



[\*\*CLICK TO KNOW MORE\*\*](#)

# How space and ESA support the unfolding geospatial transition

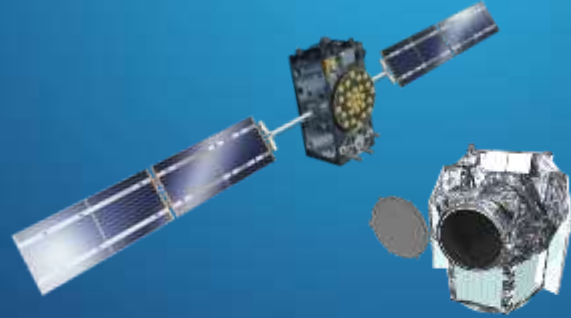
Geospatial World Forum 2024

14 May 2024

Josef Aschbacher

ESA Director General

# The European Space Agency



Through European cooperation and with international partners

**ESA Workforce**  
**6000**

Implements **60%** of the European space budget  
120+ unique missions  
40+ missions upcoming

**22**  
**Member States**

4 Associate Members  
1 Cooperating State

**2024 Budget**

€ 7.79bn =  
12 per European



# Space and geospatial are very intertwined

## Geospatial:

“Consisting of, derived from, or relating to data that is directly linked to specific geographical locations”



**Astronomy**  
**Space science**  
**Cosmology**



**Geography**  
**Climate change**  
**Sustainability**



**Position**  
**Navigation**  
**& Timing**

# Most ESA technologies have geospatial dimensions



Taking the pulse of our planet and climate



Technological sovereignty and independence



Autonomous access to space



Key dual-use systems with civil and security applications

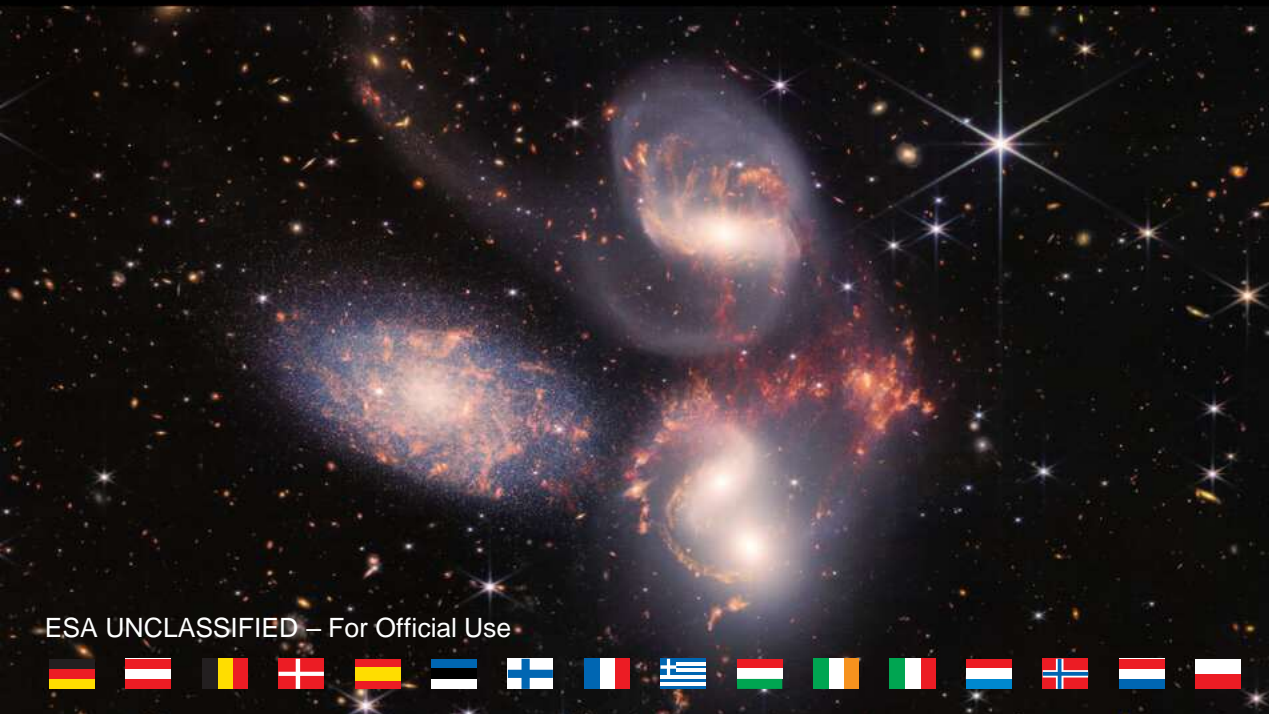
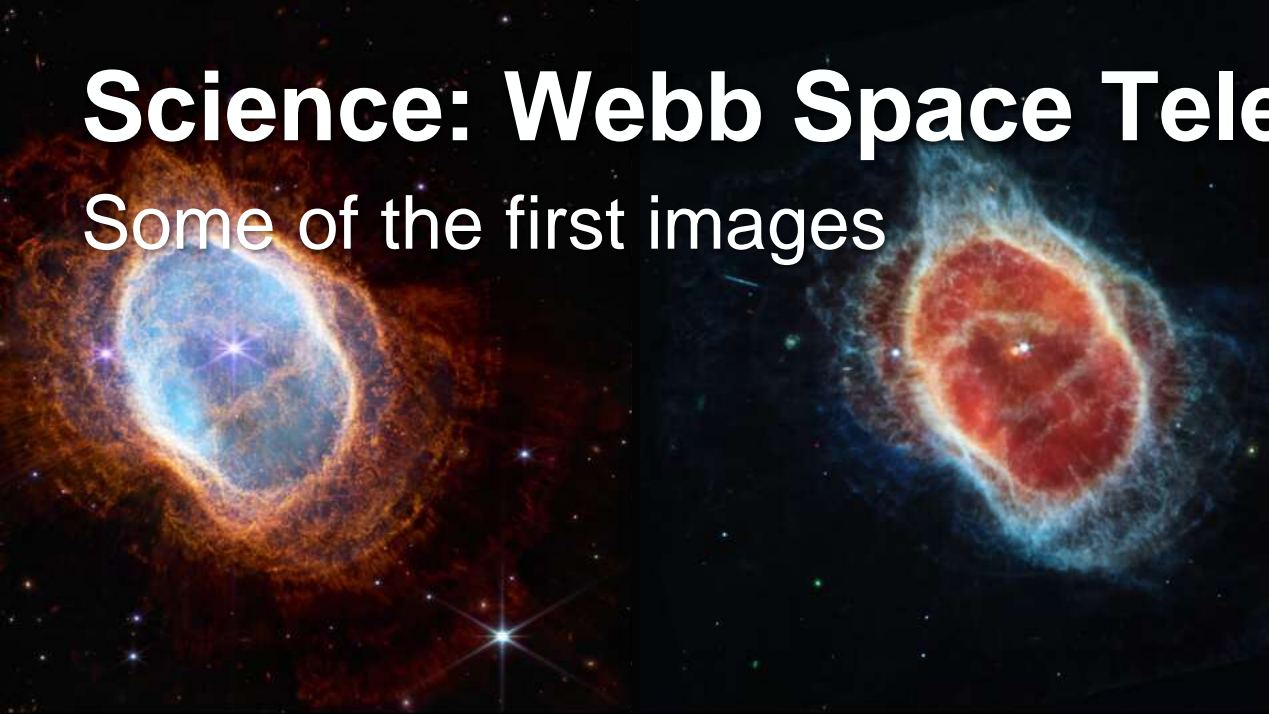


World-class STEM, inspiring millions of Europeans



# Science: Webb Space Telescope

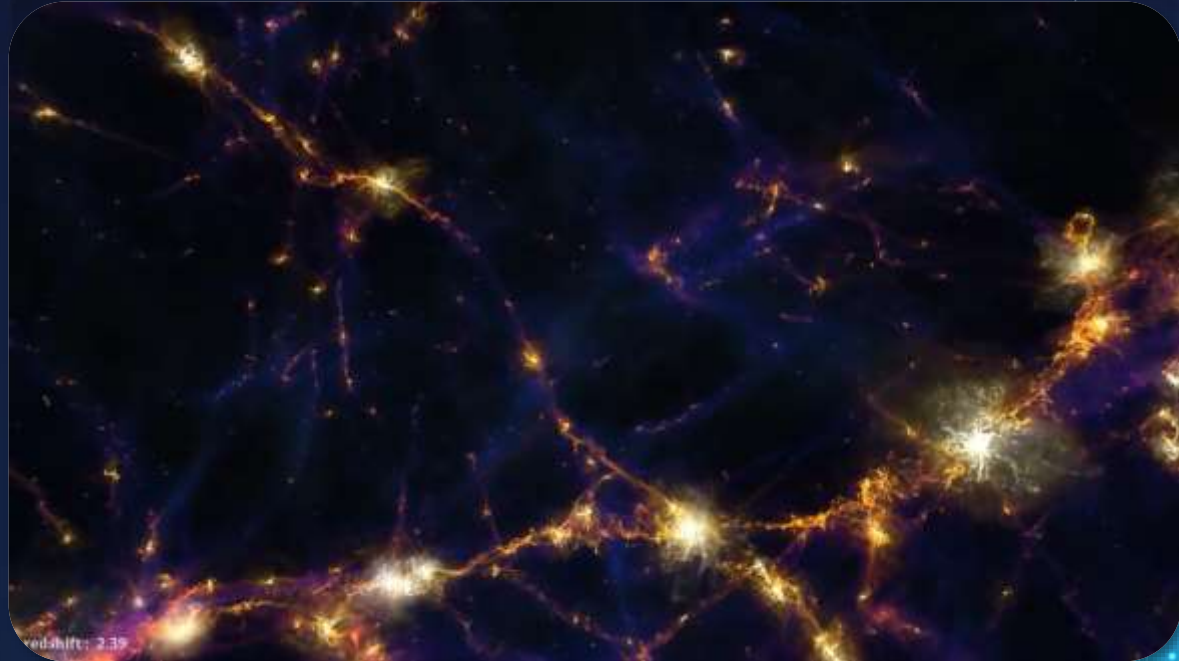
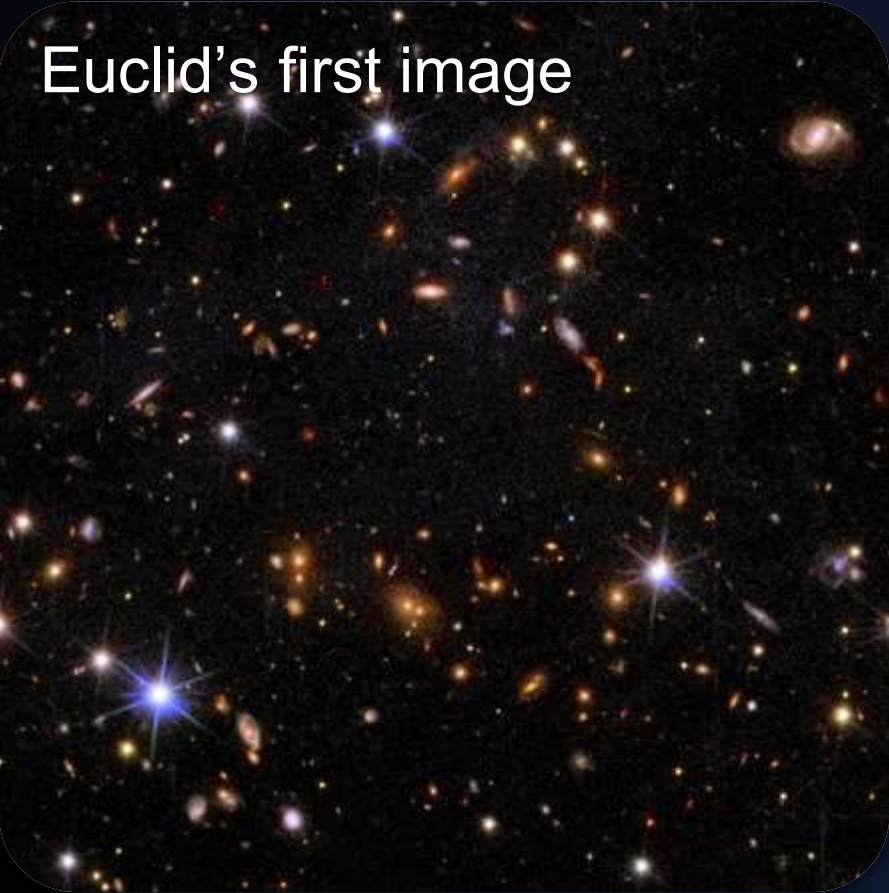
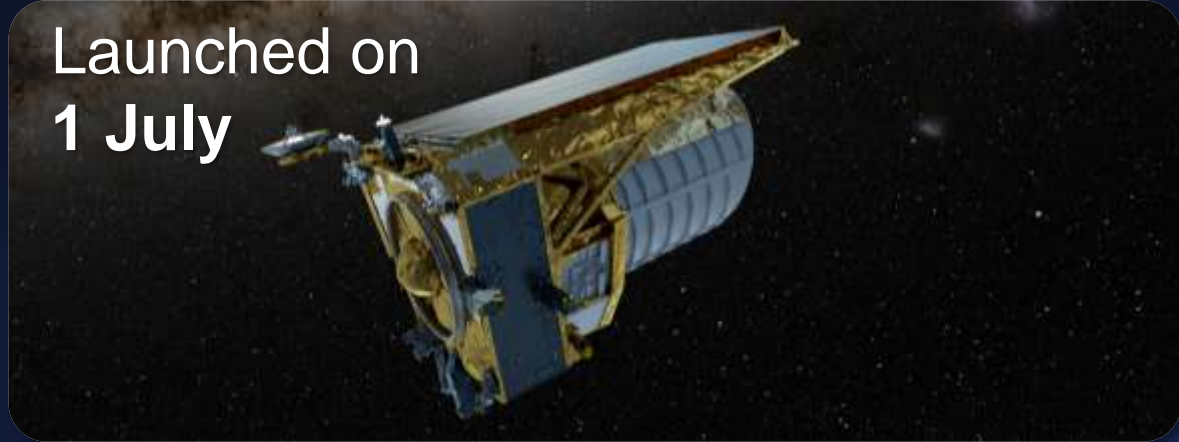
Some of the first images



# Euclid – ESA's latest science milestone



Study the cosmic and galactic roles of dark matter & dark energy



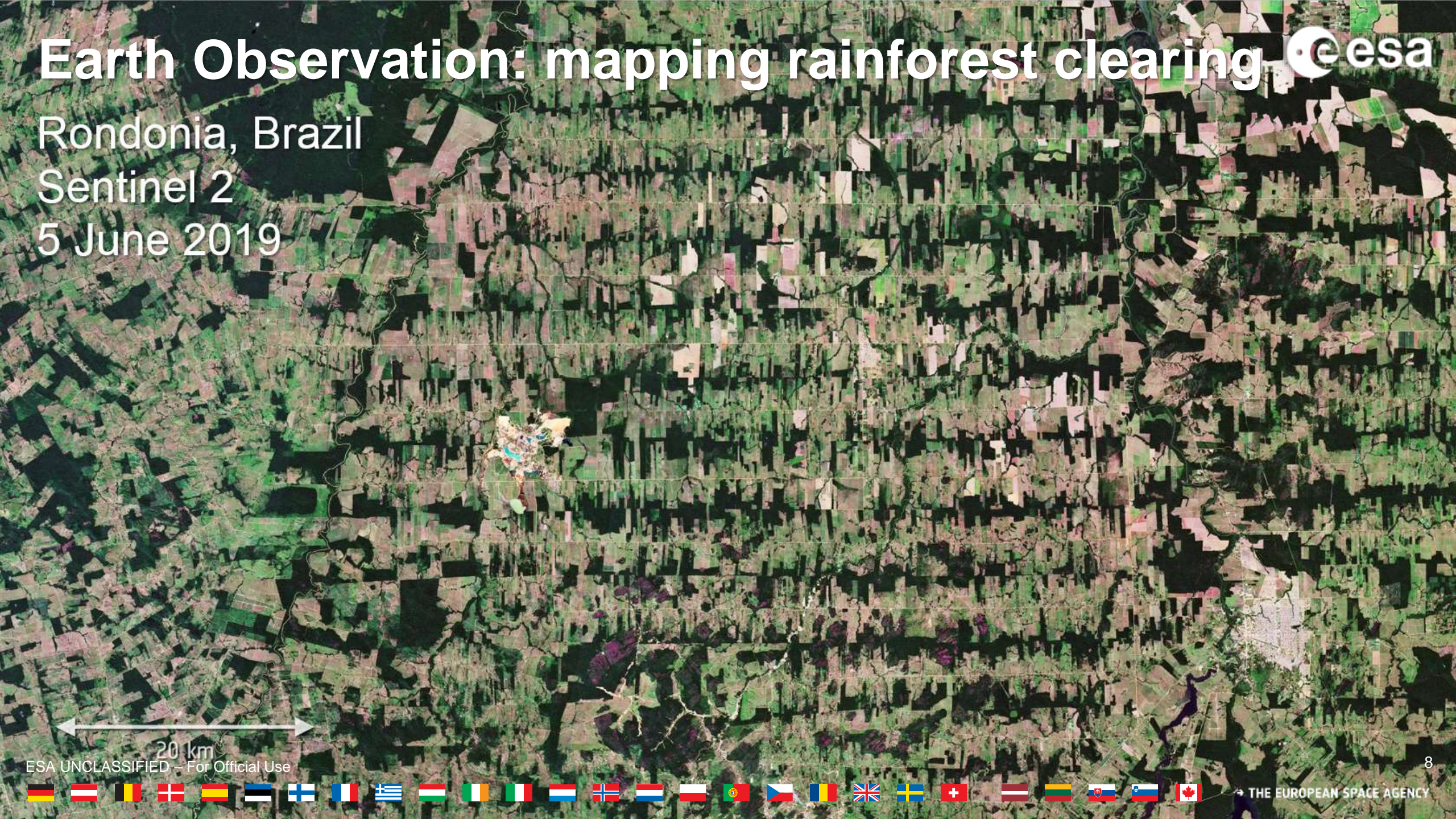
# ESA EO takes the pulse of the planet





# Earth Observation: mapping rainforest clearing

Rondonia, Brazil  
Sentinel 2  
5 June 2019

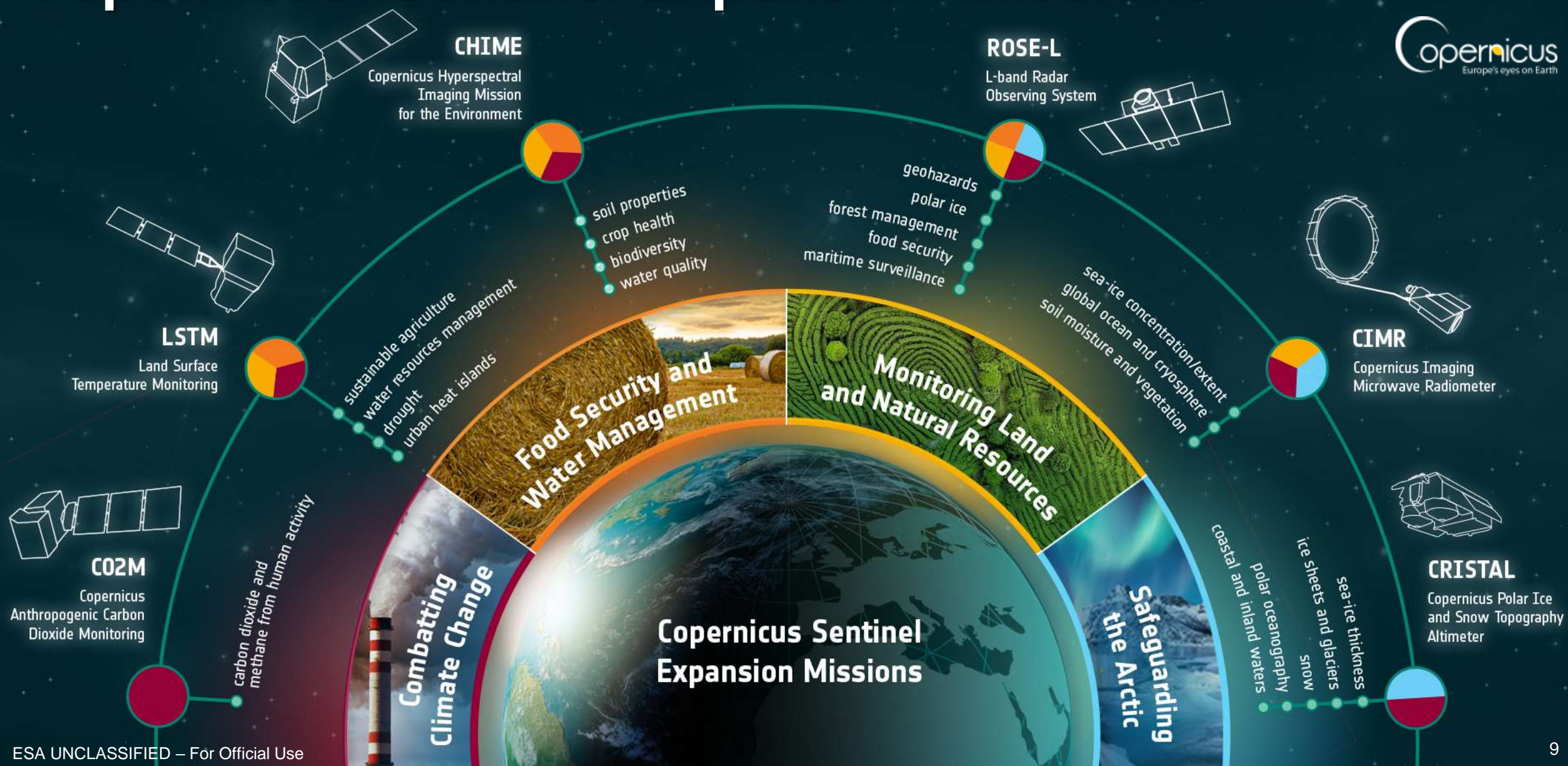


20 km

ESA UNCLASSIFIED – For Official Use



# Copernicus: Sentinel Expansion Missions



ESA UNCLASSIFIED – For Official Use



# Meteorology: storm in the Gulf of Guinea



MTG-I1 imagery with unprecedented level of detail



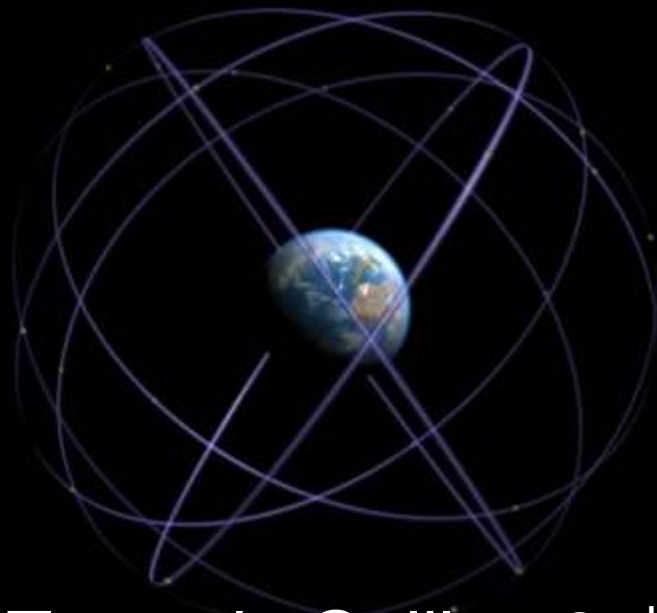
# Positioning, Navigation and Timing (PNT)



Galileo: Europe's Global Navigation Satellite System

ESA is developing the next generation systems

Improving services with an order of magnitude to safeguard European PNT leadership and enable new market applications and services.



Towards Galileo 2<sup>nd</sup> Generation

Towards millimetre RANGING and picosecond TIMING accuracy



# Moonlight: a geospatial system for the Moon



Bringing  
communication  
& navigation  
services to the  
Moon

ESA will provide  
the Moonlight  
system for  
international use  
with partners

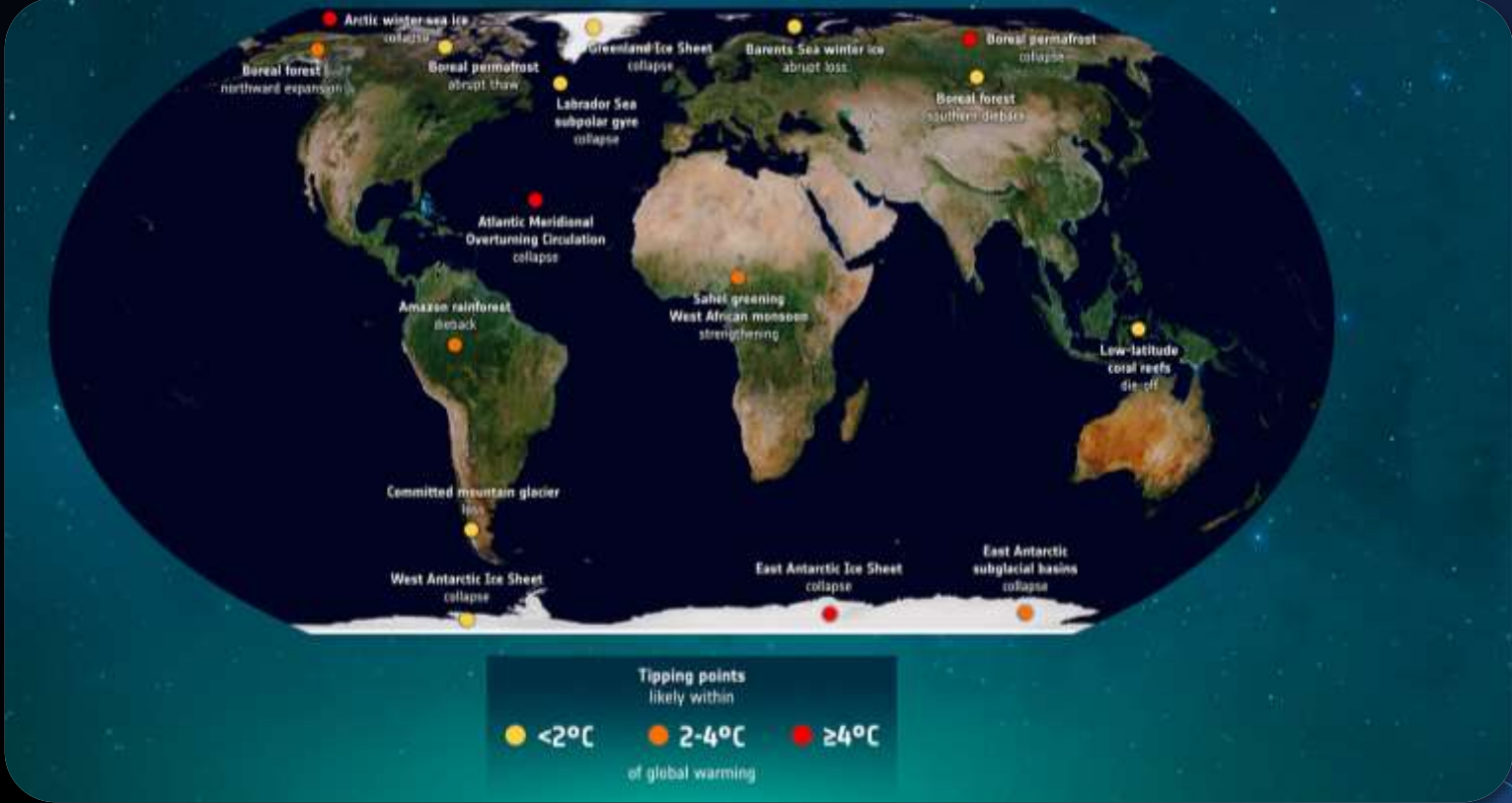


# New projects coming up in 2025

Some examples with strong geospatial relevance

Lead Climate Action & Sustainability

Lead global research on the various climate change tipping points



# New projects coming up in 2025

Some examples with strong geospatial relevance

## ASSIGN – SOLARNET

Paradigm Shift from Point-to-Point to Network Communication in Space

Rapid & Resilient Crisis Response

Vigil

Monitor our active and unpredictable Sun to protect vital infrastructure

Extend Artificial Intelligence and Cloud Computing to Space

Unlock the quantum revolution in Europe for space



**Make space for Europe**

**#SpaceAmbition**

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