Copernicus Global Land

Data Access, Needs and Perspectives for A.I. in Copernicus

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Media Events News Contact | Log in search English

Copernicus Europe's eyes on Earth

Services Opportunities Access to Data How to Library Use Cases About Copernicus

Europe's eyes on Earth

Looking at our planet and its environment

For the ultimate benefit of all European citizens

Copernicus Europe's eyes on Earth

European Commission

OBSERVER: Looking into changes in European landscapes with the Copernicus Land Monitoring Service

Uruguay River wetlands contains modified Copernicus Sentinel data (2018), processed by ESA, CC BY-SA 3.0 IGO

Atmosphere Marine Land Climate Change Security Emergency

Quick Links

Access to Data and DIAS

Opportunities

Copernicus Academy

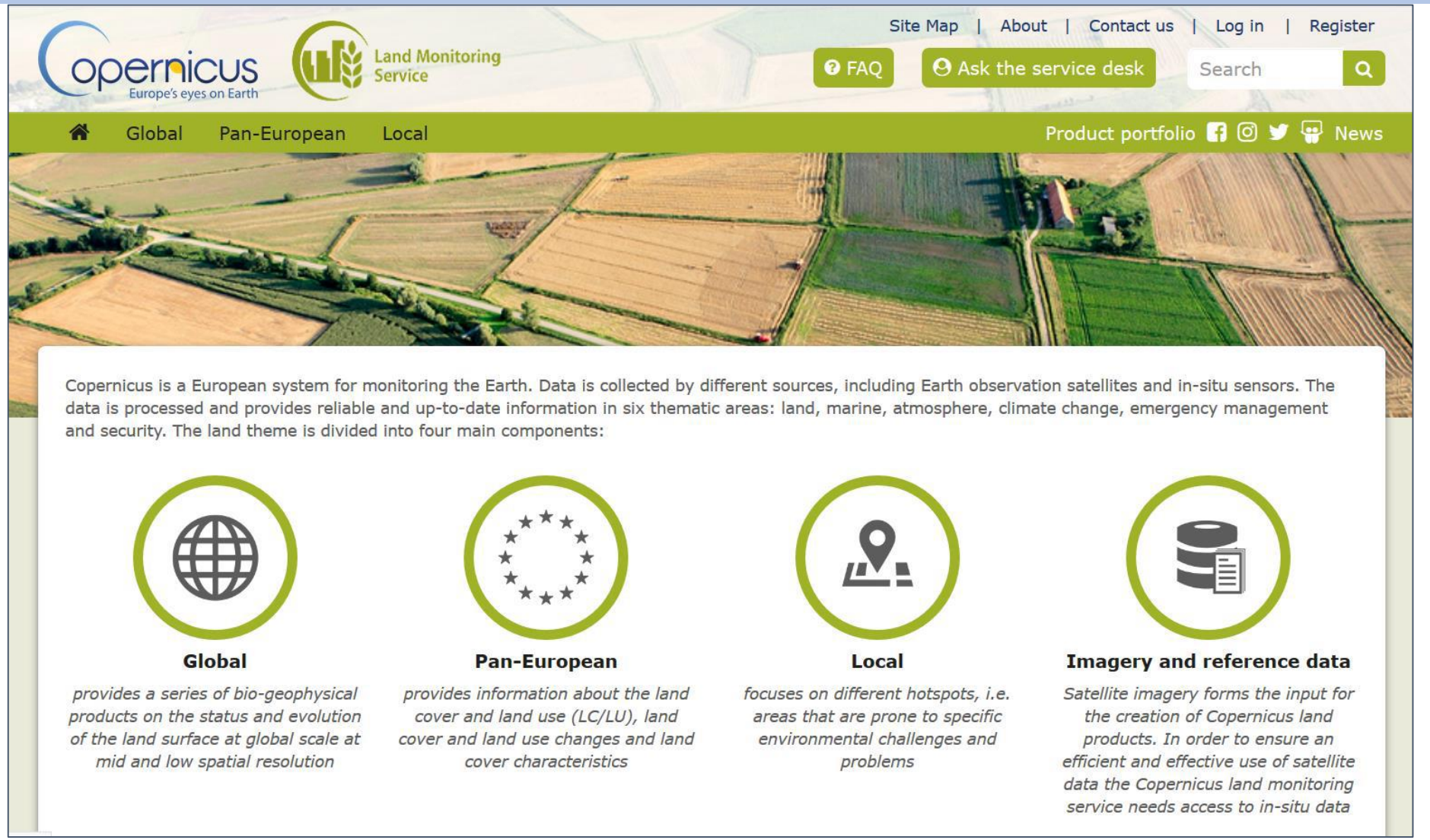
Coper

Screenshot

Contact and Support

https://www.copernicus.eu/en/services/land

Components of the Copernicus Land Service



Global Land Services

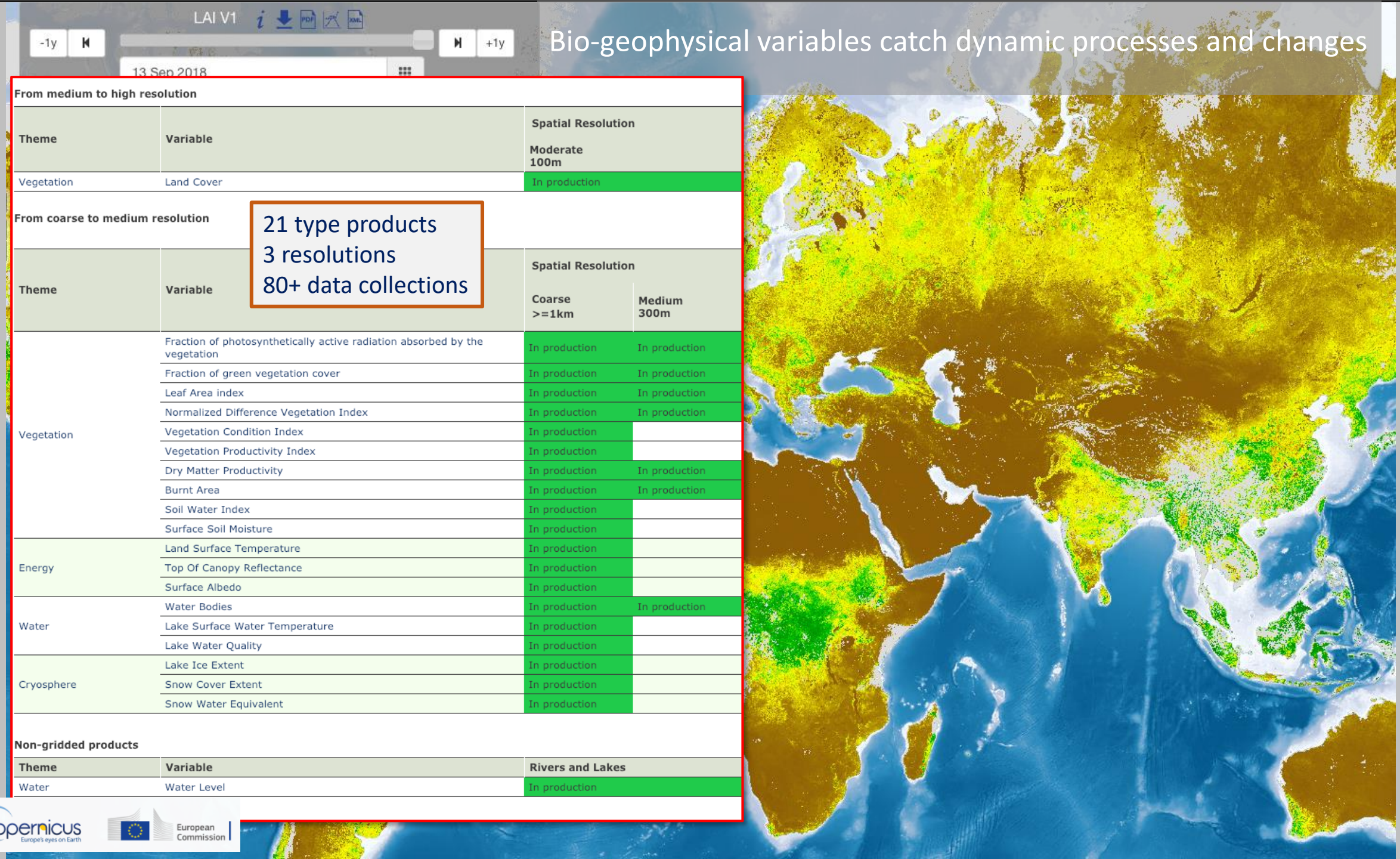
Land Monitoring

- Systematic production of Biophysical Variables
- Ground Based Observations for Validation
- Sentinel-2 Global Mosaics and thematic products
- Hot-Spot Monitoring (land cover change)

Copernicus Europe's eyes on Earth

European Commission

Bio-geophysical variables catch dynamic processes and changes



From medium to high resolution

Theme	Variable	Spatial Resolution Moderate 100m
Vegetation	Land Cover	In production

From coarse to medium resolution

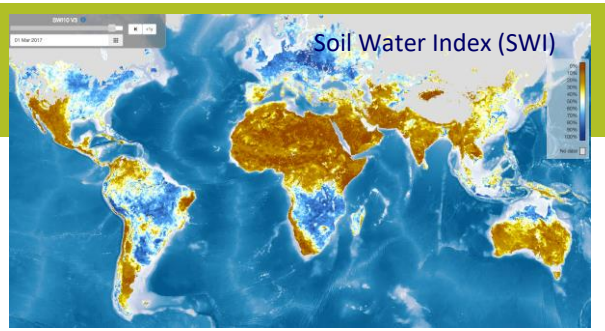
21 type products
3 resolutions
80+ data collections

Theme	Variable	Spatial Resolution Coarse >=1km	 Medium 300m
Vegetation	Fraction of photosynthetically active radiation absorbed by the vegetation	In production	In production
	Fraction of green vegetation cover	In production	In production
	Leaf Area index	In production	In production
	Normalized Difference Vegetation Index	In production	In production
	Vegetation Condition Index	In production	
	Vegetation Productivity Index	In production	
	Dry Matter Productivity	In production	In production
	Burnt Area	In production	In production
	Soil Water Index	In production	
	Surface Soil Moisture	In production	
Energy	Land Surface Temperature	In production	
	Top Of Canopy Reflectance	In production	
	Surface Albedo	In production	
Water	Water Bodies	In production	In production
	Lake Surface Water Temperature	In production	
	Lake Water Quality	In production	
Cryosphere	Lake Ice Extent	In production	
	Snow Cover Extent	In production	
	Snow Water Equivalent	In production	

Non-gridded products

Theme	Variable	Rivers and Lakes
Water	Water Level	In production

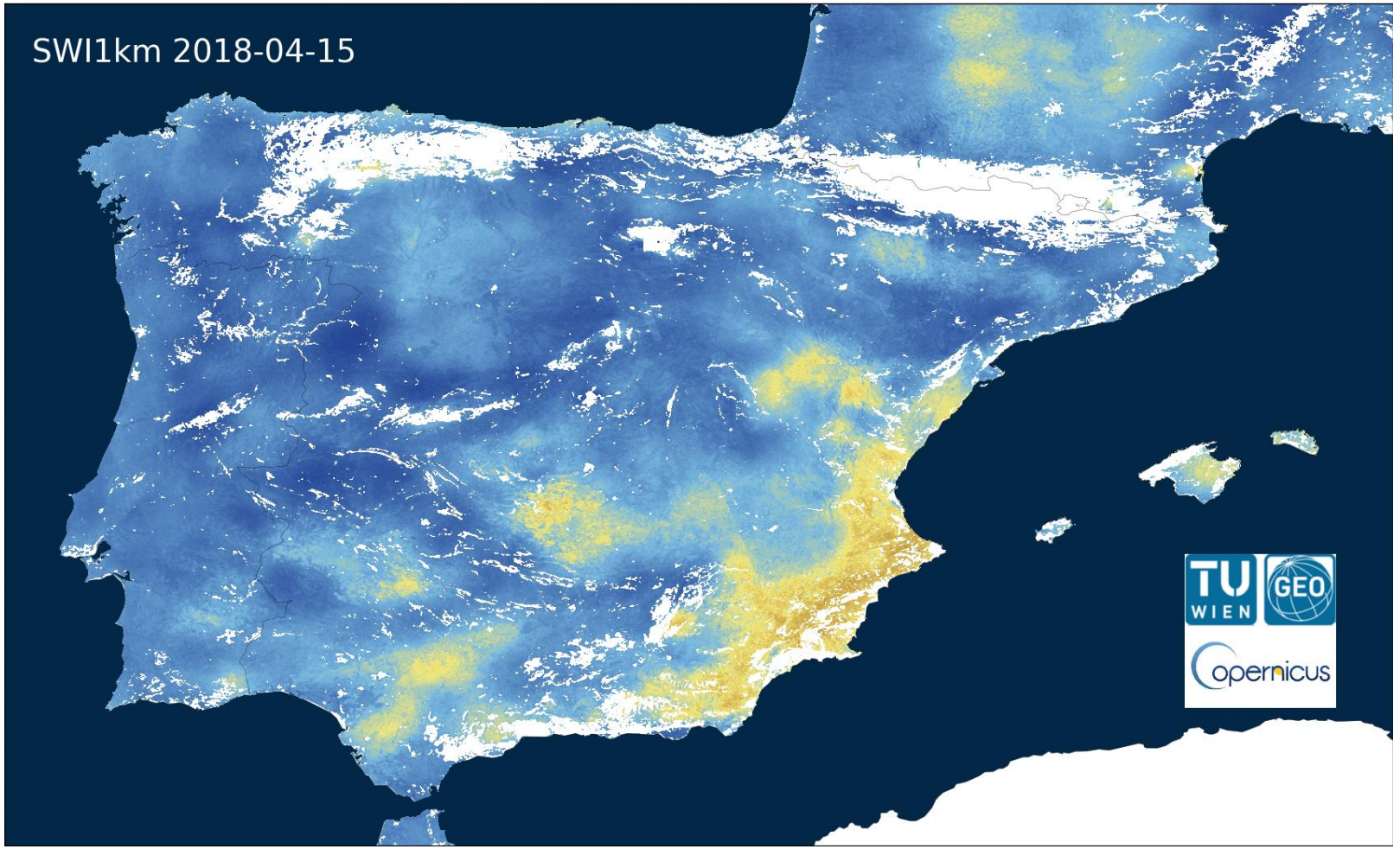
Copernicus
Europe's eyes on Earth
European Commission



Soil Water Index

The SWI quantifies the amount of water (m^3/m^3) in soil layers at various depths and is derived from the SSM using a water balance model. The freeze and thaw status of soil is provided.

Global
Daily
1km



portfolio

Copernicus Global Land Service
Providing bio-geophysical products of global land surface

Copernicus Europe's eyes on Earth

Home | Products | Use cases | Product Access | Viewing | Library | Get Support

- Vegetation
- Energy
- Water
- Cryosphere
- Hot Spots
- Groundbased

From medium to high resolution

Theme	Variable	Spatial Resolution: Moderate 100m
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From coarse to medium resolution

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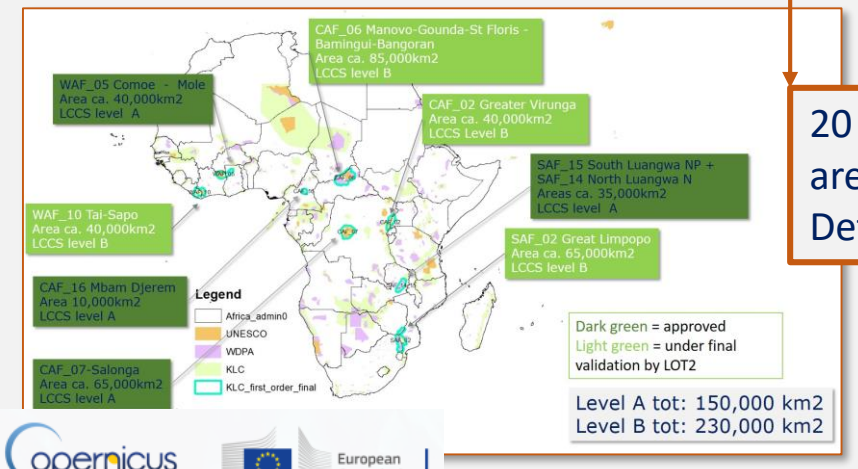


20 Key Landscape zones
area: 1.273.350 km2
Detailed land cover

Contribute to GBOV | Contact Us

Copernicus Europe's eyes on Earth | Land Monitoring

Home | News | Overview | Sites | Products | Data Access | Data Policy | User Support | Statistics

Ground-Based Observations for Validation (GBOV) of Copernicus Global Land Products

The GBOV service provides multiple years of high quality in-situ measurements to validate 7 core land products (Top-of-canopy reflectances, Surface albedo, fAPAR, LAI, fCover, Land Surface Temperature and Soil Moisture)

Go to Data Access

https://land.copernicus.eu/global

Copernicus Europe's eyes on Earth | European Commission

The Sentinel-2 Global Mosaic service

Analysis-ready data for direct and convenient usage!!

S2 L2A spectral surface reflectance temporal composites

(daily, 10day, month, quarter, yearly
AOI, resolution, coordinate system, file format, bands, ancillary)

Sentinel-2 data volumes and permutations of options make **traditional approach** of full-archive processing, storage, and distribution **prohibitive**. Instead: on-the-fly processing upon user request!

Land cover/use monitoring, deforestation, REDD+, etc.

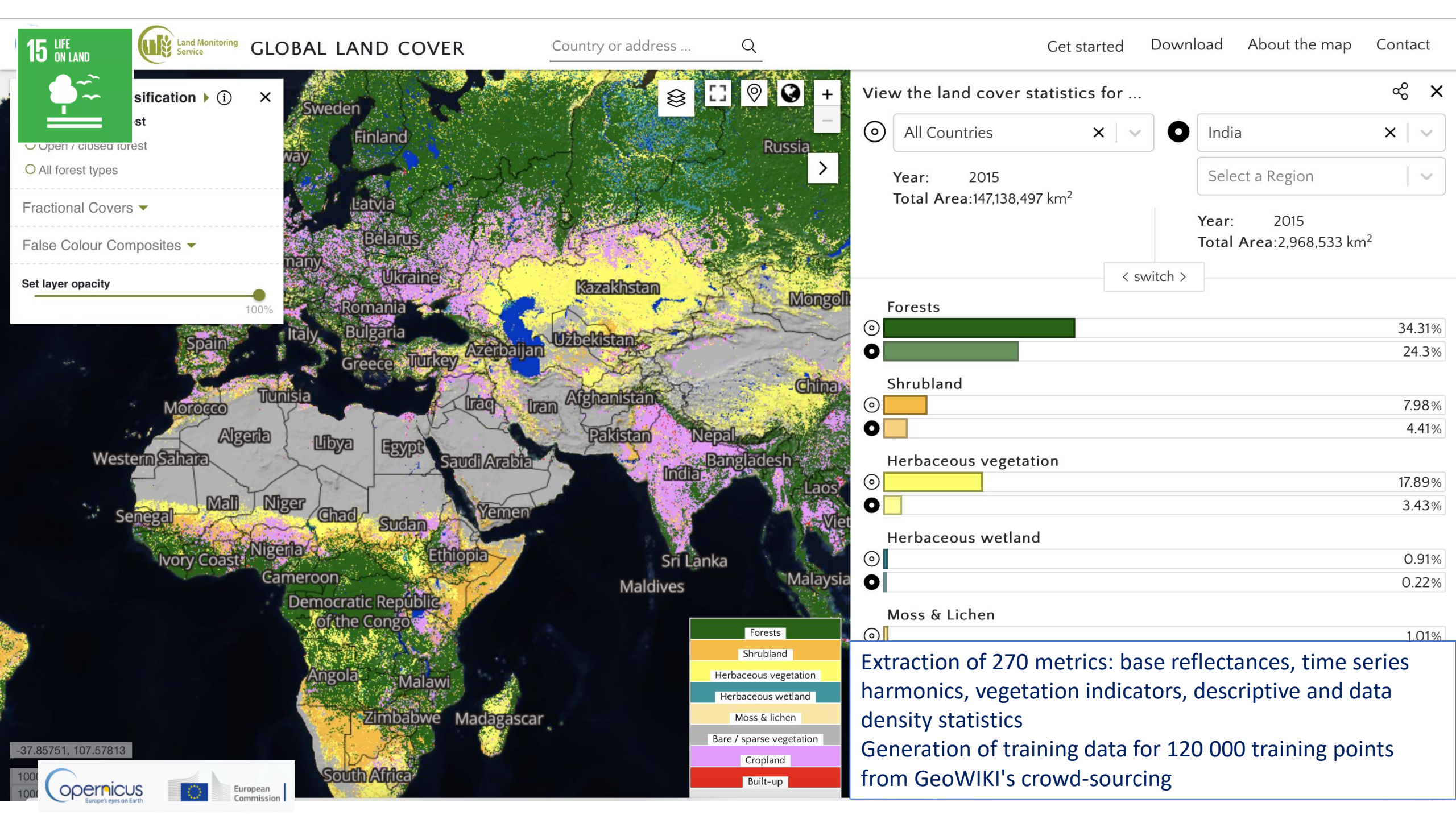
Sentinel 2B (image source: ESA)

60m, Annual mosaic 2017

Screenshot

Copernicus Europe's eyes on Earth

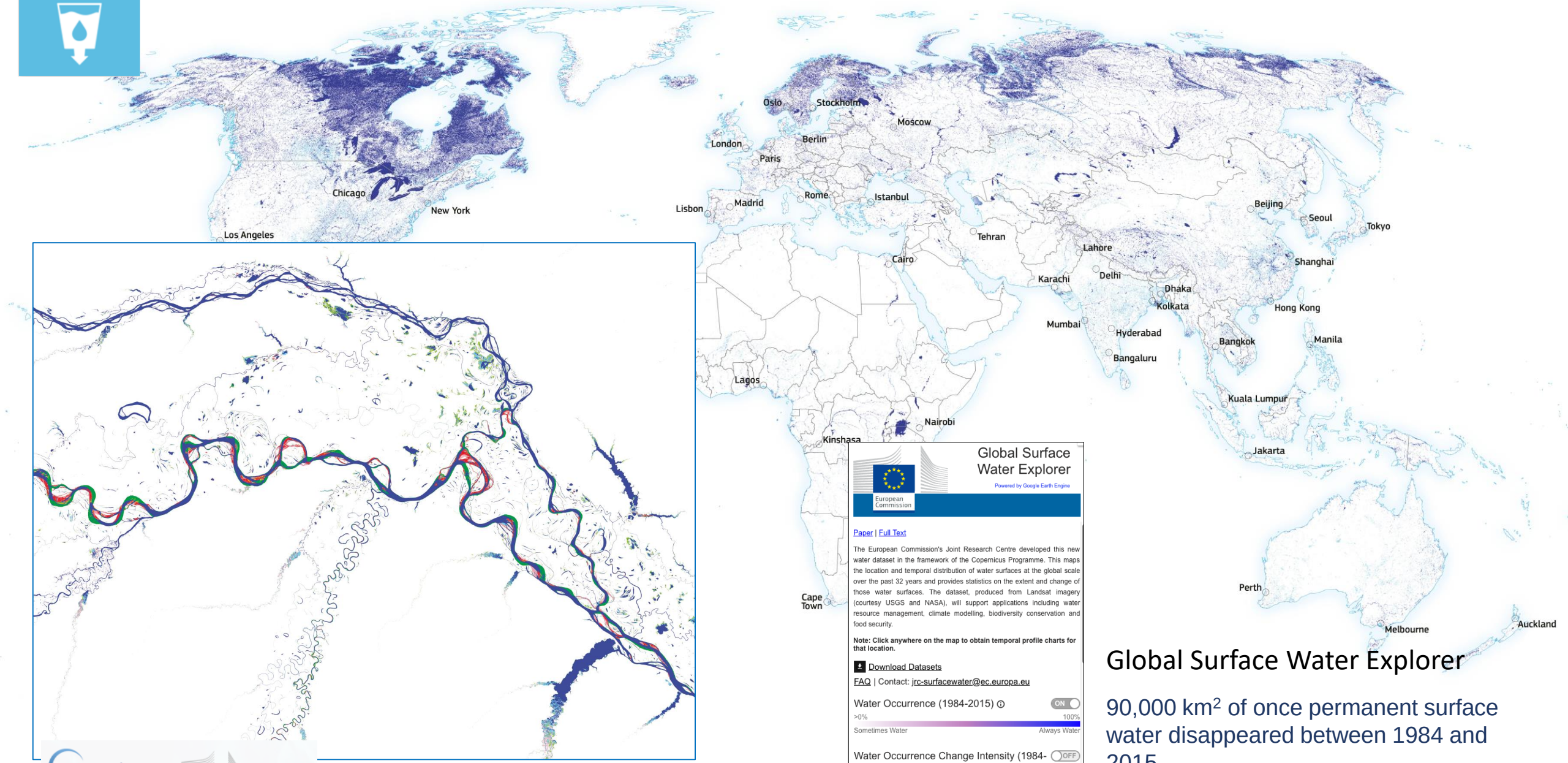
European Commission



Extraction of 270 metrics: base reflectances, time series harmonics, vegetation indicators, descriptive and data density statistics

Generation of training data for 120 000 training points from GeoWIKI's crowd-sourcing

6 CLEAN WATER AND SANITATION



Global Surface Water Explorer

90,000 km^2 of once permanent surface water disappeared between 1984 and 2015

Copernicus Europe's eyes on Earth | European Commission

Reserva Extrativista Auati-Paran., Western Amazon, Brasil

GHSL - Global Human Settlement Layer

GEO Human Planet Initiative

Global Land Component concept

Downstream applications

Contextual info

Core Service

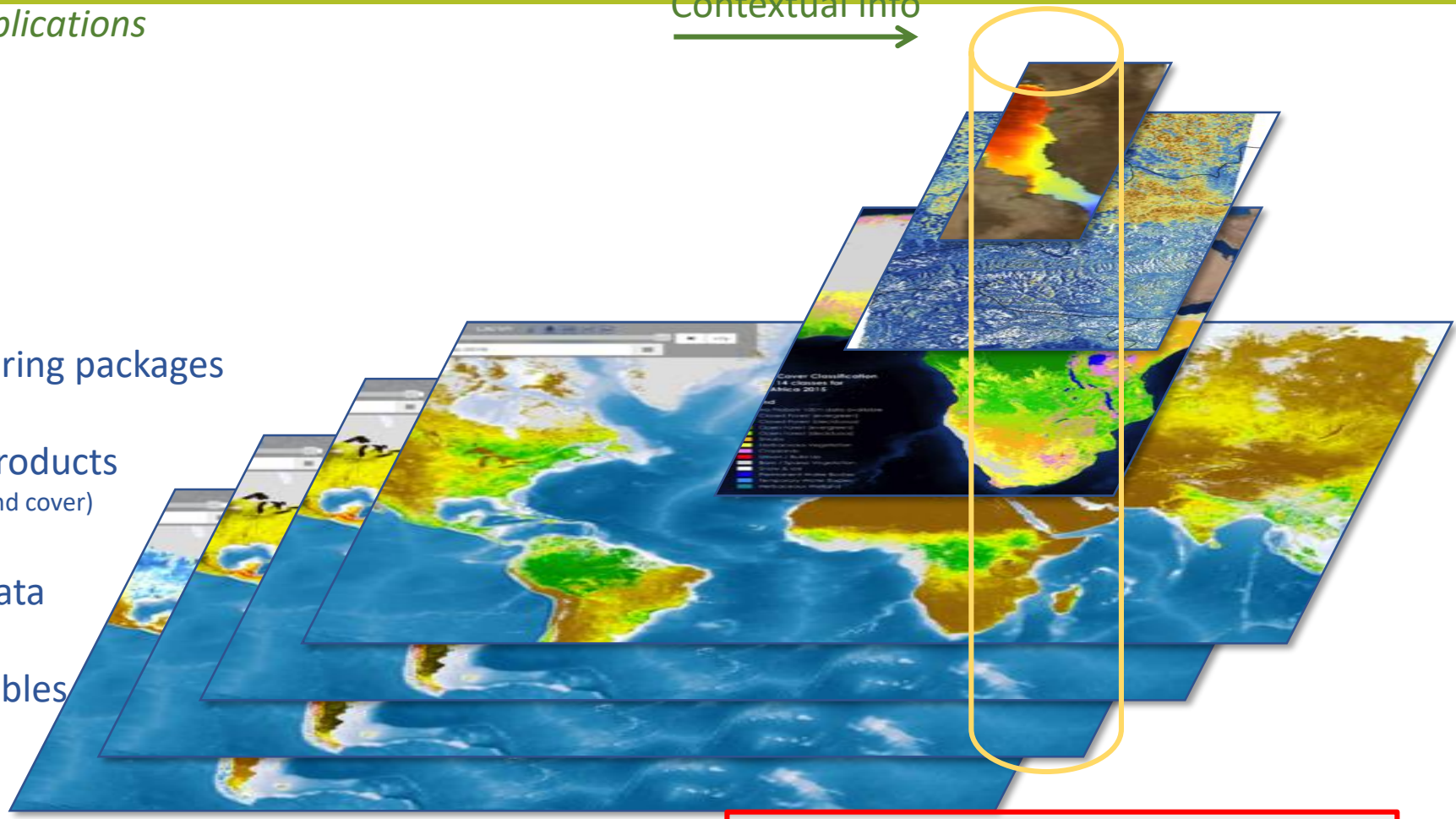
Hot Spot monitoring packages

Thematic data products
(Binary, monotheme, Land cover)

Analysis ready data

Biophysical variables

(in-situ data)



20m

100m

300m

1km

Moving to:

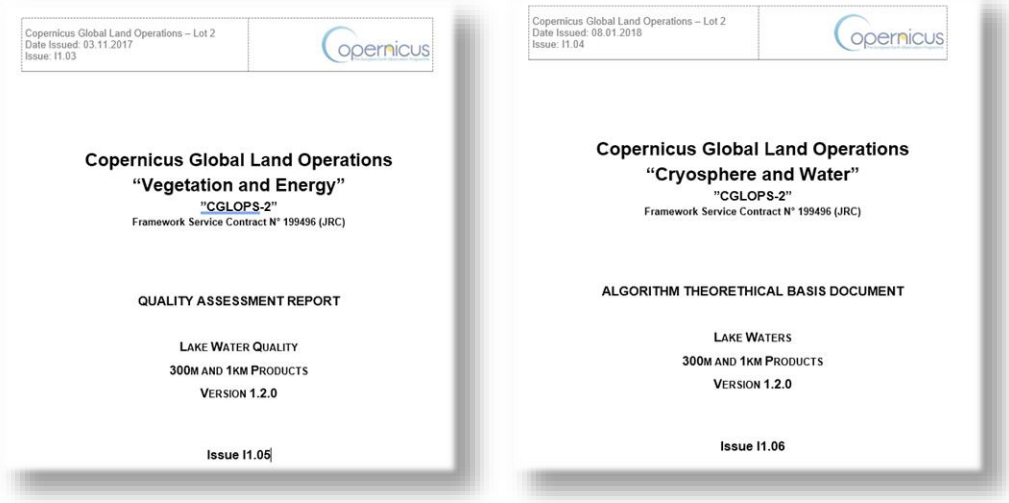
- **Higher resolution global land products**
- **Application oriented products**
- On-the-fly processed products
- Transparent access and use of products

For all Global land products

Documentation

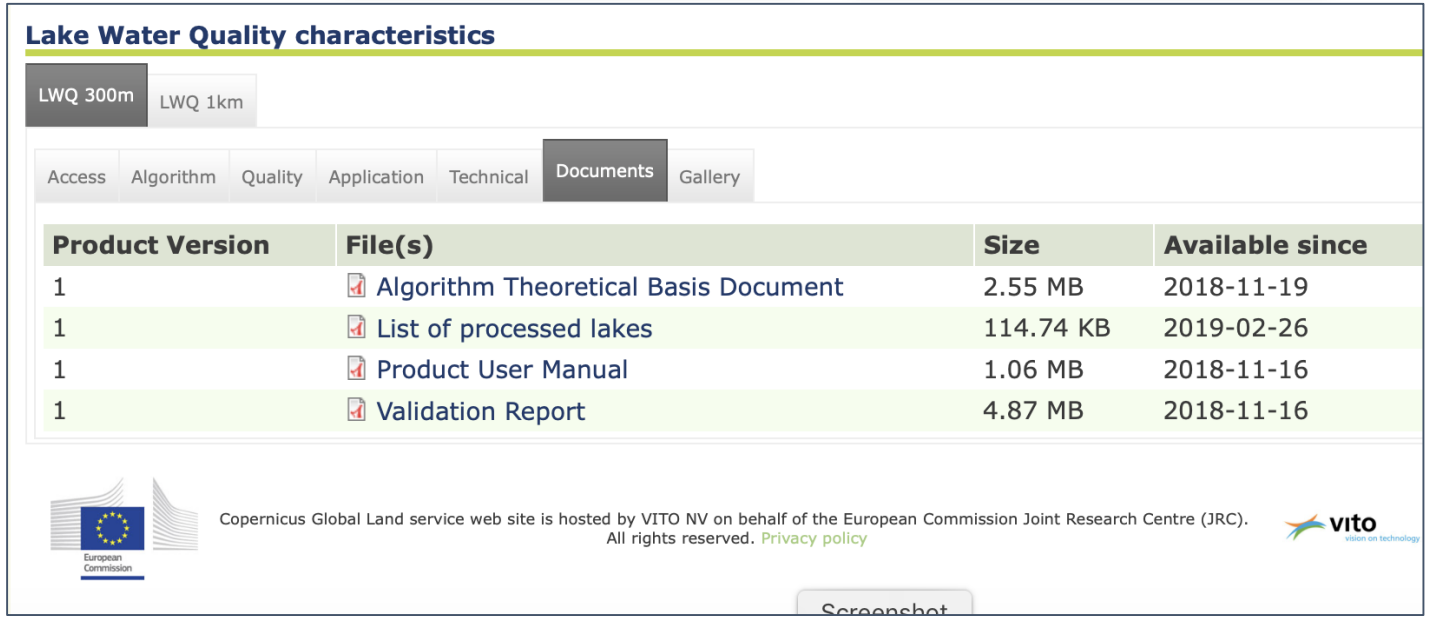
Each product comes with a set of documents:

- ATBD (Algorithm Baseline Document)
- PUM (Produce User Manual)
- QAR (Quality Assessment Report)



➢ **Review**: Products and Documents undergo a review cycle by external reviewers

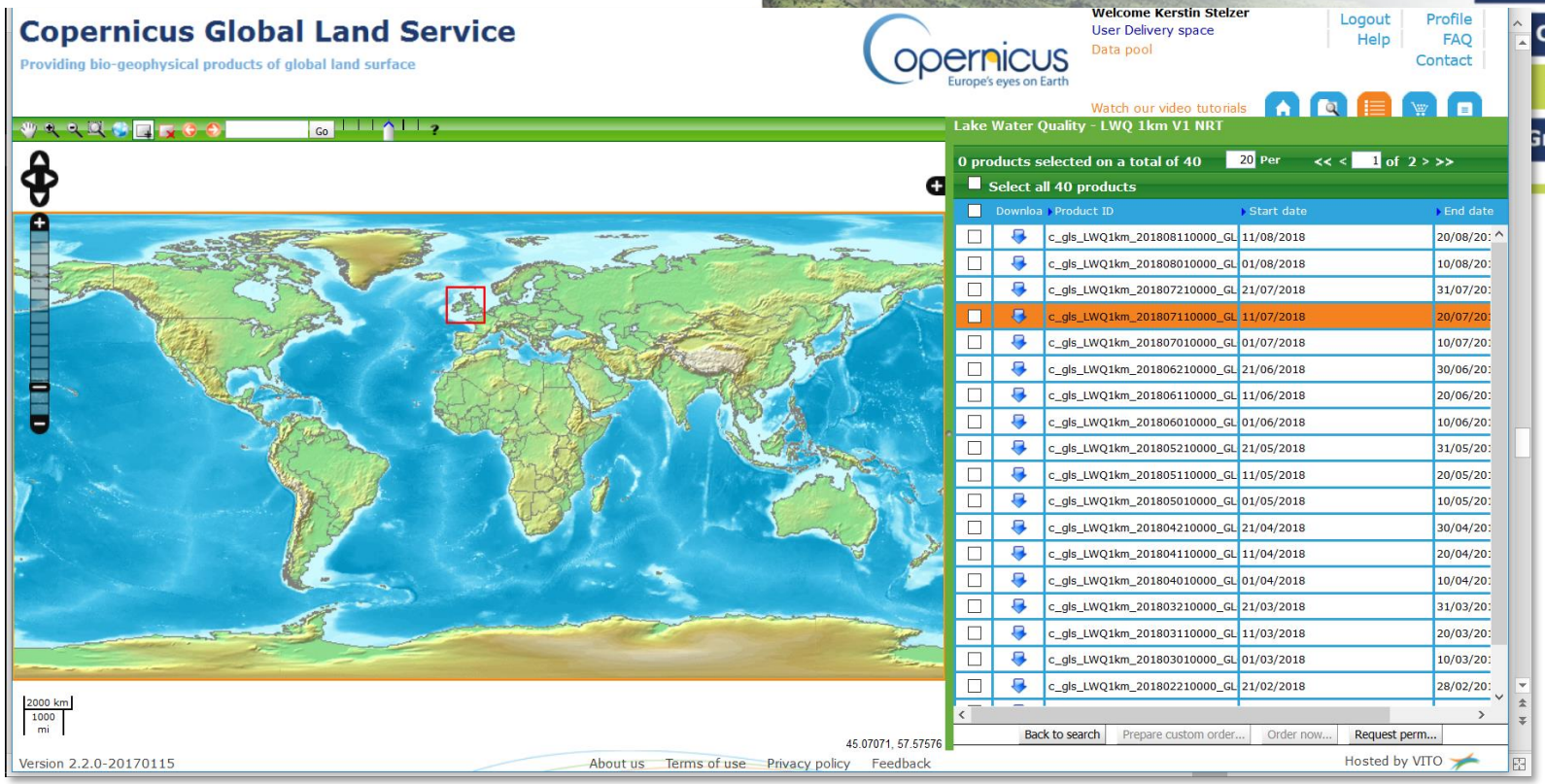
➢ **Technical User Group**: review and update of user requirements



Access

Free and open product access

- Anonymous query;
- data access after light registration
  Catalogue search & Subscription
- Fast HTTP Access, APIs
- #formats
- DIAS
- JEODPP



DIAS

Conventional Data Access Hubs

DIAS

To facilitate and standardise access to data, the European Commission has funded 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.

Screenshot

DIAS

Conventional Data Access Hubs

Access to Data

Copernicus builds on a constellations of satellites making millions an impressive number of of daily observations, as well as on a global network of thousands of land-, air- and marine-based sensors to create the most detailed pictures of Earth. 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.

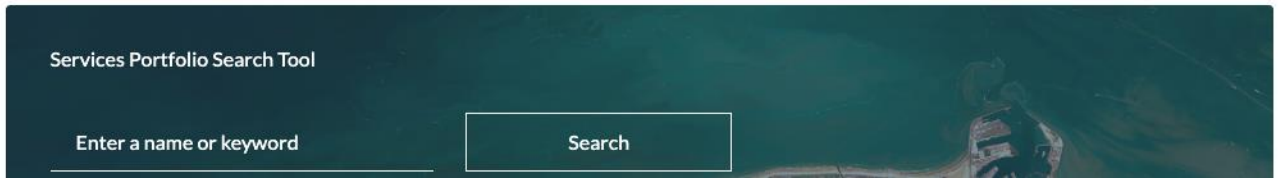
The vast majority of data and information delivered by the Copernicus Space infrastructure and the Copernicus services are made available and accessible to any citizen and any organisation around the world on a **free, full and open access basis**. You can access Copernicus Data and Information Services through the DIAS or the Conventional Data Hubs.

Go to DIAS Go to Access Hubs

Services Portfolio Search Tool

Faithful to its mission to provide strategic, social, economic and environmental benefits to European public authorities and to the civil society, the European Commission has designed a downstream service tailored to the specific needs of Copernicus users, making easier the access to data and information.

The interface displays a comprehensive list of information products and other functionalities such as data extraction, data manipulation and queries in a secure and user-friendly approach, no matter the user profile.



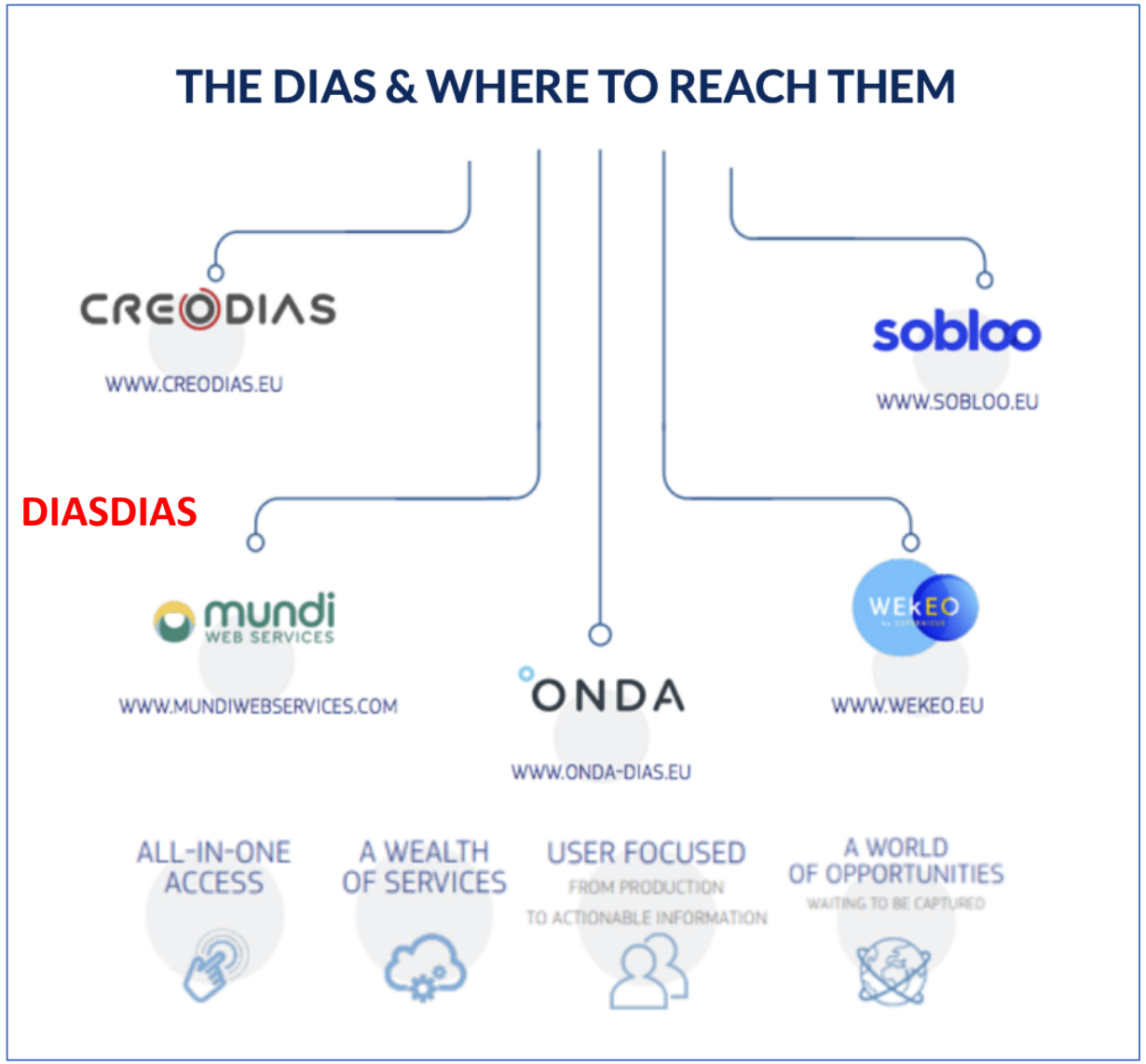
Copernicus **DIAS**

Data and Information Access Services

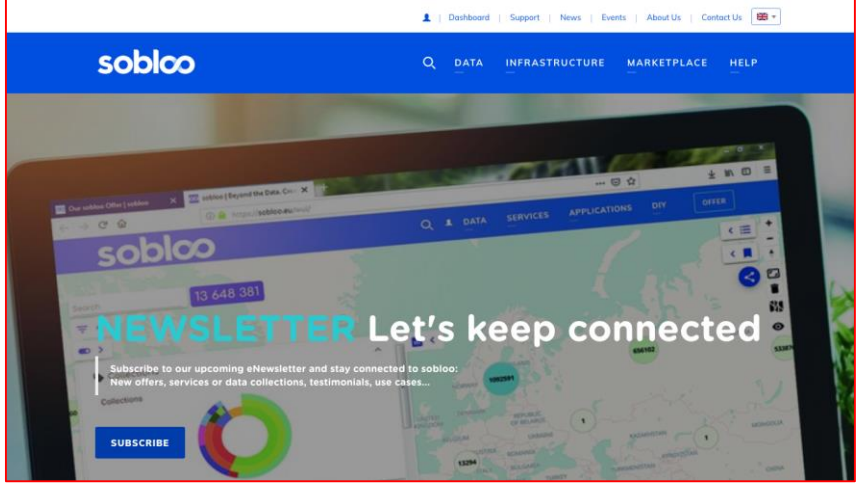
Cloud computing platforms

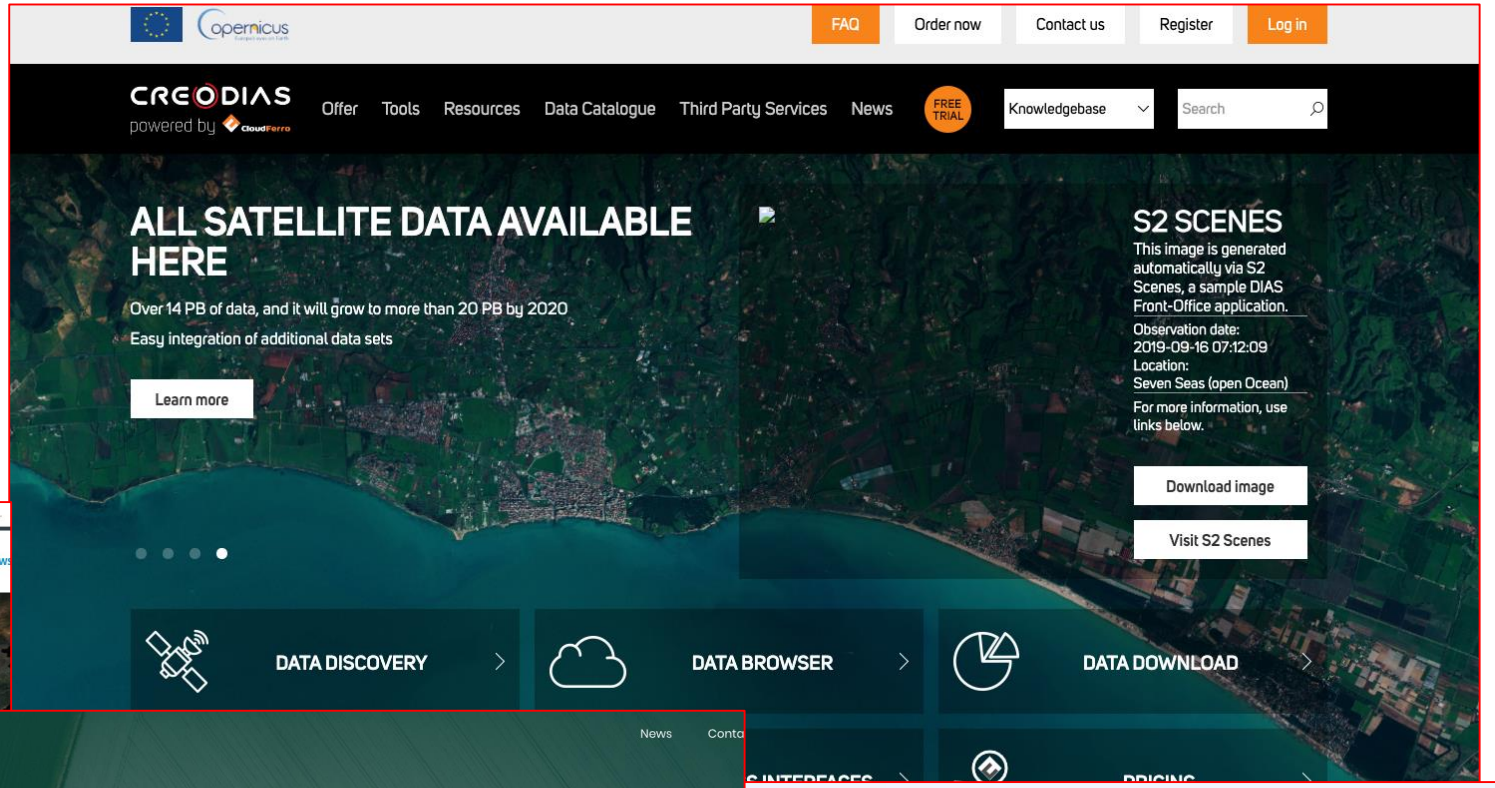
- Sentinel data, service products
- Interactive interface for setting up data processing

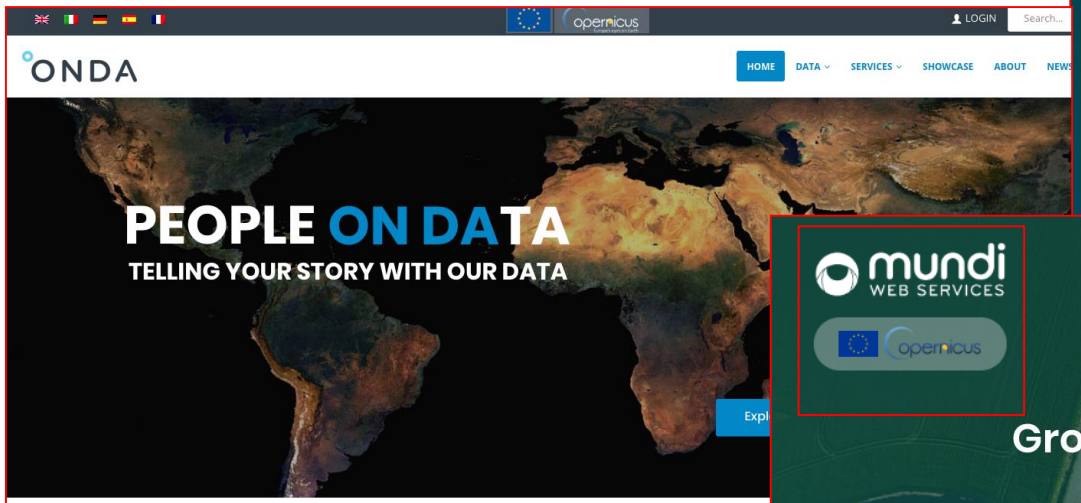
- GL Scripts and notebooks planned



https://www.copernicus.eu/en/access-data/dias



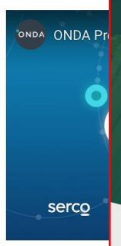


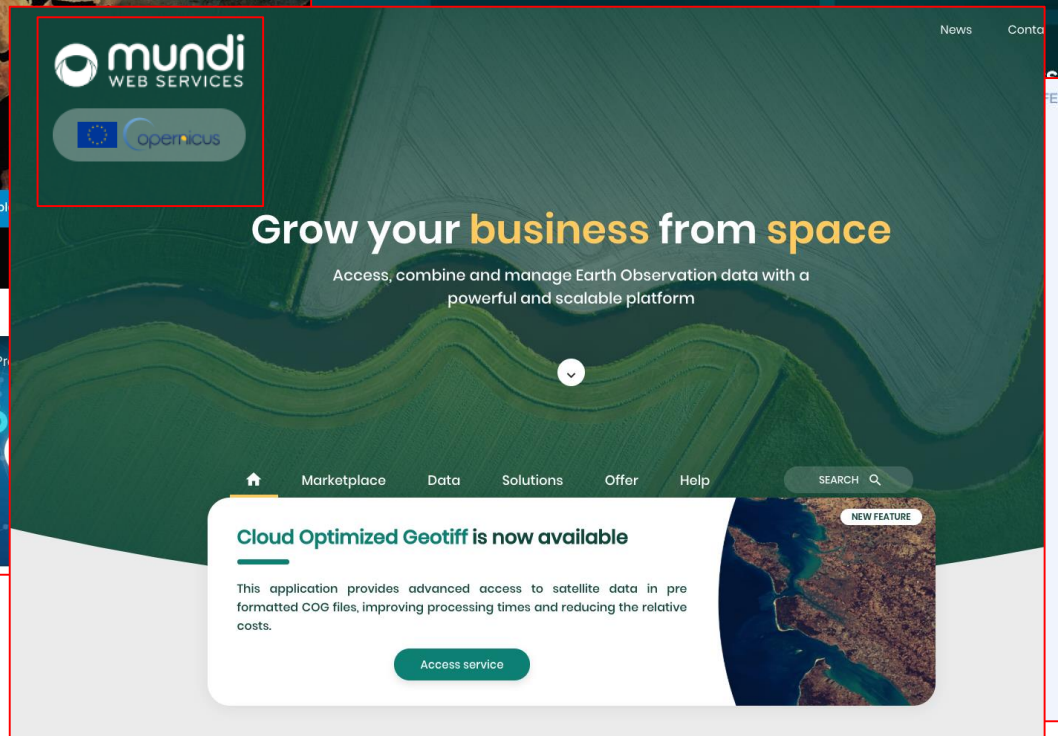


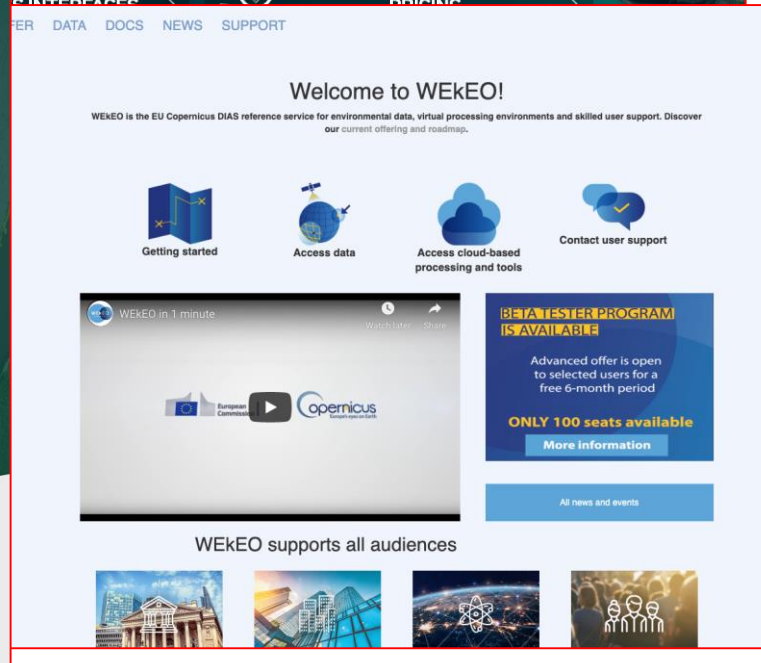
What is ONDA?

ONDA is a platform enabling users to host data and to build their applications in the Cloud.

We achieve this by fostering the exploitation of the freely available Earth Observation satellites Data and geospatial Information and by providing Access to Services for the development of new solutions.







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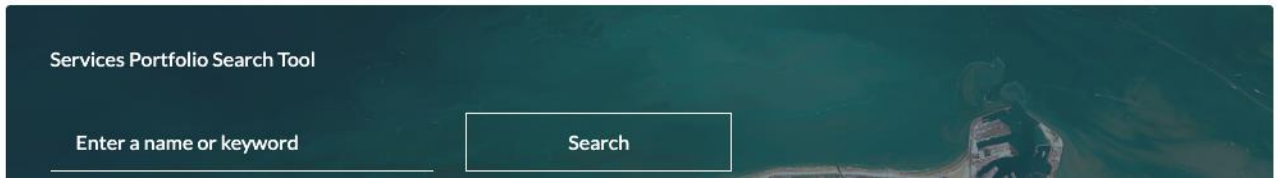

DIAS

Conventional Data Access Hubs

Conventional Data Access Hubs

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Copernicus provides knowledge, but it all starts with data.

Satellite data		Services data and information	
ESA	EUMETSAT	Land - CLMS	Marine - CMEMS
SCI Hub	EUMETCast	Atmosphere - CAMS	Climate - C3S
CSCDA	CODA	Emergency - EMS	Security

Two access points to Copernicus satellite data are managed by ESA:

Copernicus Open Access Hub

Previously known as Sentinels Scientific Data Hub, the portal provides access to Sentinel data through an interactive graphical user interface. The portal will also provide access to data produced by future Sentinel missions when available.

Copernicus Space Component Data Access (CSCDA)

The portal provides access to the Copernicus collaborative ground segment. Anyone can view and discover data, but downloading images is restricted to public authorities, European projects and Copernicus services.

Two access points to Copernicus satellite data are managed by EUMETSAT:

EUMETCast

Any environmental data, of any format, can be distributed through EUMETCast. The platform delivers more than 380 different product collections, including EUMETSAT's own satellite data, Copernicus marine and atmosphere data, and a wide range of third-party products.

Copernicus Online Data Access (CODA)

The Sentinel-3 CODA (Copernicus Online Data Access) Web Service provides free and open access to Sentinel-3 products through a 12 months rolling archive with access to Level 1 and Level 2 Marine data in different latency modes (Near Real-Time, Short Time Critical, Non Time Critical). Access is provided either through CODA user interface or through CODA APIs. Both user interface and APIs allow users to set different parameters (geographic area, time, type of product etc) to refine their search in the archive of products. In case users need data older than one year, it is possible to use the EUMETSAT Data Centre.

Copernicus Open Access Hub

Welcome to the Copernicus Open Access Hub

The Copernicus Open Access Hub (previously known as Sentinels Scientific Data Hub) provides complete, free and open access to Sentinel-1, Sentinel-2, Sentinel-3 and Sentinel-5P user products, starting from the In-Orbit Commissioning Review (IOCR).

Sentinel Data are also available via the Copernicus Data and Information Access Services (DIAS) through several platforms .

Please visit our User Guide for getting started with the Data Hub Interface. Discover how to use the APIs and create scripts for automatic search and download of Sentinels' data.

Latest update: see the section on Long Term Archive for the upgrade of the interfaces for access to offline data.

For further details or requests of support please send an e-mail to eosupport@copernicus.esa.int

Open Hub | API Hub | S-5P Pre-Ops | GNSS Hub

Latest News

Search the news... all the news

Copernicus Sentinel-1A unavailability on 14 September 2019 — 16 Sep 2019

Copernicus Sentinel-1A was unavailable on 14 September between 00:43 and 10:17 UTC, due to a SAR anomaly. No data were generated during this period.

Copernicus Sentinel-2A MSI decontamination on 23 and 24 September 2019 — 14 Sep 2019

A routine decontamination activity of the Copernicus Sentinel-2A MSI is planned to take place between 09:00 UTC on 23 September and 09:00 UTC on 24 September (corresponding approximately to the period between absolute orbits 22212 to 22226).

Reports & Stats

Data updated hourly

33,772
prod. published in the last 24h
(S1 + S2 + S3 + S5P)

241,323
downloads in the last 24h
(SciHub + API Hub + S-3 PreOps + S-5P PreOps)

Reports

Resources

- DHUS Open Source Portal
- Copernicus Portal
- Sentinel Online
- S-1 Quality Control
- S-2 Quality Reports

AI4Copernicus

Copernicus data archives are untapped data assets, especially in their entirety!

Adoption of new processing paradigms to mine and integrate the vast data archives is required.

Linkages with A.I. initiatives and programmes in highly required – DIAS can facilitate

Research and Development

Copernicus is an operational service programme

Research and Development is needed and implemented through ‘Horizon Europe’

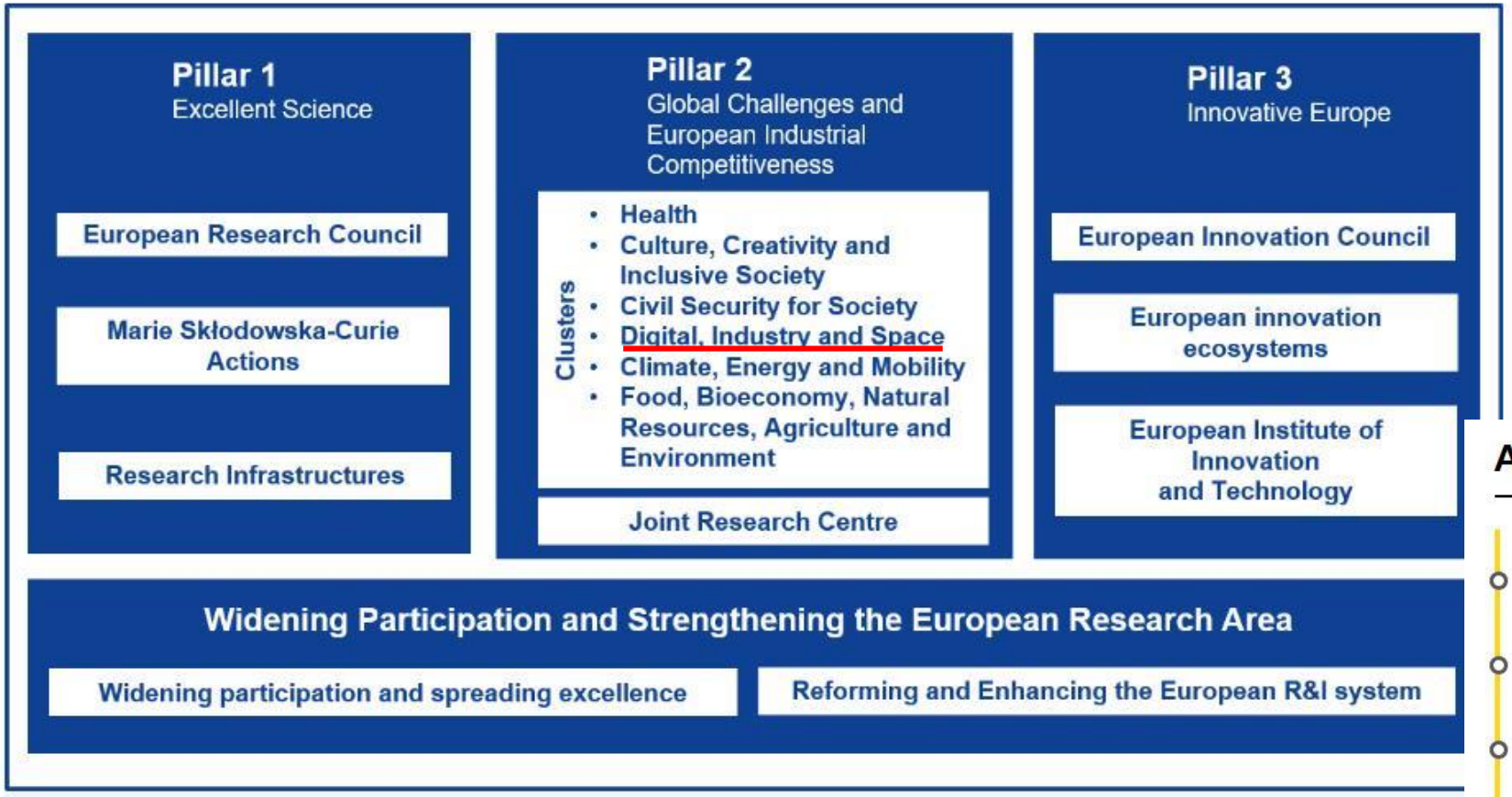
to guarantee the continuation of the correct transition from research activities to operational services

More and better products
At the cutting-edge of competition and spin-in of technology
Seize the big data opportunity to fully exploit data and information

Horizon 2020: 18000+ projects for €31+Bill

Research and Development

‘Horizon Europe’



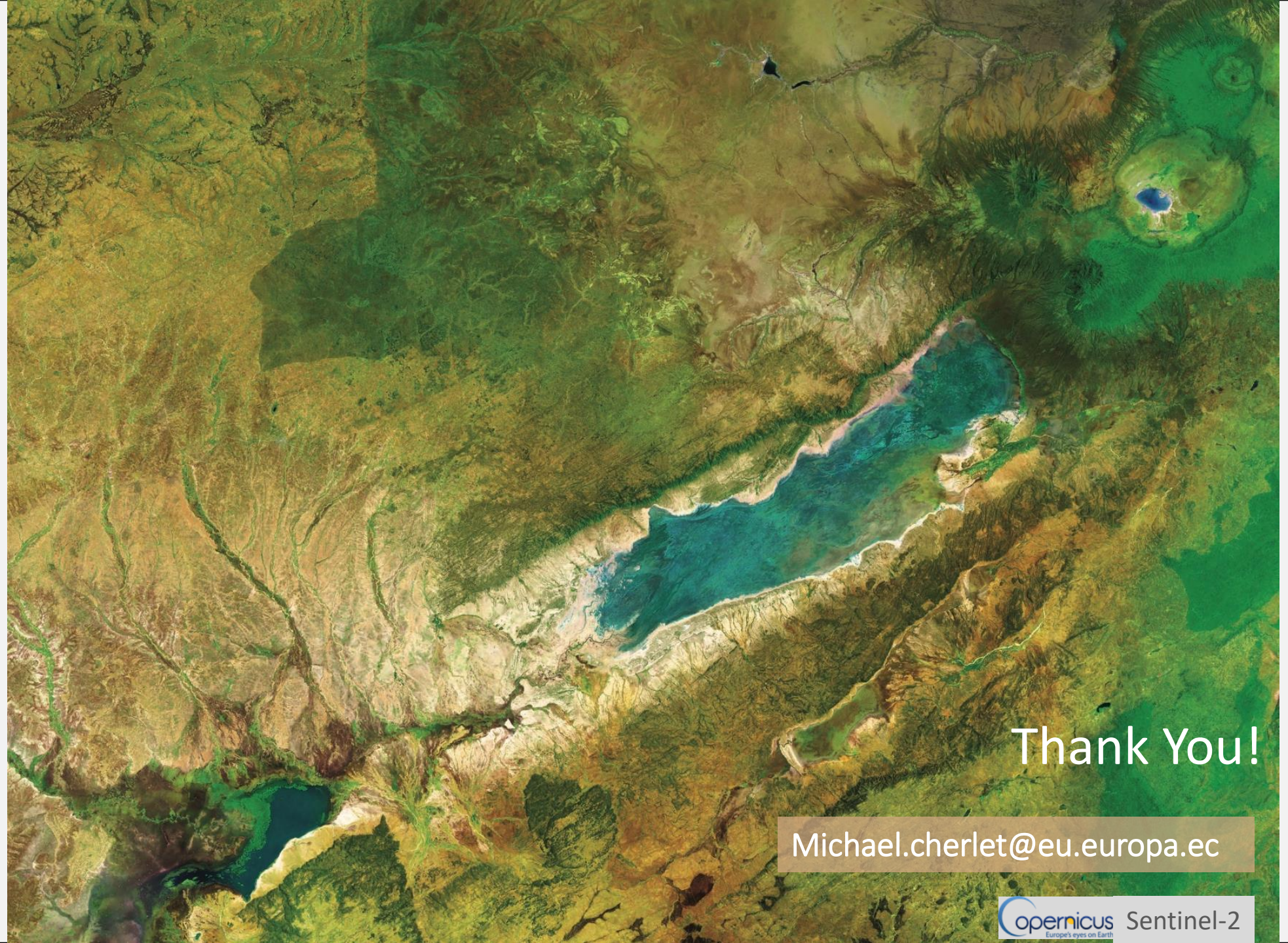
Adoption timeline

2 May 2018
The Commission adopts its proposal for the next EU long-term budget (MFF)

7 June 2018
The Commission adopts its proposal for Horizon Europe

2019-2020
The Council and European Parliament negotiate and subsequently adopt the programme

1 January 2021
Horizon Europe is launched


Thank You!
Michael.cherlet@eu.europa.ec
opernicus
Europe's eyes on Earth
Sentinel-2