EUMETSAT updates since CGMS-51 and report on medium to long-term plans

CGMS-52 plenary, item 3

EUMETSAT satellite systems

EUMETSAT
Satellite systems

Coordination Group for Meteorological Satellites

CGMS

Current satellites operated by EUMETSAT (4 GEO, 6 LEO)

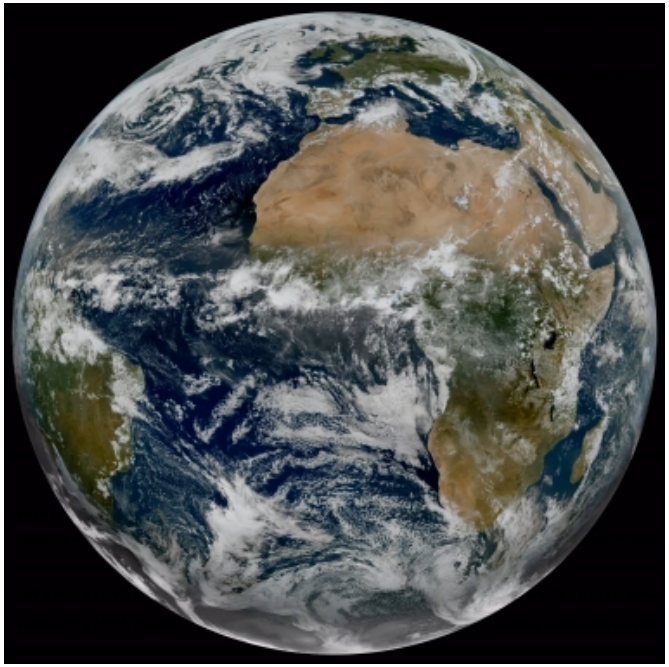
Coordination Group for Meteorological Satellites

CGMS

MTG – new prospects for observing Europe and Africa from GEO

Increased resolution:

- Time: 15 min ⇒ 10 min
- Spatial: 3km ⇒ 1km
- Spectral: 12 channels ⇒ 16 channels



Lightning Imager captures fireball over Iberian Peninsula (May 2024)

MTG-I1 FCI has a calibration hardware issue.
Work around investigated
Expected to go operational by Q3/24

MTG-S1 launch planned in Q3/25

Coordination Group for Meteorological Satellites

CGMS

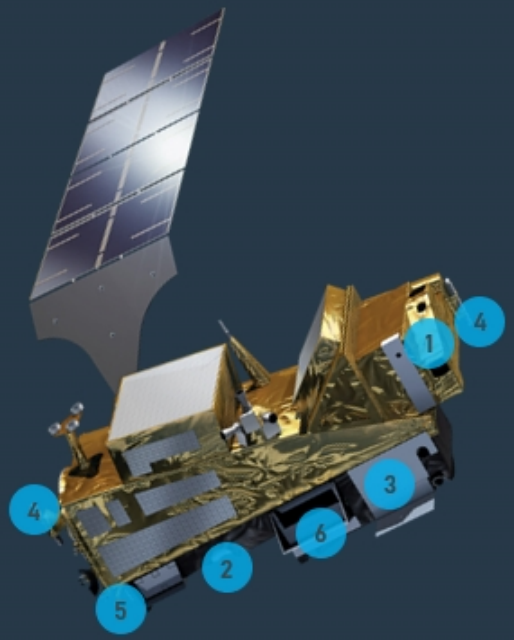
MTG – new prospects for fire detection and monitoring

www.eumetsat.int

Greece
July 2023.

The Flexible Combined Imager on board MTG-I1 can show fires and smoke (position, intensity, dynamics) with a much higher resolution than was previously possible

EPS-SG will follow as of 2025 – Launch of Metop-SGA1 planned by Q4/25

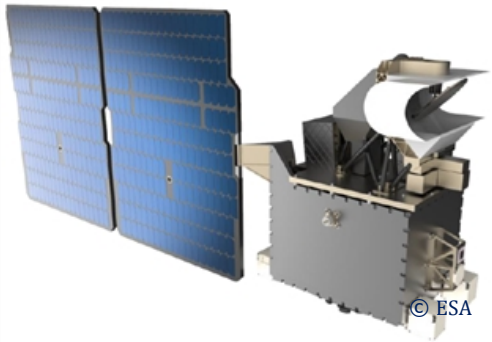


1. IASI-NG
   Infrared atmospheric sounding
2. MWS
   Microwave sounding
3. METImage
   Visible-infrared imaging
4. RO
   Radio occultation
5. 3MI
   Multi-viewing, -channel, -polarisation imaging
6. Copernicus Sentinel-5
   UN/VIS/NIR/SWIR sounding

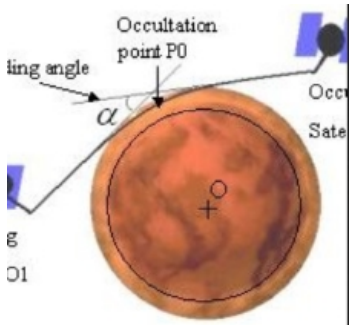
New opportunities to complement MTG and EPS-SG in 2025-2040

The enhanced EUMETSAT response to the implementation of **WIGOS 2040**

Under consideration with decisions expected in the 2025 timeframe:



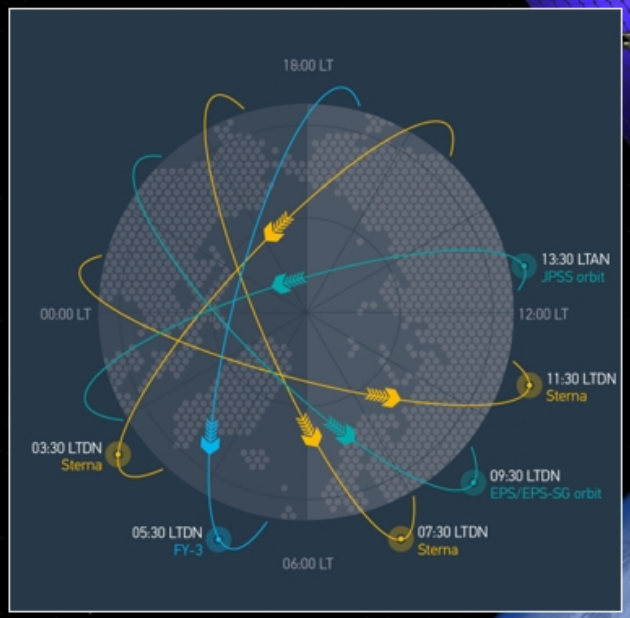
- **EPS-Sterna,** a constellation of 6 micro satellites on 3 orbital planes for testing new space in an operational environment. Presented for approval in June 2024. First satellites deployed in 2029.
- **EPS-Aeolus,** unique European technological expertise to improve Numerical Weather Forecasts. First satellite planned in 2034.
- **Ocean altimetry follow-on programme** highly relevant for the detection of global sea level rise and of climate change
- Complementary **commercial Radio Occultation** data



Coordination Group for Meteorological Satellites

CGMS

EUMETSAT EPS-STERNA CONSTELLATION



- Constellation of 6 microwave sounding microsatellites on 3 orbits
- Complementary to Metop-SG, JPSS and FY-3 satellites
- EUMETSAT will be responsible for the overall system development (ground stations, data processing, dissemination, archiving, launch services and LEOP) and operations
- Will use the ESA prototype AWS satellite

EUMETSAT involvement in space weather activities

EUMETSAT's potential role in the provision of operational space weather data services is currently under discussion with member states

SHORT-TERM

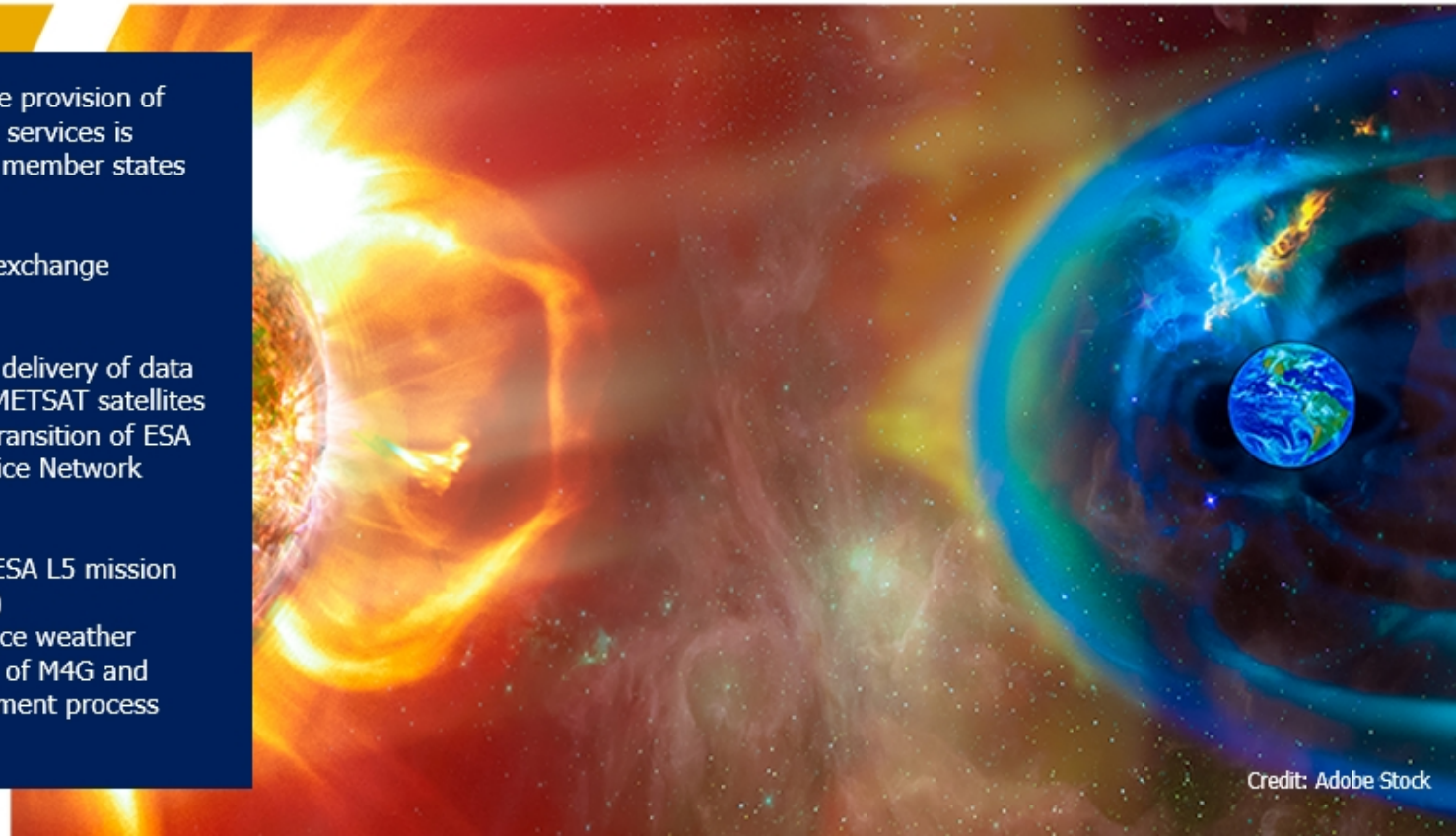
Data hub for global data exchange

MEDIUM TERM

- Processing and NRT delivery of data from sensors on EUMETSAT satellites
- Role in operational transition of ESA Space Weather Service Network

LONGER-TERM

- Possible support to ESA L5 mission ("Vigil" launch 2027)
- Consideration of space weather observations as part of M4G and EPS-TG user requirement process



EUMETSAT AI/ML activities

EUMETSAT's Member States approved an initial EUMETSAT AI/ML roadmap mid-2022 spanning 2022—2026

Work is ongoing to develop a coordinated AI/ML project by the meteorological community in Europe, presented for approval by EUMETSAT's Council end of June 2024

Data access - EUMETSAT Digital Data Services

Push services

EUMETCast Terrestrial
Near-real-time data delivery via terrestrial networks

EUMETCast Satellite

Pull services

EUMETView
Viewing your data

EUMETSAT Data Store
Improving data access

Data Tailor
Customising your data

Data Centre

WEkEO

Direct dissemination

Shared services

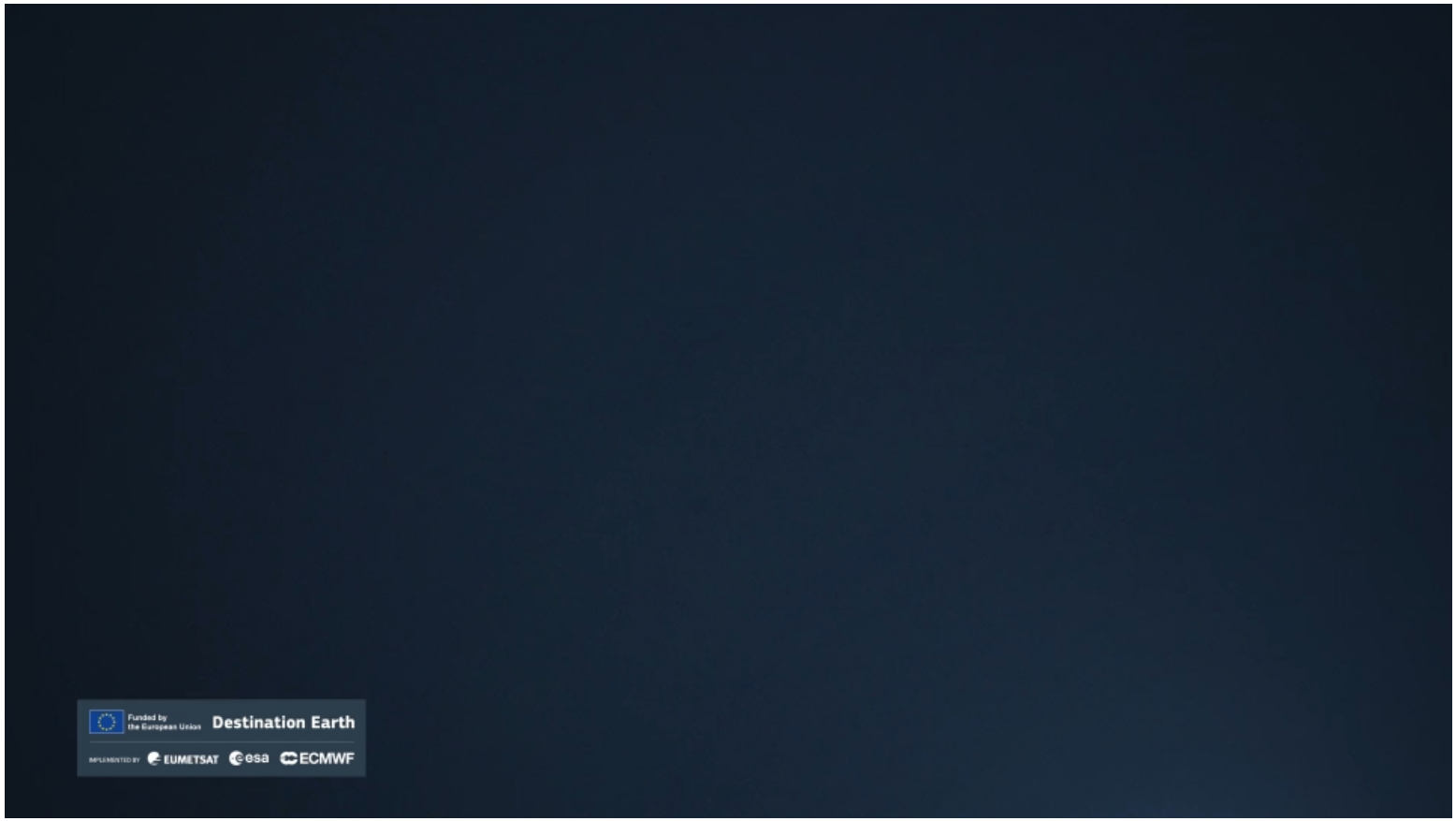
European Weather Cloud
Hosted data processing

WIS

Coordination Group for Meteorological Satellites

CGMS

Destination Earth Data Lake



- Three implementing agencies: ECMWF, ESA and EUMETSAT
- EUMESAT has end-to-end responsibility for the Destination Earth Data Lake

NEW OPPORTUNITIES

EUMETSAT and EU's Copernicus programme

EUMETSAT in EU Copernicus 2.0

Copernicus 1.0 (2014-2021)	Copernicus 2.0 (2021-2027)
Satellite Operations	**Satellite Operations**
• Jason-3 • Sentinel-3A/B • Sentinel-6 MF	• Jason-3 • Sentinel-3A/B/C/(D) • Sentinel-6 MF/B • Sentinel-4A • Sentinel-5A • CO2M A/B/ (C)
Support to Technical Requirements	**Contributions to Sentinel GS developments**
• CO2M, establishing requirements • CIMR, CRISTAL support activities	• CO2M Ground Segment developments • Sentinel-3 NG OPT [+ S3 NG TOPO, S6 NG] • CIMR, CRISTAL – global topo/ocean/atmospheric processors
Third Party Data Services	Third Party Data Services
Copernicus Data Access Services	Copernicus Data Access Services
Communication	User uptake, communication & awareness

Considerations for CGMS

Considerations for CGMS

Coordination Group for Meteorological Satellites

CGMS

Issues of relevance to EUMETSAT which might deserve discussion in a CGMS context

- Preparation of future programmes and need for international coordination in their implementation, new architecture concepts, …
  → CGMS coordinated response to WMO initiatives EW4ALL, G3W and the WIGOS Vision update

- Emergence of new technologies, incl. AI/ML for NWP, offering more cooperation opportunities to continuously deliver observations needed by the modelling community, …
  → CGMS has a role to play and need to adapt and reinforce the way we work together

- Assessment of evolution of requirements from users in preparing for the processing of vast amounts of new data, support to preparation of users, …
  → WMO-CGMS VLab is critical to support this process

- Evolution of relationships with commercial meteorological data providers complementary to the "CGMS backbone"
  → Secure free and open data access as per the WMO data policy Res. 1

Questions?

Thank you for your attention

Coordination Group for Meteorological Satellites

CGMS