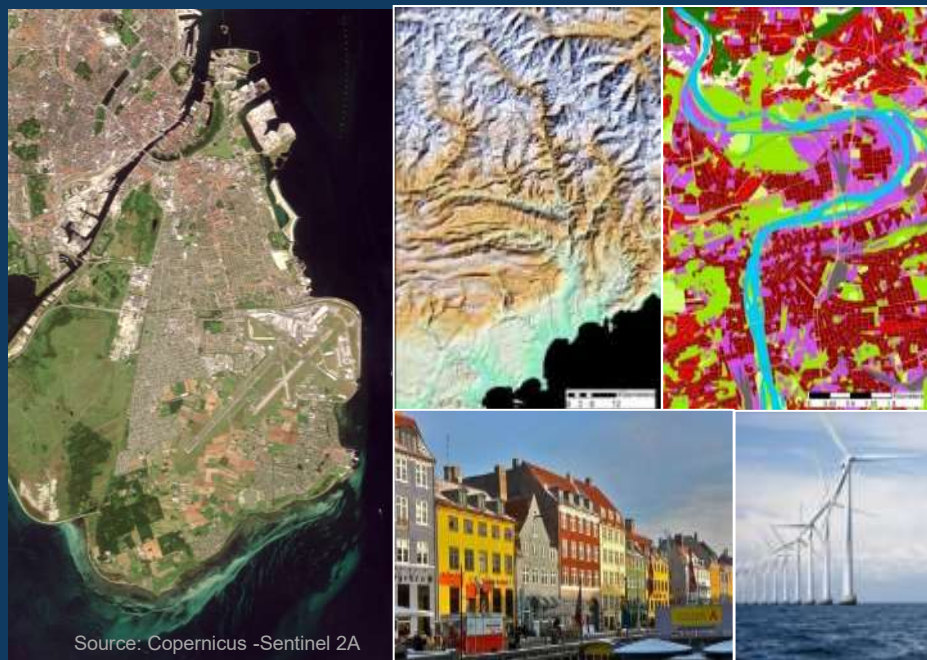


Use of Copernicus land monitoring service to support environmental policies in Europe



Outline

- EU thematic priority objectives
- 5 concrete use cases
- Looking ahead

Green industries
grew by more
than 50% between
2000 and 2011

Economy

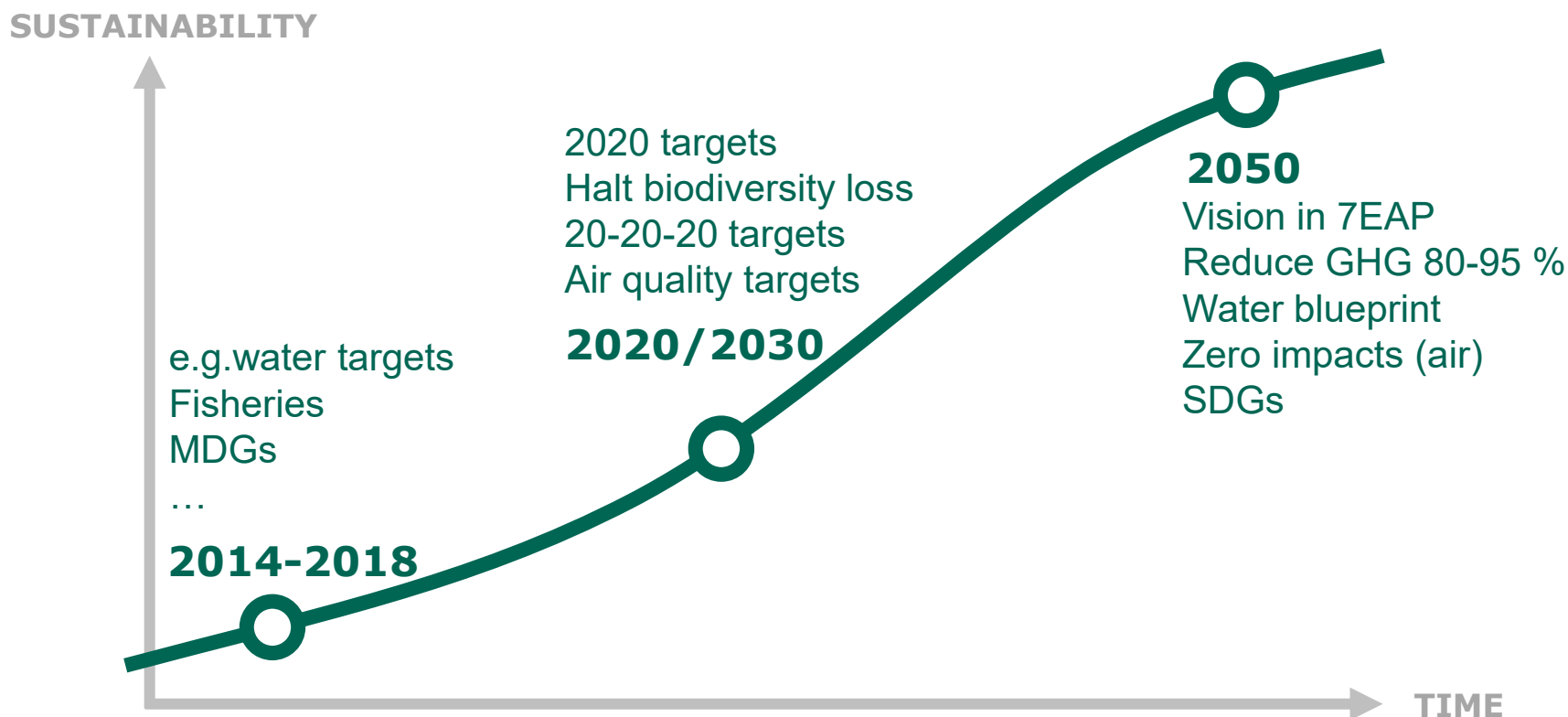
Environment

European Commission
Commission européenne

European Commission
Commission européenne

Commission européenne
European Commission

The developing policy framework



2014-2018 thematic policies timelines and deadlines.

2020/2030 comprehensive policies (Europe 2020, 7th EAP), or specific targets.

2050 long-term visions and targets with a societal transition perspective.



EU thematic priority objectives

1. Protect, conserve and enhance the EU's natural capital



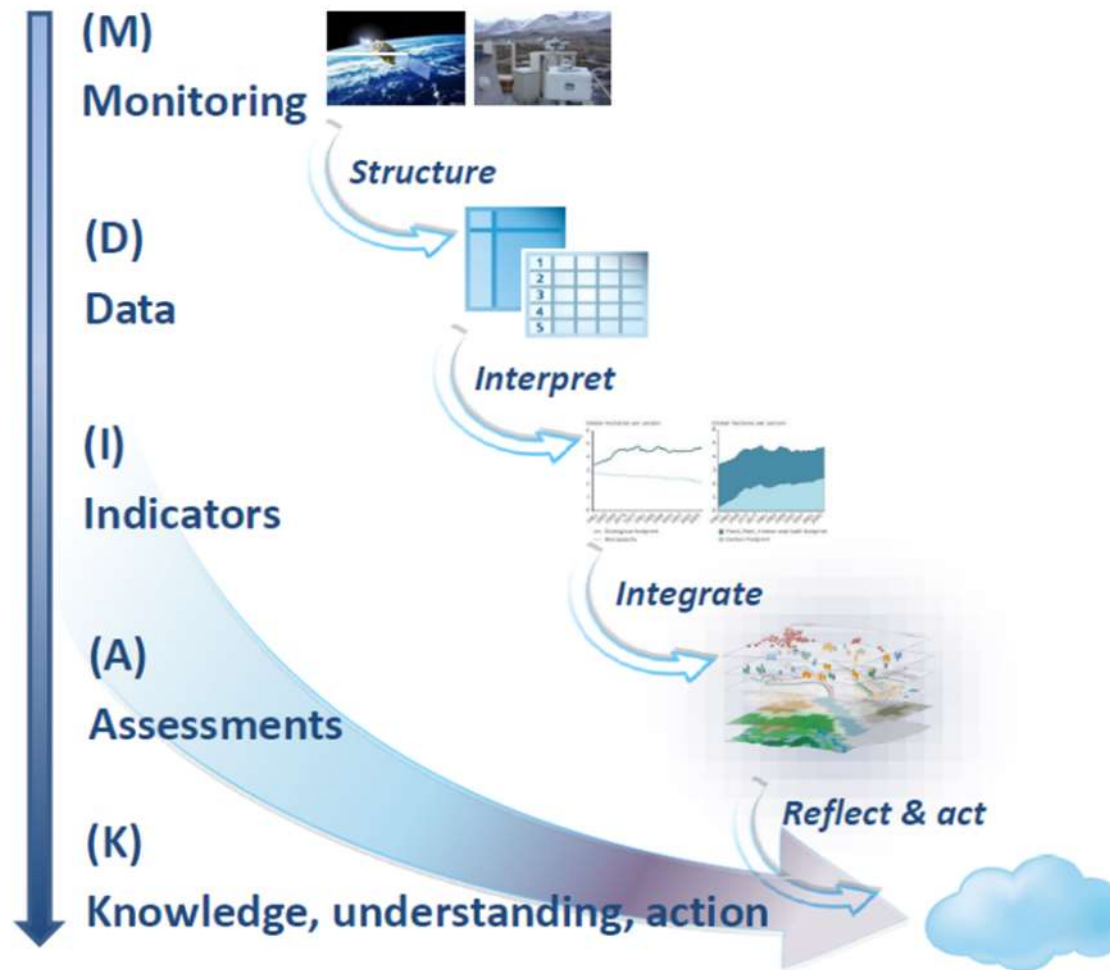
2. Turn the EU into a resource-efficient, green and competitive low-carbon economy



3. Safeguard EU citizens from environment-related pressures and risks to health and wellbeing



Sentinel-2&3 for evidence based decision making



Developing a sustainable urban environment



© Susanne Kuijpers, Environment & Me /EEA



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Copernicus Urban Atlas

Copernicus Land Monitoring Services

Home Global Pan-European Local In-situ

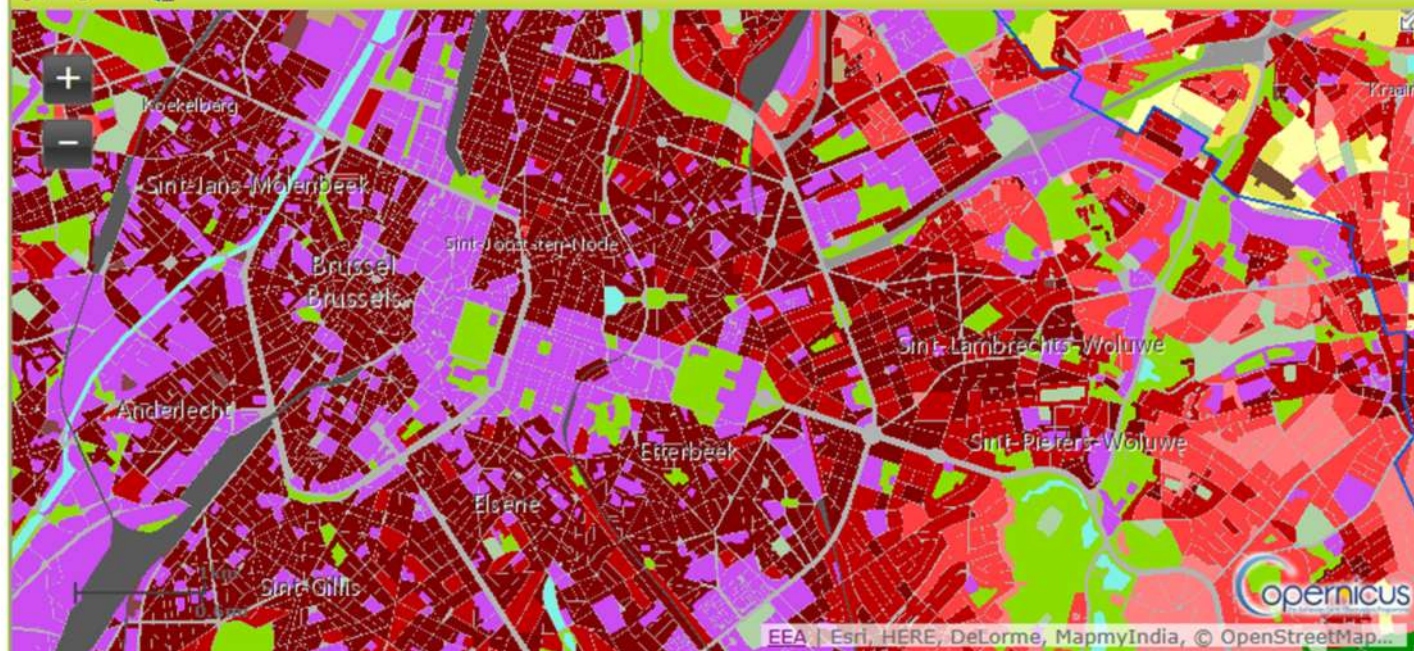
You are here: Home / Local / Urban Atlas / Urban Atlas 2012

Urban Atlas 2012 **Partially validated product; summary results available in the technical library**

Print

Map View Metadata Download

Legend Web services

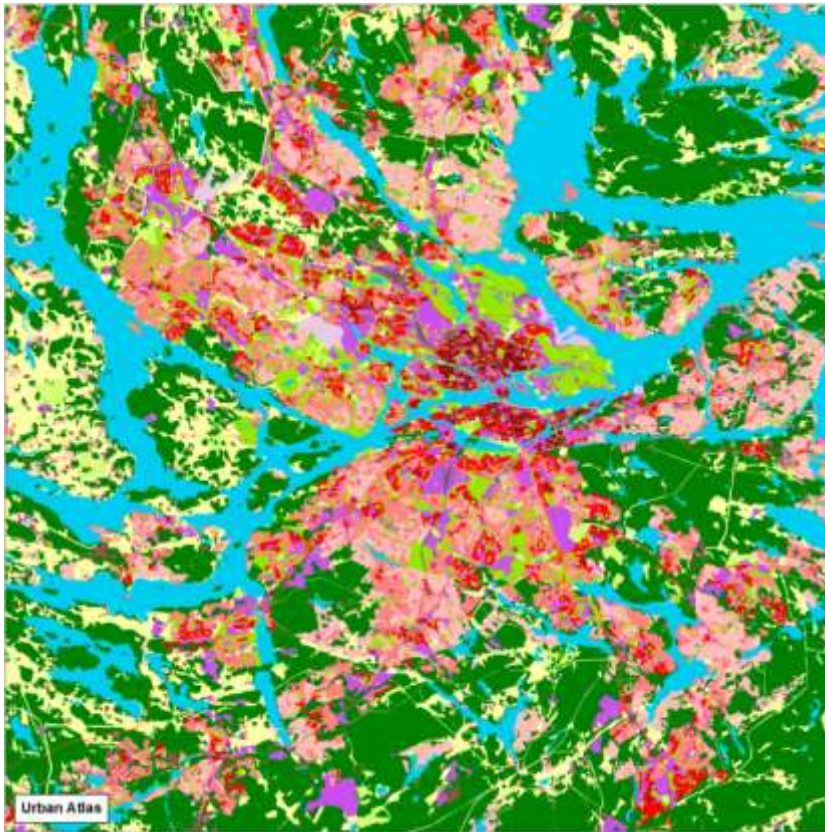


Data source: Copernicus land monitoring services Urban Atlas (Brussels)



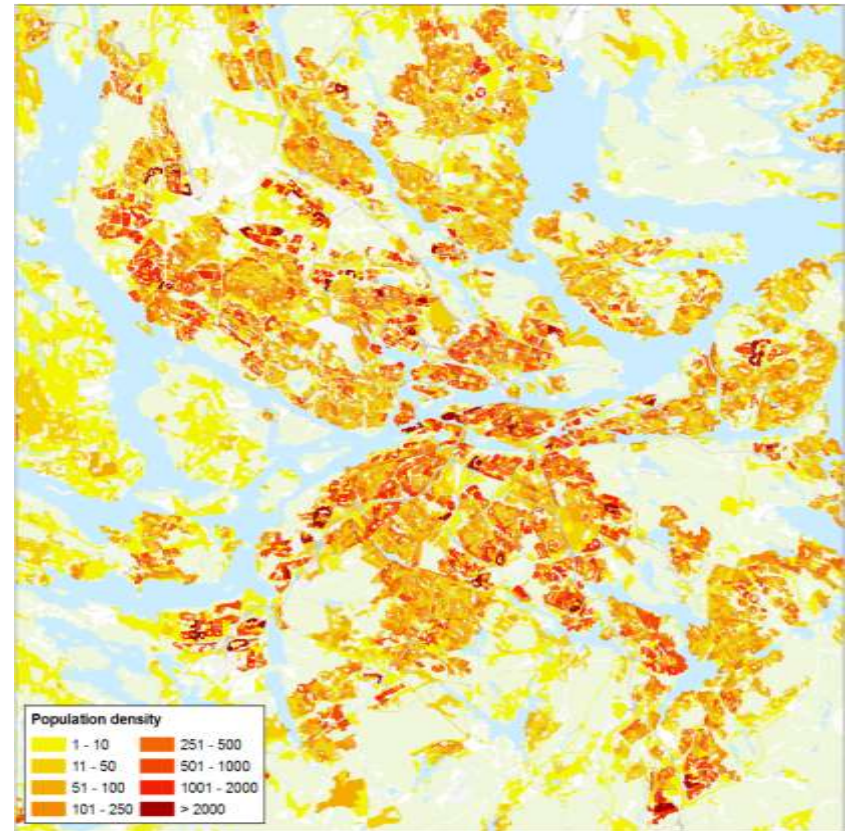
Population distribution

Urban Atlas



Data source: Copernicus land monitoring services Urban Atlas (Stockholm)

Population by block

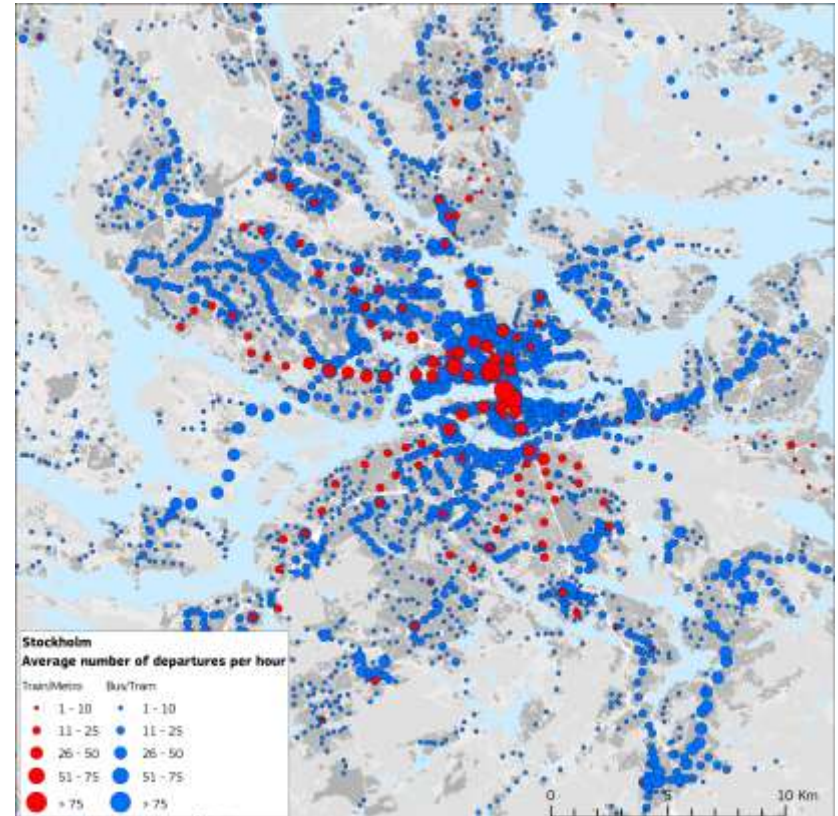


Source: H. Poelman, DG REGIO

Frequency of departures

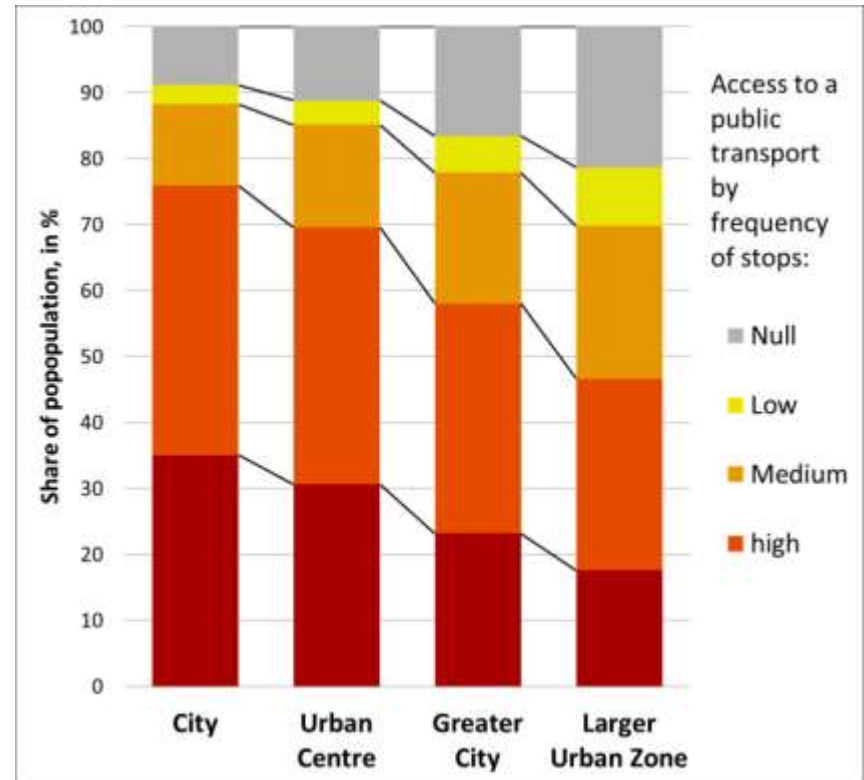
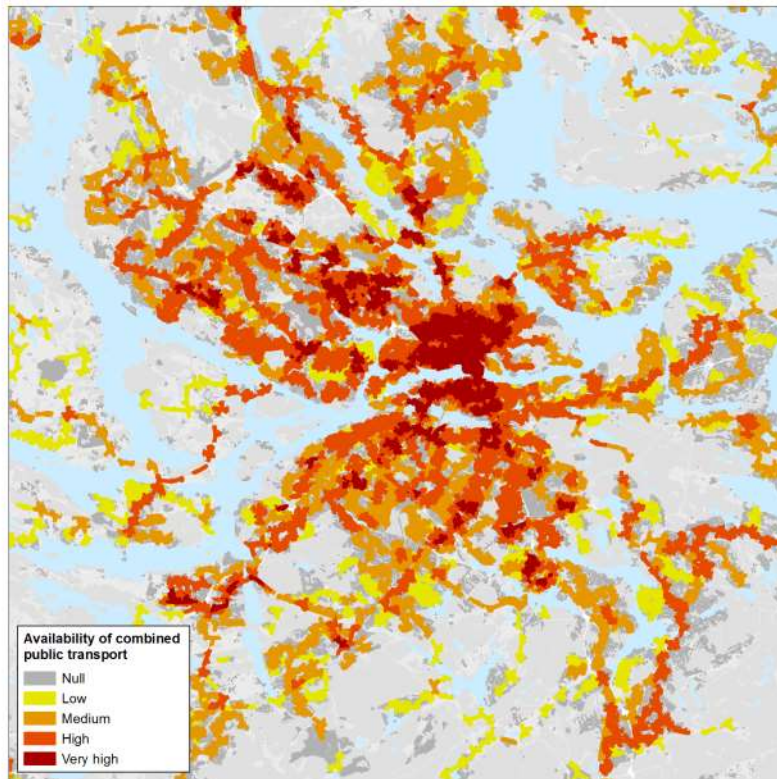
- Average number of departures per hour

- Location of all public transport stops
- Timetables in 2 groups:
 - *bus and tram*
 - *train and metro*
- For each stop:
average number of departures
an hour between 6:00 and
20:00 on a normal weekday



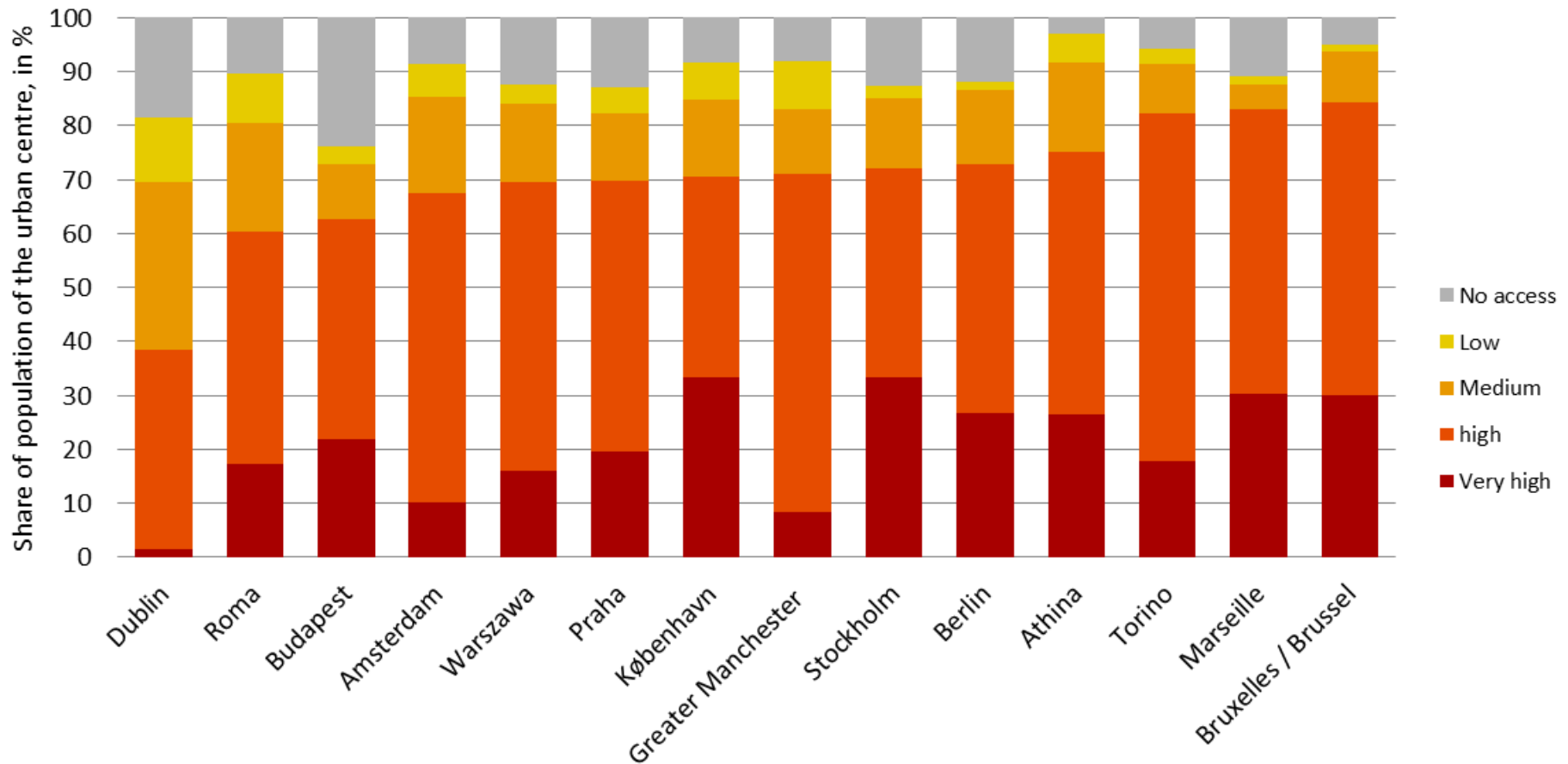
Access to public transport and its frequency

- Availability of combined public transport



Source: H. Poelman, DG REGIO

Access to public transport in large European cities



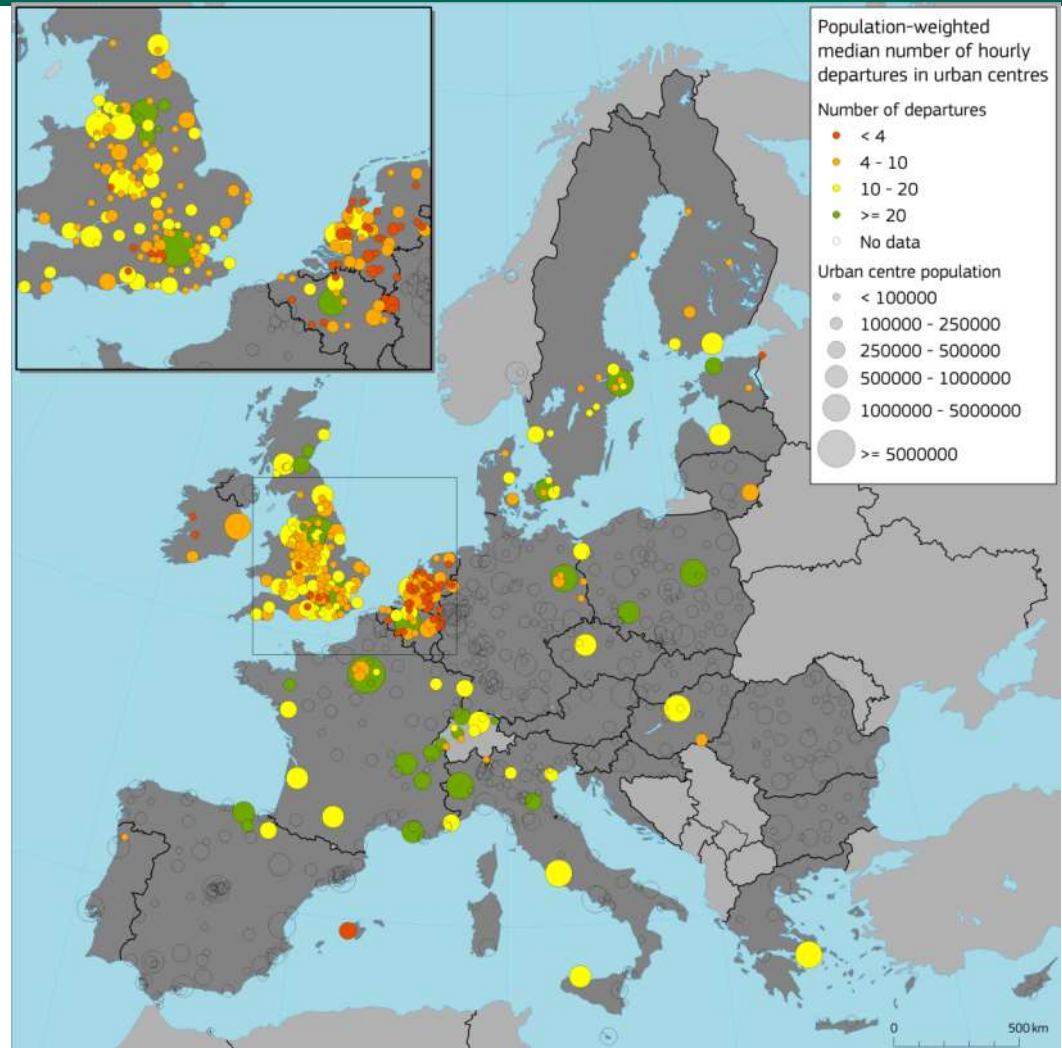
Source: H. Poelman, DG REGIO



Median number of departures an hour

Median number of departures an hour

- Number of departures to which 50% of the urban population has easy access
 - Varies between 7 and 33 departures in bigger cities
 - Between 4 and 35 in medium-sized cities



Climate impacts and adaptation



European Environment Agency



Copernicus imperviousness service – soil sealing

Copernicus Land Monitoring Services

Home Global Pan-European Local In-situ

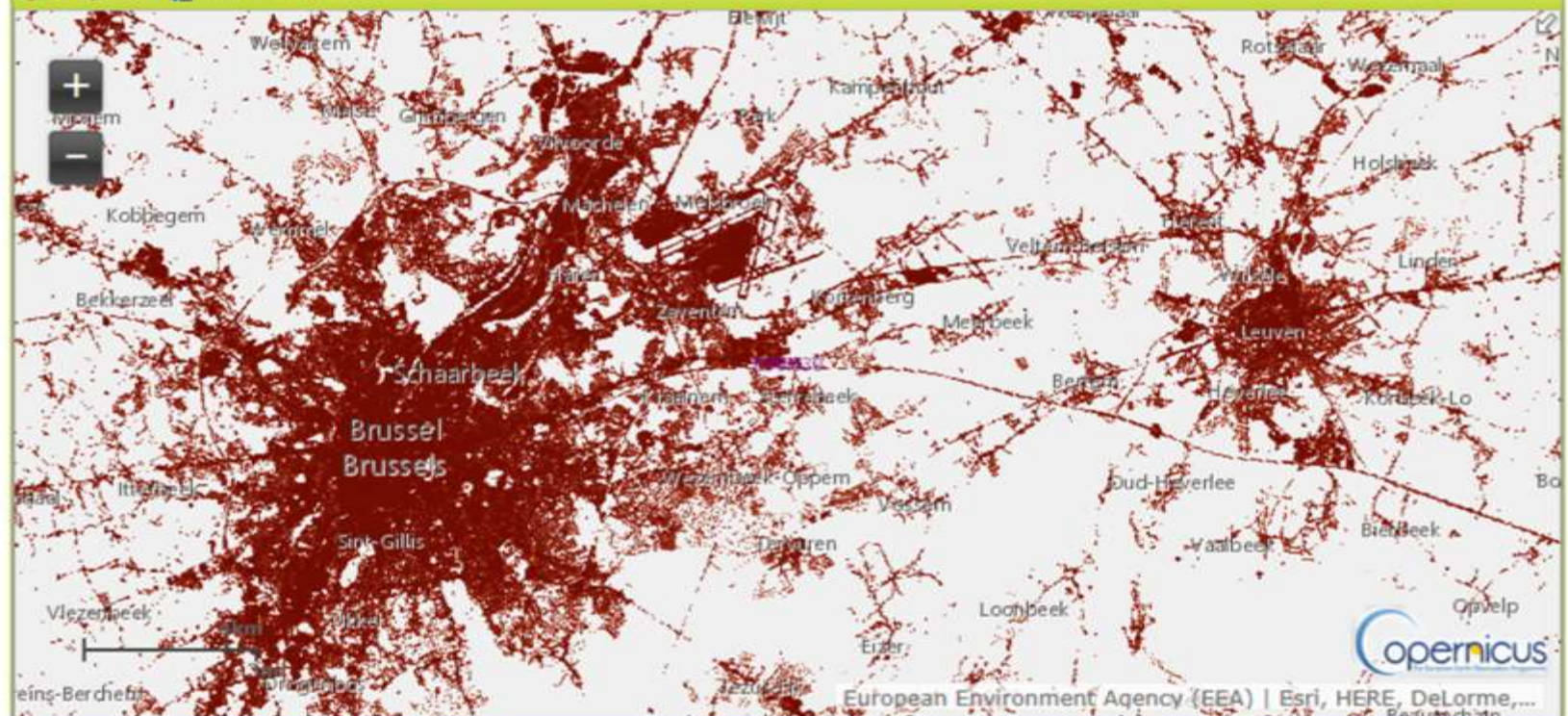
You are here: Home / Pan-European / High Resolution Layers / Imperviousness / Imperviousness 2012

Imperviousness 2012 **Partially validated product; summary results available in the technical library**

Print

Map View Metadata Download

Legend Web services



Source: Land.copernicus.europa.eu



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Urban vulnerability mapping

Climate-ADAPT - Sharing adaptation information across Europe

European Climate Adaptation Platform

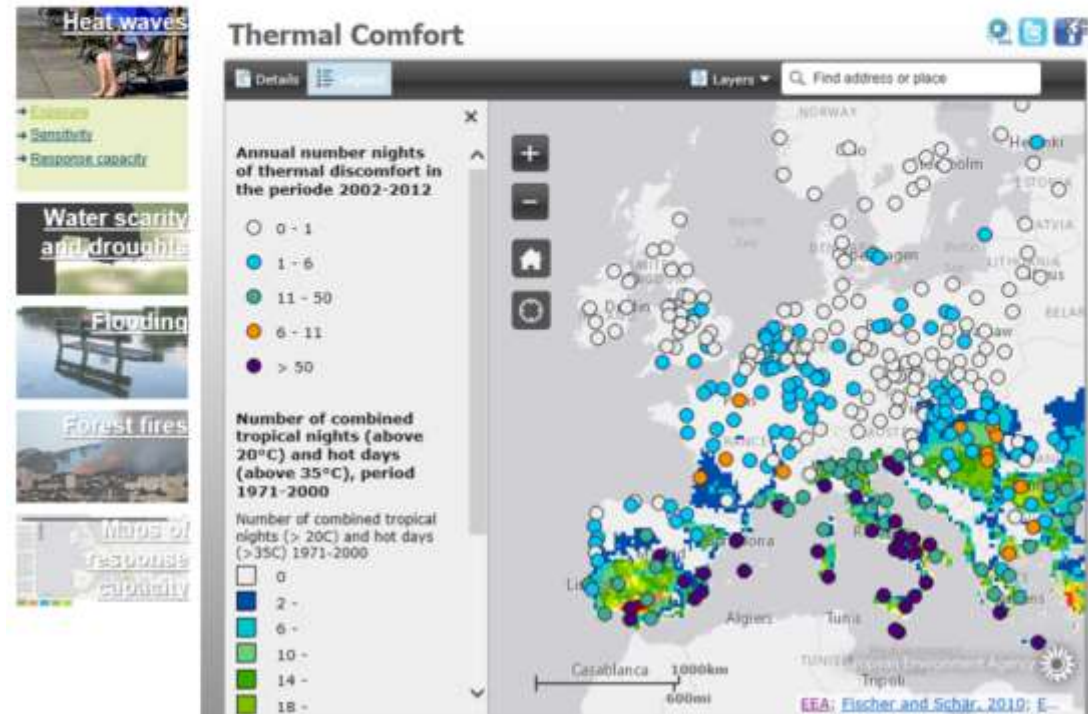
Log in

Search

About Database EU policy Countries, regions, cities Knowledge Network Help

You are here: Home / Knowledge / Tools / Urban vulnerability Map book / Climatic threats / Heat waves / Exposure

Introduction Maps per climatic threat Explore further Site overview



Source: <http://climate-adapt.eea.europa.eu/>

Climate-ADAPT - Sharing adaptation information across Europe

European Climate Adaptation Platform

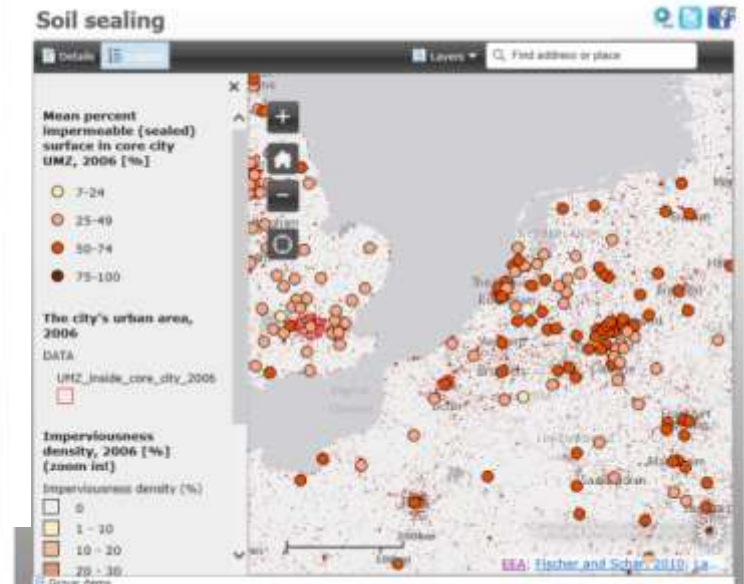
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Maps per climatic threat Explore further Site overview



Natural capital accounting



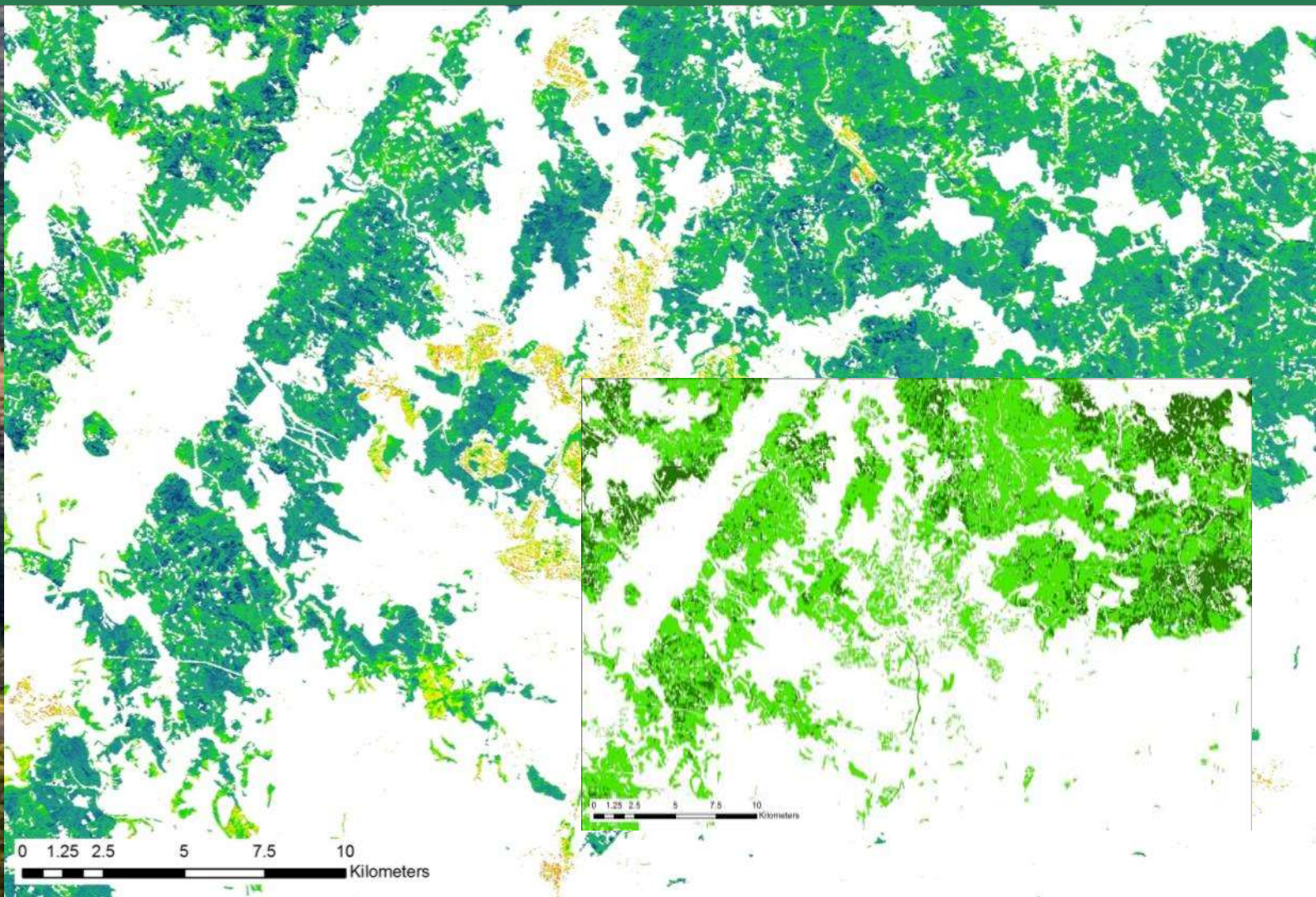
© Juan Carlos Farias Pardo, Environment & Me /EEA



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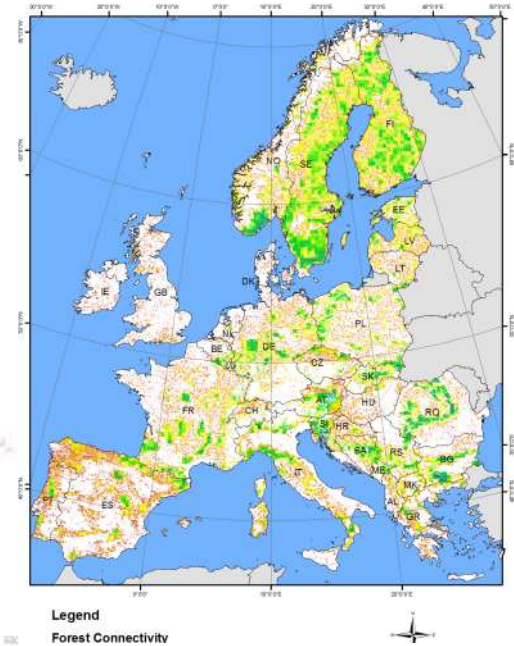
Copernicus forest type and tree cover density monitoring



Data source: Copernicus land monitoring services (Brno, CZ)



Forest infrastructure, fragmentation and connectivity based on Copernicus Land Monitoring Service

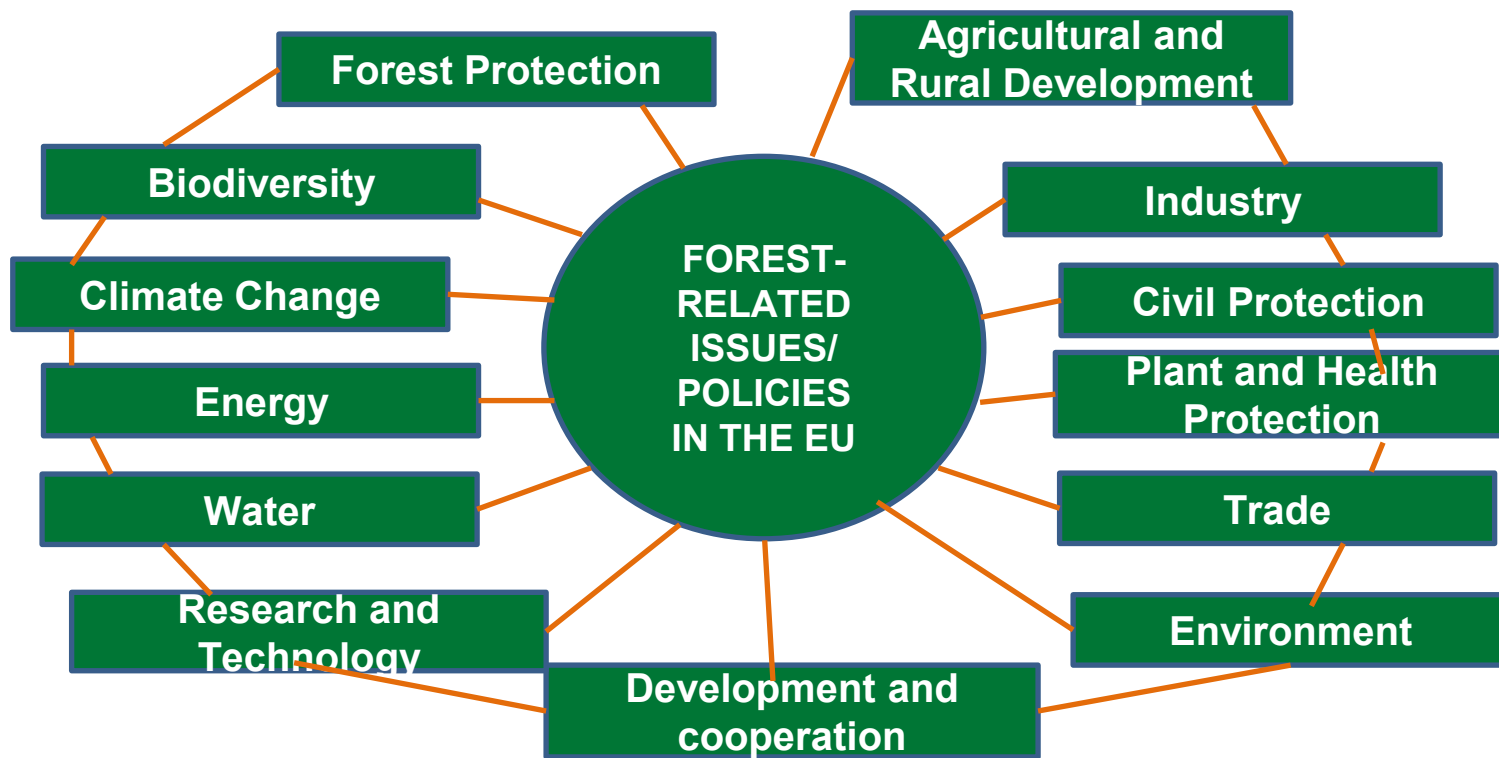


Source: Copernicus HRL forest
EEA, 2013-2015

	Policies	Area	Area change	Biomass	Fragmentation
Reporting obligations	FRA/RSS	<i>y</i>	<i>y</i>	<i>n</i>	-
	CBD	<i>n</i>	<i>n</i>	<i>n</i>	<i>y</i>
	KP	<i>y</i>	<i>y</i>	<i>n</i>	-
	LULUCF	<i>y</i>	<i>y</i>	<i>n</i>	-
	Forest Europe	<i>n</i>	<i>n</i>	<i>n</i>	<i>y</i>
	Natura 2000	<i>n</i>	<i>n</i>	-	-
	EU BD 2020	<i>y</i>	<i>y</i>	<i>n</i>	<i>y</i>
	CAP	<i>n</i>	<i>n</i>	<i>n</i>	-



Increasing need for forest information



Mapping ecosystem services



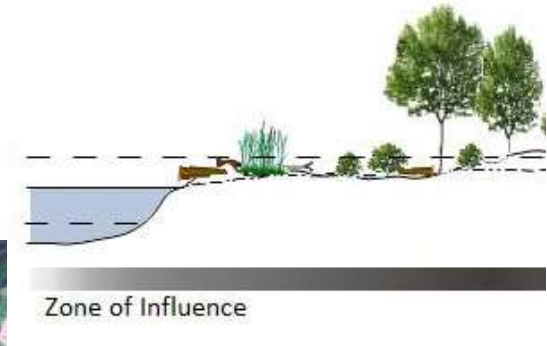
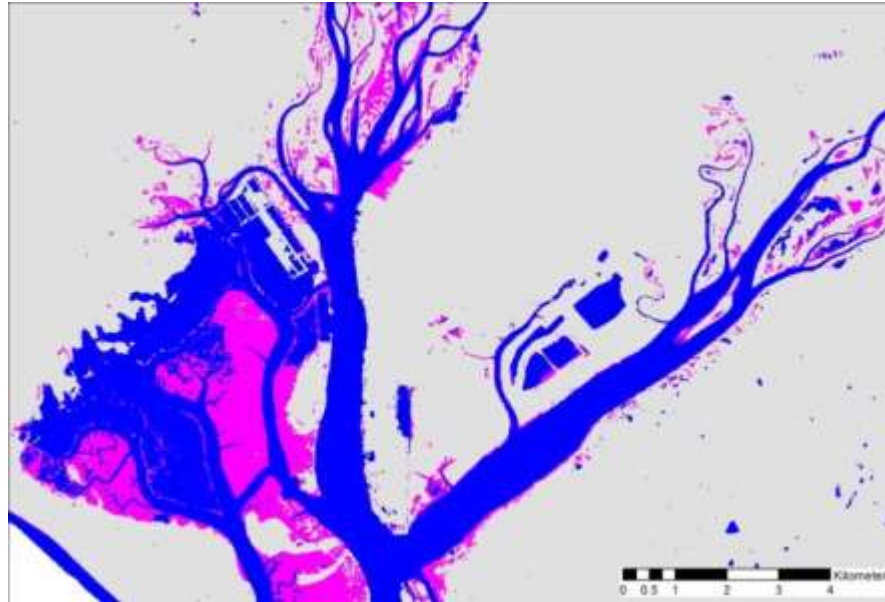
© Peter Kristensen, EEA



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Copernicus land cover change monitoring in wetlands and riparian zones



Data source: Copernicus land monitoring services

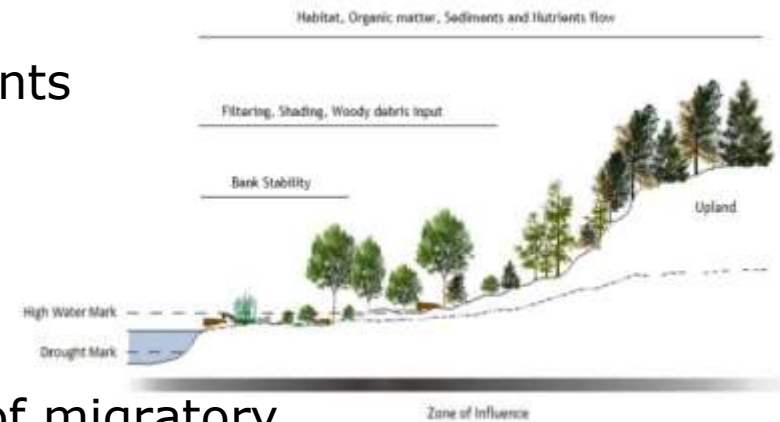


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Copernicus land cover change monitoring in wetlands and riparian zones

- Regulation of water flows
- Moderation of extreme events
- Erosion prevention
- Climate regulation
- Maintenance of soil fertility
- Maintenance of life cycles of migratory species (incl. nursery service)
- Aesthetic information
- Recreation and tourism
- ...



© Clerici et al. 2011



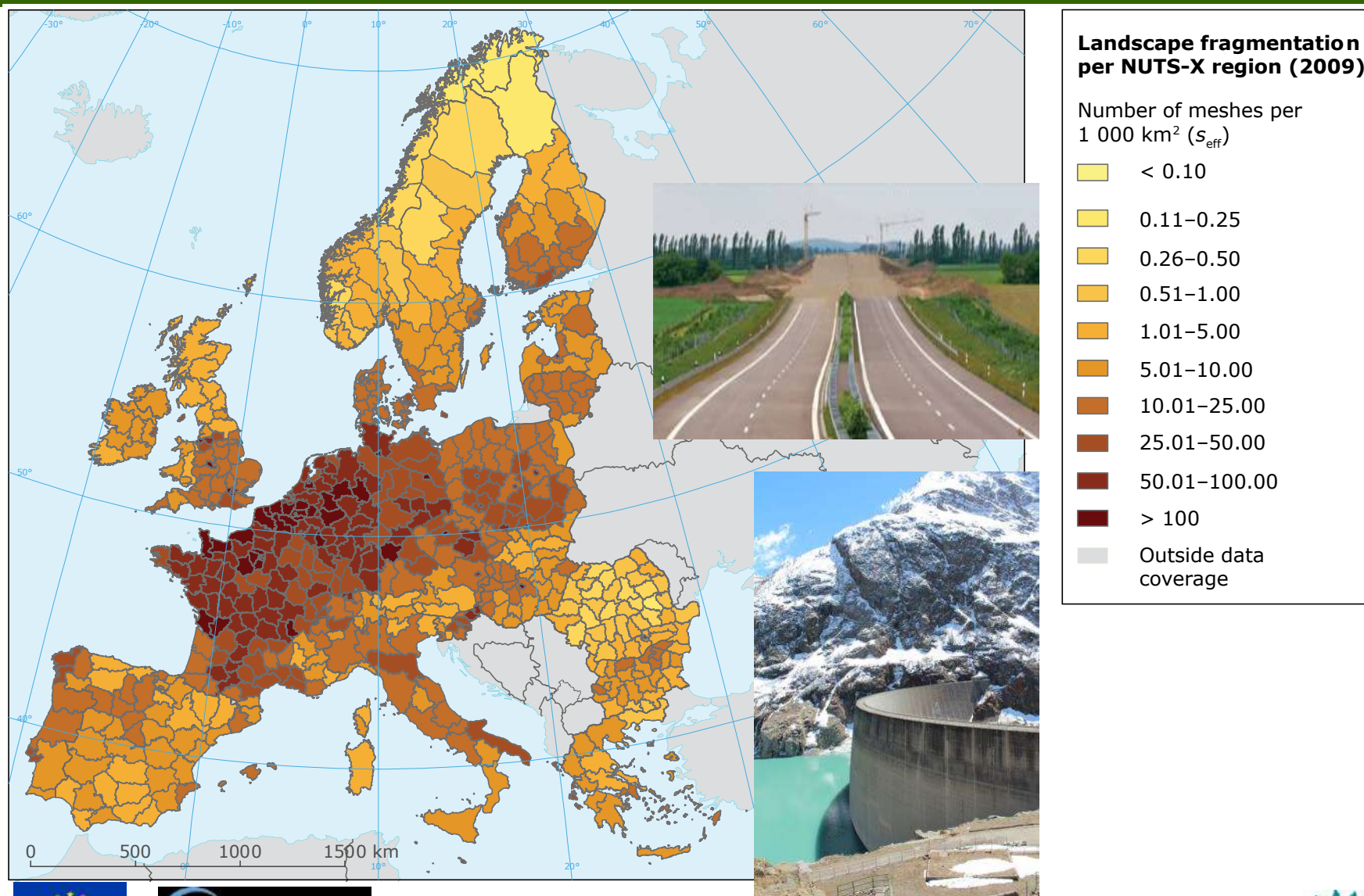
International Commission for the Protection of the Rhine; © Klaus Wendling, MUFV Rheinland-Pfalz



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Landscape Fragmentation



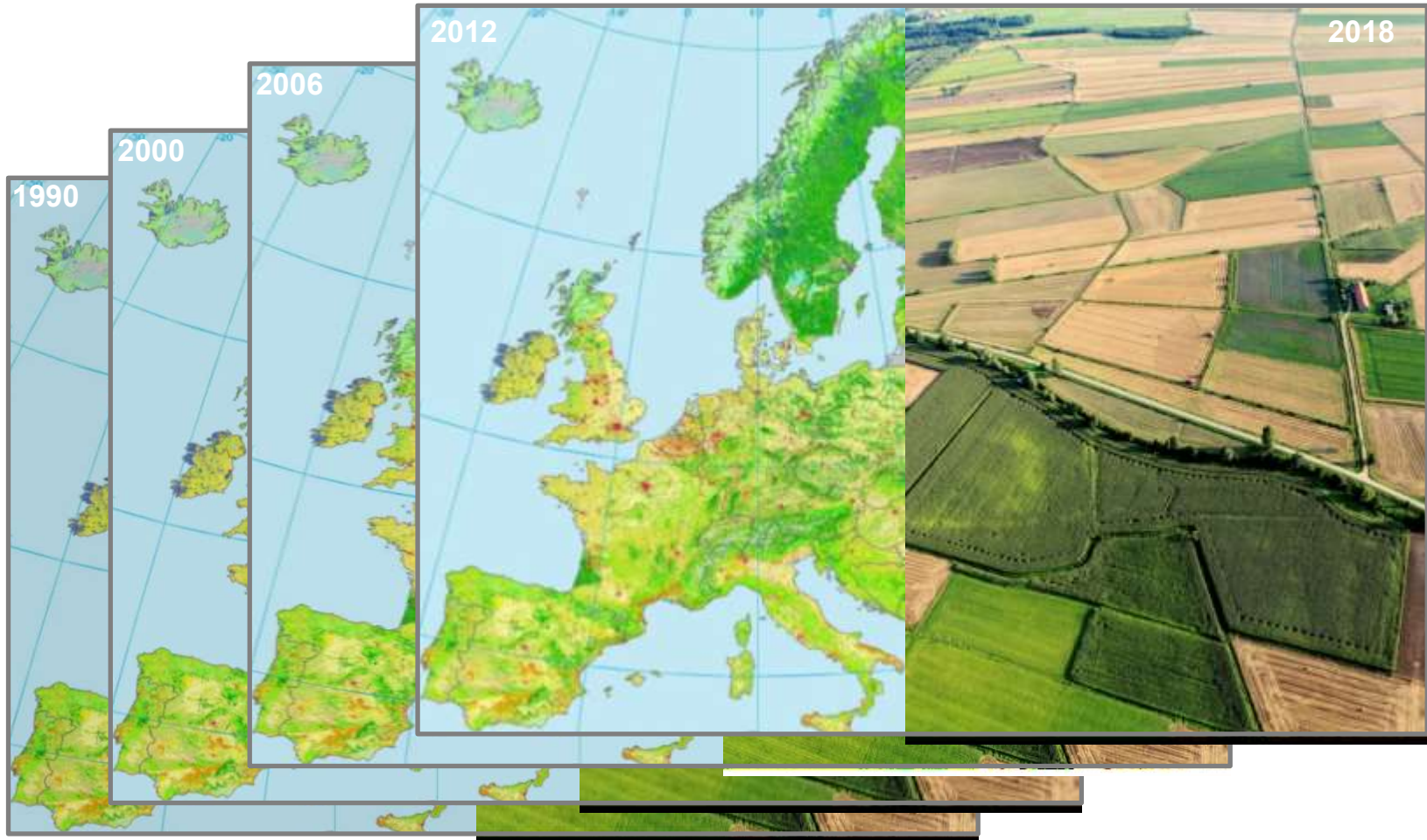
Greening the Common Agriculture Policy



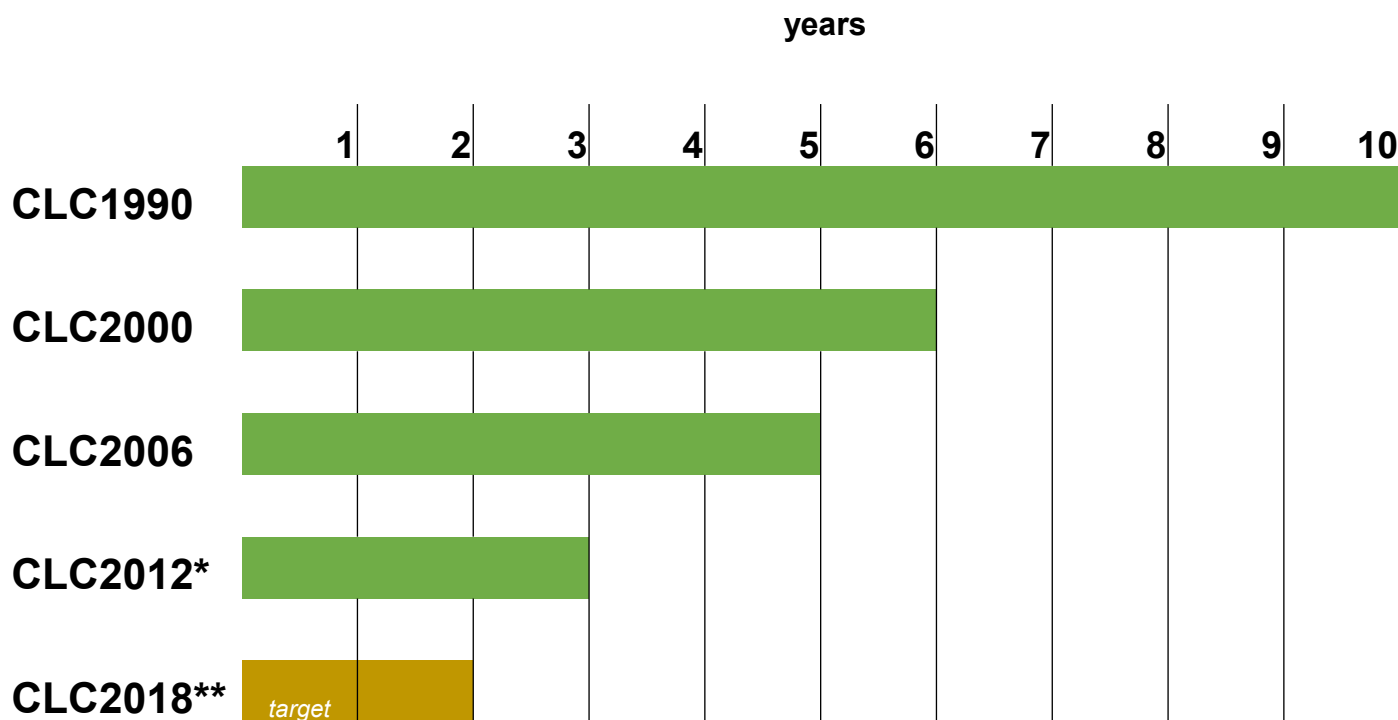
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CORINE Land Cover updates 1990-2018



Production time European coverage Corine Land Cover



*GIO – GMES Initial Operations

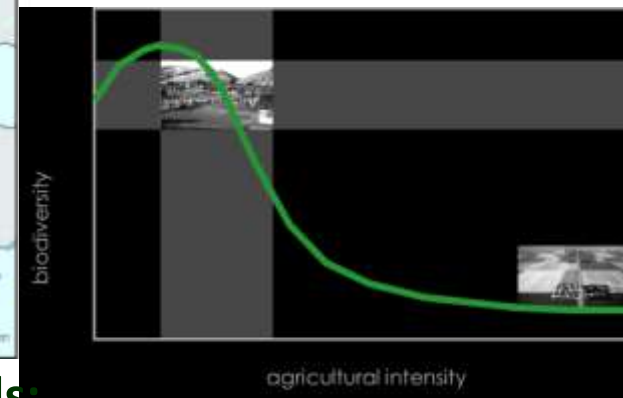
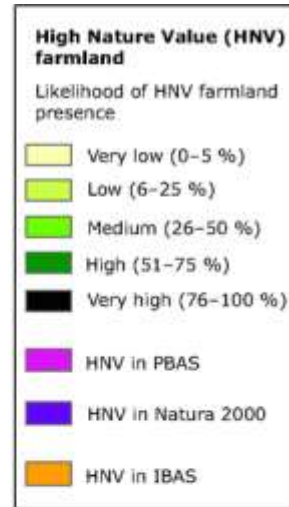
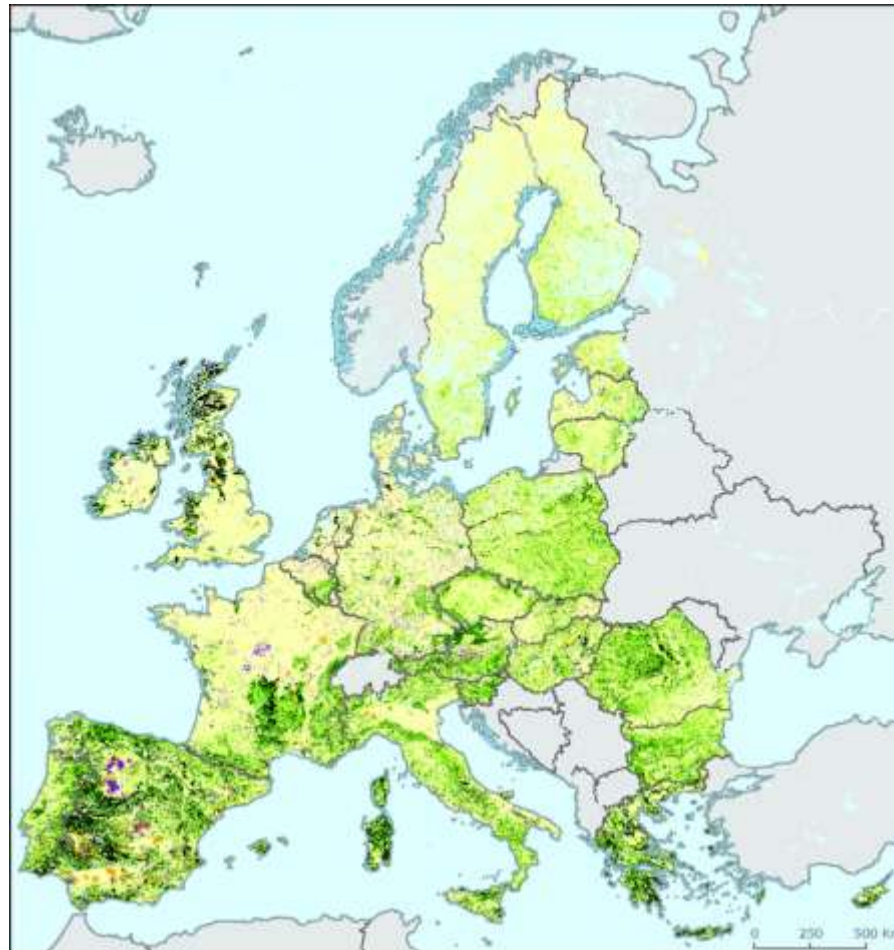
**Copernicus Land Monitoring service



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High nature value farmland

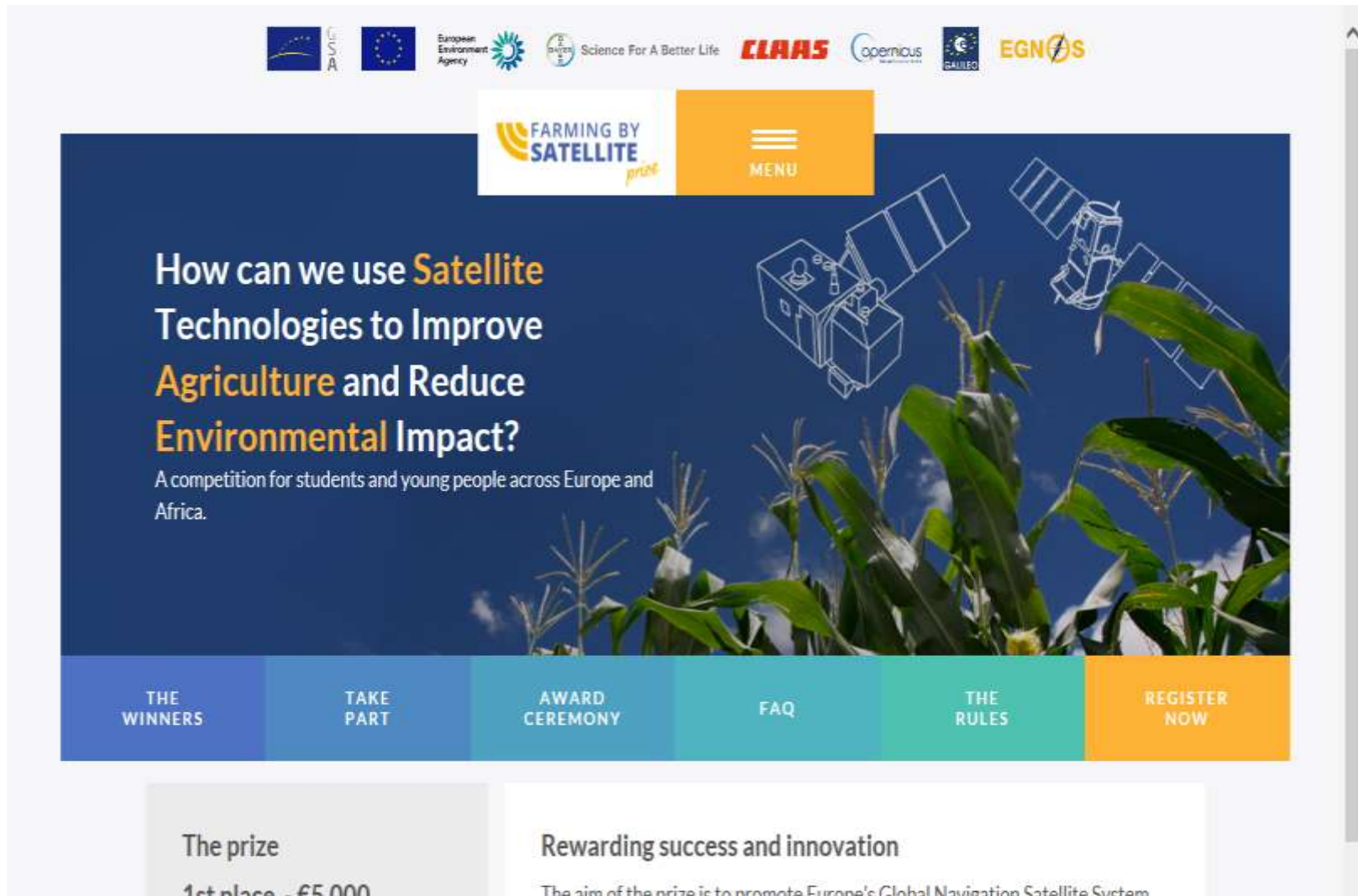


Provision of environmental public goods:

- Biodiversity value
- Landscape cultural value



Farming by satellite



ESA European Environment Agency Copernicus EGNOS

FARMING BY SATELLITE *prize*

MENU

How can we use **Satellite Technologies** to Improve **Agriculture** and Reduce **Environmental Impact**?

A competition for students and young people across Europe and Africa.

THE WINNERS TAKE PART AWARD CEREMONY FAQ THE RULES REGISTER NOW

The prize
1st place - €5,000

Rewarding success and innovation
The aim of the prize is to promote Europe's Global Navigation Satellite System



<http://www.farmingbysatellite.eu/>

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Looking ahead



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1. Protecting, conserving and enhancing natural capital

✓ Copernicus current and potential contributions

	5–10 year past trends	20+ years outlook	Progress to policy targets
✓ Terrestrial and freshwater biodiversity			☐
✓ Land use and soil functions			No target
✓ Ecological status of freshwater bodies			☒
✓ Water quality and nutrient loading			☐
? Air pollution and its ecosystem impacts			☐
? Marine and coastal biodiversity			☒
✓ Climate change impacts on ecosystems			No target



Improving trends dominate ■ Largely on track ☑
Trends show mixed picture ■ Partially on track ☐
Deteriorating trends dominate ■ Largely not on track ☒

Source: EEA. SOER 2015 Synthesis report.

2. Resource efficiency and the low-carbon economy

✓ Copernicus current and potential contributions

	5–10 year past trends	20+ years outlook	Progress to policy targets
✓ Material resource efficiency and material use	Yellow	Yellow	No target
? Waste management	Green	Yellow	□
✓ Greenhouse gas emissions and cc mitigation	Green	Red	✓ / ✗
✓ Energy consumption and fossil fuel use	Green	Red	✓
? Transport demand and related environ. impacts	Yellow	Red	□
✓ Industrial pollution to air, soil and water	Green	Yellow	□
✓ Water use and water quantity stress	Yellow	Yellow	✗



Improving trends dominate ■ Largely on track
Trends show mixed picture ■ Partially on track
Deteriorating trends dominate ■ Largely not on track

Source: EEA. SOER 2015 Synthesis report.

3. Safeguarding from environmental risks to health

✓ Copernicus current and potential contributions

	5–10 year past trends	20+ years outlook	Progress to policy targets
✓ Water pollution and related environmental health risks	Green	Yellow	✓ / □
✓ Air pollution and related environmental health risks	Yellow	Yellow	□
? Noise pollution (especially in urban areas)	Yellow	n.a.	□
✓ Urban systems and grey infrastructure	Yellow	Yellow	No target
✓ Climate change and related environmental health risks	Red	Red	No target
? Chemicals and related environmental health risks	Red	Yellow	□ / ✗



Improving trends dominate ■ Largely on track
Trends show mixed picture ■ Partially on track
Deteriorating trends dominate ■ Largely not on track

Source: EEA. SOER 2015 Synthesis report.

Looking ahead



SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD



Thank you for your attention

chris.steenmans@eea.europa.eu

