



PROGRAMME OF
THE EUROPEAN UNION



#EUSpace
#Copernicus

COPERNICUS EARTH OBSERVATION

2025 Pacific Island GIS&RS User
Conference

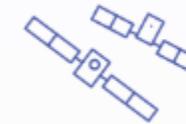
25 November 2025

The EU Space Programme

EU SPACE PROGRAMME OVERVIEW

<p>COPERNICUS Earth Observation (EO) and monitoring based on satellite and non-space data Nr.1 world provider of space data and information</p>	<p>GALILEO Global satellite navigation and positioning system (GNSS) 10% of the EU GDP enabled by satellite navigation</p>	<p>EGNOS Reliable navigation signals for safety of life use Operational in 360+ airports & helipads in 23 countries</p>	<p>SSA Space situational awareness monitoring and protecting space assets Providing surveillance and tracking services to 210+ satellites</p>	<p>GOVSATCOM Secure satellite communications for EU security actors Delivering rapid support over crisis areas</p>
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AN INVESTMENT IN A FUTURE READY EUROPE



Competitive edge

Completing current satellite constellations, developing and launching the next-generation of satellites



Research innovation

Ambitious research and innovation programme benefiting from Horizon Europe



Fighting Climate Change

Monitoring biodiversity, environmental compliance and CO2 emissions (Paris Agreement)

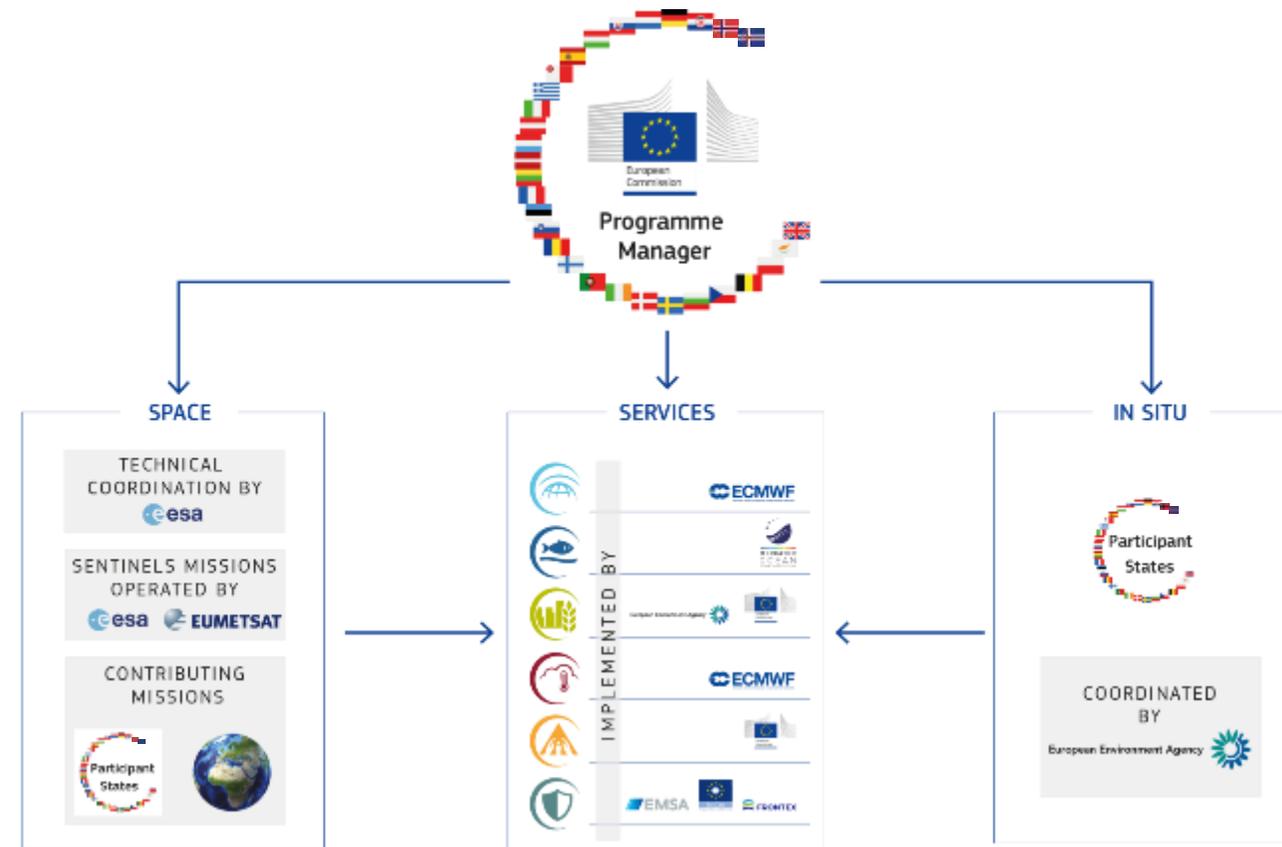


EU as a global actor

Supporting disaster relief, humanitarian assistance and security operations

Copernicus Overview

- Copernicus is the **European Union programme** aimed at developing European information services based on satellite Earth Observation and in situ data
- Copernicus is coordinated and **managed** by the **European Commission**
- Copernicus is **implemented in partnership** with the Member States, ESA, EUMETSAT, ECMWF, EEA, EC JRC, Mercator, EMSA, SatCen, Frontex
- Copernicus **Multiannual Financial Framework 2021-2027 > 5 billion €**
- Copernicus data and infrastructure **guaranteed** beyond 2030



The Copernicus Sentinels



sentinel-1
→ RADAR VISION

sentinel-2
→ COLOUR VISION

sentinel-3
→ A BIGGER PICTURE

sentinel-4
→ EUROPEAN AIR MONITORING

sentinel-5p | sentinel-5
→ GLOBAL AIR MONITORING

sentinel-6
→ SURFING THE SEAS

Each Sentinel satellite row includes a small icon of the satellite on the left, a photograph of the satellite in space in the middle, and a sample of its data output on the right.

Copernicus Sentinel Launches



- Sentinel-4: 01/07/2025 (MTG-S1)
 - UVN spectrometer: O₃, NO₂, HCHO, SO₂, aerosols, Air quality
- Sentinel-5 (Ariane 6)
 - Launch 12/08/2025 (MetOp-SG-A1)
 - Air quality and climate
- Sentinel-1D: 04/11/2025 (Ariane 6)
 - C-band SAR, AIS, emergencies
- Sentinel-6B: 17/11/2025
 - synthetic-aperture radar altimetry, oceans

EU Space Programme – Copernicus Component

Earth Observation data support key policy areas



Copernicus components



Sentinels



**FULL, FREE
AND OPEN**

Six Copernicus Services



Value-added

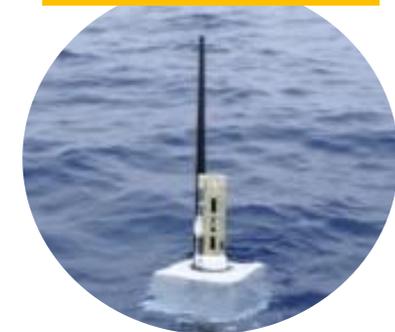
Services



Contributing missions



In situ data



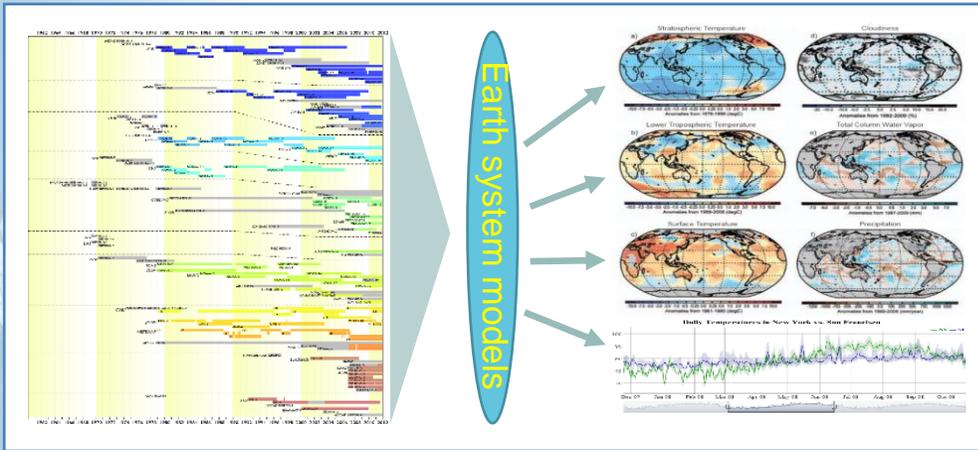
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Climate Change

C3S / Climate Change Service



Observations and climate re-analyses

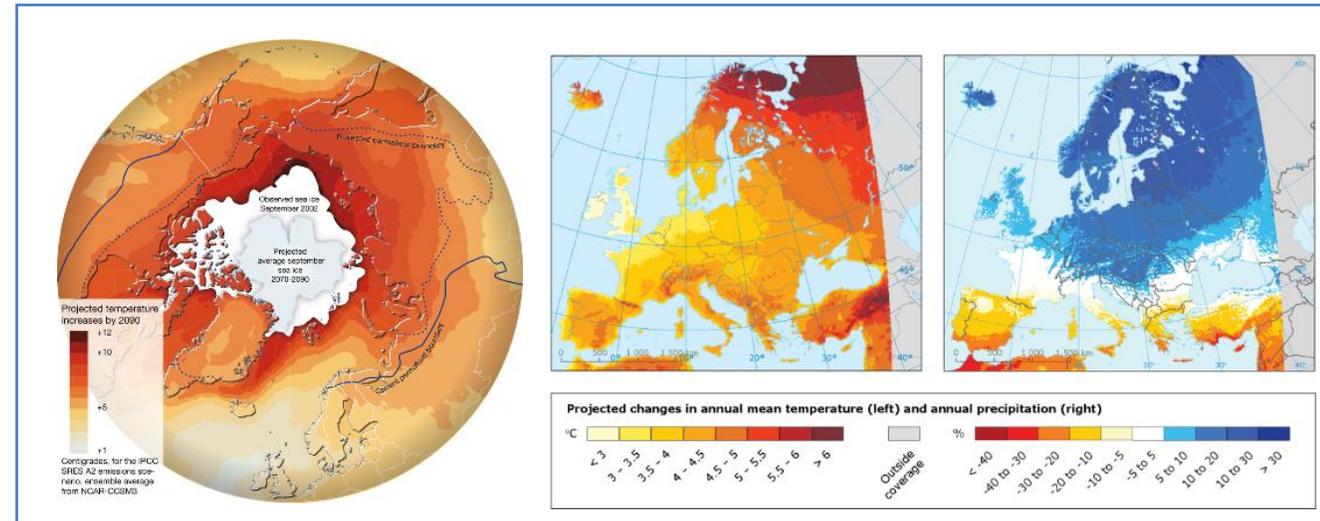
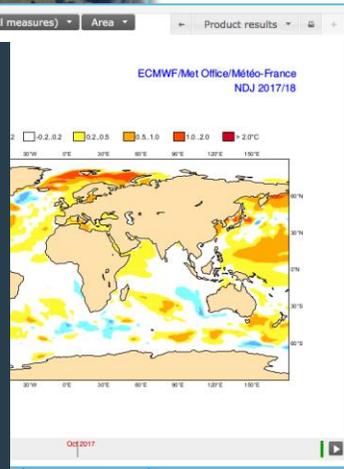
Seasonal forecast data and products

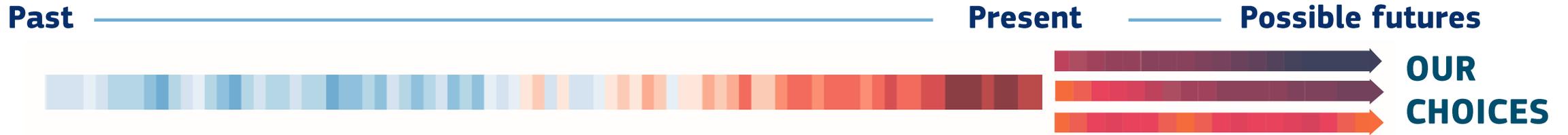
Climate model simulations

Sectoral Impact Assessment



The cover of the "EUROPEAN STATE OF THE CLIMATE REPORT 2023" features a stylized illustration of trees with colorful leaves. A white box in the center contains the text: "Annual 'European State of the Climate' report (C3S)". At the bottom, logos for the Programme of the European Union, Copernicus, and the European State of the Climate 2023 are displayed.





C3S PRODUCTS

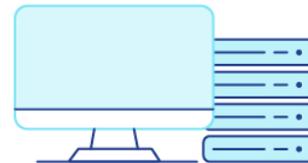
Observations



Reanalysis



Seasonal to decadal predictions



Climate projections

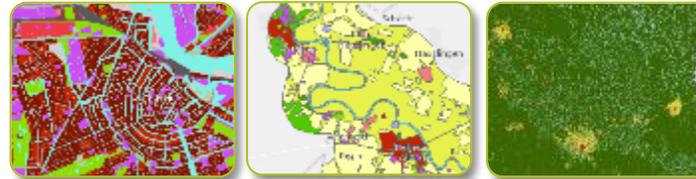
CLMS portfolio: categories of products



**Land Cover and
Land Use Mapping**



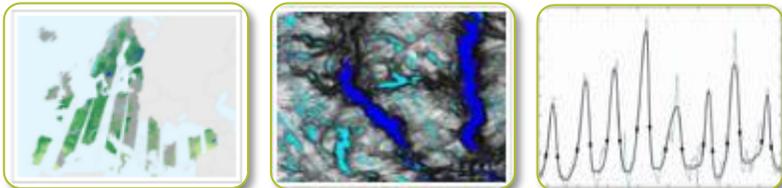
**Priority Area
Monitoring**



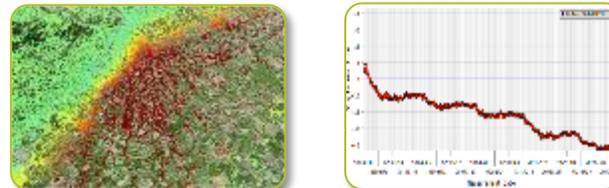
Satellite Data



**Bio-geophysical
Parameters**



**Ground Motion
Monitoring**



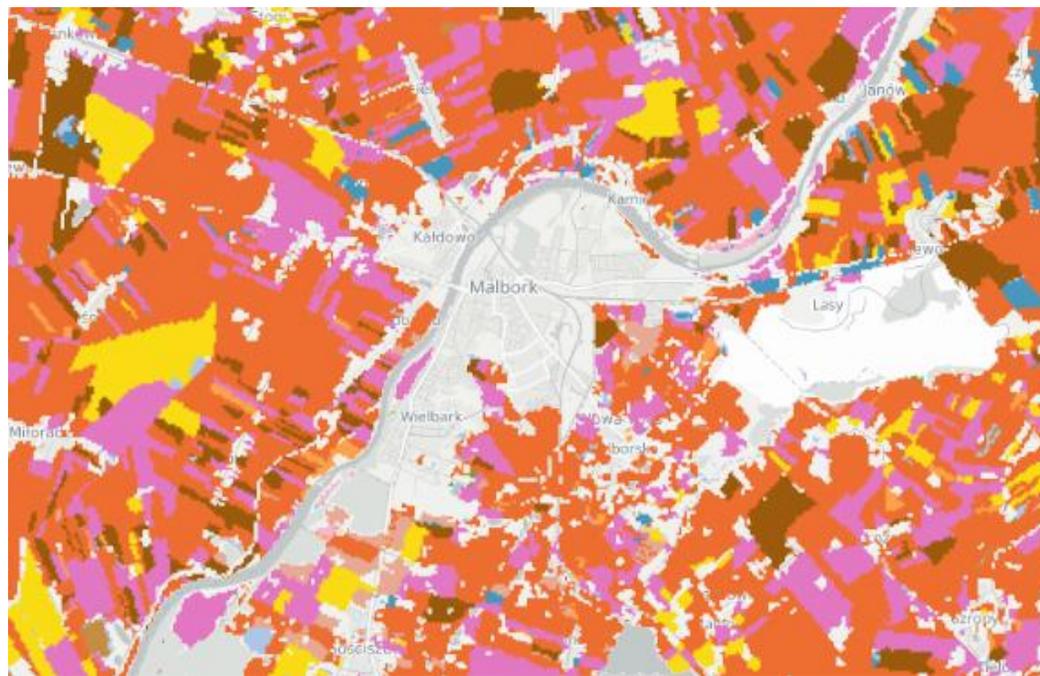
**Reference and
Validation Data**



Vegetated layers: Croplands

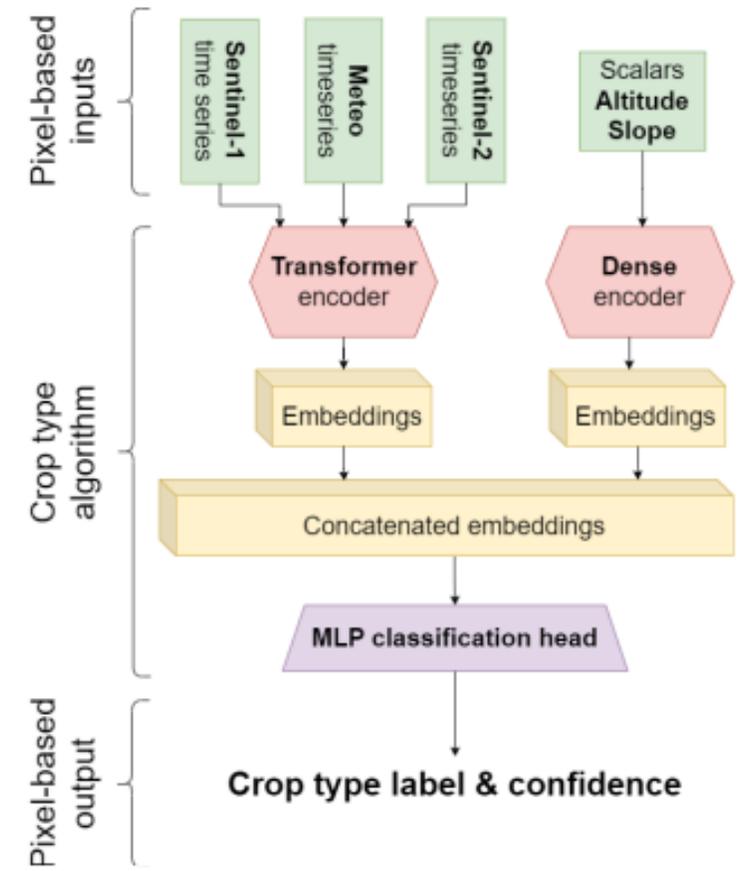


Crop Types: 10 m/0.25 ha, 1 year, 2017-2023



(19 classes)

- ✗ No Cropland
- Wheat
- Barley
- Maize
- Rice
- Other Cereals
- Fresh Vegetables
- Dry Pulses
- Potatoes
- Sugar Beet
- Sunflower
- Soybeans
- Rapeseed
- Flax cotton and hemp
- Grapes
- Olives
- Fruits
- Nuts
- Unclassified arable crop
- Unclassified permanent crop
- ✗ Outside area

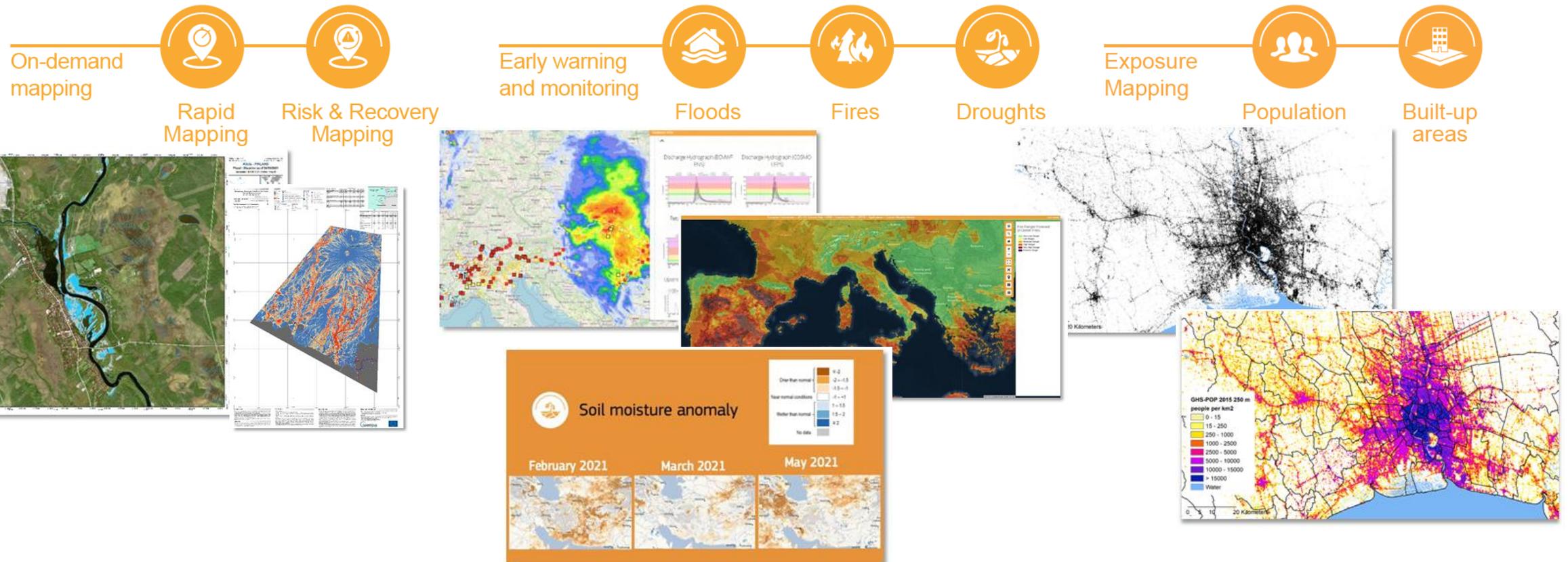


Input for: researchers, policymakers, farmers and other stakeholders interested in analysing the European grassland ecosystems and agricultural landscape



From mapping to early warning of disasters:

THE COPERNICUS EMERGENCY MANAGEMENT SERVICE

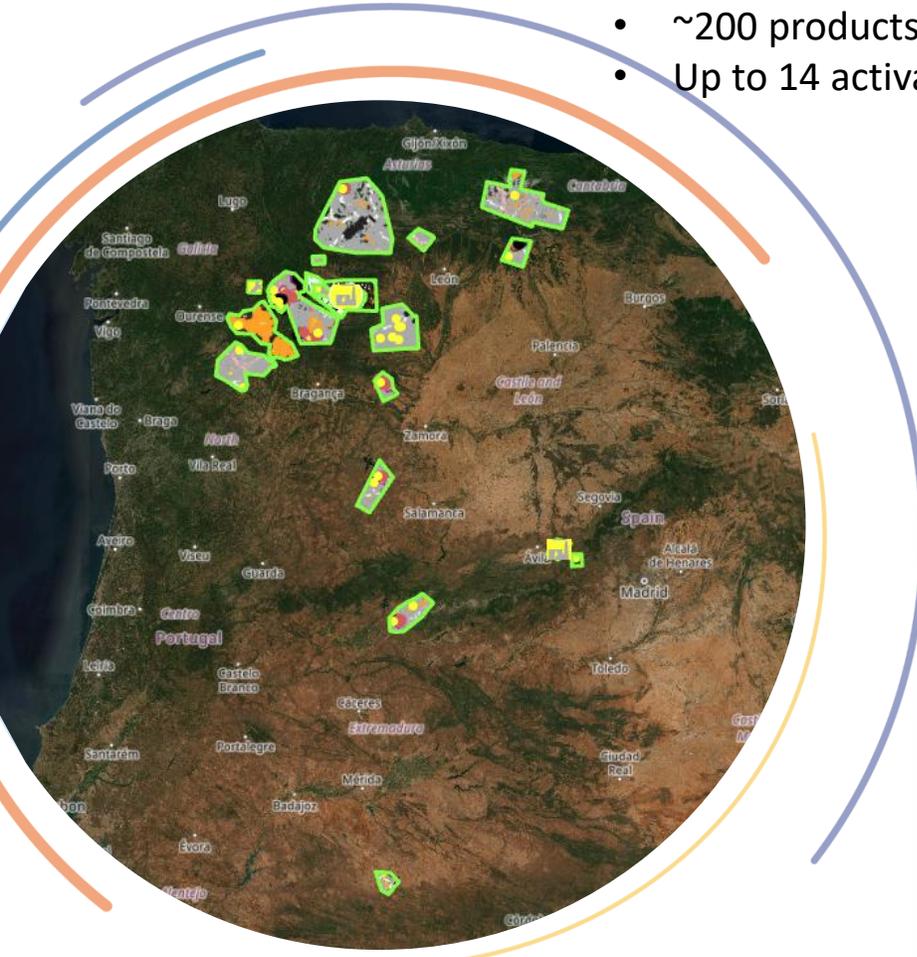




On-Demand Mapping

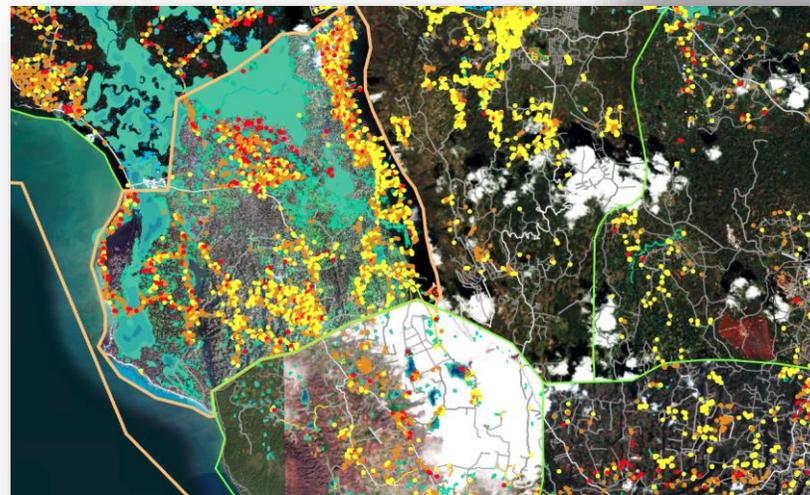
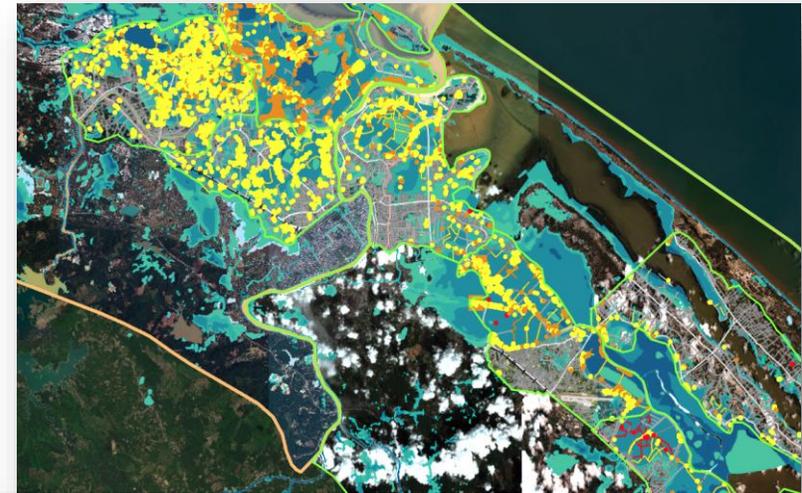
Fire season 2025

- ~30 activations: 16 in Greece, 2 Spain + others
- ~150.000 Km² analysed
- ~60 areas of Interest
- ~200 products delivered
- Up to 14 activations in parallel



Tropical cyclones

EMSR848 Flood in Central Viet Nam



- ~300.000 Ha of flood detected, with flood depth and urban area modelling
- ~ 100.000 buildings assessed for damage grading
- More than 3 weeks of continuous support
- 50 Areas of Interest
- ~ 200 Maps produced

EMSR847 - Tropical Cyclone Melissa in the Caribbean

THE EU COPERNICUS MARINE SERVICE

Global & Regional Ocean Monitoring and Forecasting

MULTI-YEAR
10 to 45 years

REAL-TIME
Daily, hourly

FORECAST
2 to 10 days

ESSENTIAL OCEAN VARIABLES

BLUE OCEAN



Physics

WHITE OCEAN



Sea Ice

GREEN OCEAN



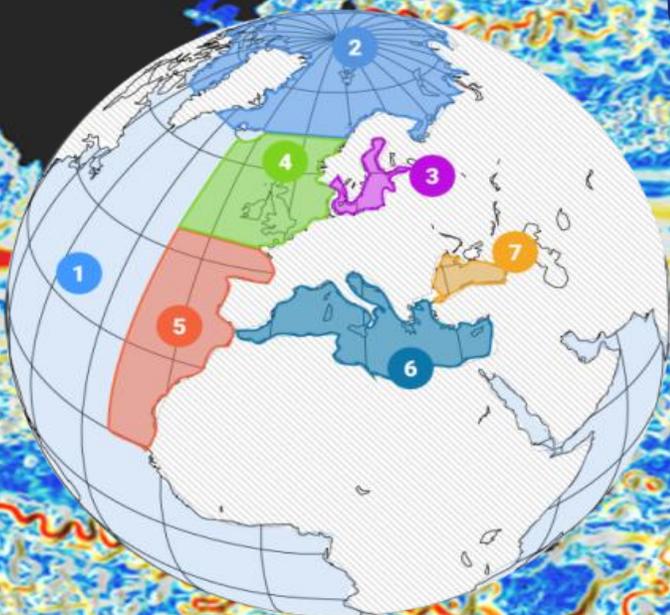
Biogeochemistry

OBSERVATIONS
In-situ & Satellites

NUMERICAL MODELS
& data assimilation

marine.copernicus.eu

Free and Open



- | | |
|----------|-------------|
| 1 Global | 5 IBI |
| 2 Arctic | 6 Med Sea |
| 3 Baltic | 7 Black Sea |
| 4 NWS | |



How to access the Copernicus data and products

Copernicus services' portals



Thematic Hubs



<https://dataspace.copernicus.eu>

Copernicus Space Data Ecosystem (CDSE) Portal

<https://www.wekeo.eu>

WEKEO Portal



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Copernicus
Europe's eyes on Earth

#EUSpace
#Copernicus

THANK YOU

European Commission
DEFIS D.3 Earth Observation