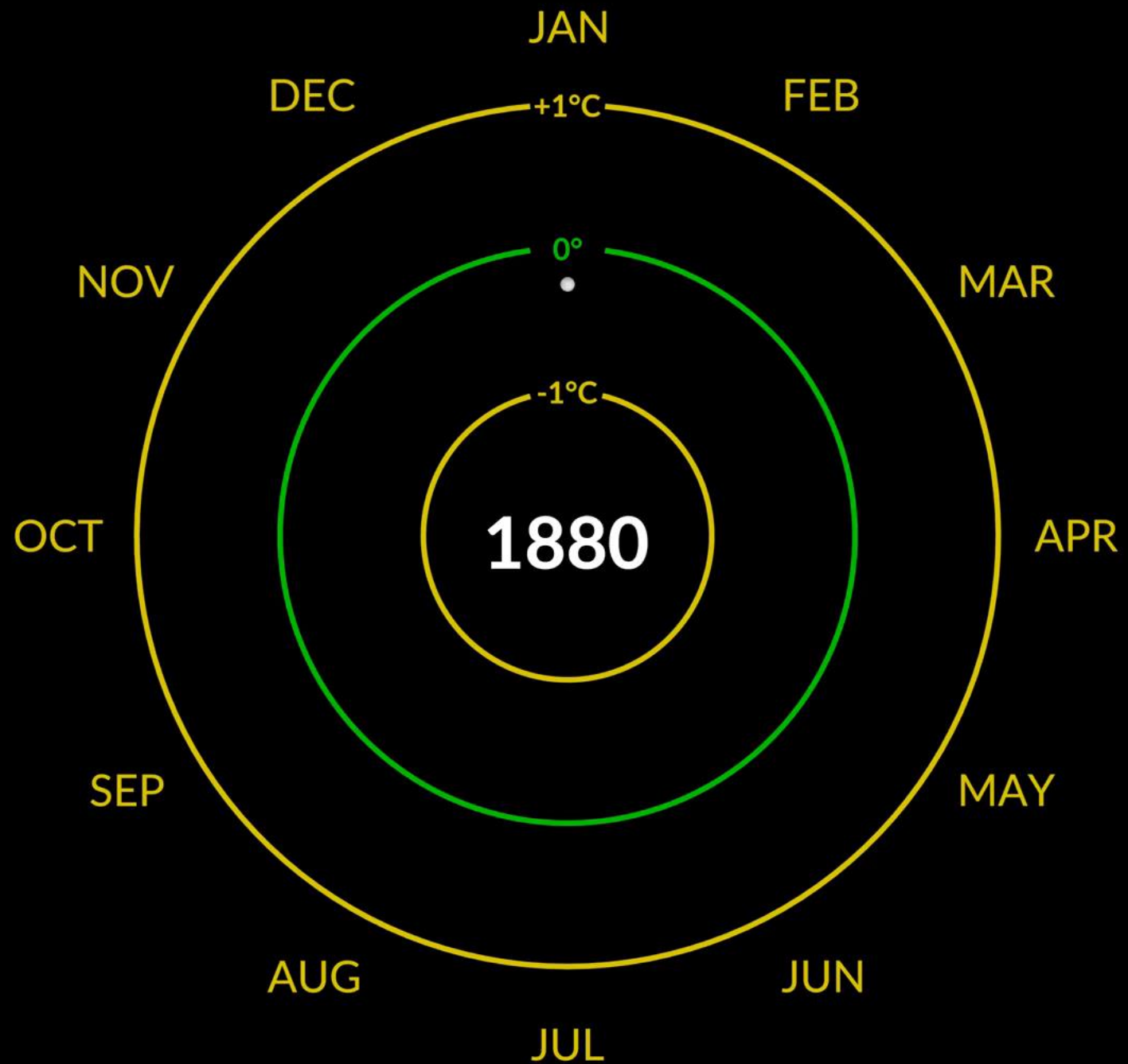




# Key European challenge: Climate Change

*Dušan Chrenek, Principal Adviser  
Digital for Green Transition  
Directorate General for Climate Action*



# What happens if we do not act?

Without action on climate change (i.e., 3°C warming by 2100)  
the EU will see, already **within your lifetime**:

## Heat & drought

**90,000 annual deaths** due to heatwaves.

## Water scarcity

**€65 million people** living in areas with water resources under stress.

## Flooding

Nearly **€50 billion/year** in economic losses due to **increased flooding frequency & severity**.

## Wildfires

**24% increase** of number of people exposed to **high-to-extreme fire danger levels**.

## Economics

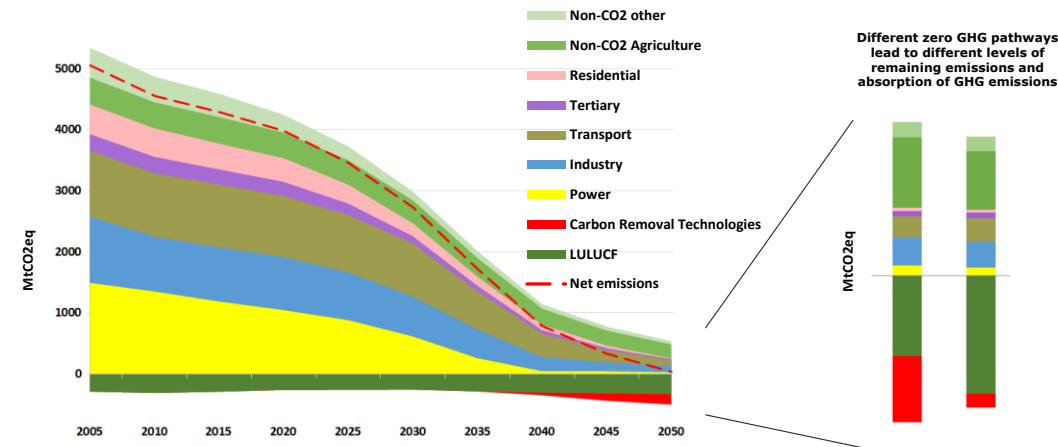
Annual **welfare loss** of at least **€175 billion**.

## Migration

**Hundreds of millions** of people could be displaced due to climate change by 2050.

# Our vision for a clean planet by 2050

- Commission vision for EU long-term strategy: **climate-neutral EU by 2050** (net zero GHG emissions)
- **Radical transformations necessary:** energy system, buildings, transport, industry, agriculture
- A number of pathways – **challenging but feasible** from technological, economic, environmental and social perspective



# What is the EU doing to achieve **climate neutrality**?

The **European Climate Law** sets binding targets for the EU to **reduce net GHG emissions by at least 55% by 2030** compared to 1990 levels and reach **net zero emissions by 2050**.

So far, the EU has achieved steady decreases in emissions since 1990, reaching **-37% by 2023**.





# Fit for 55 legislation

New policies to achieve GHG reductions at least 55% by 2030:

- **Energy:** Fit for 55 mandates a 42.5% share in renewables and an 11.7% improvement in energy efficiency by 2030
- **ETS2 and SCF:** Emissions trading system will expand to buildings, road transport and the revenues will be used to support vulnerable households
- **Zero-emission cars:** By 2035, all new cars and vans must be zero-emission, and Member States will roll out charging infrastructure
- **NECPs:** Updates to MS National Energy and Climate Plans, aligning them with new targets for reductions, energy efficiency, and renewable energy
- And much more...

# Towards a **new Commission** 2024-2029



# President Ursula von der Leyen Political Guidelines for the upcoming mandate include:

- A new **Clean Industrial Deal** to decarbonise and bring down energy prices
- A **90% emission reduction target** for 2040 in the European Climate Law
- A **European Climate Adaptation Plan** to support EU countries on climate resilience and preparedness
- **Implementing** the existing legal framework for 2030



# A European **Climate Adaptation Plan**

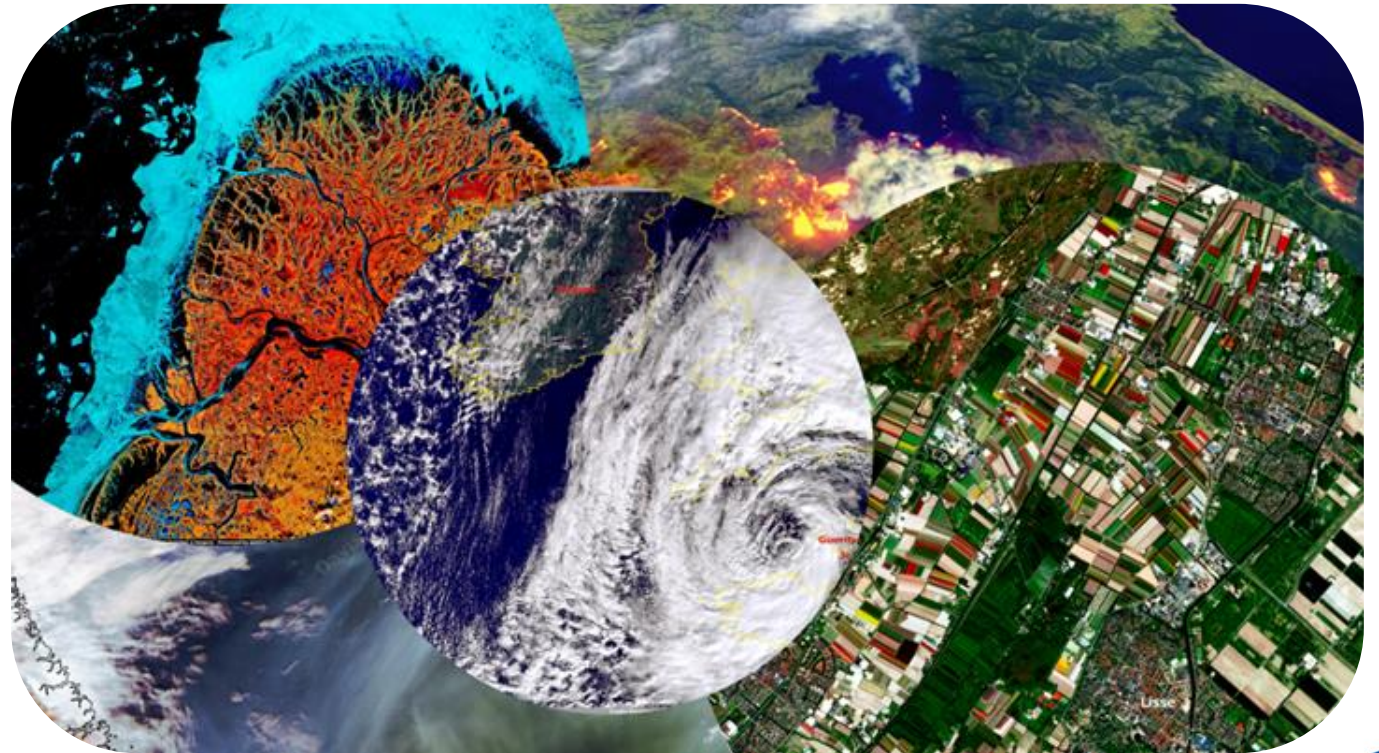
- Europe is warming faster than the global average, requiring enhanced climate resilience
- **A European Climate Adaptation Plan**, foreseen for 2026
- Assessing risks and preparedness in critical areas like energy, water, and infrastructure
- **A European Water Resilience Strategy** to combat water scarcity and water stress

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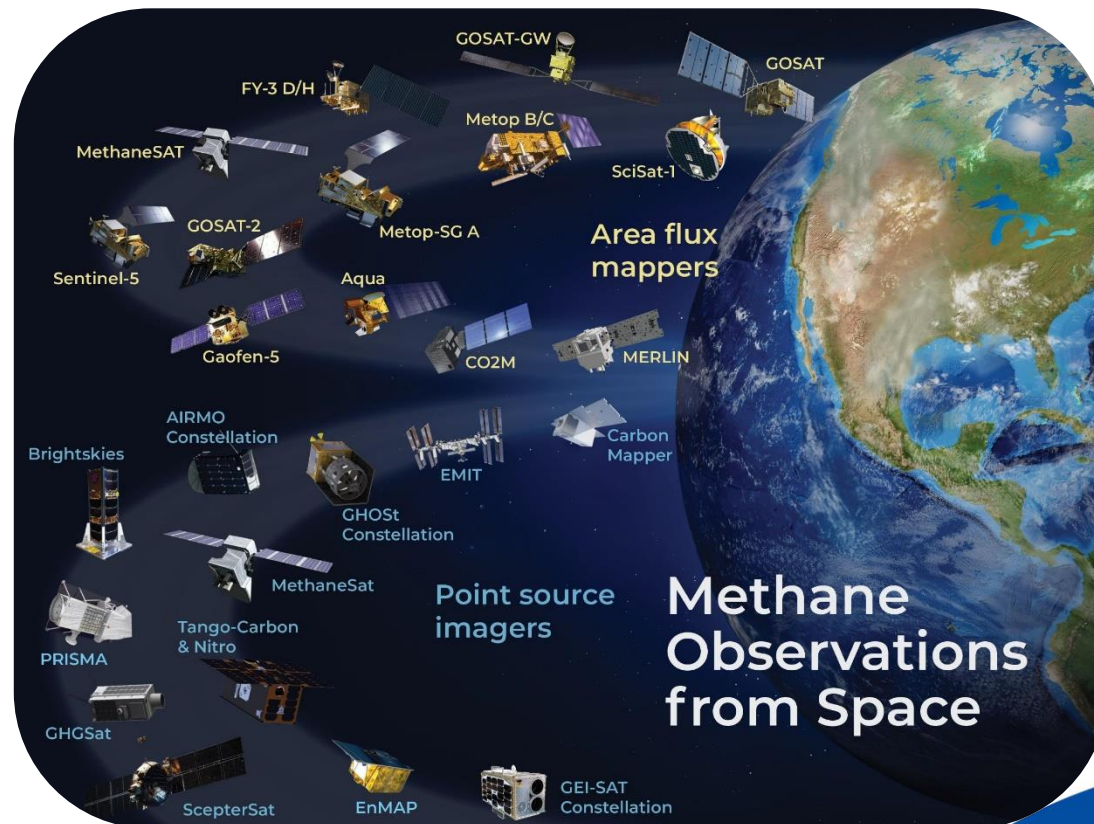
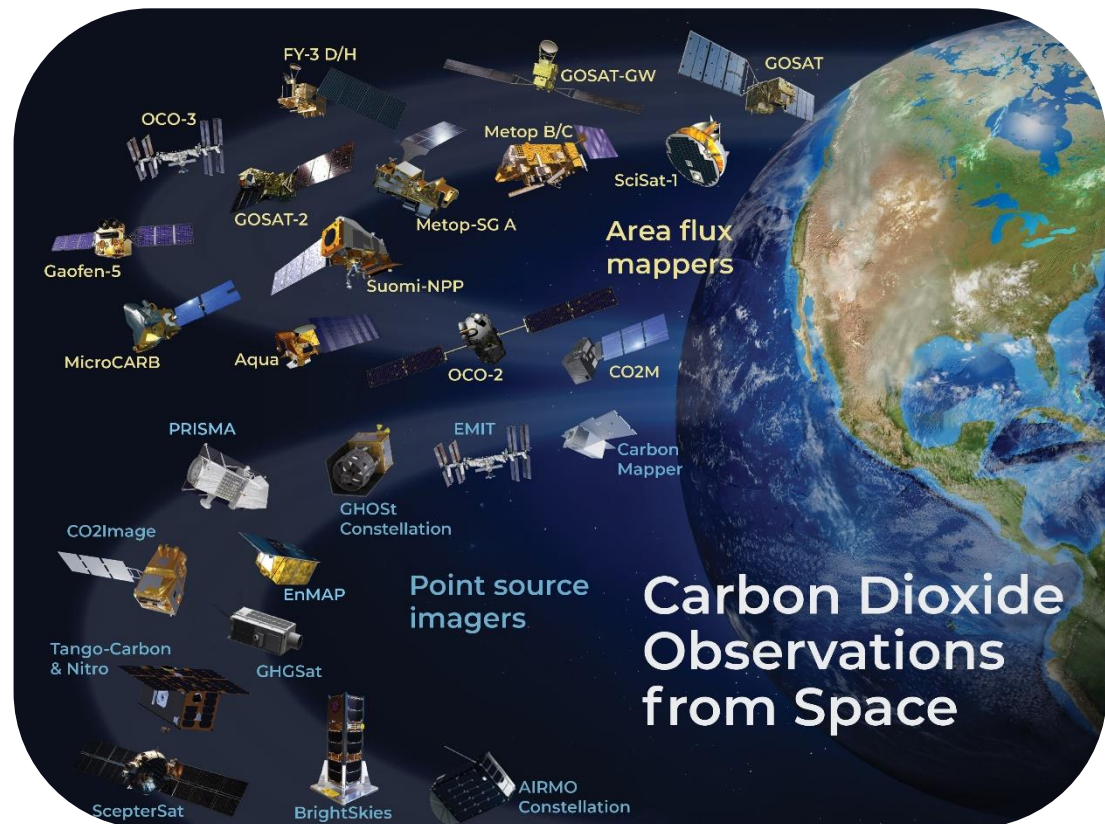
# Geospatial data in the European Commission

# Copernicus Services

- Land
- Atmosphere
- Marine Environment
- Emergency Management
- Atmosphere
- **Climate Change**
- Security

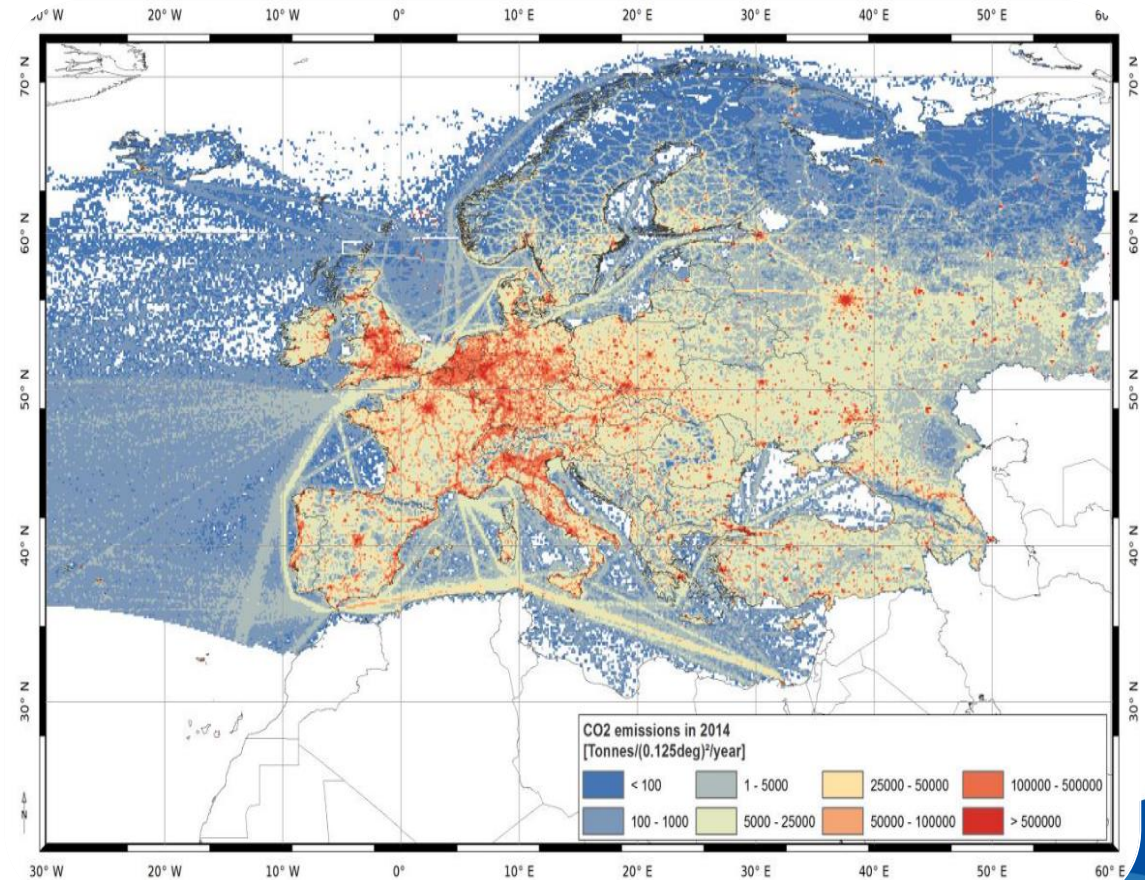


# Examples of the usage of Satellite data (GHG measurement)



# Sentinel Expansion Missions: CO2M

- Europe's first operational CO<sub>2</sub> mission
- Analyse man-made CO<sub>2</sub> emissions and overall CO<sub>2</sub> budget
- At country and regional/megacity scales
- Support Paris Agreement implementation and global stocktake assess the effectiveness of CO<sub>2</sub> reduction strategies



# Destination Earth (DestinE) project



## Destination Earth

- A Highly Accurate **Digital Model of the Earth**
- Funding under the **Digital Europe Programme** with Important R&I activities under **Horizon Europe**
- **AI for weather forecasting**, enhanced interactivity, uncertainty quantification and better scenario making. Development of **Earth system foundation models**
- **Partnership with ESA** (Core Service Platform), **ECMWF** (Digital Twins) and **EUMETSAT** (Data Lake)



**Thank you!**

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