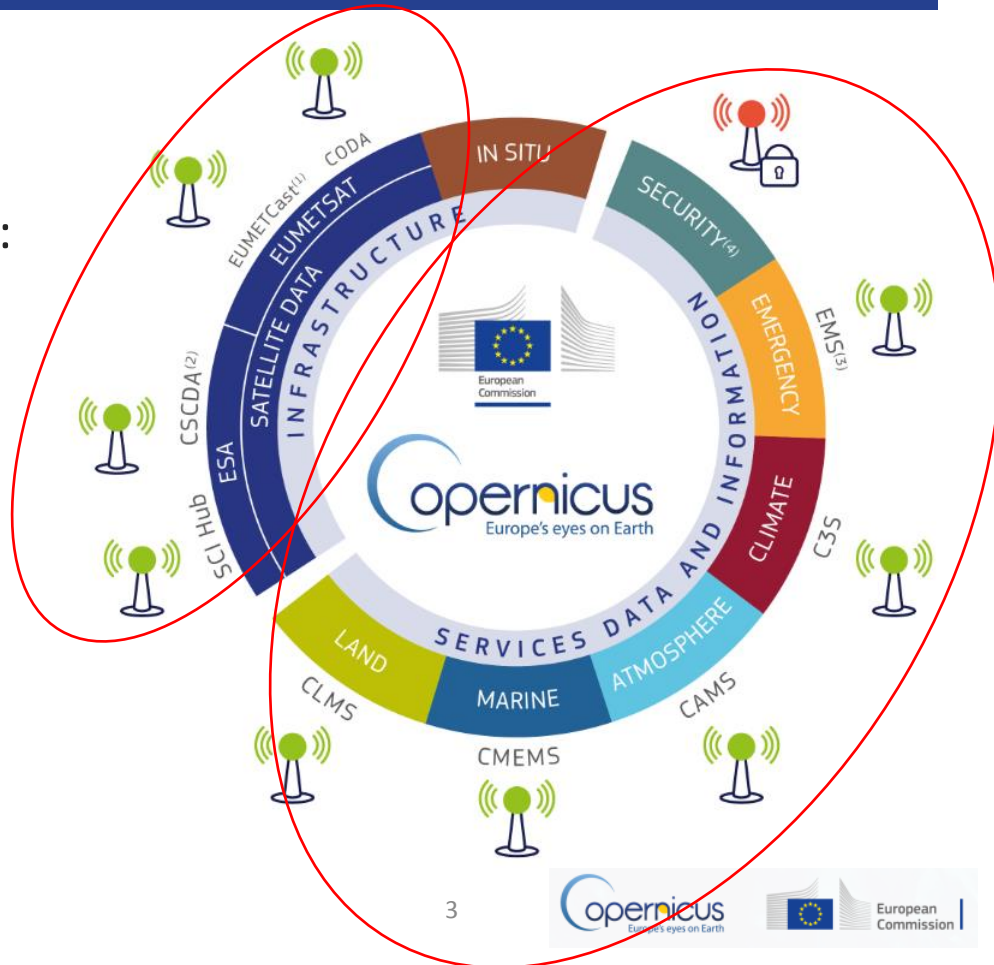
- 10 European Access points
- Several national and private initiatives
- Next generation services : RUS, DIAS



Copernicus Data Access Overview

10 European Data Access points:

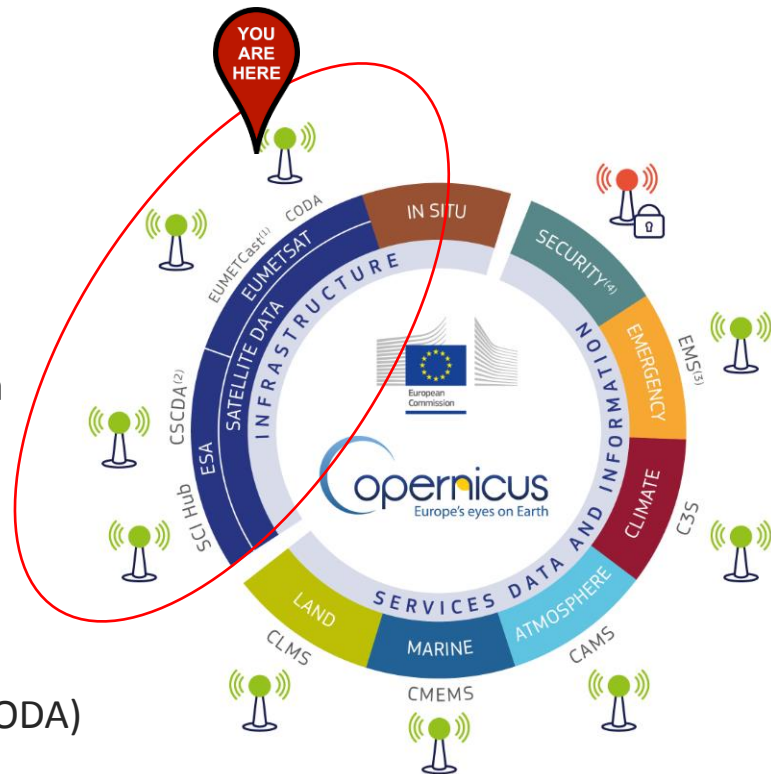
- 4 for Satellite Data
- 6 for Services Data and Information



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)





Space
Component

**FULL, FREE
AND OPEN**

WHICH PRODUCTS :

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

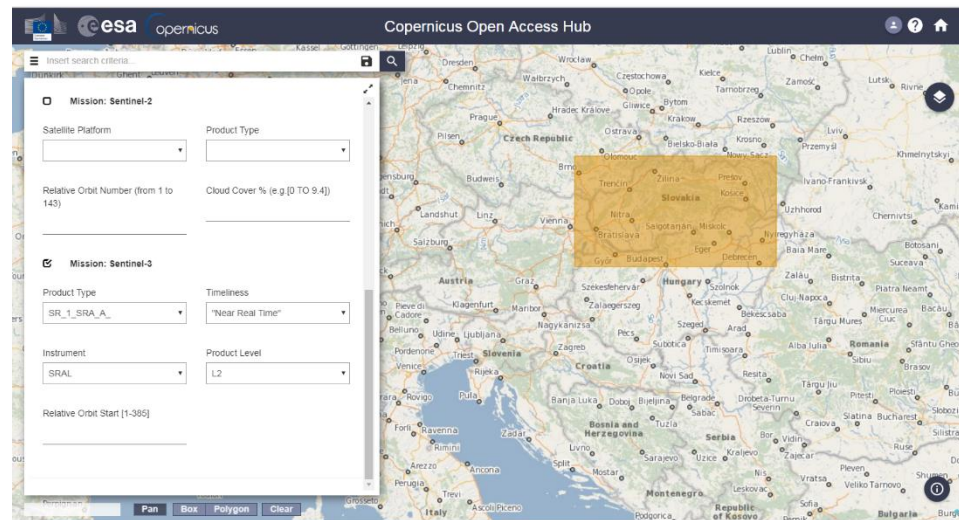
ACCESS CONDITION :

- Self-registration
- Open to everybody

HOW TO USE IT :

- Graphical Interface
- API automatic download

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





Space
Component

SPACE COMPONENT DATA ACCESS from ESA



Differentiated
Access Levels*

WHICH PRODUCTS :

- Earth Observation data from a series of Copernicus Contributing Missions

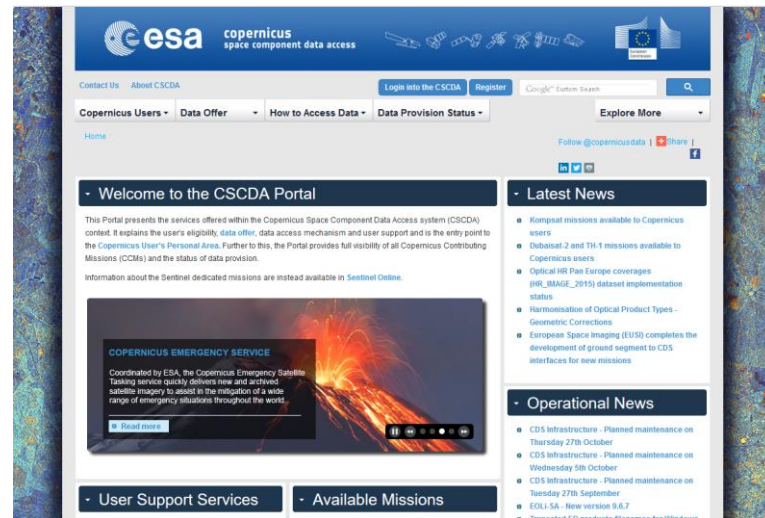
ACCESS CONDITION :

- 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



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...)

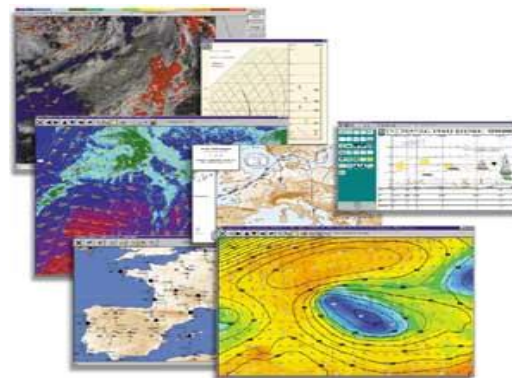


ACCESS CONDITION :

- 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>



Space
Component

FULL, FREE AND
OPEN

WHICH PRODUCTS :

- All Sentinel-3 marine & atmosphere data

ACCESS CONDITION :

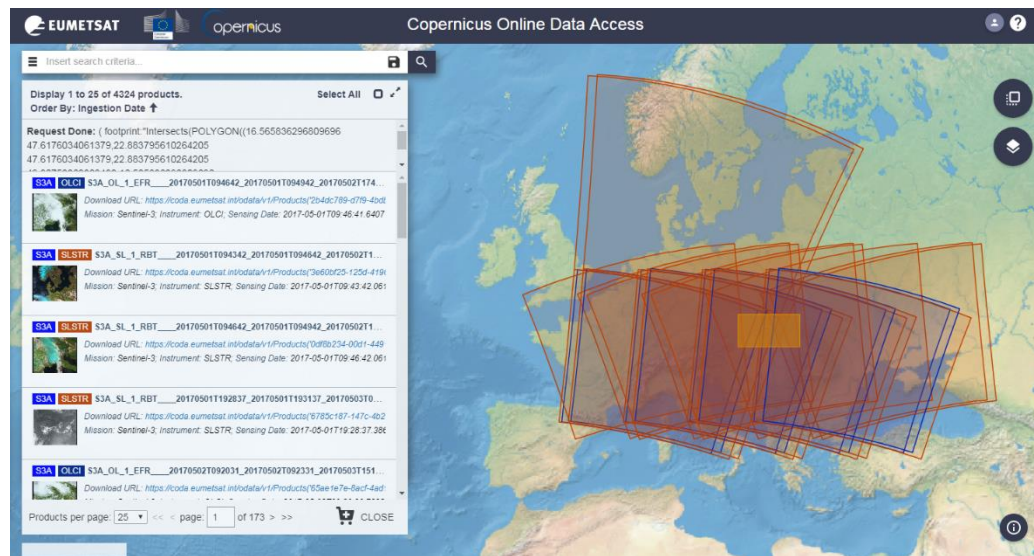
- Self registration
- Open for everybody

HOW TO USE IT :

- Graphical user interface
- FTP

WHERE :

- Go on <https://codal.eumetsat.int/#/home>





Data
Access

Access to Services Data and Information

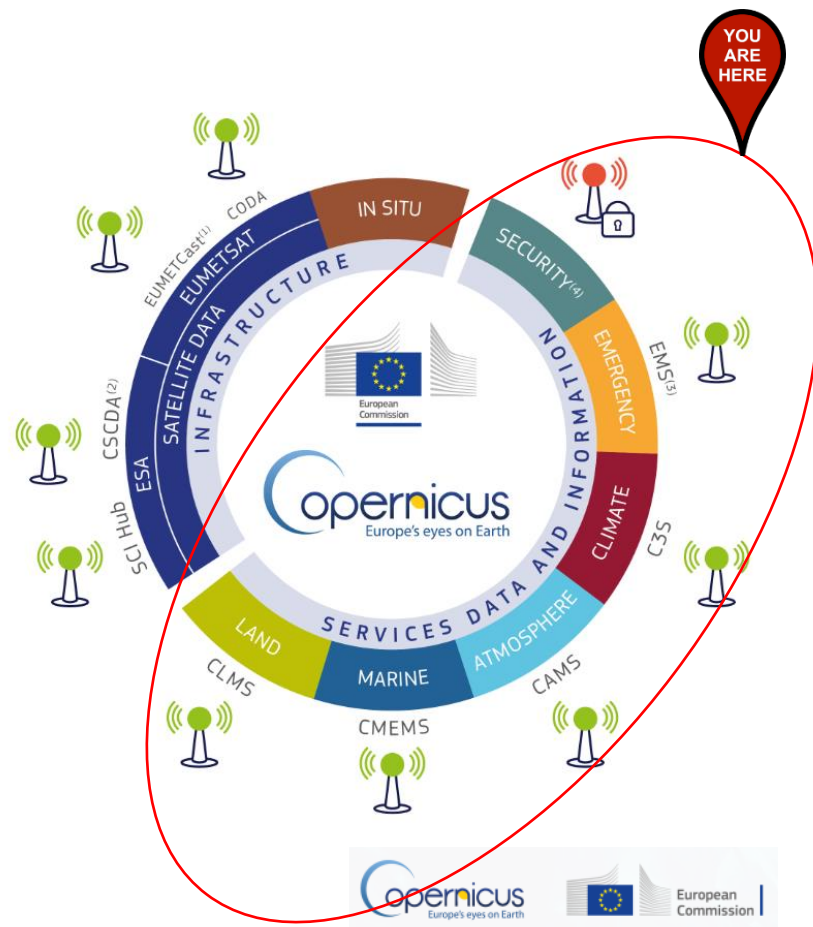
- **6 Thematic Copernicus Services**

- 5 are under Full, free and open access:

- Land
- Marine
- Atmosphere
- Climate
- Emergency

- 1 has restricted access

- Security



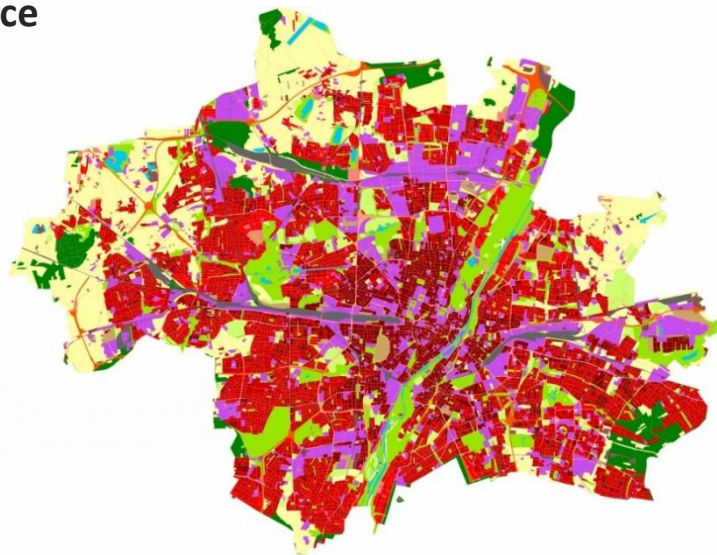


Land
Monitoring

FULL, FREE AND
OPEN

ACCESS TO CLMS

- **CLMS = Copernicus Land Monitoring Service**
- Example of products available :
 - Land Use / Land Cover (CORINE)
 - Hydrology
 - Digital Elevation Model (DEM)
 - Urban Atlas
 - Natura 2000,
 - etc...
- URL : <http://land.copernicus.eu/>





Land

Monitoring

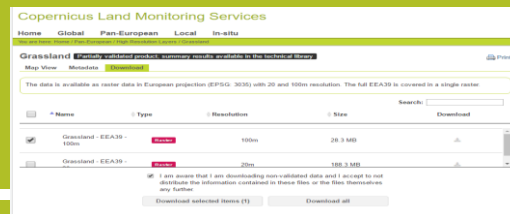
FULL, FREE AND
OPEN

ACCESS TO CLMS

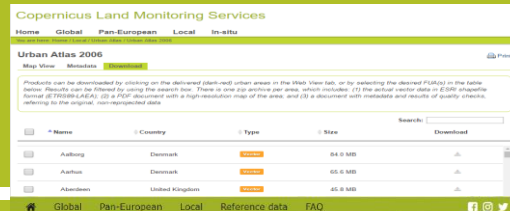
Global <http://land.copernicus.vgt.vito.be/PDF/portal/Application.html#Home>



Pan-European <http://land.copernicus.eu/pan-european>



Local <http://land.copernicus.eu/local>



Reference Data <http://land.copernicus.eu/in-situ>



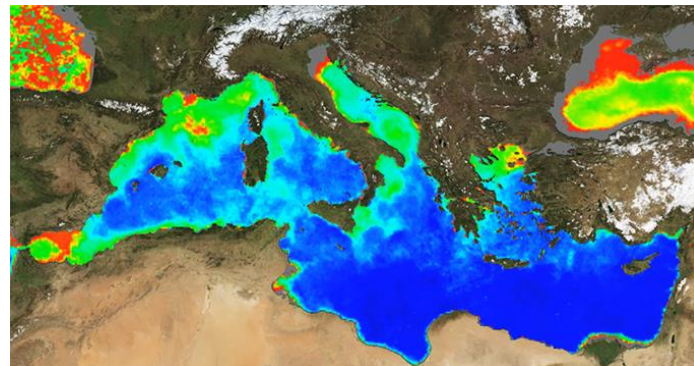


Marine
Monitoring

ACCESS TO CMEMS

FULL, FREE AND
OPEN

- **CMEMS = Copernicus Marine Environment Monitoring Service**
- 152 products freely accessible for everybody
- Global ocean and 6 European regional seas
- What type of product are available ?
 - Key physical and biogeochemical ocean parameters (currents, temperature, chlorophyll ...)
 - Analysis, forecast
 - Models and observations (Satellite or in situ)
 - New : Waves products have been added
- Where : <http://marine.copernicus.eu/>





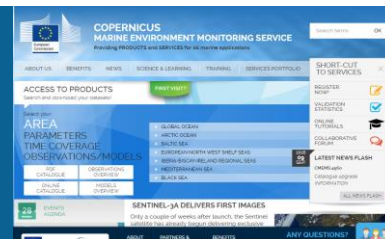
Marine
Monitoring

FULL, FREE AND
OPEN

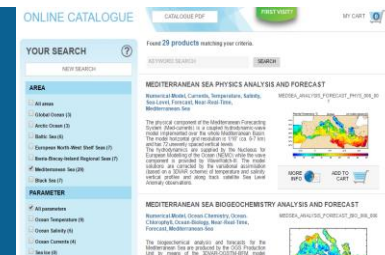
ACCESS TO CMEMS

<http://marine.copernicus.eu/>

- Register or log in



- Select additional parameters
- Press “Add to Cart” under the desired dataset



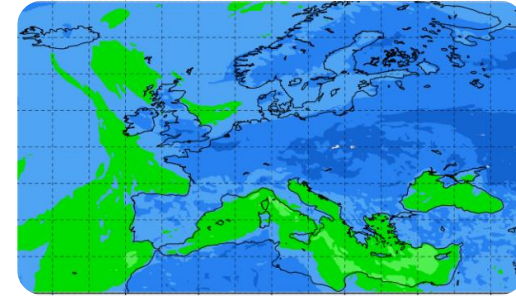
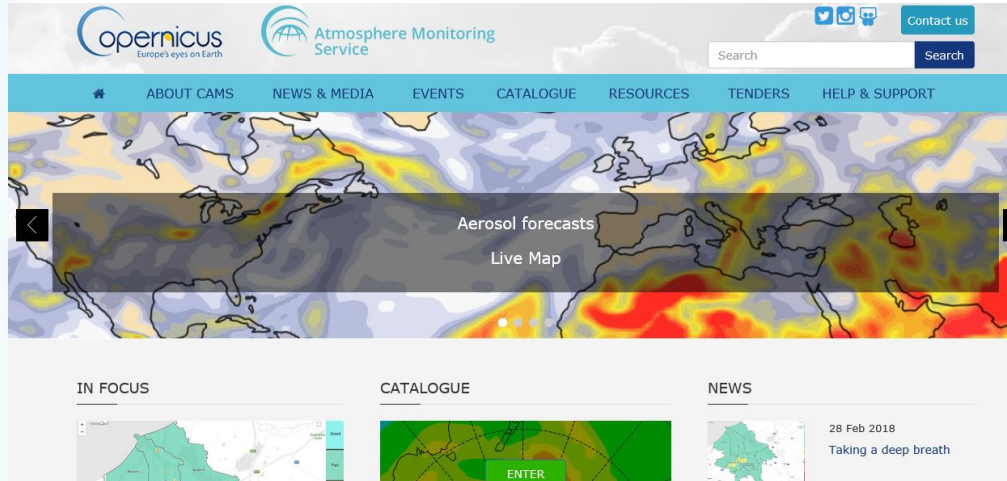
View or Download the dataset





FULL, FREE AND
OPEN

- **CAMS = Copernicus Atmosphere Monitoring Service**
- CAMS provide information on air quality and on the atmosphere composition.





Atmosphere
Monitoring

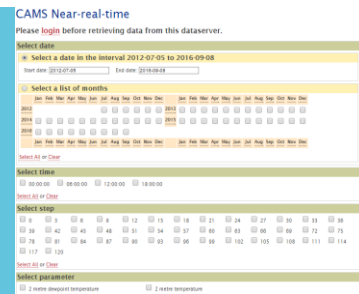
FULL, FREE AND
OPEN

ACCESS TO CAMS

<http://atmosphere.copernicus.eu/>
Catalogue → Enter

Select parameters.
Click Data Download.

Log in to ECMWF server.
Select parameters and time frame.
Download result.



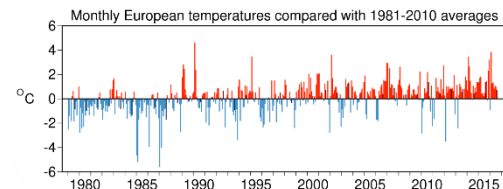
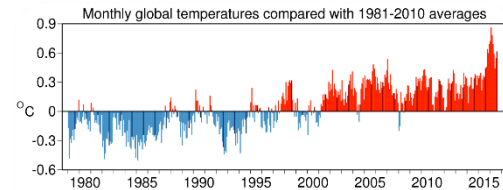
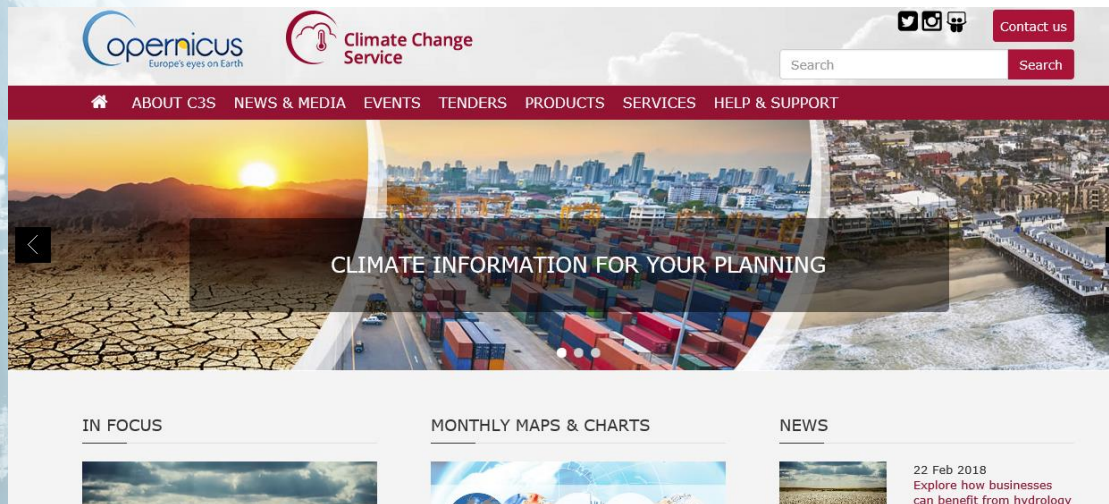


Climate
Change

FULL, FREE AND
OPEN

ACCESS TO C3S

- **C3S = Copernicus Climate Change Service**
- Under construction with Sectoral Information System
- Different kinds of maps are accessible



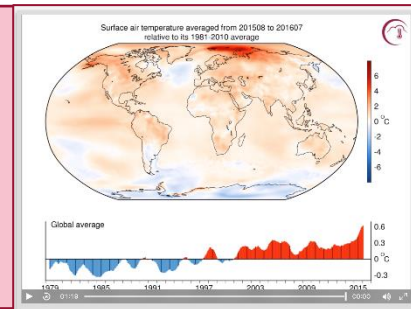


Climate
Change

FULL, FREE AND
OPEN

ACCESS TO C3S

- Visit <https://climate.copernicus.eu> and visualize data of interest
- Access to C3S data on ECMWF website at <http://apps.ecmwf.int/datasets/data/interim-full-daily/>



- To access the **ECMWF public datasets**. You will **need to have an account** on ECMWF web site
- If you **don't have an account**, please self register at <https://apps.ecmwf.int/registration/>
- Very **simple**: the user writes a request, submits it and retrieves a file





FREE AND OPEN

- EMS answers to :

- floods,
- tsunami,
- earthquake,
- landslides,
- fires,
-

- Only authorized users can trigger the service
- But everybody can access maps!
- Where : <http://emergency.copernicus.eu/>

European Commission

COPERNICUS

Emergency Management Service

Copernicus EMS » Copernicus Emergency Management Service

Home | What is Copernicus | EMS - Mapping | EMS - Early Warning System

News

LATEST NEWS - 2017-10-15 | [EMSR249] Hurricane Ophelia in Ireland

EMS - MAPPING

- Service Overview
- Who can use the service
- How to use the service
- Products: Rapid Mapping
- Products: Risk and Recovery
- Quality control / Feedback
- User Guide

RAPID MAPPING

- List of Activations
- Map of Activations
- GeoRSS Feed

RISK AND RECOVERY

Copernicus Emergency Management Service - Mapping

A service in support of European emergency response

Map showing the United Kingdom, Ireland, and surrounding regions. Key locations marked include Edinburgh, Belfast, Douglas, Cardiff, London, and Saint Helier. A blue icon labeled EMSR249 is visible over Ireland.



FREE AND OPEN

- Rapid Mapping

- Risk and Recovery

Art. Code	Title	Event Date	Type	Country/Terr.	Feed
EMSR250	Forest fire Portugal	2017-10-16	Wildfire	Portugal	
EMSR249	Hurricane Ophelia in Ireland	2017-10-16	Storm	Ireland	
EMSR248	Forest fires in Castilla y León region...	2017-07-29	Wildfire	Spain	
EMSR247	Forest fire in Georgian area, Georgia	2017-09-22	Wildfire	Georgia	
EMSR246	Hurricane Maria in Dominica	2017-09-19	Storm	Dominica	
EMSR245	Hurricane Maria in Caribbean	2017-09-19	Storm	Saint Kitts and... British	

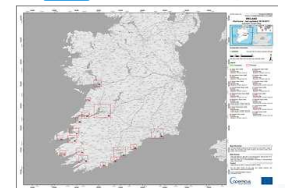
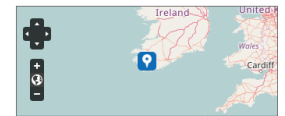
[EMSR249] Hurricane Ophelia in Ireland

EMSR249: Hurricane Ophelia in Ireland

Event Time (UTC): 2017-10-16 06:00
Event Time (LOC): 2017-10-16 07:00
Event Type: Storm (Extra-tropical storm)
Activation Time (UTC): 2017-10-15 19:23
Reference maps produced: 0
Delineation maps produced: 16
Grading maps produced: 13
Activation Status: Open
Affected Countries/Territories:

Ireland
Authorized User:
Ireland|National Directorate for Fire and Emergency Management

Activation Reason:
Hurricane Ophelia is forecast to hit the western to south eastern coasts of Ireland the 16/10/2017 from 06:00 onwards with extreme winds, storm surges, waves and flooding.





User Uptake

Copernicus Access to Data

National and private Initiatives



User Uptake

OTHER DATA ACCESS PUBLIC INITIATIVES

Initiative Name	Provider	Website and Target User Group
ESA Thematic Exploitation Platforms	ESA	<ul style="list-style-type: none">• URL: tep.eo.esa.int• All user types
THEIA Land Data Centre	CEA, Cerema, CIRAD, CNES, CNRS, IGN, INRA, IRD, IRSTEA, Meteo France, ONERA	<ul style="list-style-type: none">• URL: www.theia-land.fr• Scientific communities and public authorities
Center for Environmental Data Analysis - CEDA	CEDA, NCAS, NCEO	<ul style="list-style-type: none">• URL: catalogue.ceda.ac.uk• All user types
USGS Earth Explorer	USGS	<ul style="list-style-type: none">• URL: earthexplorer.usgs.gov• All user types
Alaska Satellite Facility	NASA University of Alaska Fairbanks	<ul style="list-style-type: none">• URL: asf.alaska.edu/sentinel• Scientific users



User
Uptake

OTHER DATA ACCESS PRIVATE INITIATIVES

Initiative Name	Provider	Website and Target User Group
CloudEO	CloudEO	<ul style="list-style-type: none">• URL: cloudeo-ag.com• Users, developers and providers of geo data/ geo services; software developers
Geopedia platform	Synergise	<ul style="list-style-type: none">• URL: geopedia.world• Users of geo data/ geo services
Geostorm platform	CS-SI	<ul style="list-style-type: none">• URL: geostorm.eu• Users and developers of geo data/ geo services
Google Earth Engine	Google	<ul style="list-style-type: none">• URL: earthengine.google.com• Scientists, researchers and developers
Planet platform	Planet	<ul style="list-style-type: none">• URL: planet.com/products/platform/• Users and developers of geo data/ geo services
Sentinel on AWS	Amazon	<ul style="list-style-type: none">• 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



Data Access

Copernicus Access to Data

New generation services:

- RUS
- DIAS



RUS Service

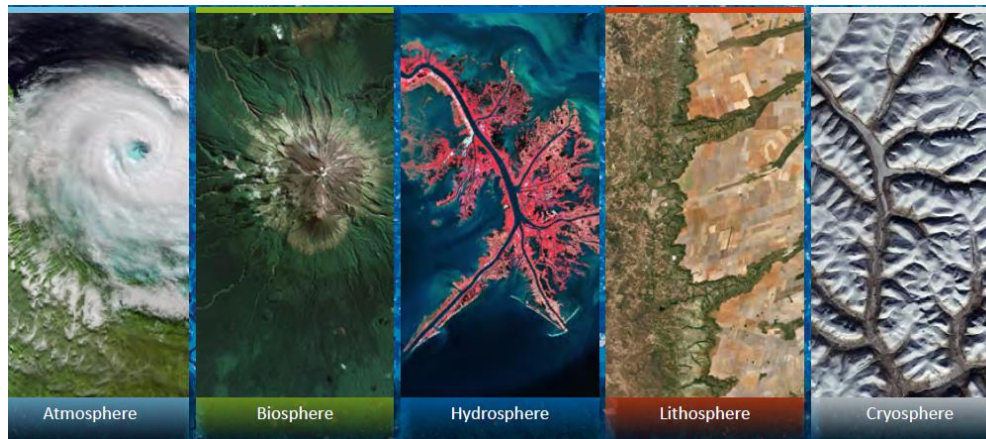
Data Access



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 founded by EC and managed by ESA.**





Data
Access

RUS: A NEW EXPERT SERVICE FOR SENTINEL USERS

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



**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



Data Access

Data and Information Access Services (DIAS)



Data
Access

Copernicus / EO data challenge

Copernicus Data Context :

- Massive amounts of data
- Full, open and free-of-charge
- Ease of access and use



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

Technological Context :

- Different types of dissemination infrastructures across Europe
- ICT and EO cross-fertilization
- Growth and jobs in downstream sector



Data
Access

DIAS: Actual States

Several DIAS will be provided to the users in the first instance to foster the competition:

- **ESA** has selected 4 consortia to create 4 DIAS.
- **EUMETSAT** will also provide 1 DIAS

⇒ **5 platforms** with same goals and different approaches will ensure competition

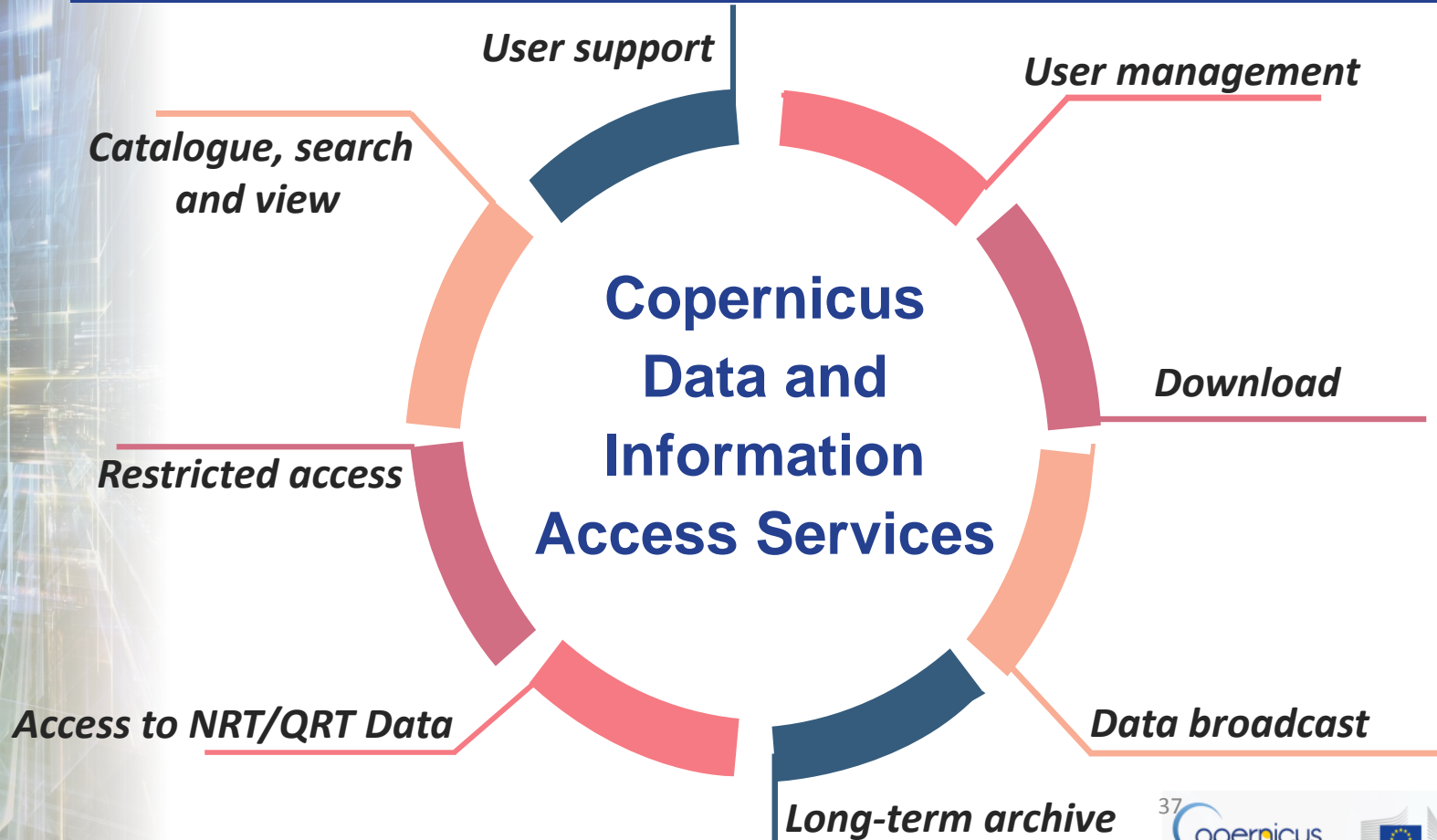
⇒ **Calendar:** Availability in 2018





Data
Access

DIAS high level functionalities

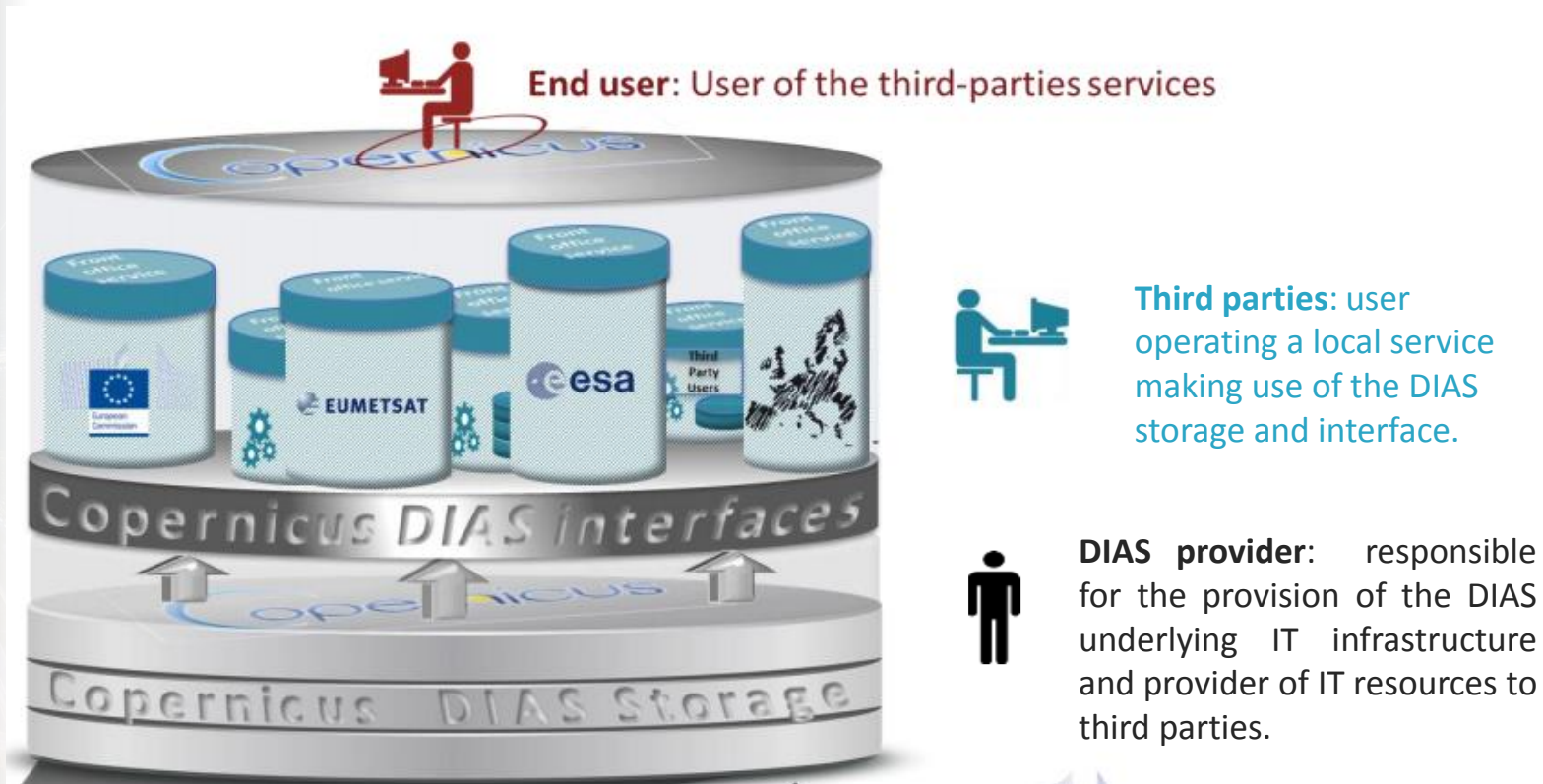


37



Data
Access

DIAS Organisation Overview





Data
Access

Status of the DIAS : ESA and EUMETSAT

- **ESA**
 - All 4 DIAS contracts kicked-off in December 2017
 - Start of operations: **June 2018**; preliminary services might be opened in advance
 - Publication of the DIAS offering by each DIAS provider
 - Expected before the start of operations
- **EUMETSAT**
 - Deployment Readiness Review took place in January 2018
 - Start of operations of V0 by late June 2018
 - V1 release in early 2019