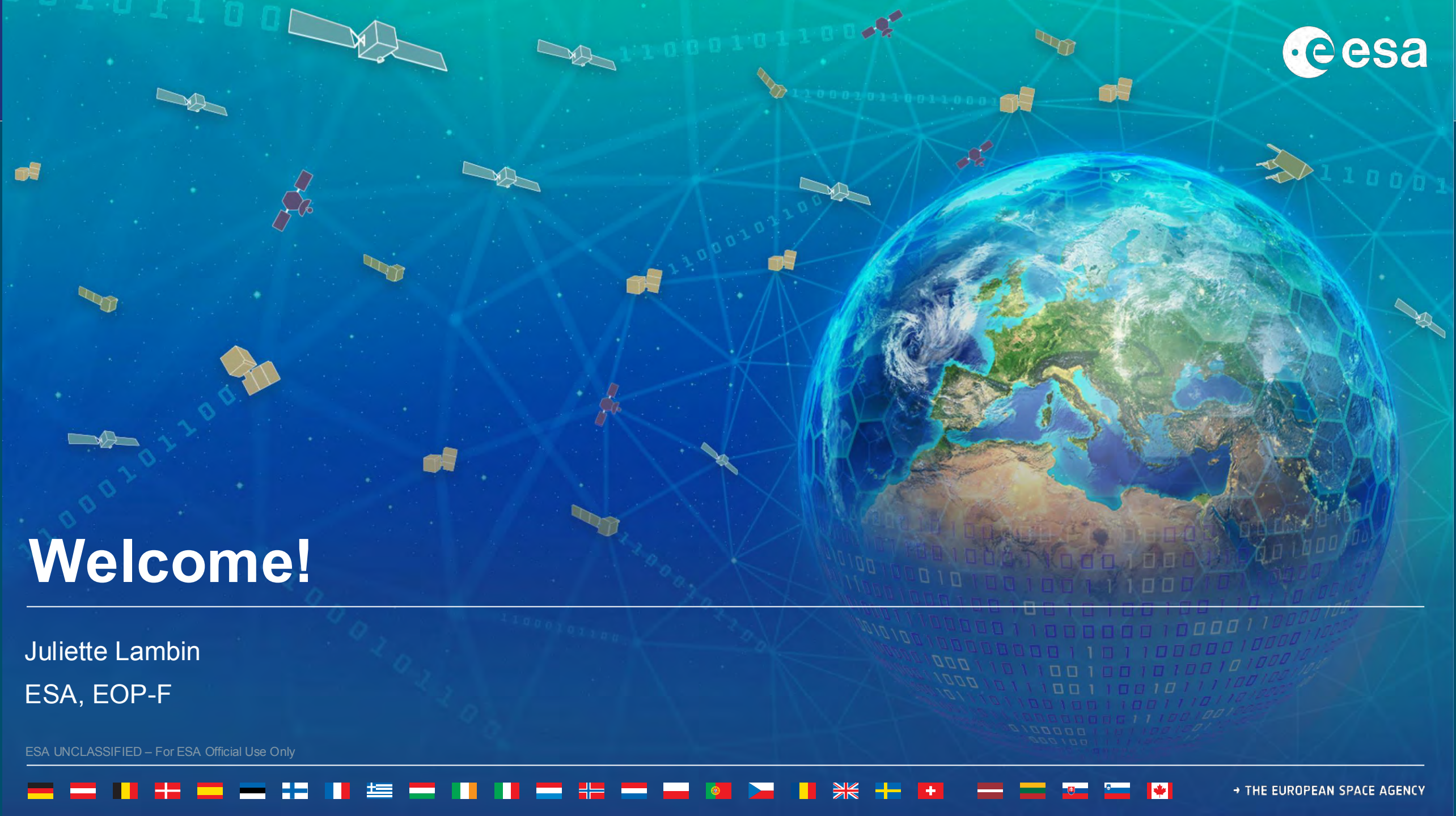


# Welcome!

Juliette Lambin

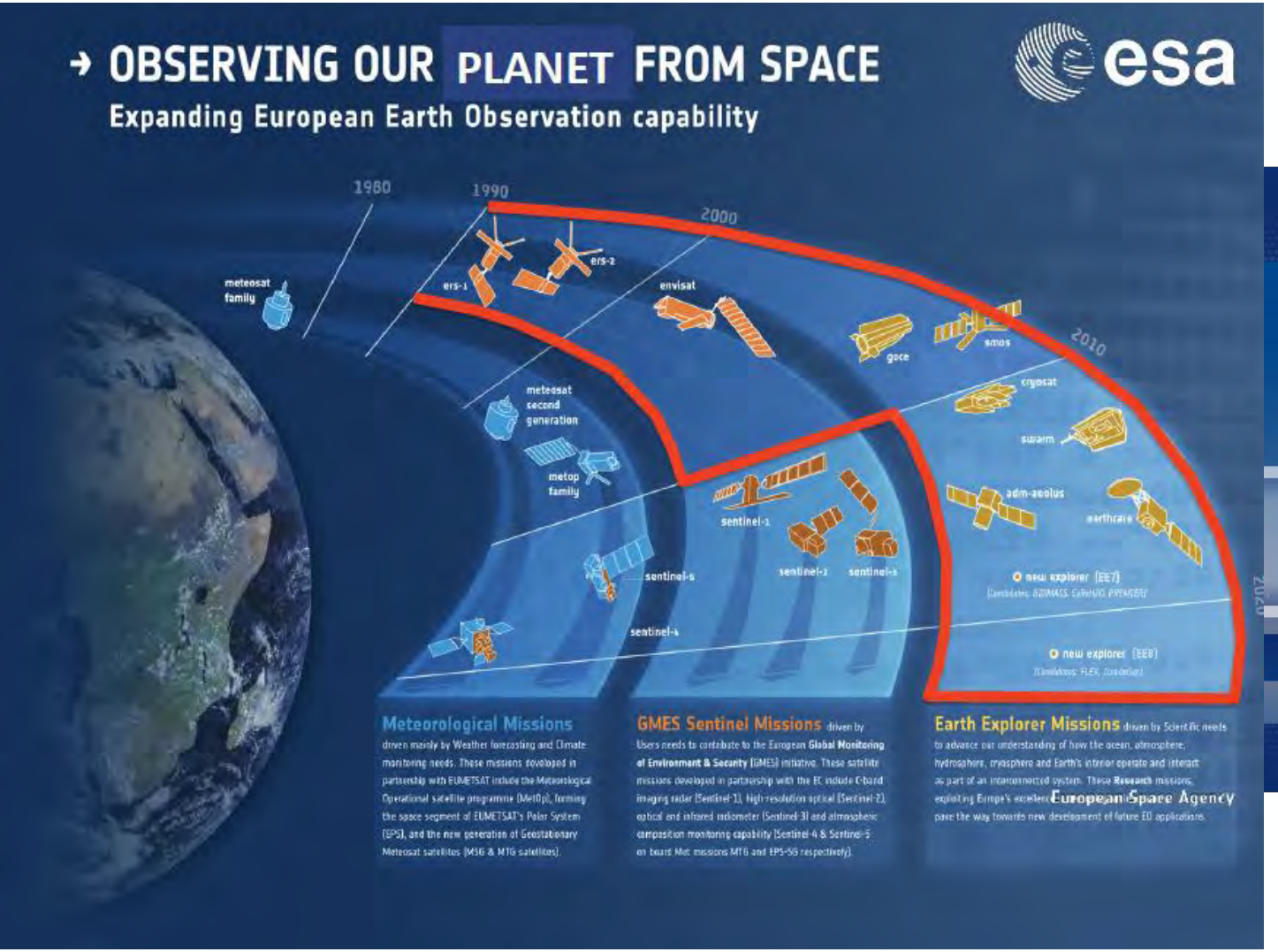
ESA, EOP-F

# ESA's Earth Observation - today and tomorrow

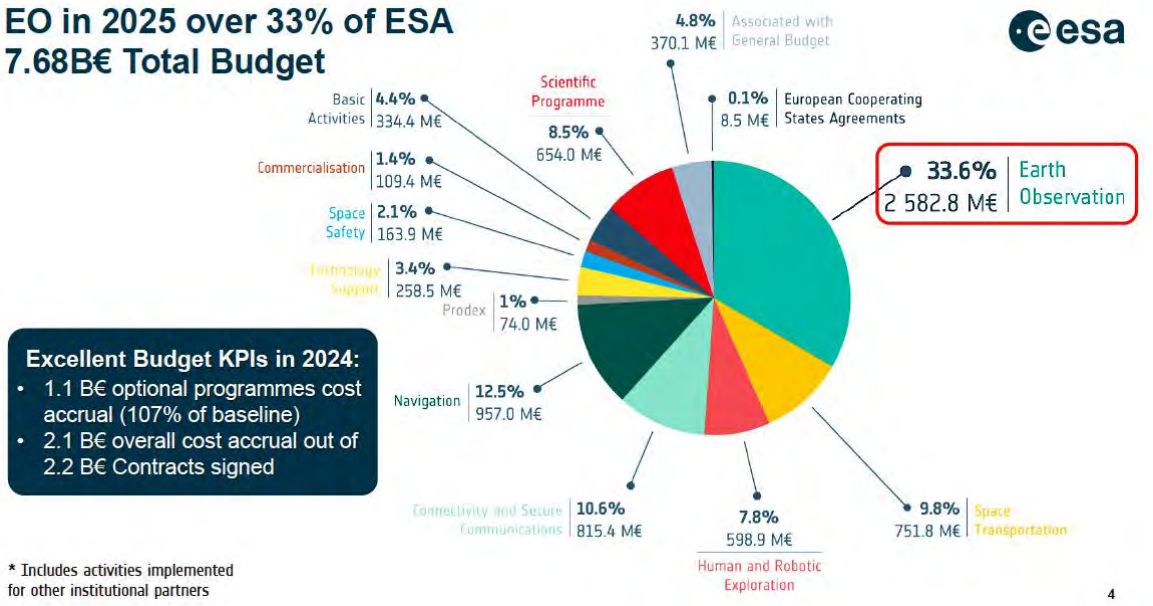
Juliette Lambin

Head of Future Missions and Architecture Department, Earth Observation Programme

# ESA EO around 2010 “yesterday”




# ESA Earth Observation Missions – end 2024


A few missing still…

- *Nanomagsat*
- *TANGO*
- *inCubed missions (latest Skybee-1by Constellr)*

Various ESA programmes:

- *FutureEO*
- *EU-ESA: Copernicus (and CCM)*
- *Eumetsat-ESA: Metop-SG, MTG, AWS, Aeolus-2*
- *inCubed*
- *DTE, GDA, Climate Space*

# … and ESA is not alone in Europe!

## Agencies


https://liuzzodesign.com/blog-detail/post/190603/we-need-more-space-infographic-map

## Science community


https://www.essc.esf.org/2025/01/21/news-eo-brochure/

## Industry


https://europeanspaceflight.com/european-space-industry-map/

# Looking for ways to approach this ecosystem

- Space programmes are usually built over rather long periods of time, while the landscape is however complex, evolving fast,
- Motivations are diverse: *science, operational uses, climate/environment/biodiversity crisis, environmental regulations, commercial applications, business, security defense…*
- Trends and challenges: *constellations, competition and cooperation, resources and technical constraints, fragmentation in Europe, verticalization of actors, budget cycles, geopolitics, digital revolution, newspace, regulations*

⇒ ESA “reference architecture / blueprint” to better inform strategic choices in EO

⇒ This can only be done with giving a large attention to actors of the ecosystem

# Some boundary counditions to follow

- ESA Strategy 2040
- What is not in the scope of this workshop
- Organisation aspects

# ESA Strategy 2040


## 5 Goals with tangible objectives and strategic actions to achieve them

- Protect our Planet and Climate
- Explore and Discover
- Strengthen European Autonomy & Resilience
- Boost European Growth and Competitiveness
- Inspire Europe

# Goal 1 – Protect our Planet

- Develop the technologies, missions, applications and services that will enable progress in acting to address climate change, degradation of the environment and pressure on natural resources
- Spearhead a greener, circular economy in space with global standards for sustainability and a zero-debris environment.
- Position Europe as a global leader in space safety by expanding capabilities in space weather services and planetary defence.

# Goal 2 – Explore and Discover

- Elevate Europe's global leadership in **Earth and space science** to unravel the mysteries of our planet and the Universe.
- Expand Europe's unique capabilities and roles in the **new space exploration era** in Low Earth Orbit (LEO), around and on the **Moon**, and towards **Mars**.

# Goal 3 – Strengthen European Resilience & Autonomy

- Secure **autonomous and competitive access to and mobility in space** through new transportation systems and services.
- **Develop the next gen.** technologies and systems in **connectivity, PNT, Earth Observation and civil security** for a more connected and safer future for citizens.
- Develop state-of-the-art space solutions for the **prediction and management of** natural and anthropogenic **disasters and emergencies**.


# Goal 4 – Boost European Growth & Competitiveness

- Accelerate innovation by spearheading the **development of cutting-edge competitive European space technologies** in key strategic domains.
- Strengthen **industrial capacity and competitiveness** to **unlock new markets** and drive economic growth, fostering a more prosperous society.
- Position **Europe as a commercial hub** in the booming global space economy, **able to attract significant private investment**.
- Establish Europe as the global hub for space research by investing in and **attracting top STEM talent**.

# Goal 5 – Inspire Europe

- **Reinforce the European space ecosystem** through world-class project management and **intensified cooperation** among key stakeholders.
- Position ESA as a model for leveraging **space activities to inspire young people** and future generations from diverse backgrounds.
- Enable ESA Member States and the EU to **harness space capabilities** for greater influence in international **diplomacy** and global affairs.

# Way Forward – Implementation

➔ Most **Strategic Actions** needed to achieve the **objectives** can be **implemented through existing structures** (Council, PBs and SPC) and will be enabled by:

## ESA Transformation

- Modernise operations to manage projects and programmes **on schedule and within cost**
- Strengthen risk management with the **Independent Project Management Authority** (IPMA)
- Use of a **matrix approach** for resource allocation

## Commercialisation & Partnerships

- **Procurement shift** focus from goods to services
- **Support market growth** as an early customer
- Empower NewSpace approaches and **promote industry autonomy**

## Stronger ESA-EU Cooperation

- **Shared objectives:** strategic autonomy, climate action, digital innovation, disaster response, etc.
- Enhance ESA's role under the next **EU MFF**

# Some boundary counditions to follow

- ESA Strategy 2040
- What is not in the scope of this workshop
- Organisation aspects

# Way Forward – Next Steps

## CM25 and CM28

Next CMs are the **first occasions** to start the implementation of Strategy 2040

## Strategy 2040 embedding into ESA activities

### CM25

**DG Proposal** and **Programme Proposals** will be aligned with Strategy 2040

### LTP

**Updated Long Term Plan** will serve as multi-year planning document for Strategy 2040 implementation

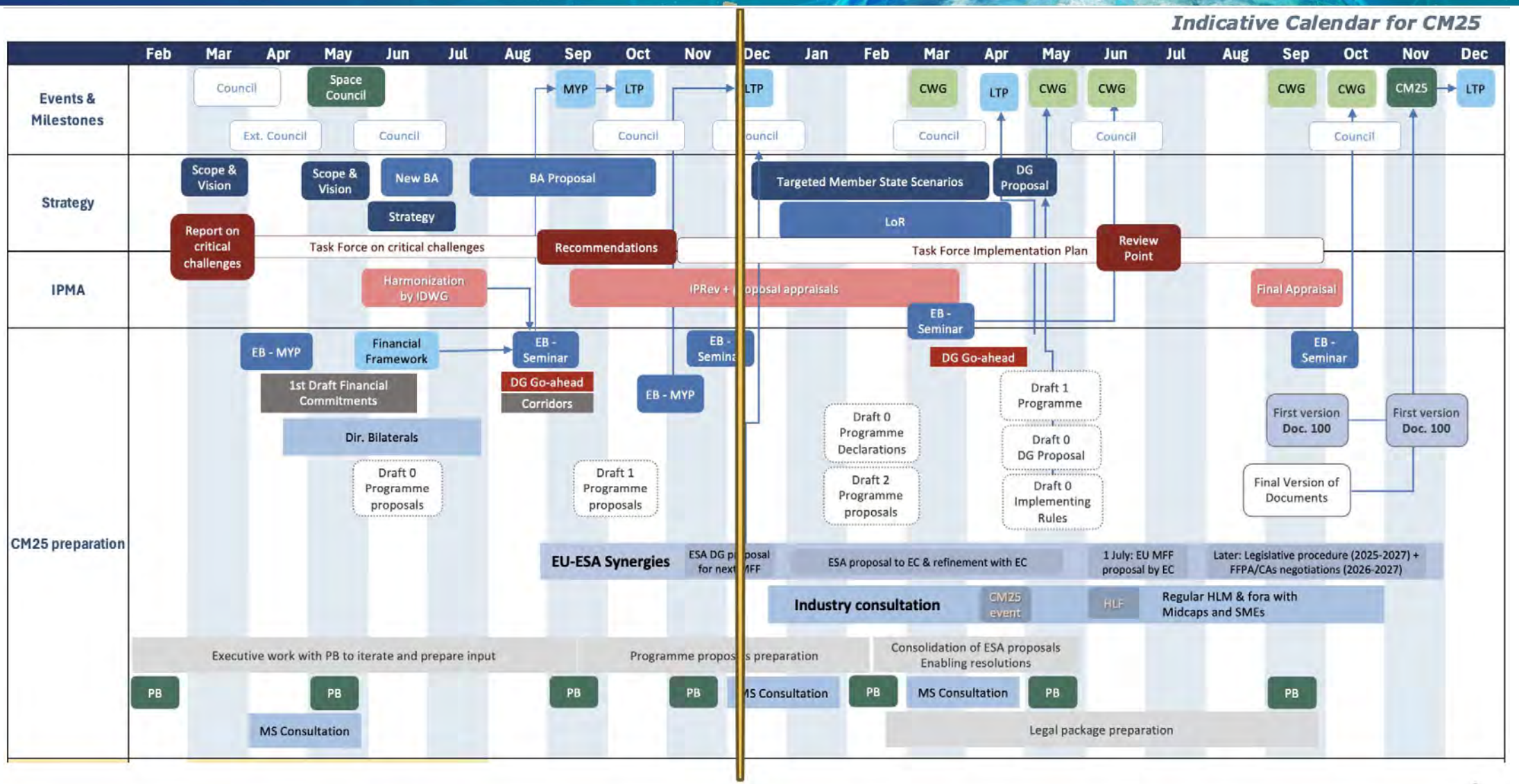
### TTT

Treasury Tiger Team will continue its work to **increase the Agency's ability to implement programmes on schedule and within budget**

### KPIs

ESA's Key Performance Indicators **will be updated to match the goals, objectives and strategic actions**

# ESA roadmap to CM25

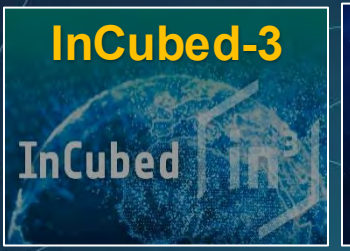


# ESA Earth Observation at CM25

## Upgraded FutureEO: Three pillars

- EO Foundations
- EO Missions and Data
- Earth Action






# EOP @CM25: Meeting Strategic Objectives and Vision for EO

## Upgraded FutureEO

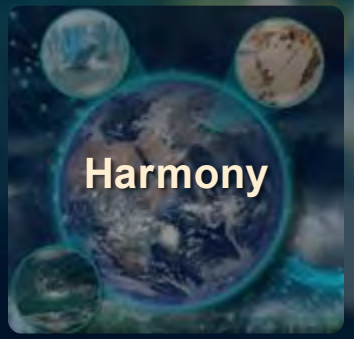


Mission Management & Ground Segment


Earth Action

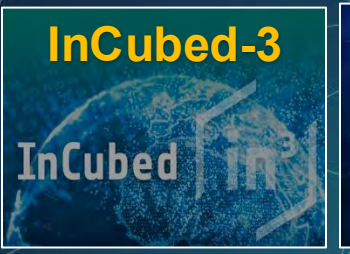
*Global Development Assistance*

*Climate Space*








# Actions on the Road to CM25

esa

## Corporate Level Actions

**Q2 2024**
- Space Summit
- ESA 2040 Strategy
- Draft CM25 Financial Framework

**Q3 2024**
- Inter-Directorate Working Group peer review of CM25 White Papers
- Programme Proposals draft 1
- Workshop with PBEO delegates
- NGGM / MAGIC Phase B1 decision point
- EO Science Strategy

**Q4 2024**
- Comprehensive CM25 communication plan
- IPRevs started
- S-2 NG & S-3 NG Optical Workshop
- Workshop w/ Industry (04/12)
- Continued work on programme proposals
- MS bilateral meetings

**Q1 2025**
- ESA 2040 Strategy
- Draft DG's proposal
- Finalisation of CM25 package
- FutureEO-1 Segment 2 Programmatic Review (16-17/01)
- Sanitised version of 'stable/consolidated' programme proposals
- Results of socio-economic studies
- Meetings with potential programme participants
- EO Narrative Workshop with MS (25-26 March)

**Q2 2025**
- ESA-Industry Dialogue on CM25
- LPS25 (23-27/06)
- Finalisation of CM25 package (PP / Declaration / IR / Agreements)
- UCM on EE-11 & selection by PBEO
- Appraisal of levels of subscription
- Fiches on return potential at MS level
- Early Briefing for Ministerial level

**Q3-Q4 2025**
- Last series of bilateral and poss. multipartite HoD meetings (including recovery actions if needed)
- Possible revision of briefing for Ministerial level

**CM25**
- Continuous effort to secure additional contribution
- Post CM25 analysis & work plans

## EOP Level Actions

- Copernicus Funding Gate Milestone
- ESA EO Science Strategy Review Workshop & draft proposal
- Mission Gate Review Board for Sentinel-3NG Topo
- EE-12 candidate missions selected
- Initial CM25 proposals

# Some boundary counditions to follow

- ESA Strategy 2040
- What is not in the scope of this workshop
- Organisation aspects

# Organisational aspects – Day 1

| | | |
|---|---|---|
| 9:30-10:00 | ESA's Earth Observation - today and tomorrow | Juliette Lambin (ESA EOP-F) |
| 10:00 -10:30 | Crafting the European Earth Observation Ecosystem 2040+ | Craig Donlon (ESA EOP-FA) |
| 10:30 -10:50 | The new ESA Earth Observation Science Strategy | Rune Floberghagen (ESA EOP-S) |
| 10:50 - 11:10 | ESPI- Future perspectives for time horizon 2040+ | Hermann Ludwig Moeller (ESPI) |
| 11:10 - 11:30 | ECMWF - Future perspectives for time horizon 2040+ | Stephen English (ECMWF) |
| 12:00 -12:20 | EDA - Future perspectives for time horzion 2040+ | Eleni Patouni (EDA) |
| 12:20 -13:00 | Science Perspectives for the European EO Ecosystem 2040+ | Mark Drinkwater (ESA EOP-SM) |
| 14:15 -14:35 | Future perspectives for time horizon 2040+ - Eumetsat vision and future needs | Paul Counet (EUMETSAT) |
| 14:35 -15:30 | 1st Panel discussion – Users needs perspective “Setting the vision: Future users needs/ perspectives is at the core of all” | Moderator: Giuseppe Ottavianelli (ESA) |
| 16:00 -16:40 | 2nd Panel discussion – Commercial end-to-end perspective “From missions to data to actionable information” | Moderator: Eleni Paliouras (ESA) |
| 16:40 -17:20 | 3rd Panel discussion – Constellations, Backbone missions and vision for future calibration | Moderator: Gordon Campbell (ESA) |
| 17:20 -17:30 | Getting ready for tomorrow | Craig Donlon (ESA EOP-FA) |

First day is presentations and panels to lay the ground for discussions

Many thanks for all the speakers and panelists!

Breaks not presented here, but there will be some, to initiate discussions, connections…

19:30: Non-Hosted Dinner at Prentenkabinet (Leiden)

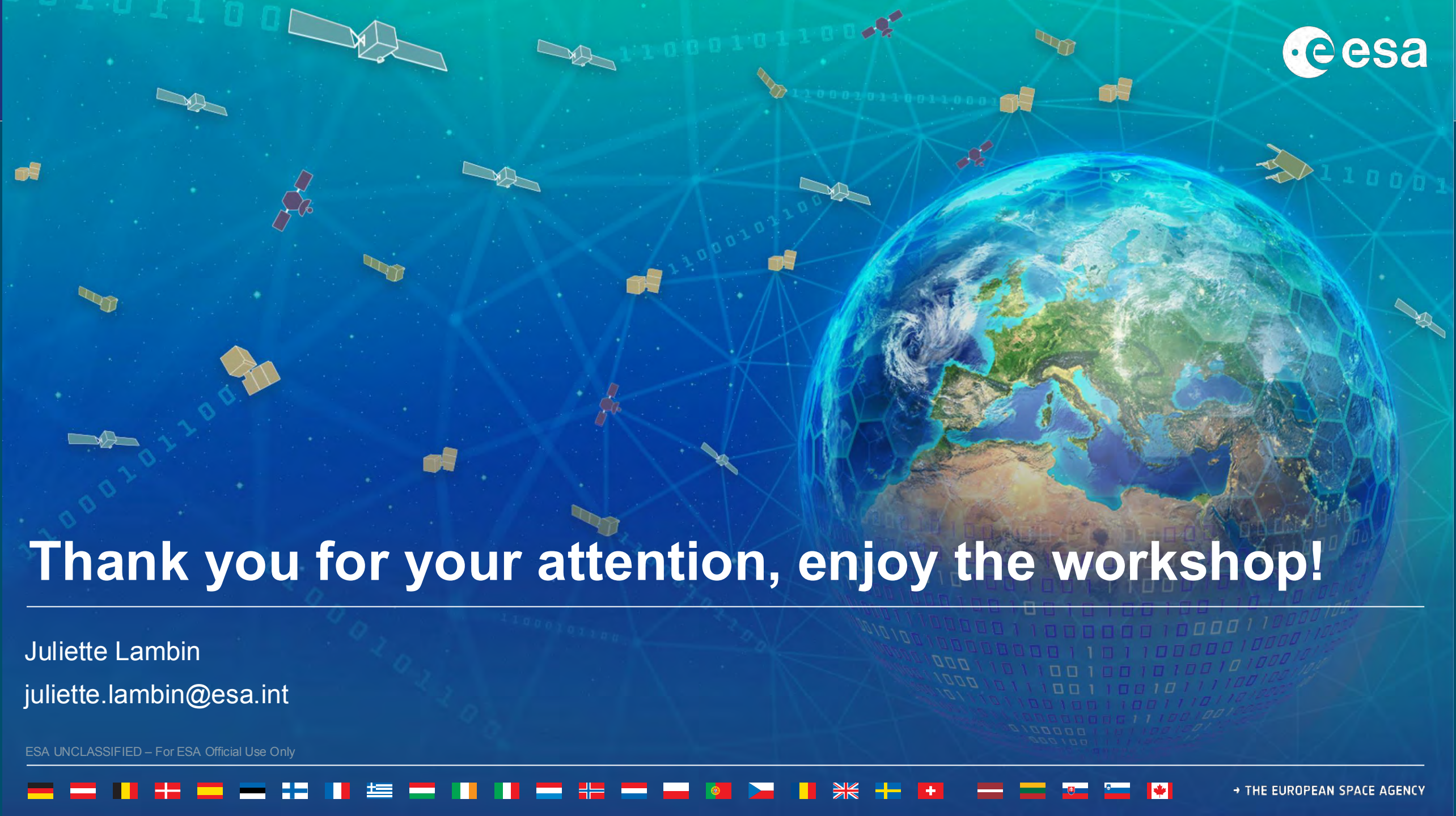
# Organisational aspects – Day 2

| | | |
|---|---|---|
| 9:15 - 9:30 | Welcome and inspiration for Day 2 | Simonetta Cheli (ESA Director Earth Observation) |
| 9:30 - 11:30 | Splinter discussions with coffee | |
| | 1. The European EO Ecosystem in 2040+ - System-of-Systems view | PoC: Juliette Lambin, Dominique Gillieron |
| | 2. User expectations and requirements for synergies within the European EO ecosystem | PoC: Inge Jonckheere, Anja Stromme |
| | 3. The role of FRM and reference measurements for performance certification and monitoring within the European EO Ecosystem | PoC: Philippe Goryl, Thorsten Fehr |
| | 4. The role of a constellation within the European EO ecosystem | PoC: Bernardo Carnicero, Dirk Bernaerts, Vanessa Keuck |
| 13:00 -15:00 | Splinter reporting (20min each reporting + 10min each discussion) | |
| 15:00 -15:30 | Wrap-up | Vanessa Keuck and Armin Loescher (ESA EOP-FA) |
| 15:30 -15:35 | Thank you and next steps | Craig Donlon (ESA EOP-FA) |

Second day is for discussions, exchange, open brainstorming

We count on your active participation!

Good-by coffee for feedback, afterthoughts



# Thank you for your attention, enjoy the workshop!

Juliette Lambin

juliette.lambin@esa.int