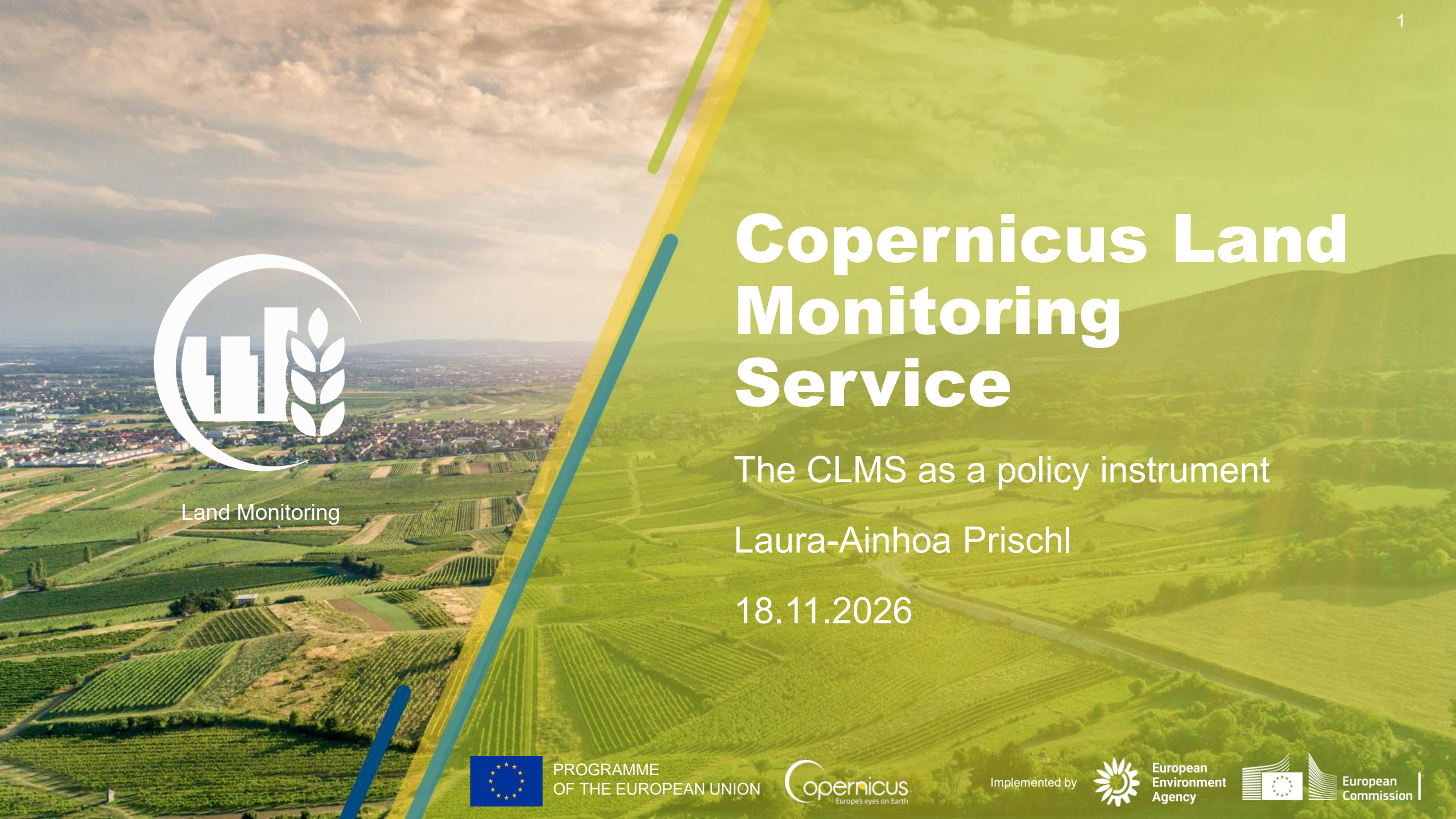


Land Monitoring

Copernicus Land Monitoring Service

The CLMS as a policy instrument

Laura-Ainhoa Prischl

18.11.2026

PROGRAMME OF THE EUROPEAN UNION

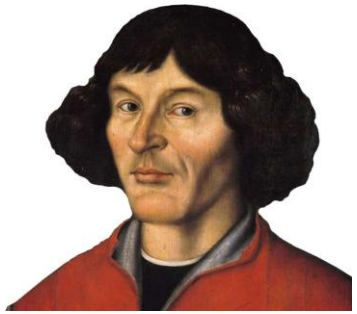
Copernicus Europe's eyes on Earth

Implemented by European Environment Agency

European Commission

Copernicus Programme

- Earth observation component of the European Union's Space programme.
- Managed by the European Commission - Directorate-General for Defence Industry and Space (DG DEFIS)
- FREE and OPEN data policy

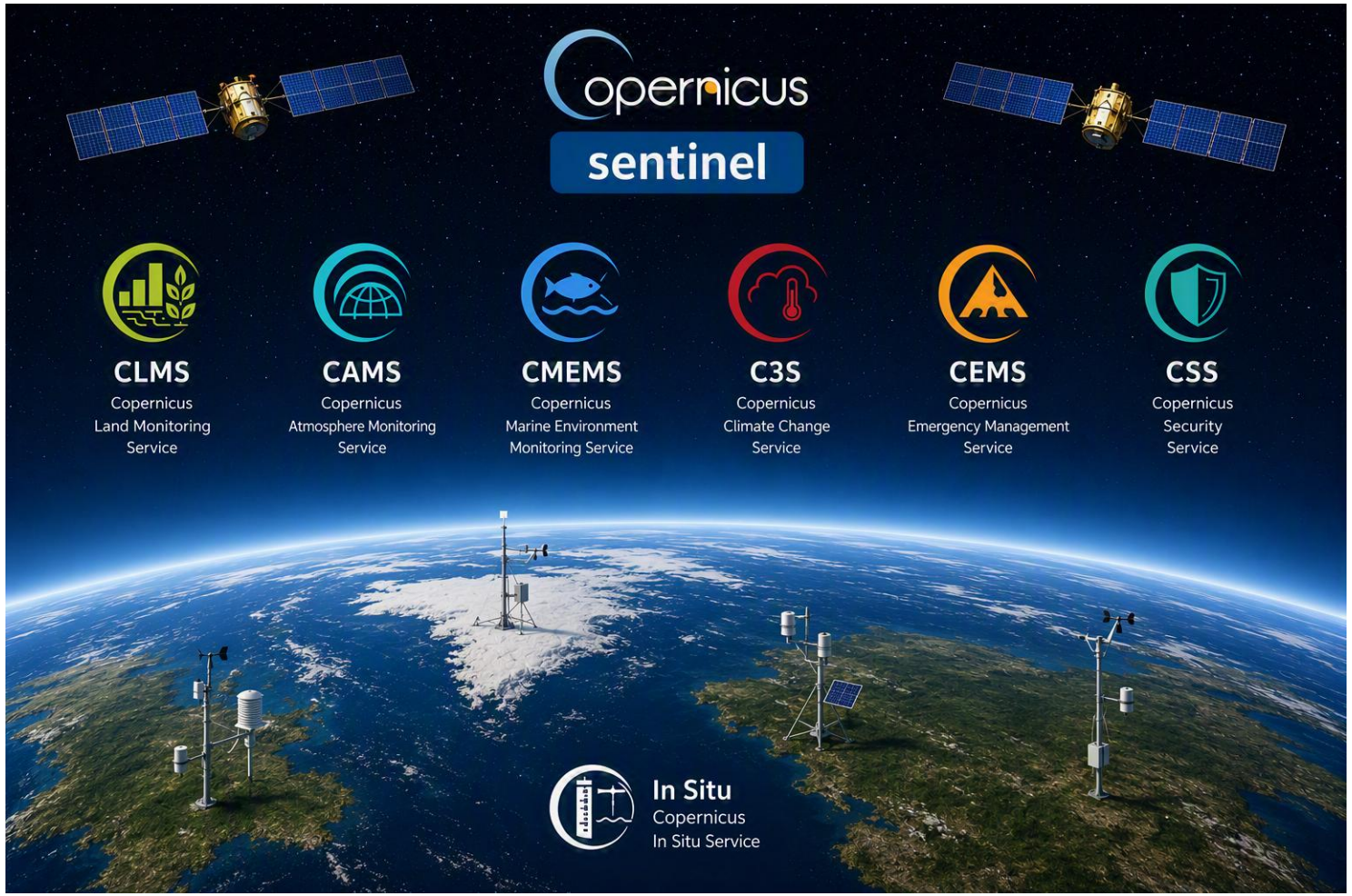


Copernicus components

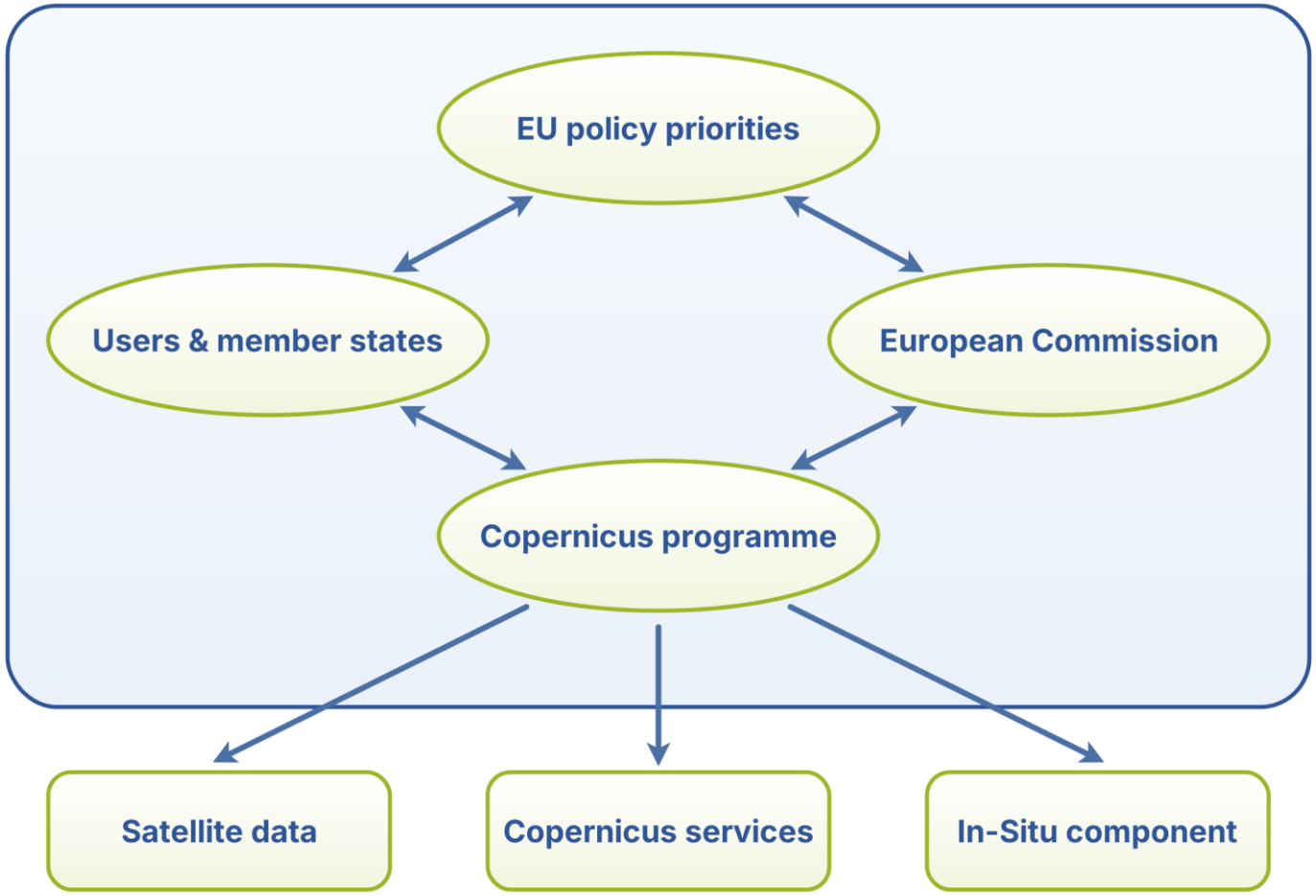
Space Component

Services

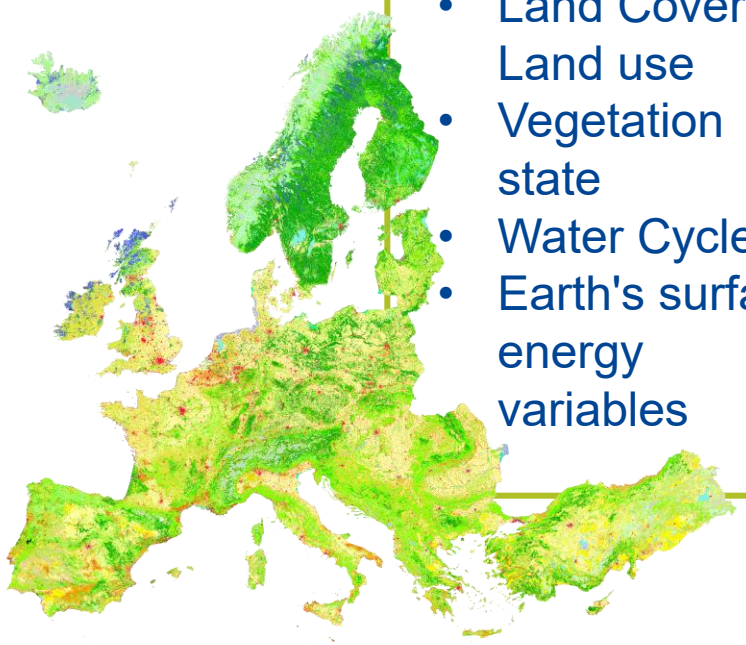
In-Situ Component



Europe's Earth Observation Ecosystem



Copernicus Land Monitoring Service (CLMS)



Comprehensive Monitoring

- Land Cover and Land use
- Vegetation state
- Water Cycle
- Earth's surface energy variables

European & Global Coverage

- Products and manuals are **free** and **open**
- Implemented by DG Joint Research Center and EEA

Reliable and Harmonized

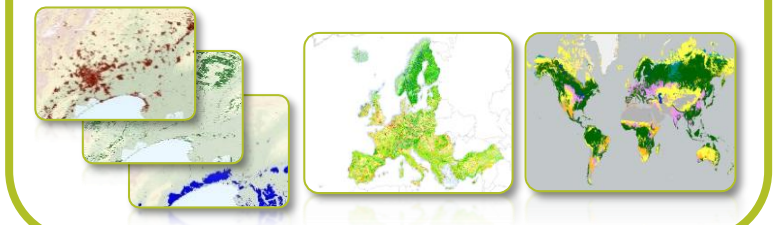
- Consistent across time and space
- Long-term data continuity

Video

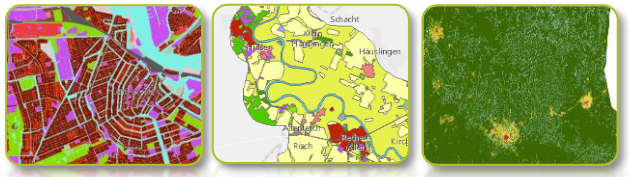
This is the Copernicus Land Monitoring Service

CLMS Portfolio

Land cover and land use mapping



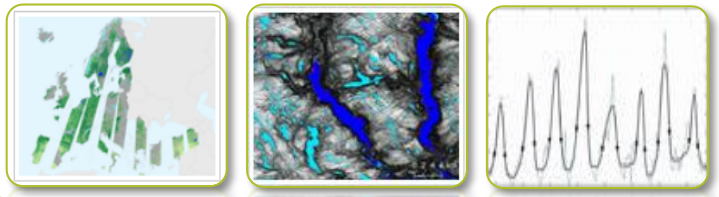
Priority area monitoring



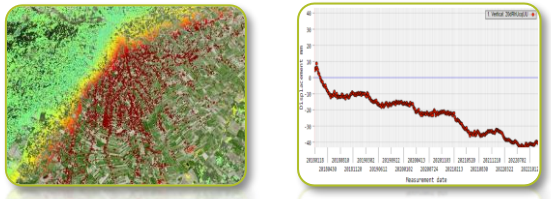
Satellite data



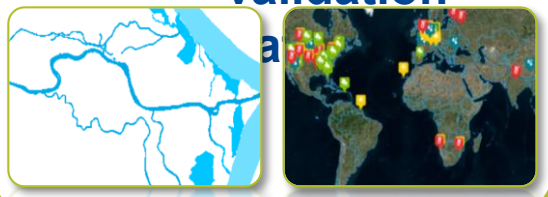
Bio-geophysical parameters



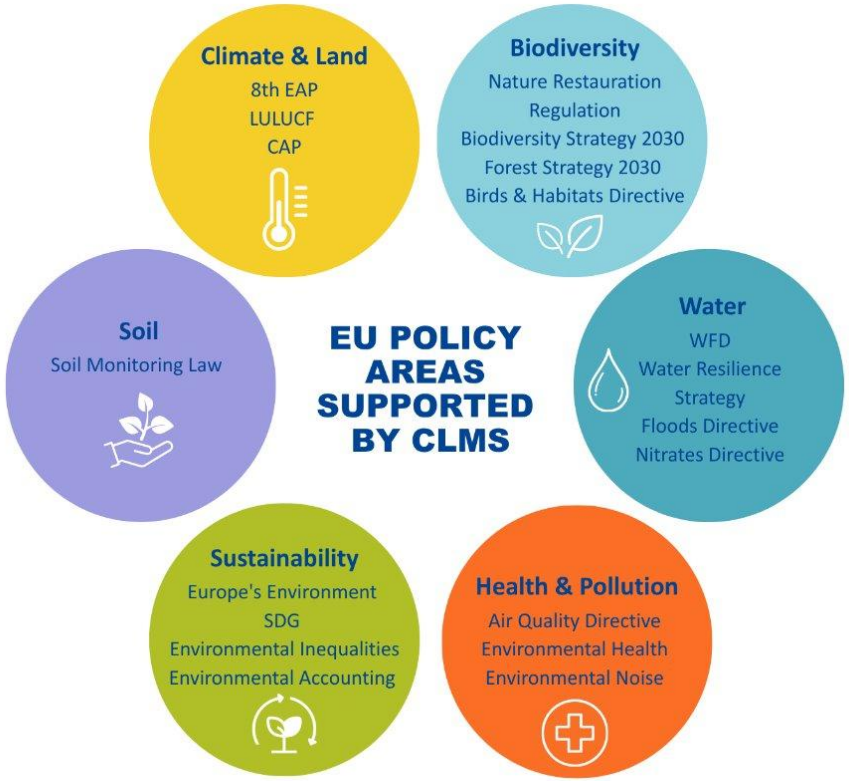
Ground motion monitoring



Reference and validation



The importance of CLMS for policy



CLMS helps to answer:

What is changing and where?

How fast is change happening?

Are policy measures working?

Where should action be prioritised?

CLMS provides the evidence behind Europe's environmental policies

Translating Policy into Action

Biodiversity
Habitat condition, ecosystem connectivity, restoration monitoring

Sustainability
Sustainable land management, environmental inequalities, Ecosystem Accounting

Water
Water extent, quality, resilience conditions in Europe

Soil
Soil Degradation, sealing and land take

Health / Pollution
Environmental noise, urban environment & health, air quality, zero-pollution

Climate & Land
Land cover and land use changes, LULCF, Urban adaptation & green infrastructure, Climate change adaptation

Matching Products to Policy requirements

"The right product depends on your questions“

1. Which policy are we addressing?
2. What is the policy objective?
3. What are Member States required to report or monitor?
4. What indicators are needed?
5. What geospatial information is required?
6. Which Copernicus product can provide it?

Use case 1 – Nature Restauration Regulation

Policy	NRR (EU 2024/1991) - Article 8
Policy objective	Restoration of urban ecosystem
MS requirements	No net loss of urban green space and tree canopy cover by 2030

Use case 1 – Nature Restauration Regulation

Indicators	Urban green space extent, tree canopy cover
Data needs	Land cover, greenery, tree cover, urban extent
CLMS Data	Tree Cover Density, CLCplus BB, Small Landscape Features, Imperviousness, Urban Atlas

Nature Restauration Regulation - Ljubljana

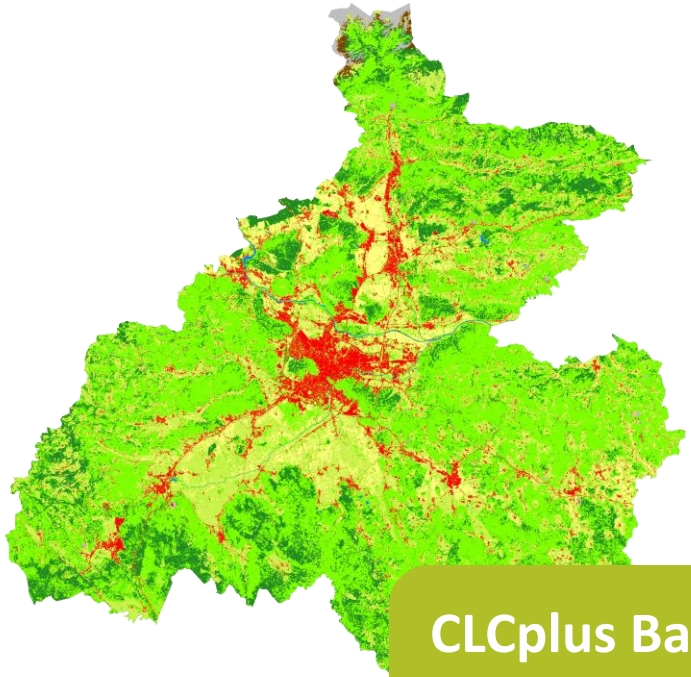
(How) has the tree cover changed?



Tree Cover Density
Percentage of tree cover in an area. Covers EEA38 + UK, 10m

Urban Tree Cover

Where are green spaces located?

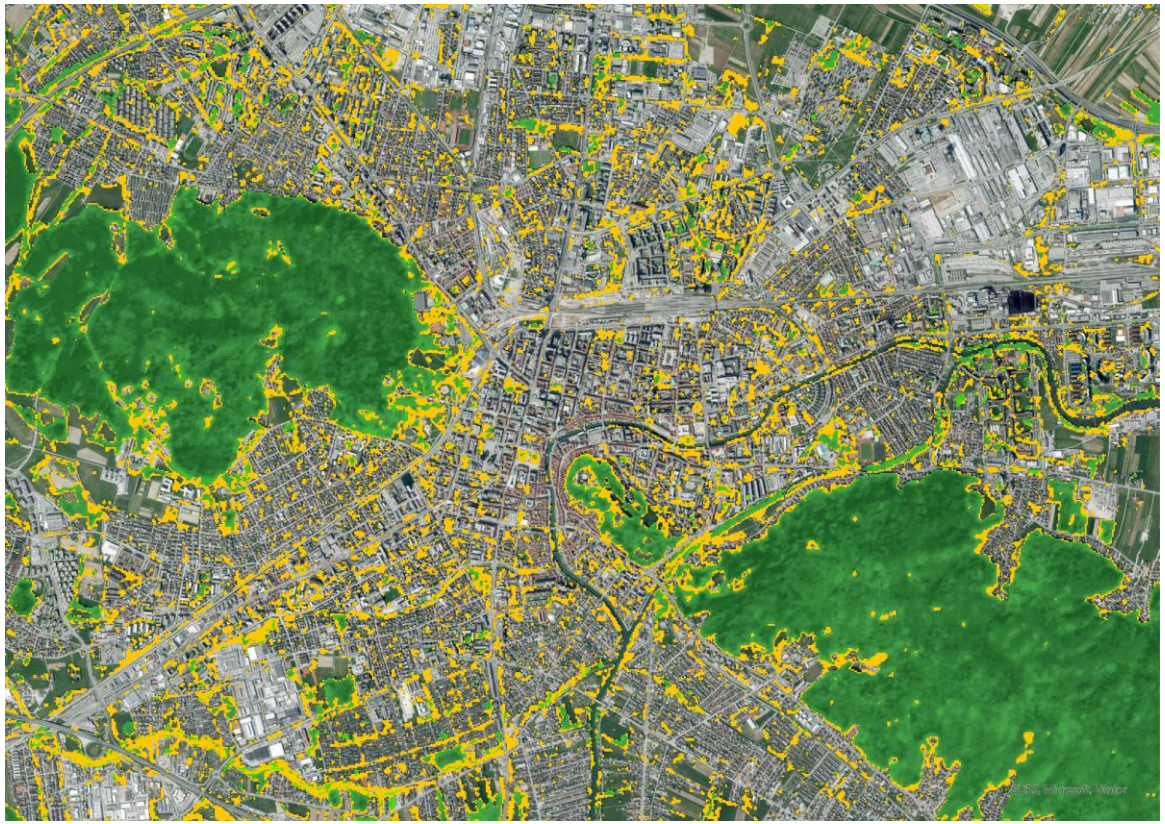


CLCplus Backbone
Land cover information. Covers EEA38 + UK, 10m

Urban Green Spaces

Tree Cover Density vs Woody Vegetation Layer





Tree Cover Density

Woody Vegetation Layer

TCD vs WVL: Source Data

Sentinel-2 High Resolution (10m)



Near Real Time: Each location revisited once every 5 days

Very High Resolution (2m)



One EU-Mosaic: 2012, 18, 21, 24

Implementation timeline

National Collaboration Programme

Phase I (Q4/2024 – Q1/2026)



Phase II (Q2/2026 – Q3/2027)



National Collaboration Programme framework

The NCP facilitates:



user involvement



collection of user requirements and feedback



validation of CLMS products

…through **voluntary, tailor-made** collaboration programmes
Duration: 18 months

Implementation principle: MoUs with modules

Mandatory

- Use case stories
- Organisation of CLMS meetings
- Progress monitoring
- Final report

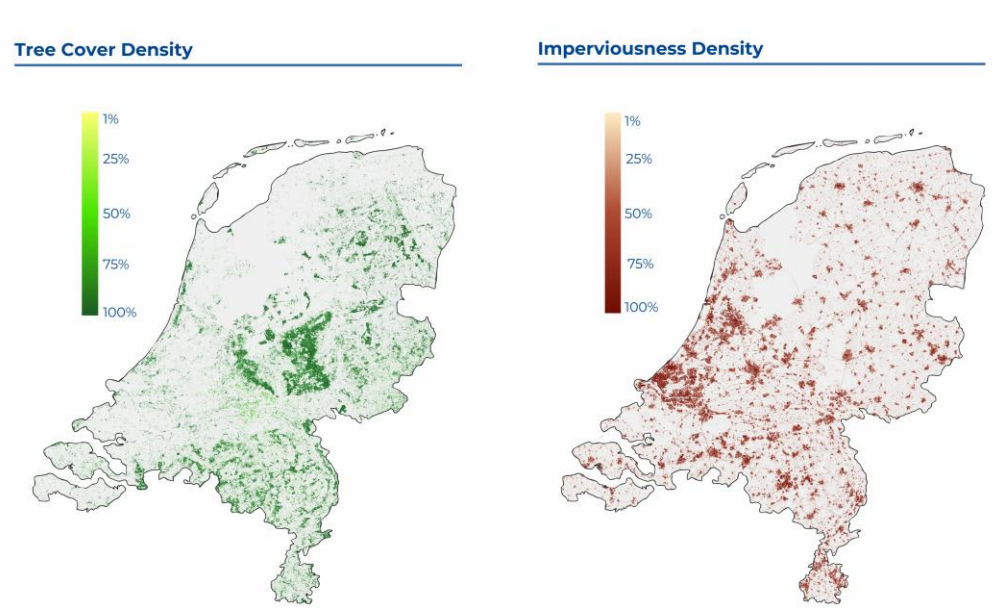
Optional

- Focus teams
- Training sessions
- Communication material
- Visiting PhD students

More info on NCP website

Examples: Use cases

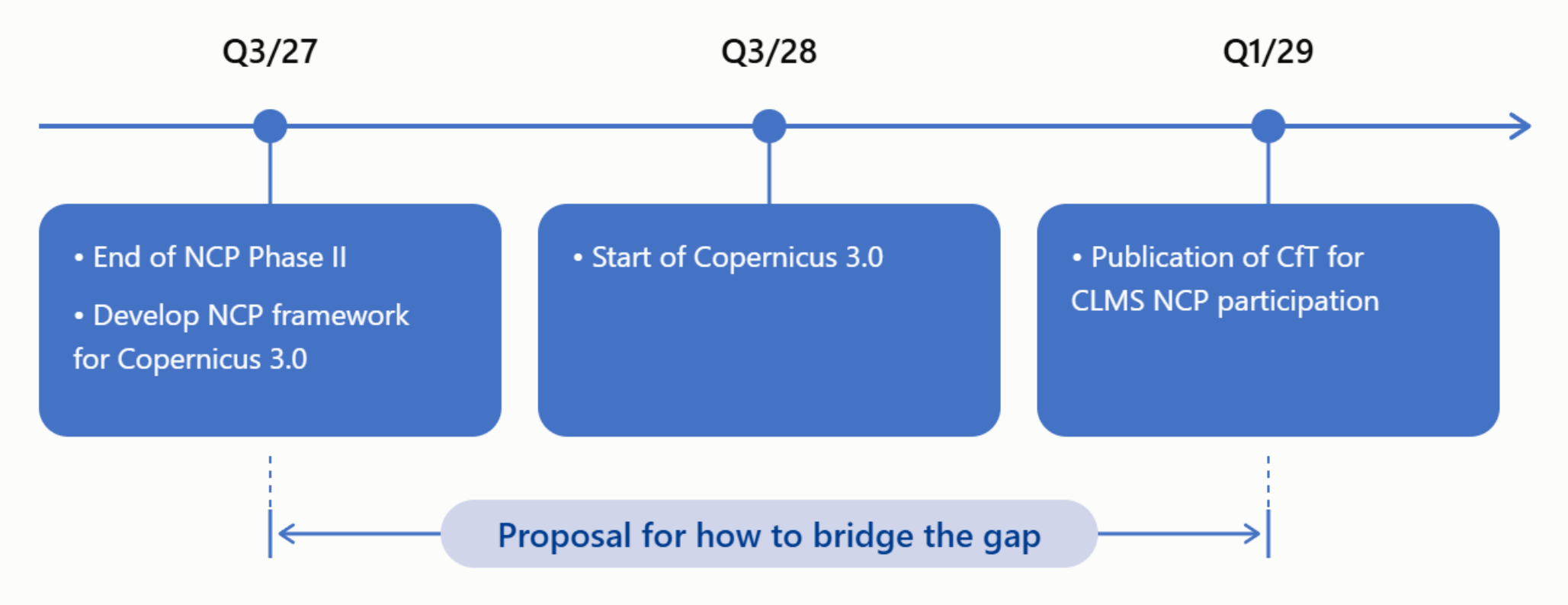
Netherlands: “CLMS supports Netherlands new ecosystem accounting efforts”



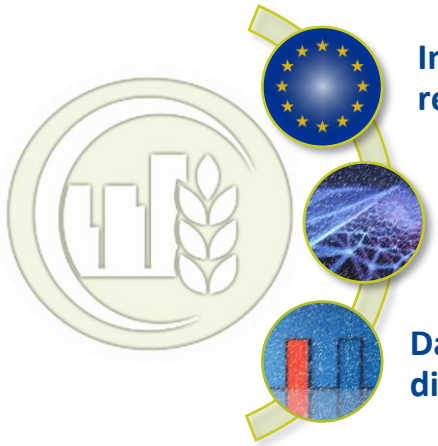
Spain: “Improving the national Spanish land cover and land use information system”



Future of the NCP



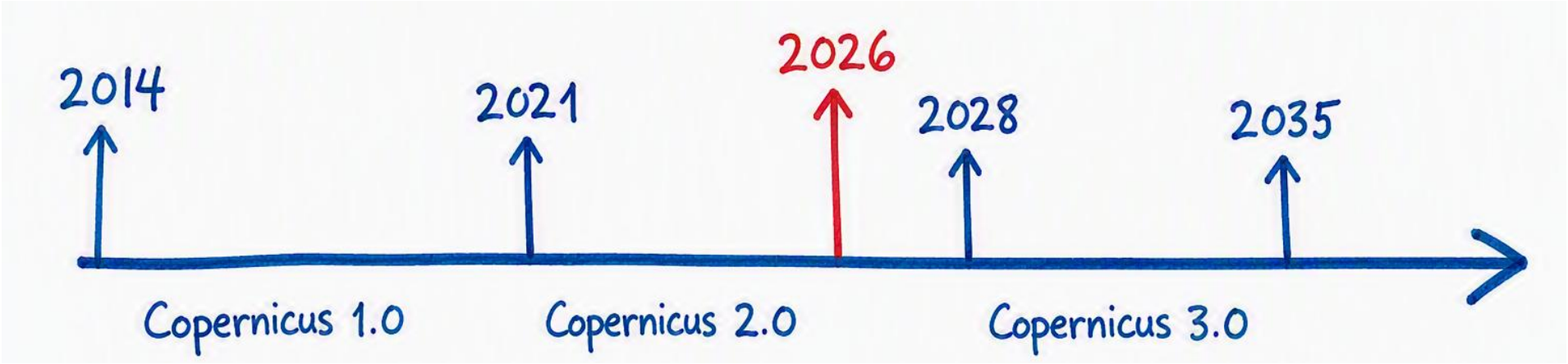
Preparing for the future



- ✓ European policies or in international context
- ✓ Ensure fitness for purpose
- ✓ Ensure alignment to policy

- ✓ State of the art methodologies (including ML, AI)
- ✓ From observation to modelling and prediction
- ✓ Ingestion of new input data

- ✓ Copernicus Data Space Ecosystem (CDSE)
- ✓ Facilitate access and distribution of products, not only to institutions, but also to the citizens and the wider audience



What does Europe really look like?

Europe in 100 seconds



Conclusion

The Copernicus Land Monitoring Service enables …



References – general information

- CLMS website
- Event page
- Use case repository
- Ask Copernicus
- Helpdesk

- LinkedIn



References – data access and code

- Jupyter Notebooks: see product pages on CLMS website
- Data viewer
- Copernicus Data Space Ecosystem
- WEkEO
- EEA Github repository



Land Monitoring



land.copernicus.eu