



CopHub.AC – Copernicus Academy Hub

Connecting experts of different application fields
Sustaining the innovation from academia to business

World Space Forum 2019
“Access to Space4All”

Barbara Riedler
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Climate-KIC



European Association
of Remote Sensing
Companies



WHERE GEOINFORMATION MEETS TECHNOLOGY



UNIVERSIDAD
DE MÁLAGA



rafter data manager



Cyprus
University of
Technology



KLAIPĖDA
UNIVERSITY

An aerial view of a city with a network of blue lines and icons representing the Copernicus program. The network consists of various icons connected by lines, including a satellite, a Wi-Fi symbol, a globe, a recycling symbol, a factory, a train, a person, and a building. The city below features a mix of residential and commercial buildings, a river, a bridge, and a train station with a train. The background shows green hills and a body of water.

THE COPERNICUS PROGRAMME



COPERNICUS

- the European system for **monitoring the Earth**
- coordinated and managed by the EC
- the development of the observation infrastructure is performed under ESA, the European Environment Agency and EU countries for the in situ component
- collects **data from multiple sources**
earth observation satellites and in situ sensors
- it processes this data
and provides users **service information**

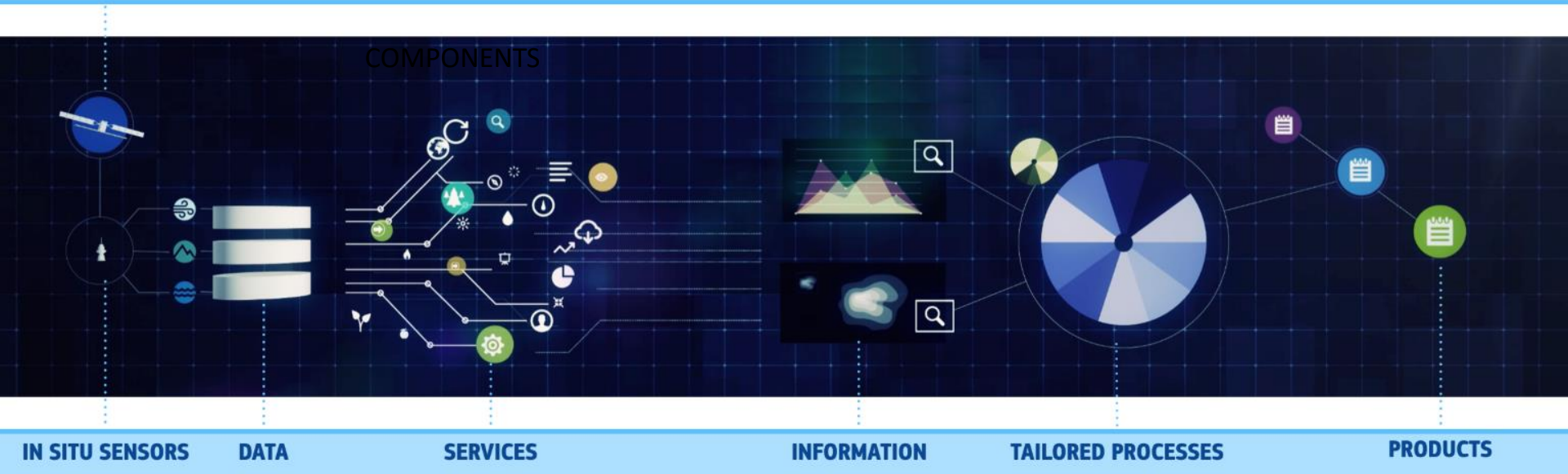


<https://www.copernicus.eu/>

COPERNICUS COMPONENTS

FROM GLOBAL EARTH OBSERVATION DATA TO LOCAL INFORMATION AND PRODUCTS

SENTINELS & CONTRIBUTING MISSIONS





7 COPERNICUS SENTINELS IN ORBIT

- SENTINEL-1A AND -1B**
- SENTINEL-2A AND -2B**
- SENTINEL-3A AND -3B**
- SENTINEL-4 (2022)**
- SENTINEL-5P**
- SENTINEL-5 (2021)**
- SENTINEL-6 (2020)**

Key Features

- Polar-orbiting, all-weather, day-and-night radar imaging
- Polar-orbiting, multispectral optical, high-res imaging
- Optical and altimeter mission monitoring sea and land parameters
- Payload for atmosphere chemistry monitoring on MTG-S
- Mission to reduce data gaps between Envisat, and S-5
- Payload for atmosphere chemistry monitoring on MetOp 2ndGen
- Radar altimeter to measure sea-surface height globally

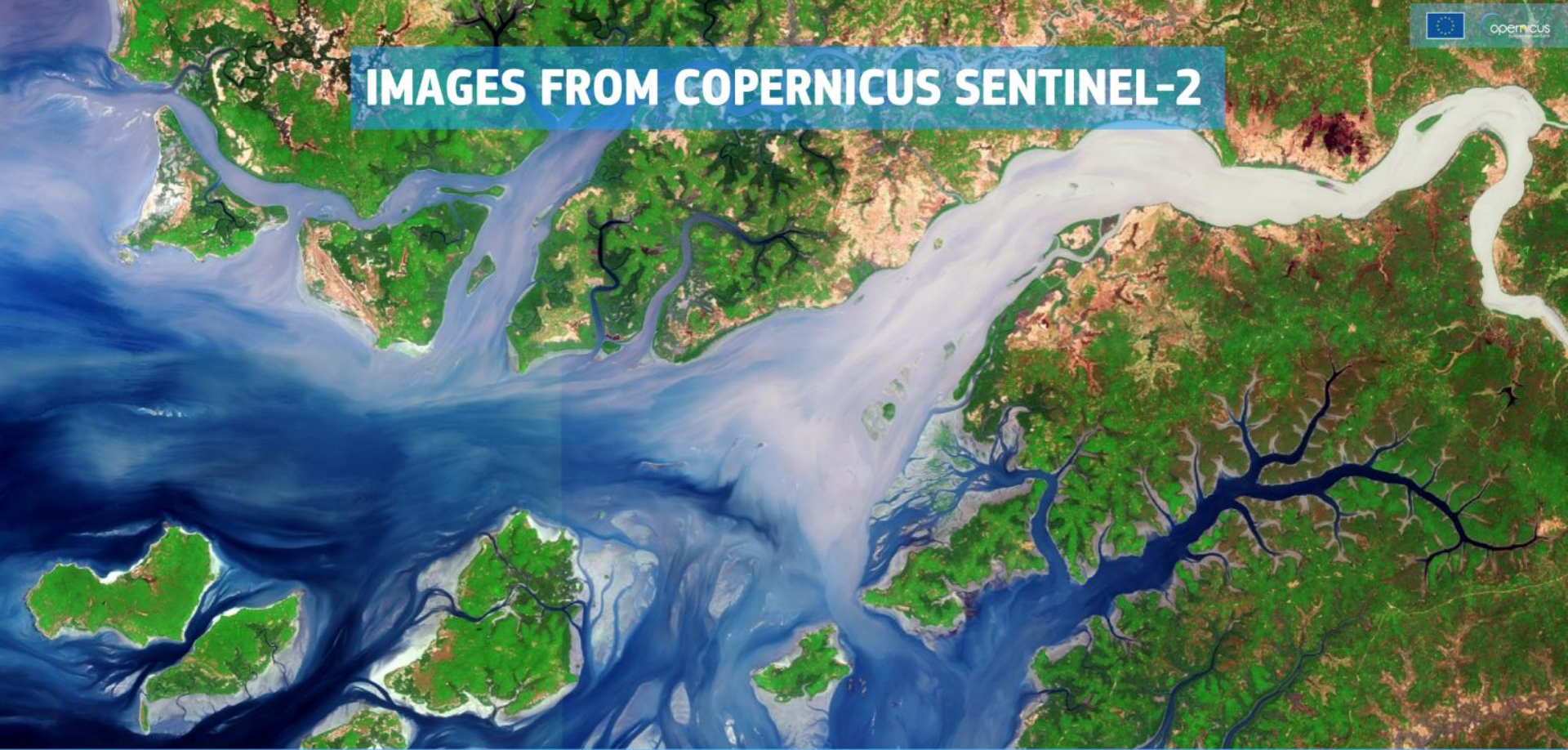
Mission

- 9-40m resolution, 6 days revisit at equator
- 10-60m resolution, 5 days revisit time
- 300-1200m resolution, <2 days revisit
- 8km resolution, 60 min revisit time
- 7-68km resolution, 1 day revisit
- 7.5-50km resolution, 1 day revisit
- 10 days revisit time

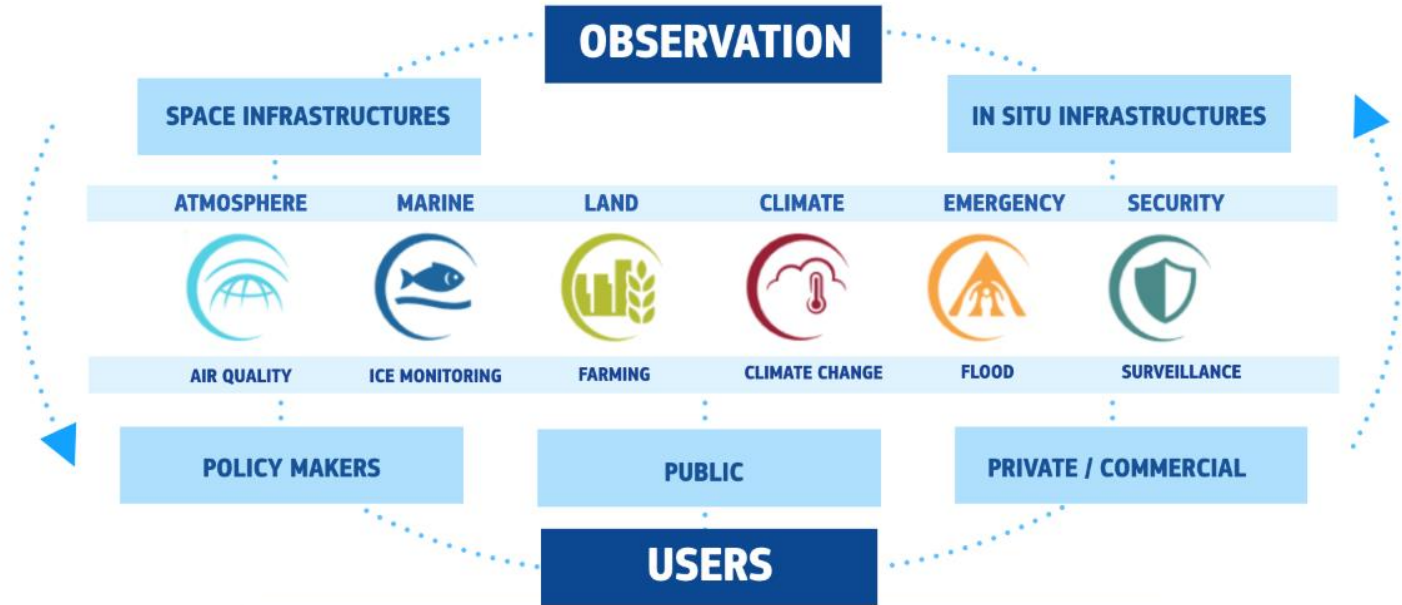
In Orbit

- ✓
- ✓
- ✓
- ✓
- ✓

IMAGES FROM COPERNICUS SENTINEL-2



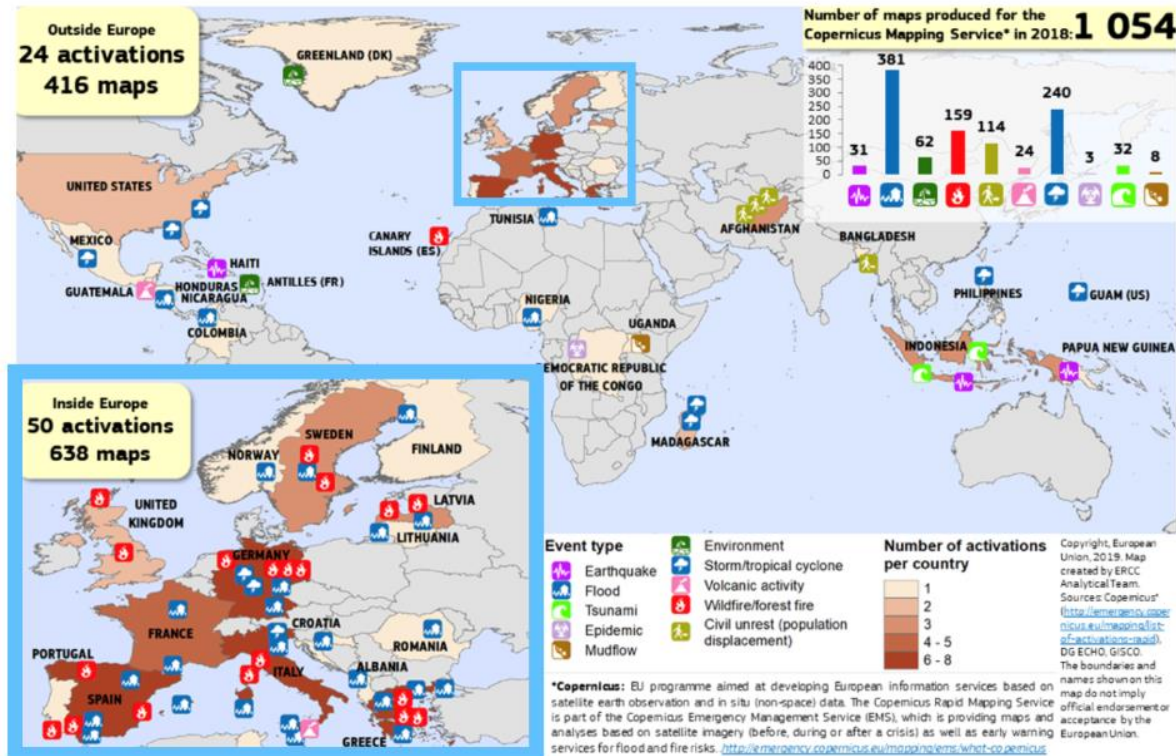
Geba River Estuary and Bissagos Islands, Guinea-Bissau
Copernicus Sentinel-2 data (2018)



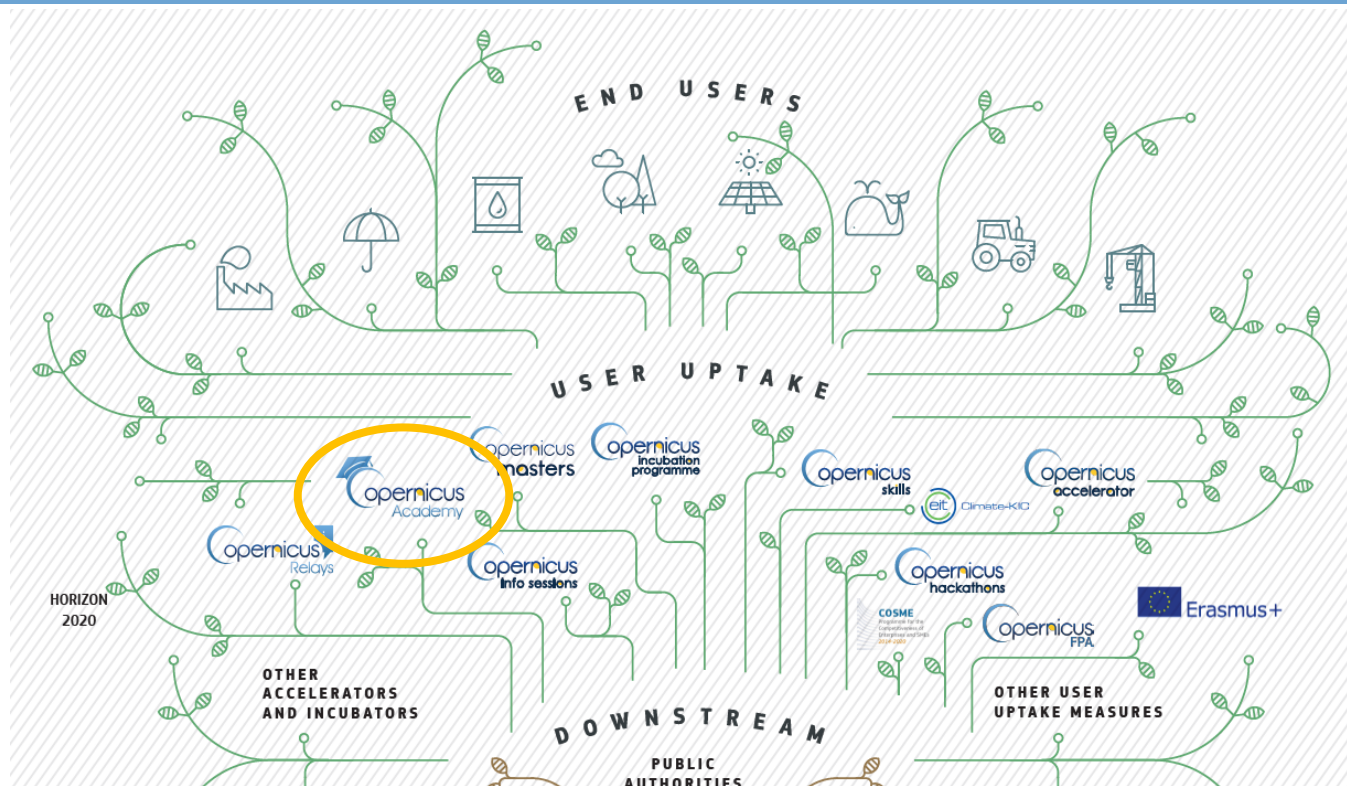
USER DRIVEN APPROACH



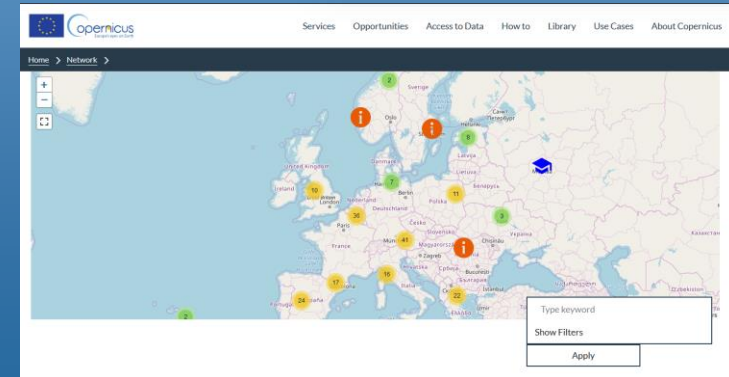
AN EXAMPLE : EMERGENCY MANAGEMENT



Copernicus Ecosystem



- a **network** connecting universities, research institutions, business schools, private and NPOs
- **link** research & academia with authorities & service providers
- facilitate **cooperation** in research, education and training
- provide skills and boost to use **Copernicus data** and **information services**
- 150+ members



- ✓ learn which other organisations **share** or **complement** your profile, work in similar domains, use similar technologies,....
- ✓ participate in **network-wide activities** (dissemination events, capacity building activities, awards,...)

Become a member:

<https://ec.europa.eu/eusurvey/runner/CopernicusAcademyApplication>

Save a backup on your local computer (disable if you are using a public/shared computer)

Copernicus Academy - application form

Fields marked with * are mandatory.

Disclaimer

The European Commission is not responsible for the content of questionnaires created using the EUSurvey service - it remains the sole responsibility of the form creator and manager. The use of EUSurvey service does not imply a recommendation or endorsement, by the European Commission, of the views expressed within them.

*1 Name of organisation(s)

*2 Address

*3 Country

*4 Website of the organisation

*5 Social media profile(s) including hashtags (#) and handles (@)

*6 Date of creation

*7 Mission

CopHub.AC

Copernicus Academy Hub for Knowledge, Innovation and Outreach



- to **strengthen R&D&I** activities in Copernicus-relevant academic fields
- to **sustain the innovation process** from academia to business
- **boost** demand-driven **uptake** of space technology of various stakeholders
- design knowledge and innovation hubs

Copernicus Innovation Hubs

Regional center of excellence

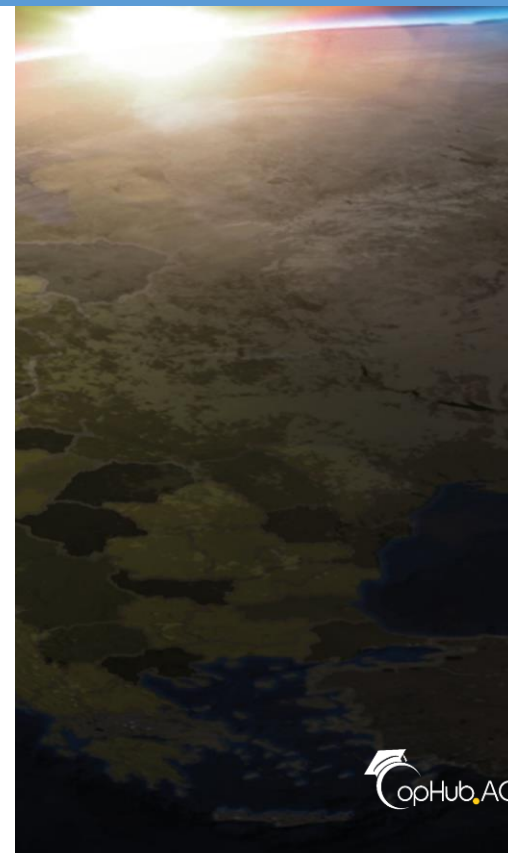
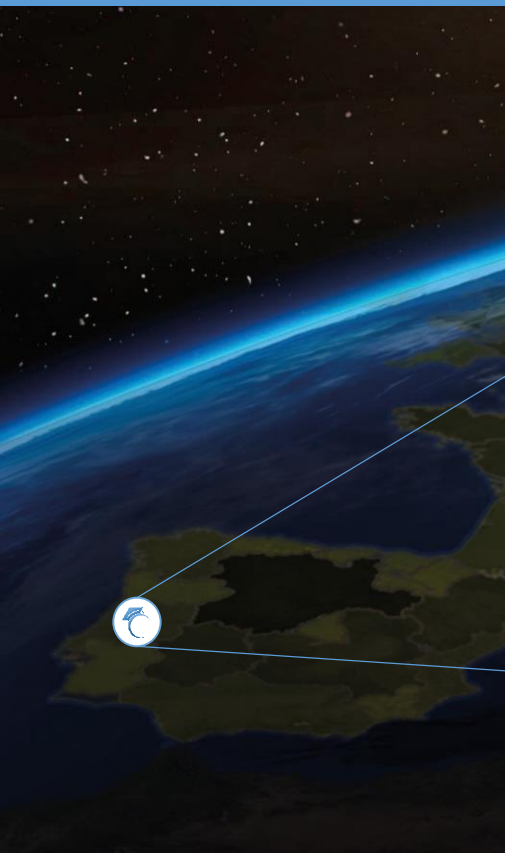


for training, networking & exchange

- ✓ effectively reach out to local stakeholders
- ✓ utilize the Copernicus Academy and Relays as facilitators
- ✓ making use of Copernicus data, services and events



Copernicus Innovation Hubs



INFORM & INTERACT: networking & outreach

Academy & Citizen

- information events for citizens



- skills development & education



27 September in 300 locations



INFORM & INTERACT: networking & outreach

Possibilities and challenges using Copernicus data and services in Norwegian marine industry, research, and management



2019 winner
Orbital EO Solutions,
SeaPulse, Valencia University
(IPL) & Go Hub
for a satellite-based
monitoring system
for oil spills & plastic pollution

Industry & Authorities

- connect with industry through joint workshops with Copernicus Relays
- yearly awards
Partnership award Academy-Industry
for outstanding collaboration of public-private (academy-company) sector for the Copernicus user-uptake

INFORM & INTERACT: networking & outreach

- ✓ get information about **outreach events**
- ✓ participate in **skills development programs**
- ✓ apply for **awards**

Check out:

www.cophub-ac.eu/events

<https://twitter.com/CopHubAC>



COPERNICUS MASTER IN DIGITAL EARTH
Erasmus Mundus Joint Master Degree Programme

Apply for European MSc

ERASMUS+ SCHOLARSHIPS | SELF-FUNDED

#GeoInformatics #EarthObservation #GeoMedia #AppDev
#GeoDataScience #GeoVisualization

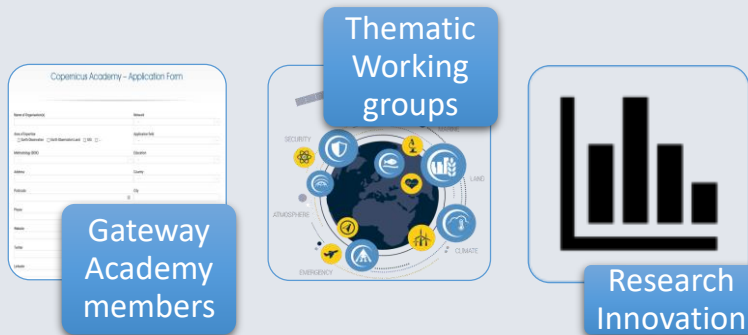
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WWW.MASTER-CDE.EU

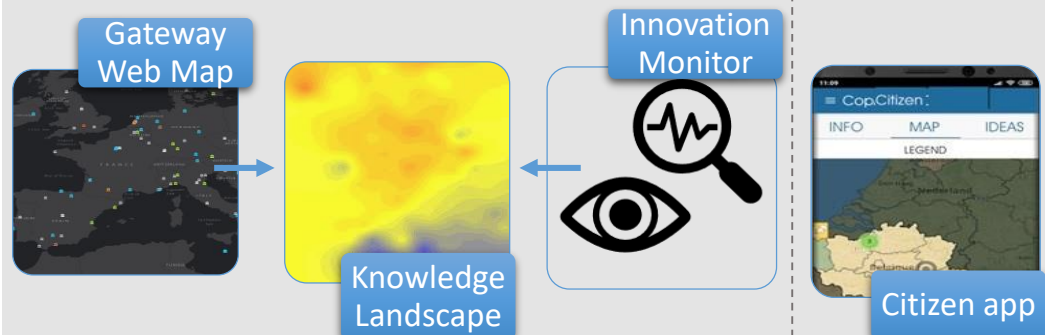


INVENT & INNOVATE: technical elements

Data collection network



Information visualization & harvesting



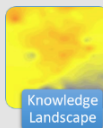
INVENT & INNOVATE: technical elements



- ✓ extended information about academy members



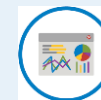
- ✓ expertise in the Copernicus Core Services



- ✓ analytical tool to visualise and search for thematic competences + methodological expertise +



- ✓ dashboard of Copernicus stimulated innovations



- ✓ access to Copernicus information layers
- ✓ interactive involvement of user





Gateway

DRAFT – Application Form

- ✓ more knowledge about education and existing partnerships
- ✓ structured info about methods and application fields of including self-assessment

For the official application for Copernicus Academy membership please use the link available at: <https://www.copernicus.eu/en/opportunities/education/copernicus-academy>.

Here you can test an additional application form, by which the CopHub.AC project collects additional data of potential and current members, in order to feed the knowledge landscape and other interactive tools under development. Please fill in your information about your **department**, if existing, otherwise of your organisation. Please note that **one organisation may have multiple departments** being all individual Copernicus Academy members.

Educational programmes of your department*

- | | | |
|--|---|---|
| <input type="checkbox"/> Bachelor | <input type="checkbox"/> Master | <input type="checkbox"/> PhD |
| <input type="checkbox"/> Commercial courses | <input type="checkbox"/> Distance education | <input type="checkbox"/> Intensive learning (Summer school) |
| <input type="checkbox"/> Vocational and educational training (VET) | <input type="checkbox"/> MOOC - Massive Open Online Courses | <input type="checkbox"/> None |

Add another existing partnership

Existing partnership in the Copernicus Academy Network

Your level of expertise in: Methods and technologies*

Geovisualisation - Level of expertise (Low: 1 - High: 10)*

Image processing & analysis - Level of expertise (Low: 1 - High: 10)*

Big (Earth) data - Level of expertise (Low: 1 - High: 10)*

Your level of expertise in: Copernicus services*

Land - Level of expertise (Low: 1 - High: 10)*

Marine - Level of expertise (Low: 1 - High: 10)*

Climate Change - Level of expertise (Low: 1 - High: 10)*

Your level of expertise in: Application areas*

Climate change mitigation and adaptation (Low: 1 - High: 10)*

Energy transition (Low: 1 - High: 10)*

Food security (Low: 1 - High: 10)*

Thematic Working Groups



Atmosphere

Copernicus Atmosphere topics

- Environmental health issues mapping (e.g. Pollen fluxes tracking and trend forecasting)
- Local scale air quality analysis (Improved nowcasting and forecasting)
- Improved accuracy of Copernicus data and information for Renewable energy (solar and wind energy)

Chair: [Marios Tzouvaras](#) (Cyprus University of Technology)

Deputy Chair: [Rodanthi Mamouri](#) (Cyprus University of Technology)



Marine

Copernicus Marine topics

- Marine application of Copernicus
- Copernicus for support of European Directives (MSFD, WFD, BWD)
- Marine pollution and Marine litter

Chair: [Diana Vaiciute](#) (Klaipėdos University)



Land

Copernicus Land topics

- Copernicus Land for Climate Change: monitoring land use and land changes (LULUCF)
- Agri-environmental applications: CAP monitoring, irrigation monitoring and management
- Challenges for future land monitoring (CLC+, EAGLE, etc.)
- Wetland and water monitoring

Chair: [Christoph Schröder](#) (University of Malaga)



Climate Change

Copernicus Climate Change topics

- Coming soon
- etc.

Chair: [Kevin Ramirez](#) (Climate-KIC)



Security

Copernicus Security topics

- Maritime Security, Border Monitoring, Support to external action
- Near-real time access and semi-automated processing of data
- Integration of different data types (e.g. socio-economic factors and others)



Emergency

Copernicus Emergency topics

- Automatic detection of emergency issues (oil spills, sabotages, fires, volcanic eruptions, etc.)

Chair: [Valerio Tramutoli](#) (University Basilicata)

- ✓ capitalize on the excellence of the Academy members
- ✓ Identifying **priority themes** for new research and main **target groups**
- ✓ Regular exchange between TWG members

39 experts from 21 Copernicus Academy members registered

Get involved:

<http://www.cophub-ac.eu/twg/>

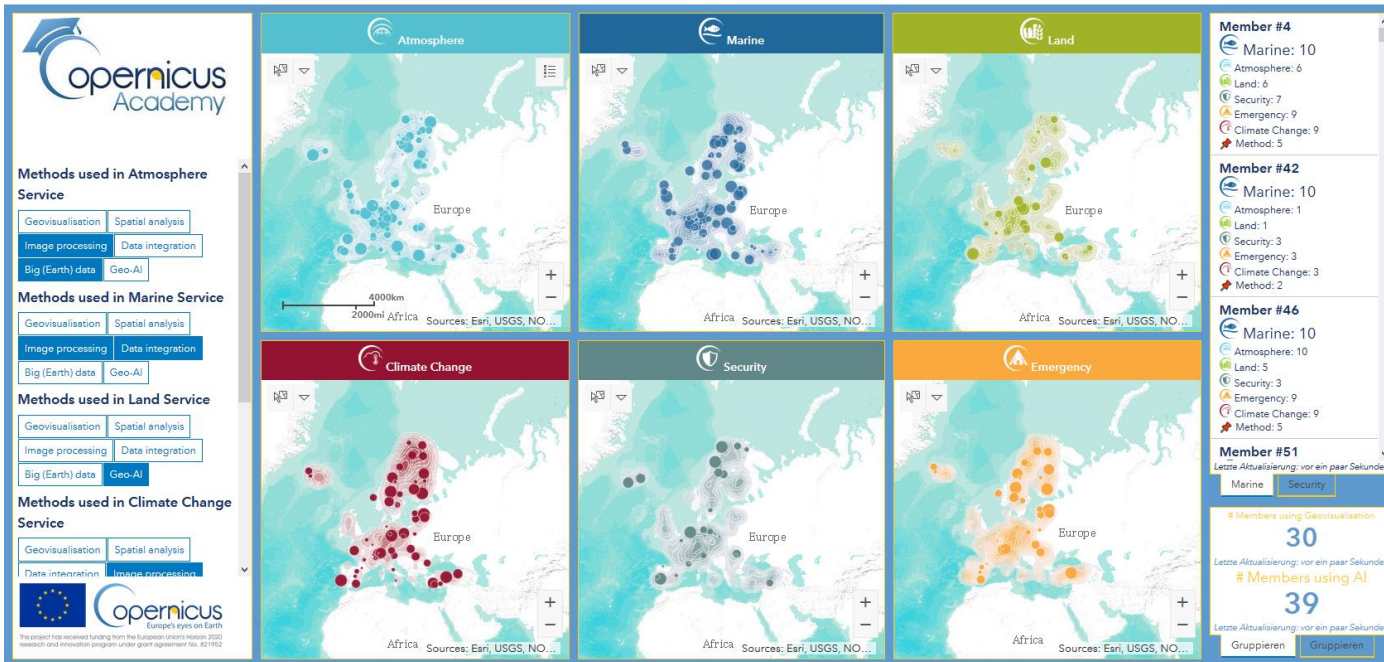


Knowledge Landscape

This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 821952



Copernicus
Europe's eyes on Earth



✓ analytical tool to visualise and search for thematic competences in combination with methodological expertise

Visit: www.cophub-ac.eu/knowledge-landscape/



Citizen App



- ✓ access to Copernicus information layers
- ✓ interactive involvement of user

Get involved:
<http://www.cophub-ac.eu/citizen/>



Horizon 2020
European Union funding
for Research & Innovation



THANK YOU!

www.cophub-ac.eu



Climate-KIC



European Association
of Remote Sensing
Companies

