

La observación remota  
aplicada al seguimiento  
territorial de los ecosistemas

EL PROGRAMA COPERNICUS

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European  
Commission



Copernicus  
Europe's eyes on Earth

European Environment Agency



# Copernicus 2.0

## New EU Space Regulation

1. It emphasizes the necessity of continuing and improving Copernicus as well as preparing the new generations of services
2. It focuses on the importance of strengthening the *“integration of space data and services into other policy areas and economic sectors through increased focus on user uptake”*.

## Budget MFF 2021-2027

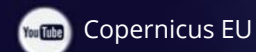
14.8 billion € for the EU Space Program 2021-2027

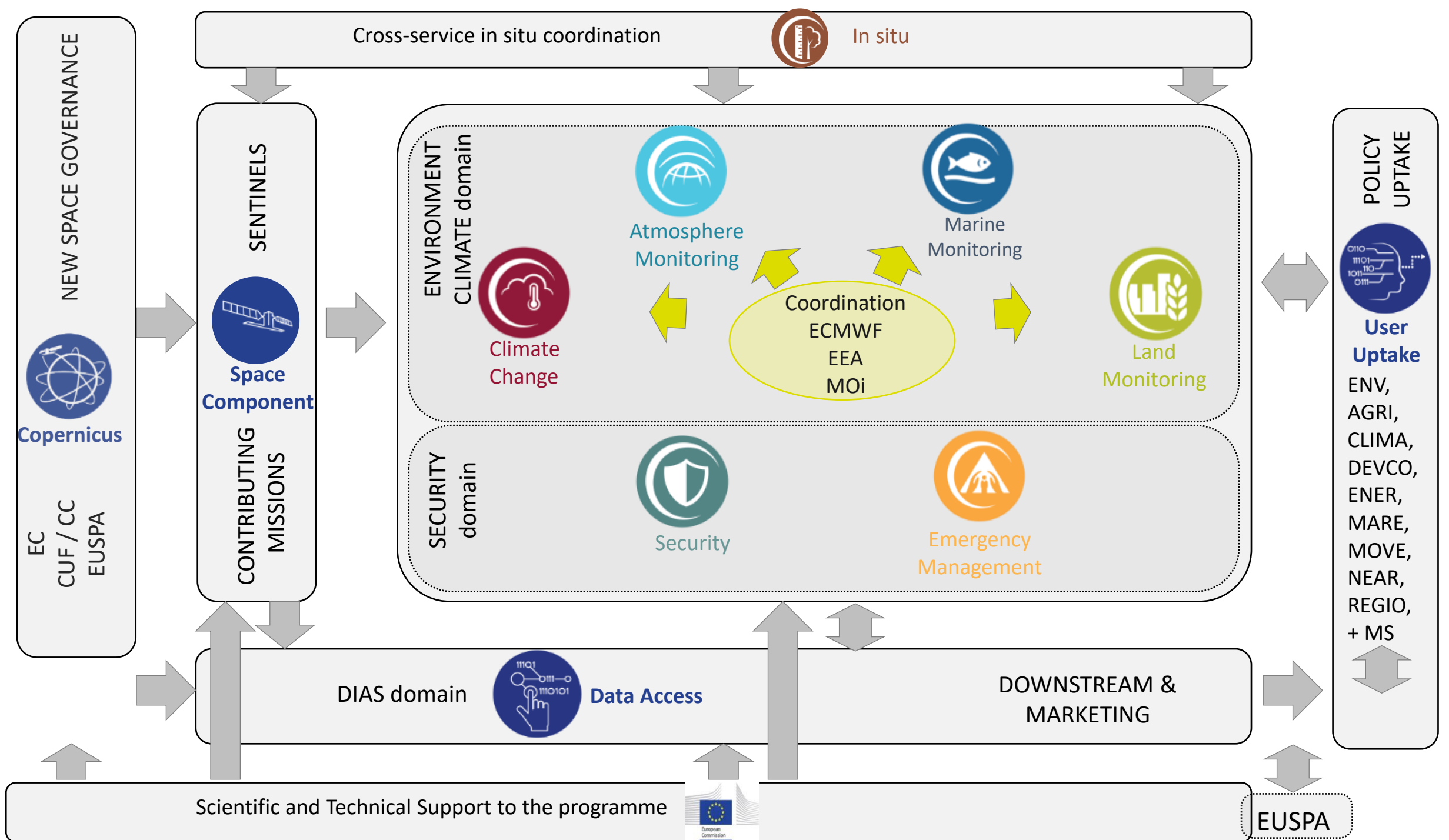
4.81 billion € for Copernicus

## Contribution Agreement EEA EC

135 million €

Space

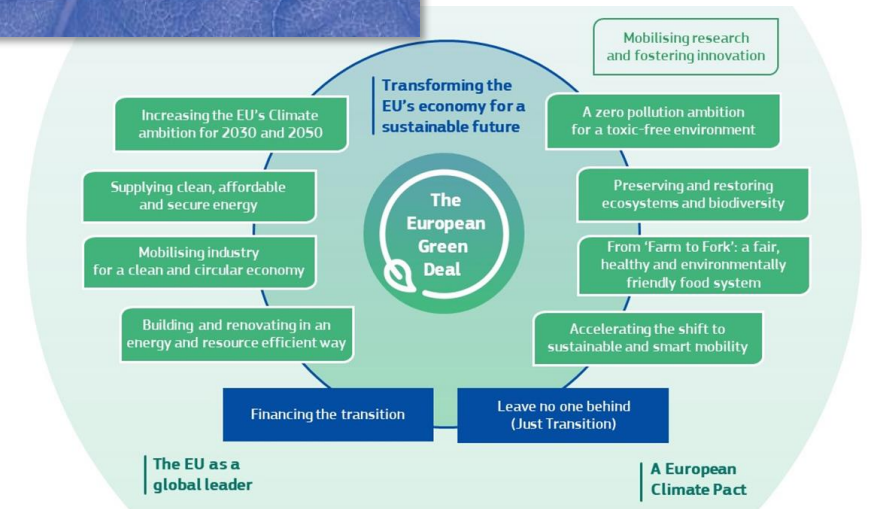




# Transforming the Green Deal into action



- First **climate-neutral** continent
- **Biodiversity** Strategy 2030
- New **Circular Economy** Action Plan
- **Zero pollution** strategy
- **Farm to fork** strategy
- **Just transition**
- **Sustainable European Investment Plan**
- Future ready economy – new **industrial strategy**



# Copernicus: a critical tool for monitoring Green Deal

European Green Deal Priority	EEA-EIONET Monitoring & Reporting	Use of Copernicus key core service
Protect, conserve and enhance EU's natural capital	Natura2000, MAES, Forests, Marine MFSD, land degradation	<b>CLMS</b> <b>CMEMS</b>
Protect health and well-being of citizens from environment-related risks	Air emissions, Water emissions, Urban <u>Waste Water</u> , Water quality	<b>CAMS</b> <b>CLMS</b>
No net emissions greenhouse gasses in 2050	Land Use, Land Use Change and Forestry, GHG emission reporting	<b>CLMS</b> <b>C3S</b>
Designing a fair, healthy and environmentally-friendly food system	Sustainability assessments	<b>CLMS</b> <b>C3S</b>
Environmental and climate legislation enforcement	Evaluation of MS reporting under directives (GHG inventories, NECD, WFD, MSFD, etc)	<b>CEMS, CLMS,</b> <b>CAMS, CMEMS,</b> <b>C3S</b>
A sustainable blue economy (incl. <u>decarbonisation</u> , maritime spatial <u>planning</u> , etc)	Marine renewable energy Integrated coastal zone management	<b>CMEMS</b> <b>CLMS</b>





# Biodiversity Strategy 2030

# Elements of the EU Biodiversity Strategy



**Protect Nature**



**Enable  
Transformative  
Change**



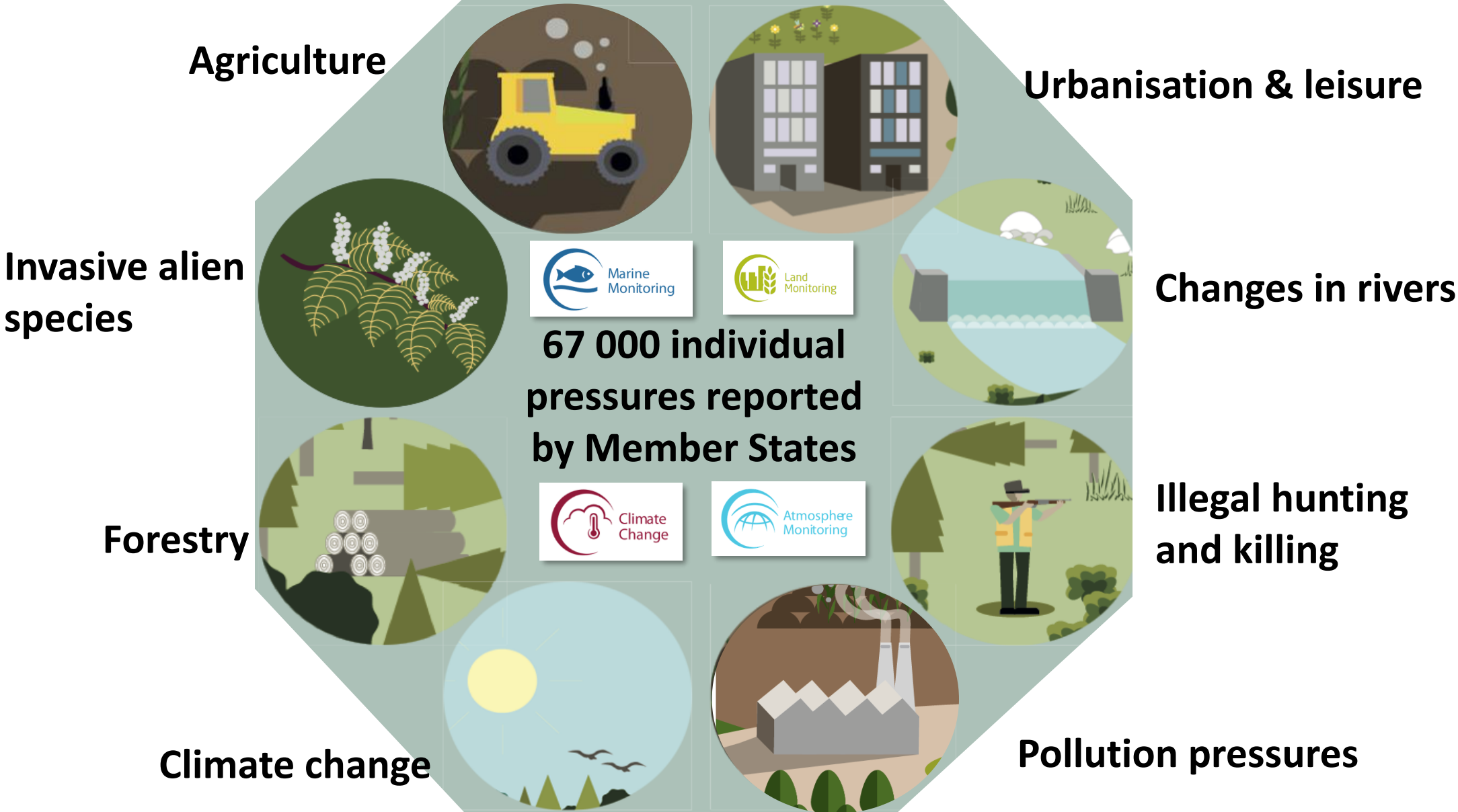
**Restore  
Nature**



**EU For An  
Ambitious Global  
Agenda**



# Monitoring Pressures-State-Impact on Biodiversity

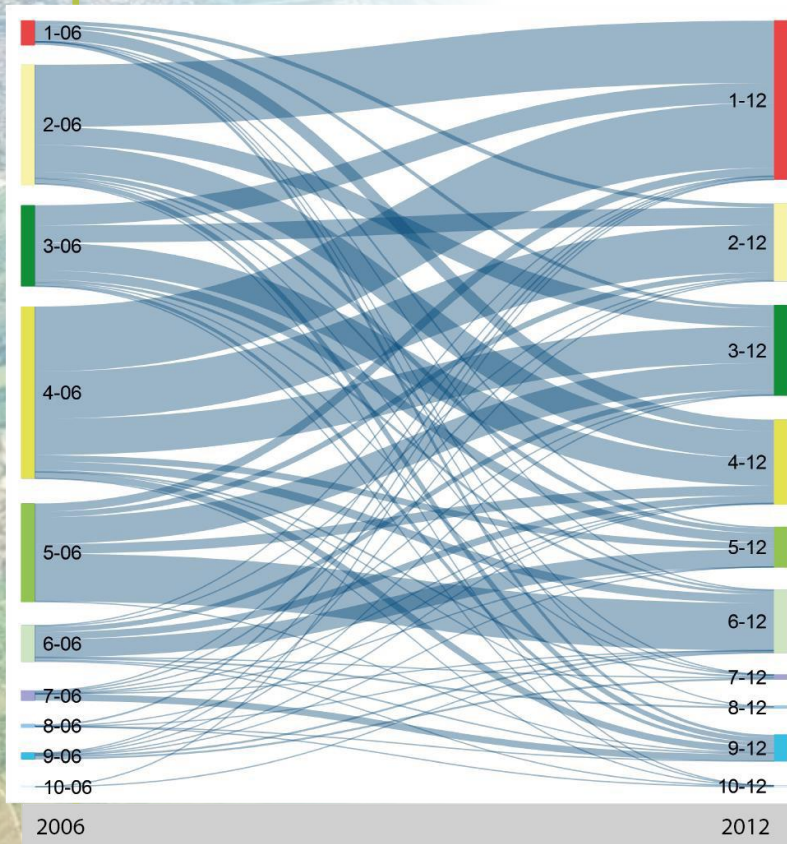
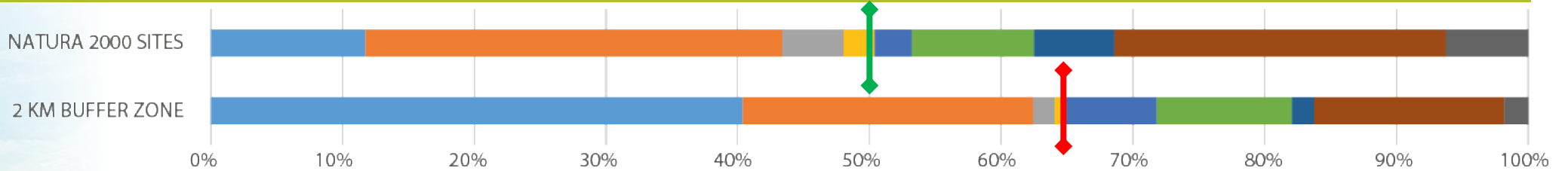






Land Monitoring

# CLMS land use changes in and around Natura2000 sites



- 1 Urban
  - 2 Cropland
  - 3 Woodland and Forest
  - 4 Grassland
  - 5 Heathland and scrub
  - 6 Sparsely vegetated land
  - 7 Wetland
  - 8 Lagoons, coastal wetlands and estuaries
  - 9 Rivers and lakes
  - 10 Sea and ocean
- CLASSES

- URBANISATION
  - AGRICULTURAL INTENSIFICATION
  - DEFORESTATION
  - DRAINAGE
  - DE-URBANISATION
  - AGRICULTURAL EXTENSIFICATION
  - AGRICULTURAL LAND ABANDONMENT
  - AFFORESTATION
  - HYDROLOGICAL RESTORATION
- NEGATIVE LCCGs
- POSITIVE LCCGs

POSITIVE AND NEGATIVE LAND COVER CHANGE GROUPS	AREA (HA)		
	overall	Natura 2000 sites	2 km buffer zone
Urbanisation	89085.96	7968.85	81117.11
Agricultural Intensification	65751.21	21461.33	44289.88
Deforestation	6444.14	3159.65	3284.49
Drainage	2771.71	1599.32	1172.39
De-urbanisation	16326.05	1908.50	14417.55
Agricultural Extensification	26933.26	6300.97	20632.28
Agricultural Land Abandonment	7513.06	4141.16	3371.90
Afforestation	46019.41	17061.88	28957.52
Hydrological Restoration	7855.69	4230.38	3625.31



Land  
Monitoring

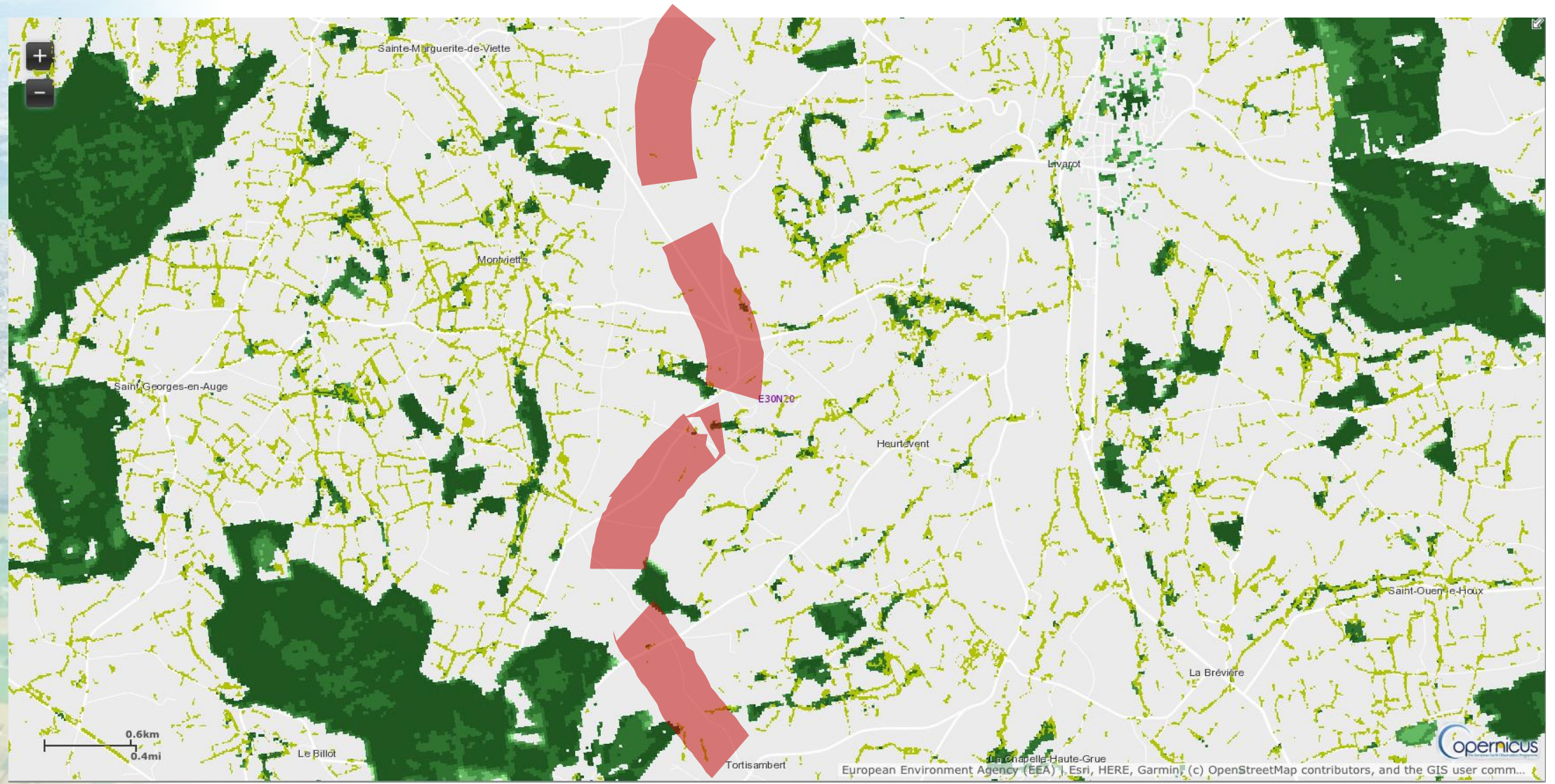
# HRL Small Woody Features for agro-environmental status





Land  
Monitoring

# HRLs for monitoring ecological corridors



## Forest Strategy – complementary actions

### Monitoring and Strategic plans



COM to put forward a legislative proposal on **EU Forest Observation, Reporting and Data Collection**, to ensure coordinated EU forest monitoring, data collection and reporting.

By Q1 2023: Member State competent authorities to prepare **Strategic Plans for Forests** (inc. forest based sector)



**Strengthen the existing monitoring** of climate effects and other natural or human induced disturbances on forests

→ On the basis of: improved Copernicus products, other remote-sensing data and ground-based monitoring

### FISE



Prepare and publish regular reports and lay summaries on the forests in the EU

→ With the support of a broader European forest science partnership.

### EU reporting



Through its Joint Research Centre, develop a **European forest science partnership**,

→ with a view to support the development of **new indicators based on remote sensing and the latest research results**

### Partnership



# Monitoring LULUCF: the key to policy implementation

## Monitoring system

### Upgrading monitoring to be *Fit for 55*

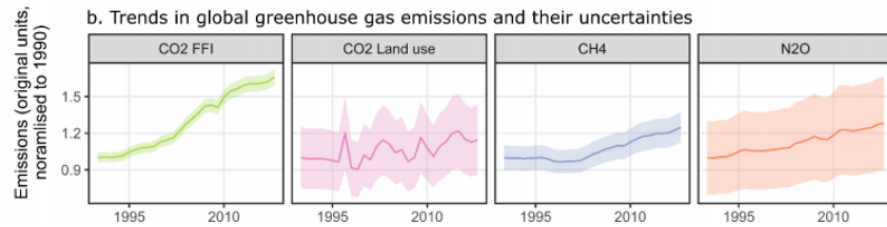
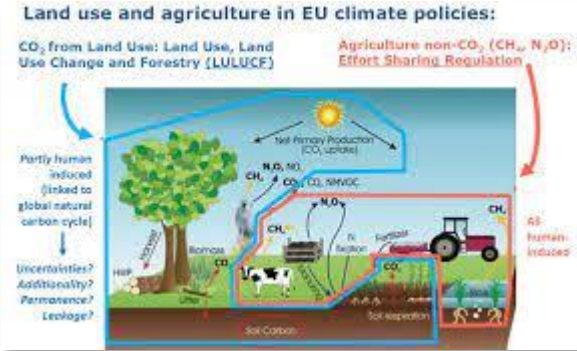
- Take advantage of digital tools - (re)use of **geographical data and remote sensing to standardize and reduce monitoring costs**
- **Synergise and re-use** monitoring of highly biodiverse and carbon rich areas, protected areas, adaptation risk zones, etc.

### Geographical monitoring scope

- From 2021, **monitoring already “geographically explicit”**
- From 2026, monitoring scope **in the proposal**:
  - includes **all** land reporting categories
  - **emission factors** upgraded (tiers)
  - compliance cycle based upon **reported** (not accounted) estimates, from greenhouse gas inventory



# Monitoring, Reporting and Verification of GHG emissions and removals



Agriculture, Forestry and Land Use (AFOLU) management choices and practices

GHG emission trends as result of land management



Copernicus Atmospheric Monitoring Service (and other projects)

GHG emission verification using in-situ and satellite-based data



Atmosphere Monitoring



In Situ



Land Monitoring

Copernicus Land Monitoring Service (and other projects)

land use and land use change data (input to MS, MRV process)

Other geospatial datasets

Data on carbon pools and their stock changes (input to MS, MRV process)

EU inventory QA/QC program

Quality control and review of MS GHG inventory (EEA, JRC, Eurostat)



# BUILDING A CLIMATE-RESILIENT EUROPE

## A new EU Strategy on Adaptation to Climate Change



#EUGreenDeal



#EUGreenDeal



#EUGreenDeal

- Smarter adaptation
- More systemic adaptation
- Faster adaptation
- International action



# From climate data to actionable knowledge on adaptation

The platform is developed according to users and providers' needs

***User and Policy driven***

- **New EU Adaptation Strategy**
- **EEA Member countries' needs**
- **Regional, Local, Urban**

**Policy  
&  
implementation**



## **Policy information**

Regular reporting under the EU Governance Regulation  
EU Policies

## **Copernicus services**

(e.g., C3S, CLMS, CMEMS)

**Regular update  
of data, indicators,  
policy information**

## **Evidence base/ Knowledges**

Cause-Effect-chains  
Adaptation Interventions

## **Science & Development**

EU Digital Agenda, DestinE & Digital Twin, EU Green Deal Agenda  
EU R&I projects





# Climate-ADAPT key tools: health observatory & climate data explorer



About ▾ Policy context ▾ Evidence on climate and health ▾ Resource catalogue ▾ Publications and outreach ▾

## European Climate and Health Observatory

We provide easy access to a wide range of relevant publications, tools, websites and other resources related to climate change and health.



## European Climate Data Explorer

Help Overview list of all indices



Health



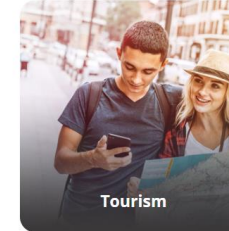
Agriculture



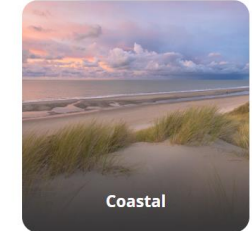
Forestry



Energy



Tourism



Coastal



European Climate Data Explorer

## Urban Adaptation Map Viewer



About Heat River flooding Coastal flooding Pluvial flooding Water scarcity Wildfires Vector-borne diseases

### Urban adaptation planning and actions

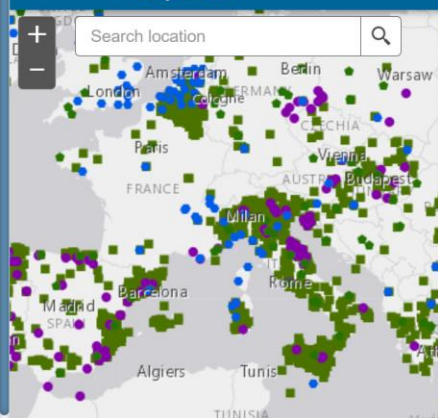
Despite the multiple challenges associated with climate change, cities are not powerless and can respond actively to the risks they are facing. In Europe, many cities already have developed adaptation action plans.

### What is the adaptation status of European cities?

Over 900 cities, towns and villages across Europe have committed to adaptation through joining Covenant of Mayors for Climate and Energy. Many others are participating in other networks and initiatives (e.g. 100 Resilient Cities, C40 cities or Making Cities Resilient), which provide them with knowledge, opportunities to exchange



### Adaptation

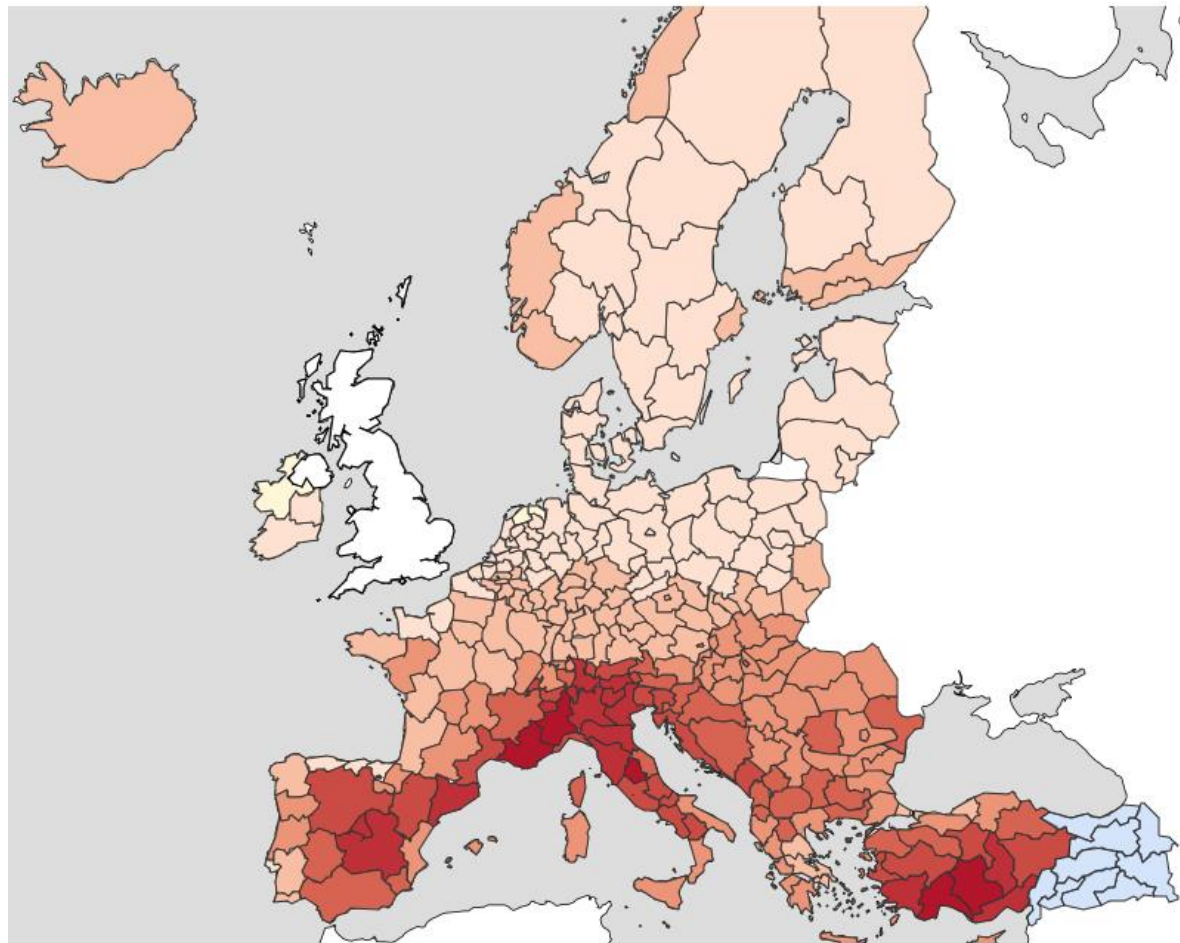


### Layer List

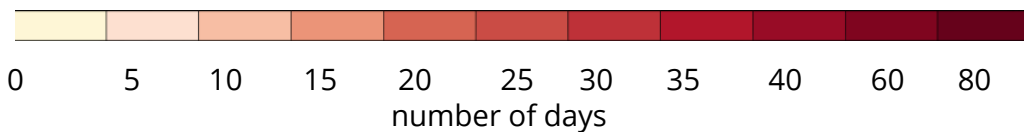
- Countries
- Cities participating in EU-funded projects on adaptation
- City adaptation initiatives (2019)



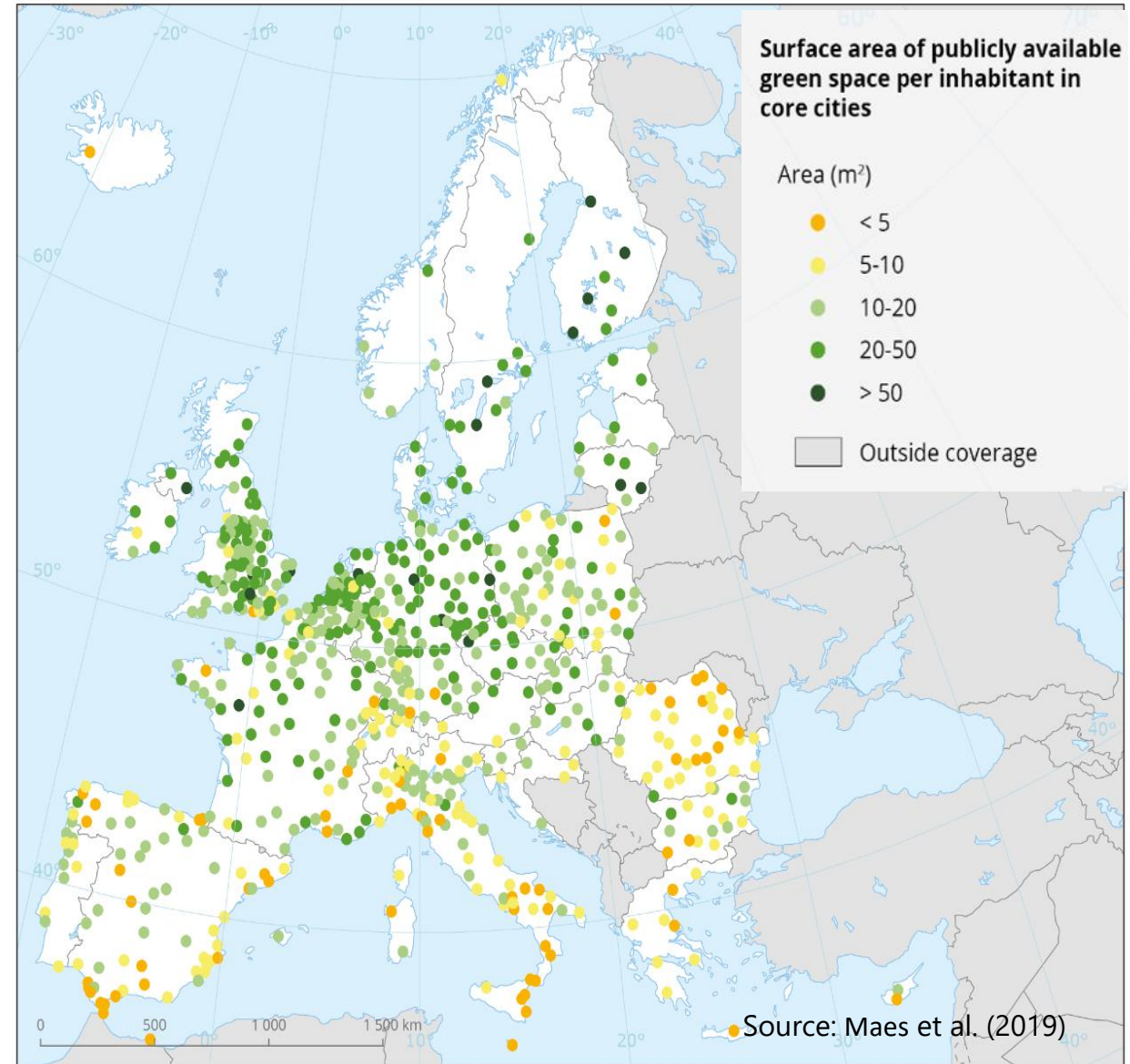
# Supporting implementation: changing the way we build our cities



Projected heat waves (2070-2099)



Source: <https://climate-adapt.eea.europa.eu/knowledge/european-climate-data-explorer/>



Reference data: ©ESRI

# User Uptake

## 6 objectives for the User Uptake

ENSURE A USER DRIVEN SERVICE

FOSTER A POLICY-ORIENTED PORTFOLIO

DEVELOP A NATIONAL UPTAKE PROGRAMME

PROMOTE COMMUNICATION AND AWARENESS RAISING

FACILITATE ACCESS TO DATA AND SERVICES

FOSTER COLLABORATION WITH OTHER EE'S AND KCEO

# User Uptake

## Use case– How can Copernicus support LULUCF reporting?

### What's planned:

- Support and accompany the development of a EU27-wide LULUCF instance (based on CLC+)
- Review of strengths and limitations of a LULUCF instance
- Involvement of country experts

### Challenges:

- National differences in LULUCF implementation vs. European generic instance
- Land cover vs. land use

## Use case– How can Copernicus support agricultural policy?

### What's planned:

- Identification of main actors in the priority user communities and the level of penetration of CLMS products.
- Identification of needs, main gaps and barriers.
- Tailored trainings for countries (Paying Agencies) about the use of Copernicus products

### Challenges:

- Finding the “good entry door”: landscape features, AEI
- Changing the “behaviour”



# COPERNICUS DATA AND APPLICATIONS



## A key instrument for continuous environmental monitoring



COPERNICUS SENTINEL SATELLITES

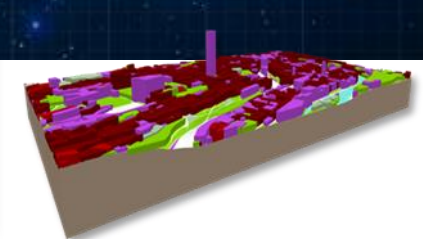
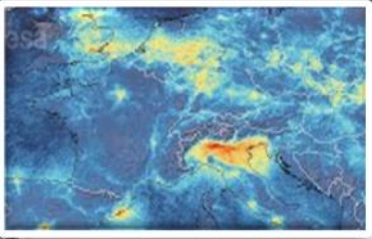
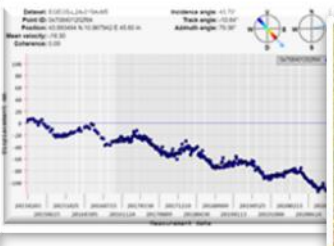
SENSORS PLACED ON SEAS, LAND OR IN THE AIR

DATA AND INFORMATION ON THE STATE OF OUR PLANET

NUMEROUS APPLICATIONS

RESEARCHERS AND END USERS ACCESS AND ANALYSE THE DATA

INFORMATION ON PAST, PRESENT AND FUTURE TRENDS



European Commission



Copernicus Europe's eyes on Earth

European Environment Agency





# Thank you



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