Welcome to ESRIN - Earth Observation at CM22

CCI Colocation Meeting
24 October 2022

Simonetta Cheli
Director of ESA Earth Observation Programmes
Welcome to the ESA ESRIN Establishment

- Earth Observation
- Space transportation
- Science Hub
- NEO Coord. Centre
- ESA Security Office
- Corporate IT
- Comms, Archives
- Contracts, Personnel
- Site Management

EO centre for cooperation on Earth system science

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**ESA’s EO Vision**

*Taking the Pulse of our Planet*

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**Protecting from Threats to the Space Ecosystem**

- End users injecting
- Supplier compromise
- Rogue ground station
- Spying the signal (eavesdropping)
- Command & Control interference
- Electronic interference: satellite jamming
- Virus infection (software malware takeover)

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**NEOCC**, a core element of ESA’s Planetary Defence Office

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ESRIN hosts the VEGA European Small Launcher Team - Vega-C Successfully launched July ‘22
Earth Observation Activities at ESA

Building satellites
Planning EO Satellite Launches 2022 - 2032

Managing Missions

Cal/Val & Data Distribution

Earth System Science

Emergency Response

Digital Twins

Applying the Data

Climate Change

Innovation & Commercialisation

Φ-lab
Accelerate the future of EO with cutting edge research
Recent Developments in ESA Earth Observation

MTG-I1 On Route to Kourou
Expected launch December ’22

"Securing the Future of Global Weather Forecasting"

EarthCARE: In full flight configuration currently being tested for space at ESA’s ESTEC Test Centre

Expected launch 2023
Developments in Sentinel Expansion Missions

Sentinel Expansion Missions to Strengthen Copernicus Observations

- Spacecraft PDR Board held in July 2022, close out report expected end October 2022
- Successful spacecraft PDR in March 2022
- Spacecraft PDR on-going, Board scheduled on 3 November 2022
- Successful spacecraft PDR on-going, Board scheduled on 29 November 2022
- Spacecraft PDR held on 10 October 2022
- Successful spacecraft PDR in March 2022

Programme of the European Union
Recent Highlights in ESA Earth Observation

Climate Change Initiative

ESA Climate Office & Copernicus Services define common R&D interests, data standards and interoperability activities.

Global Climate Observing System (GCOS) submitted updated implementation plan to UNFCCC.

WCRP’s CMIP International Project Office hosted at ESA-ECSAT since 1st March

Value of Information Study concluded on Aeolus-1 & 2

Harmony selected as EE10 (Expected launch 2029)

EE9 FORUM Industrial Contract Awarded (Expected launch 2027)

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EO at CM22 in a context of Worldwide Challenges

An EO programme critically contributing to:

- European Strategic Autonomy
- Technological Solutions for Today’s Challenges
- Economic and Societal Benefits
- Science Excellence
FutureEO - ESA’s core Earth Observation R&D programme since 2000

Earth Science, Preparation of EO future and World-class EO Research Missions

Foundations and Concepts

Mission Management

Research Missions

Earth Science for Society

Harmony
Scout 3 & 4
MAGIC/NGG
earthcare
biomass
flex
hydrognss
cubemap

FutureEO - ESA’s core Earth Observation R&D programme since 2000
Operational EO

Securing the long-term continuation of Europe’s eyes on our planet

Meteorology - Aeolus-2

Copernicus Sentinels Next Generation
Customised EO

Pre-operational activities answering demands from user communities, industry, Member States

CLIMATE–SPACE

TRUTHS

Enter market

Incubed-2

Discover
Creation of “Blue-sky” transformative ideas

Explore
Nurture good ideas
“Fail fast” ethos

Develop
Mature “the solution”

Invest
Foster entrepreneurial initiatives

Accelerate
European EO competitiveness

Digital Twin Earth
CM22: From ESA Climate Change Initiative to Climate Space

ECSAT Manages CCI & CCI+

• Developing Essential Climate Variable datasets using Earth Observation data.
• Furthering our understanding of Earth’s climate
• Supporting the United Nations Framework Convention on Climate Change process
• Contributing to the global observing system.

ECSAT Prepares for Climate Space

• Expanding ESA’s GMECV/CCI/CCI+
• Adapting to evolving international climate network needs, with a main focus on UNFCCC Paris Agreement

Monitoring 22 Essential Climate Variables (ECV)

https://climate.esa.int/en/odp/#/dashboard

(ESA Climate office in Harwell)