

# ESA updates since CGMS-53 and report on the medium to long-term plans for Earth observation

Coordination Group for Meteorological Satellites 54<sup>th</sup> Plenary meeting

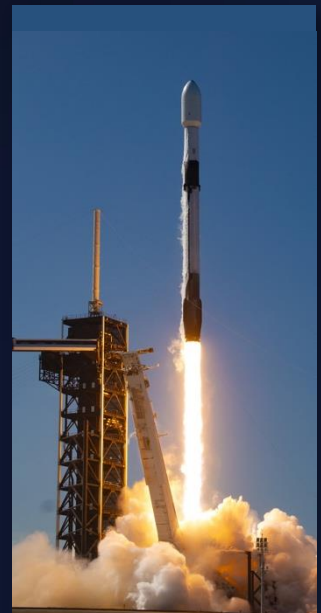
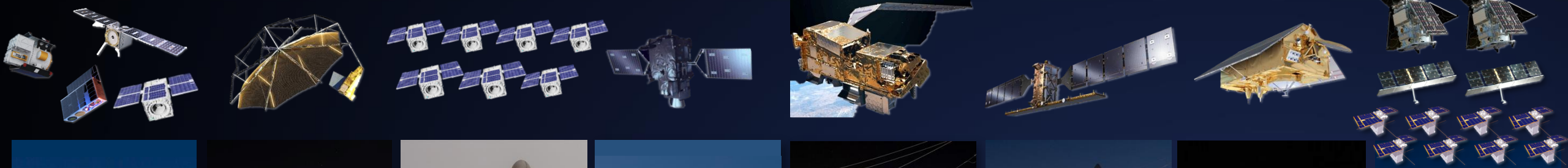
2-4 June 2026

**Marie-Claire Greening**

*Programme Coordinator*

*Directorate of Earth Observation Programmes, ESA*

# 2025 - A Year of Successful Launches



**AIX, Hive, Forest-3**  
*(InCubed supported)*  
**+ HEO Pathfinder**  
*(Iride precursor)*  
**15 January**

**Biomass**  
**29 April**

**7 HEO**  
*(IRIDE first constellation)*  
**23 June**

**MTG-S1**  
**incl. Sentinel-4**  
**1 July**

**MetOp-SG A1**  
**incl. Sentinel-5**  
**12 August**

**Sentinel-1D**  
**4 November**

**Sentinel-6B**  
**17 November**

**2 HydroGNSS**  
*(Scout)*  
**+ 8 Eaglet (IRIDE)**  
**+ 2 Iceye (GR nat. pr.)**  
**+ IPERLITE (BELSPO)**  
**28 November**

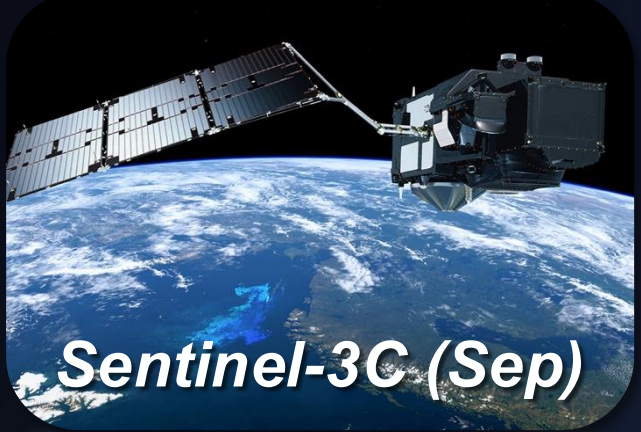


# Planned Launches in 2026



**4 Satellites – Three launches**  
(S-3C and FLEX dual launch)

**+ 44 satellites for National missions**



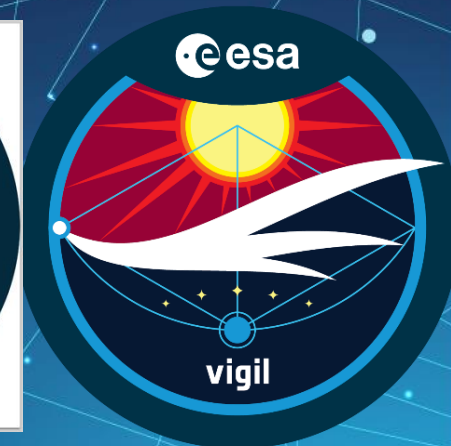
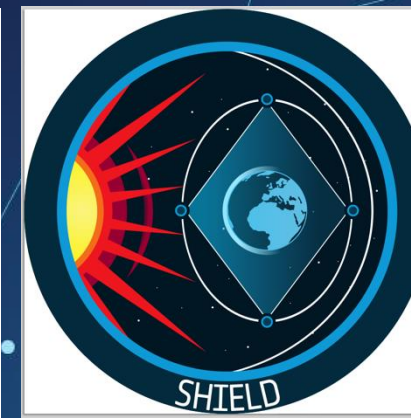
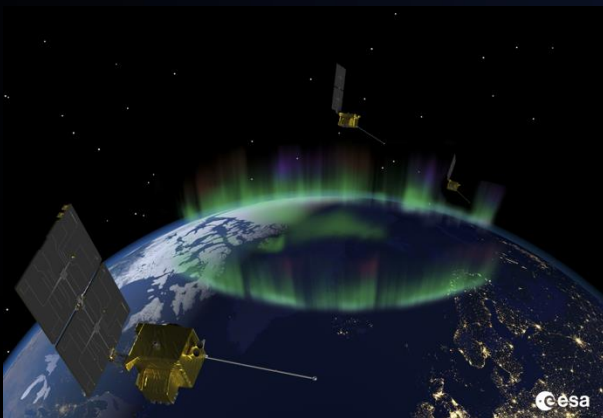
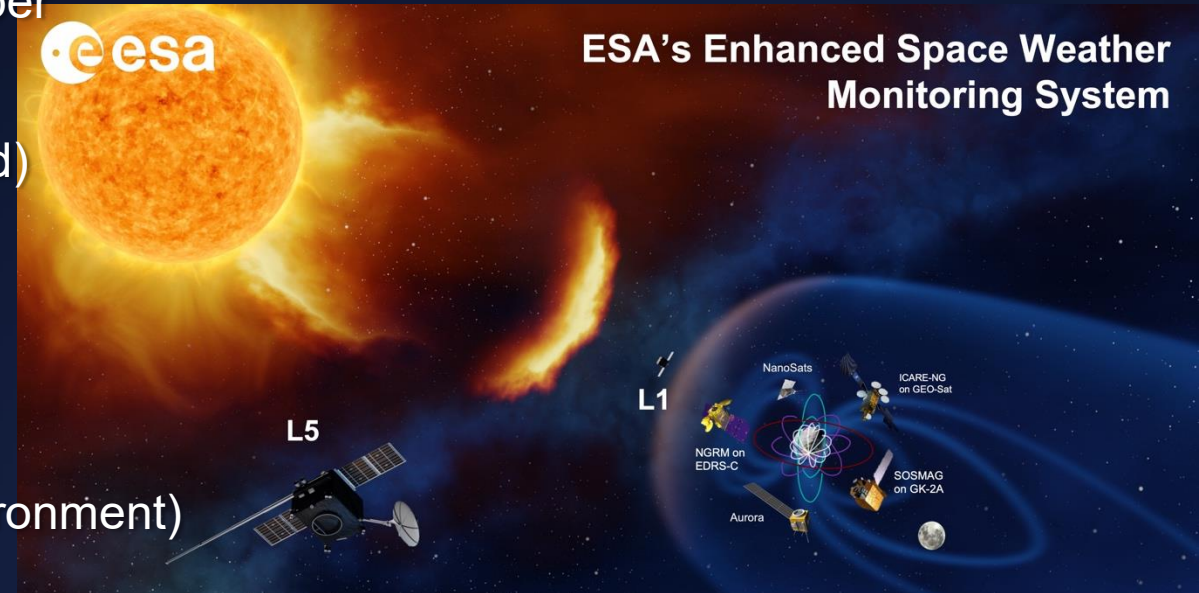
**IRIDE (Italy)**  
33 Satellites

**GNEO (Greece)**  
11 Satellites



# ESA's Space Weather Missions

- Nanosat constellations (LEO radiation environment, upper atmosphere)
- Hosted Payloads (Radiation environment, magnetic field)
- Aurora (Auroral oval)
- SWORD (Radiation belts)
- SHIELD (Solar wind monitoring between Sun and L1)
- ERSa, MiniRMU/Lunar Pathfinder (Moon radiation environment)
- Vigil Cornerstone (Heliosphere monitoring from L5)



# Earth Explorers

## Pioneering Scientific and Technical Excellence

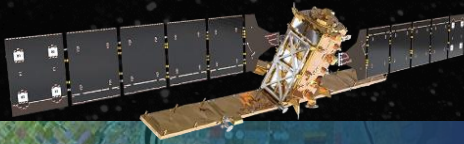
Earth Explorers are ESA-developed satellites that use cutting-edge technologies to help maintain European scientific and technological leadership. They are part of FutureEO, ESA's Earth observation R&D programme.



# The Copernicus Space Component | Sentinels



## Sentinel-1



All-weather, day-and-night radar imaging mission for land and ocean services

2014 / 2016 / 2024 ●●●●

## Sentinel-2



Multispectral high-resolution imaging mission for land monitoring

2015 / 2014 / 2024 ●●●○

## Sentinel-3



Multi-instrument mission for sea-surface topography, sea/land-surface temp. and ocean/land colour

2014 / 2018 ●●○○

- operational
- inactive
- To be launched

The largest producer of EO data in the world with full, free & open data policy\*

> 650.000

Registered Users

30 TB

of daily data production

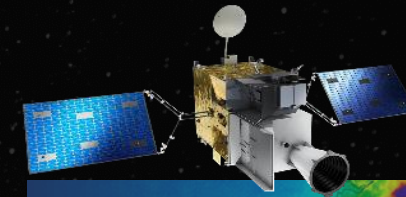
920+ PB

of products disseminated for services to society

Supporting 6 operational services



land atmosphere climate ocean disaster security



## Sentinel-4

Geostationary atmospheric monitoring

●○ 2025

## Sentinel-5/5p

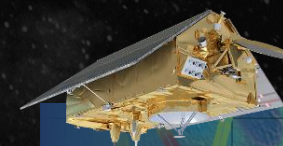


●○○ 2025

Polar orbit atmospheric monitoring

● 2017

## Sentinel-6



Altimeter for global sea-surface height

●● 2020 / 2025/



→ THE EUROPEAN SPACE AGENCY

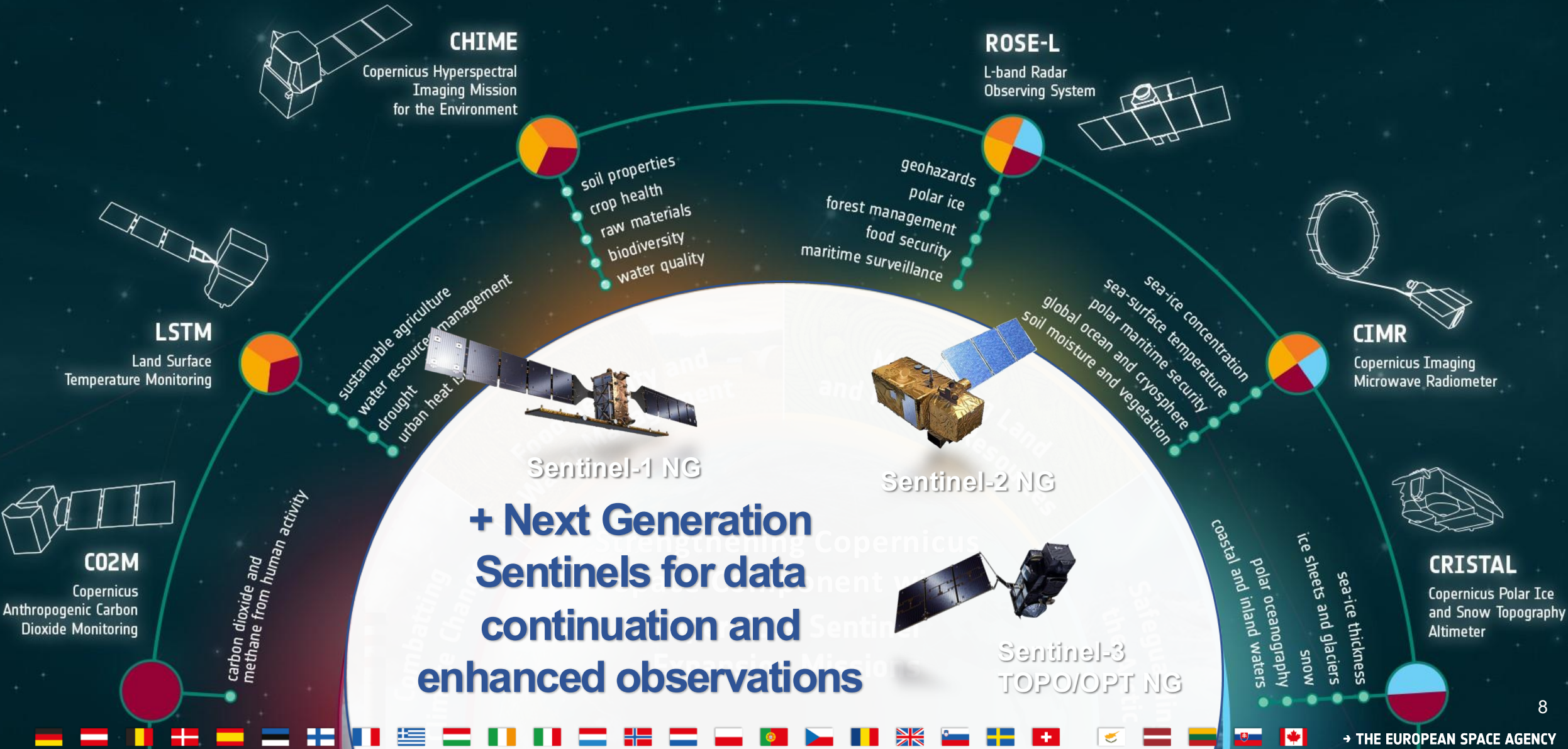
\*Esa Sentinel Data Policy (Sep 2013) and EU Delegates Act on Copernicus Data and Information Policy (Dec 2013)

# Copernicus Space Evolution

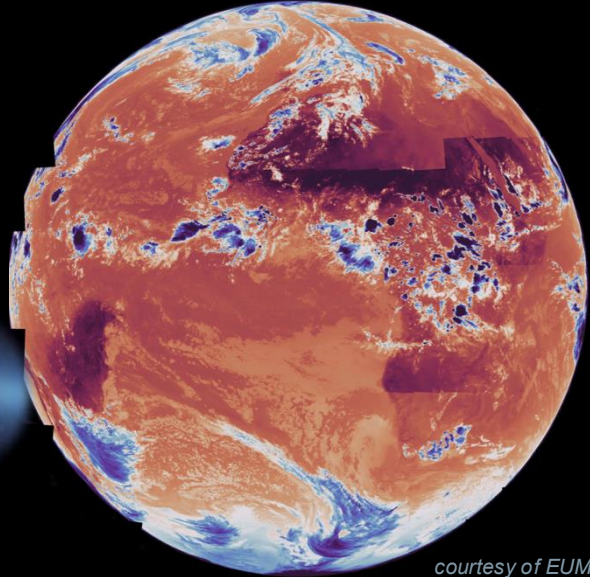


PROGRAMME OF THE  
EUROPEAN UNION

co-funded with



# Recent Launches of MTG-S1/S4 and MetOp-SG A1/S5



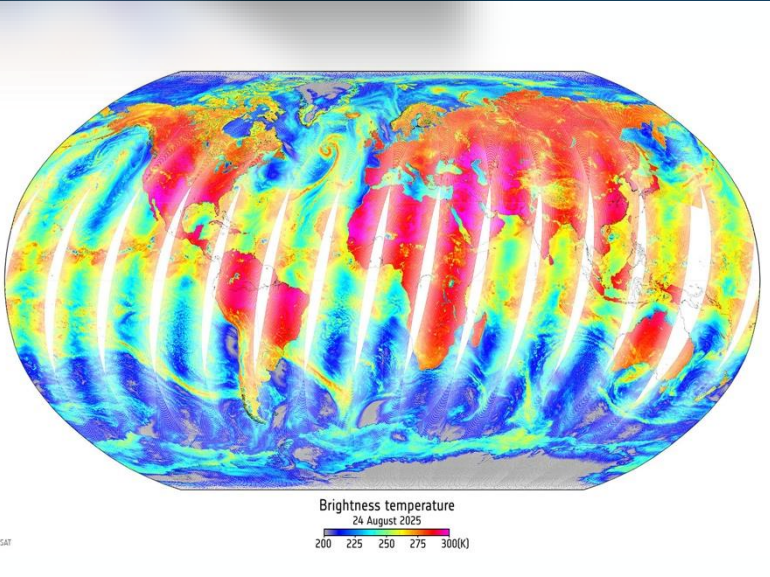
courtesy of EUMETSAT

## MTG-S1/S4 (July 2025)

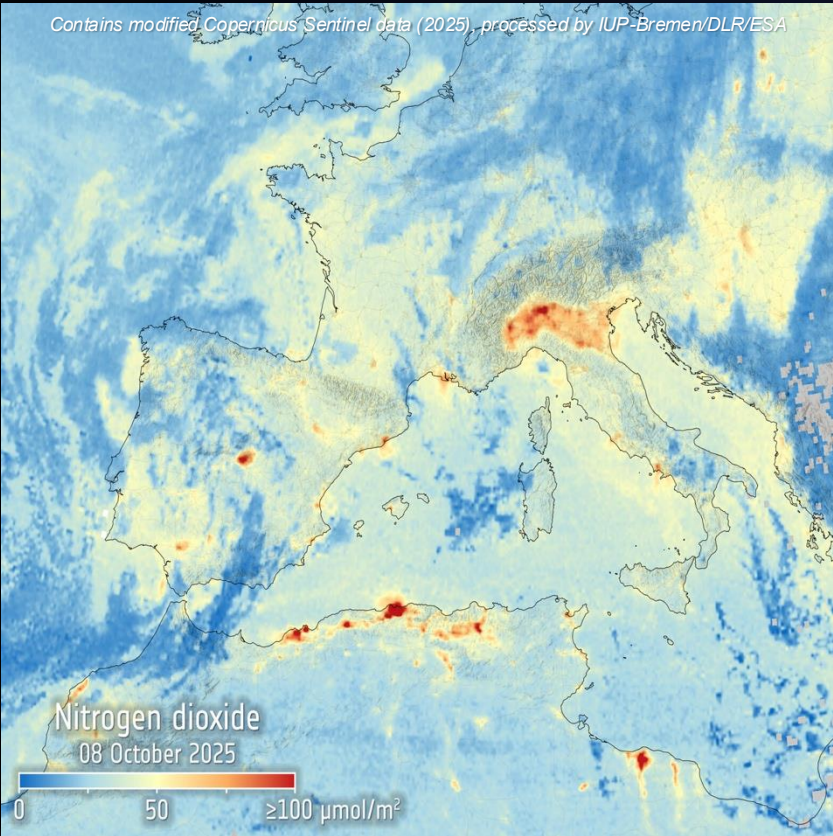
First ever European sounding satellite in geostationary orbit, hosting also the new Copernicus Sentinel-4 atmospheric monitoring mission

## MetOp-SG A1/S5 (Aug. 2025)

First next generation European polar-orbiting weather satellite, hosting also the Copernicus Sentinel-5 atmospheric monitoring mission as well as evolved and new instruments designed to deliver essential data for weather forecasting, storm prediction and climate monitoring.



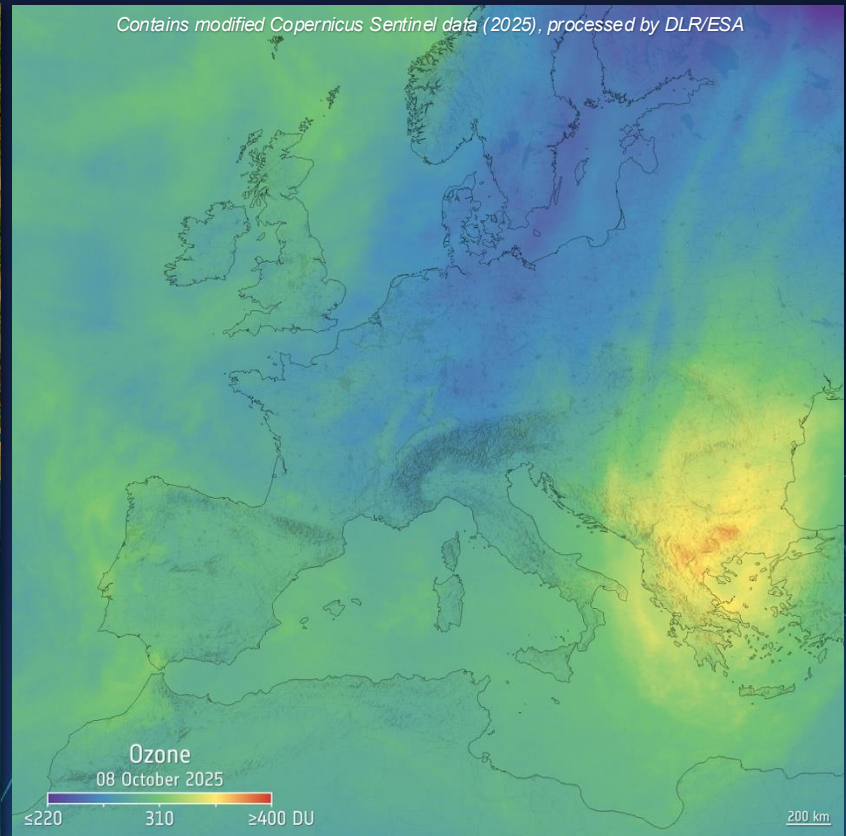
# Met Missions - Sentinel-4 First Images



**Tropospheric nitrogen dioxide over Europe captured on 8 October 2025**

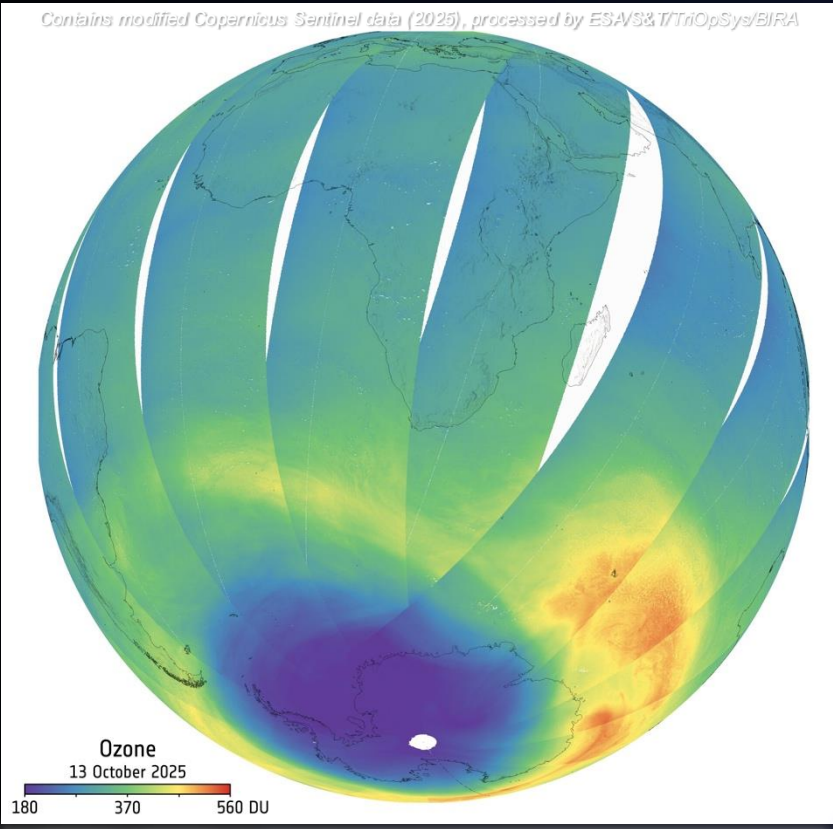


**Vertical column density of nitrogen dioxide over the Middle East, captured on 13 October 2025**

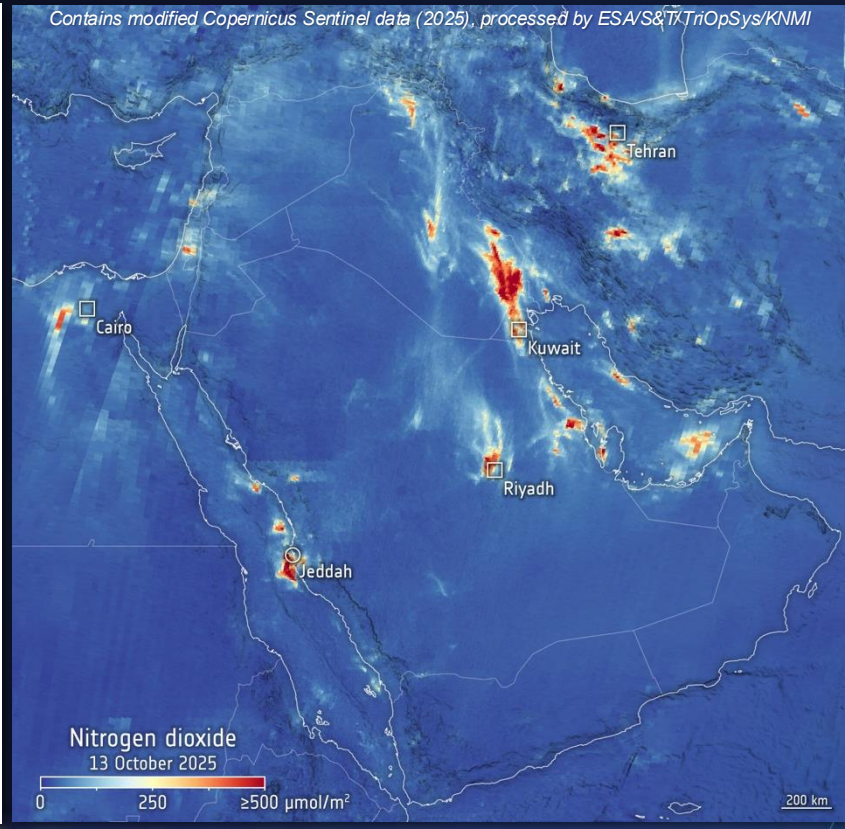


**Vertical column density of formaldehyde over parts of Africa, captured on 13 October 2025**

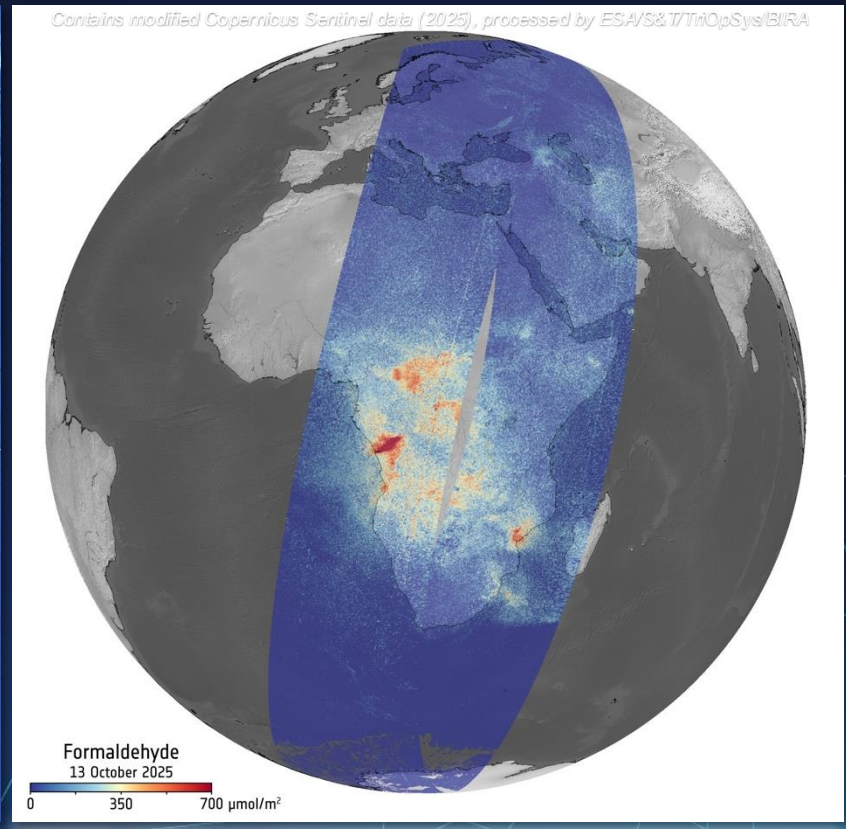
# Met Missions - Sentinel-5 First Images



Global map of ozone, captured on 13 October 2025



Vertical column density of nitrogen dioxide over the Middle East, captured on 13 October 2025



Vertical column density of formaldehyde over parts of Africa, captured on 13 October 2025

# DestinE Platform



1 month of DestinE Climate DT (2027)



## DestinE Platform

Your gateway to a sustainable future

A unique ecosystem of services harnessing the power of Destination Earth.

### DestinE Components

DestinE Platform

Digital Twins and Digital Twin Engine

Destination Earth Data Lake



# 5.020

Registered Users

Join us

# 30

Services already available

Discover

Data available from

# 2

DestinE Digital Twins

A flexible ecosystem of services available to all DestinE users Leveraging European Supercomputers



# ESA's Climate Change Initiative



Linking satellite observations  
and modelling communities



Advancing climate science



Developing satellite-derived  
climate data records



Crucial lines of evidence  
for informed decision-making



Supporting the Paris Agreement  
and Global Stocktake



Exchanging knowledge

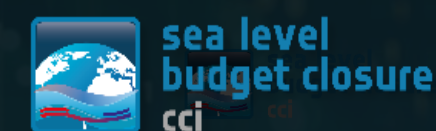
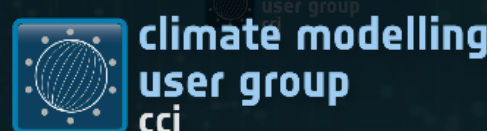
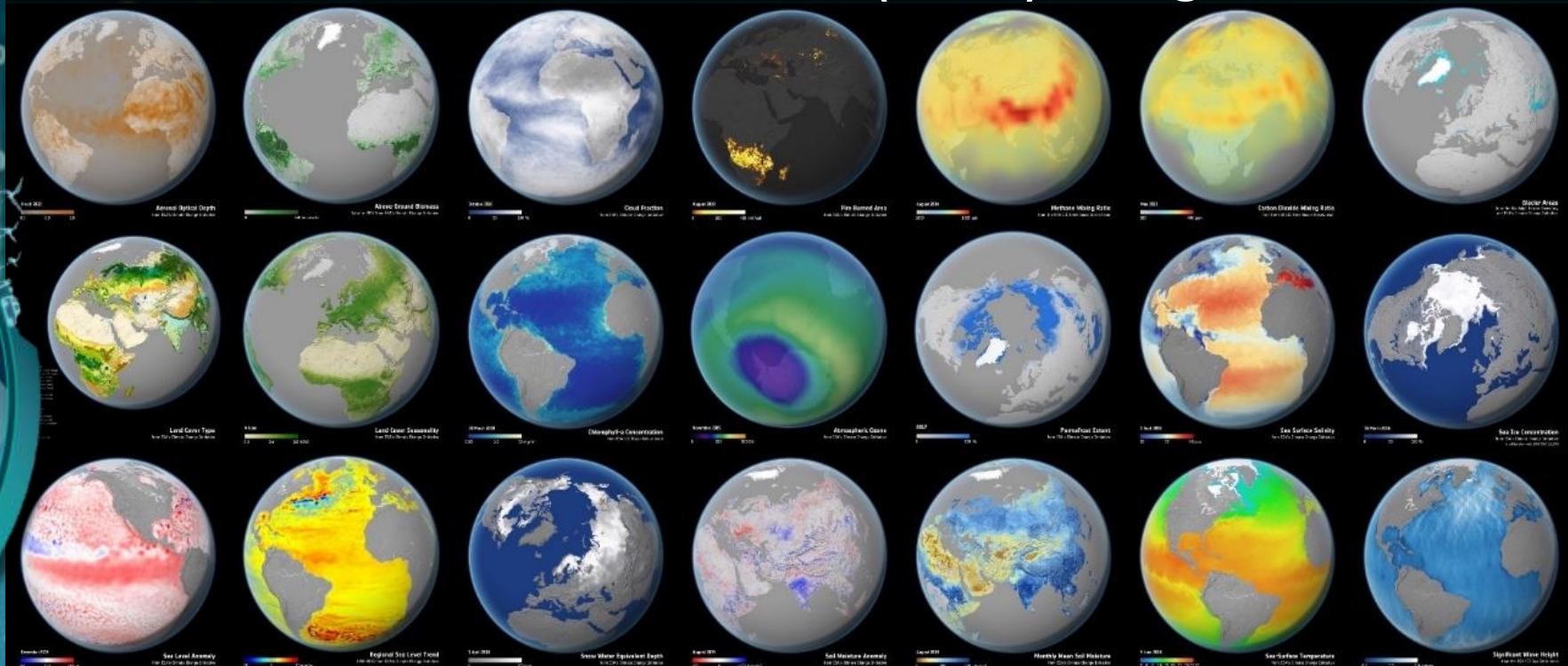


CLIMATE CHANGE INITIATIVE





## 27 Essential Climate Variables (ECVs) Being Monitored



- CCI is a response to UNFCCC's need for **systematic global climate observation**
- ECV datasets provide **long-term empirical evidence** to predict & understand key parts of the climate
- 54 defined ECVs, 36 monitored from space, **27 under development** by ESA

# Elevating the future of Europe

[www.esa.int](http://www.esa.int)

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