



# Welcome

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# 20 MEMBER STATES AND GROWING



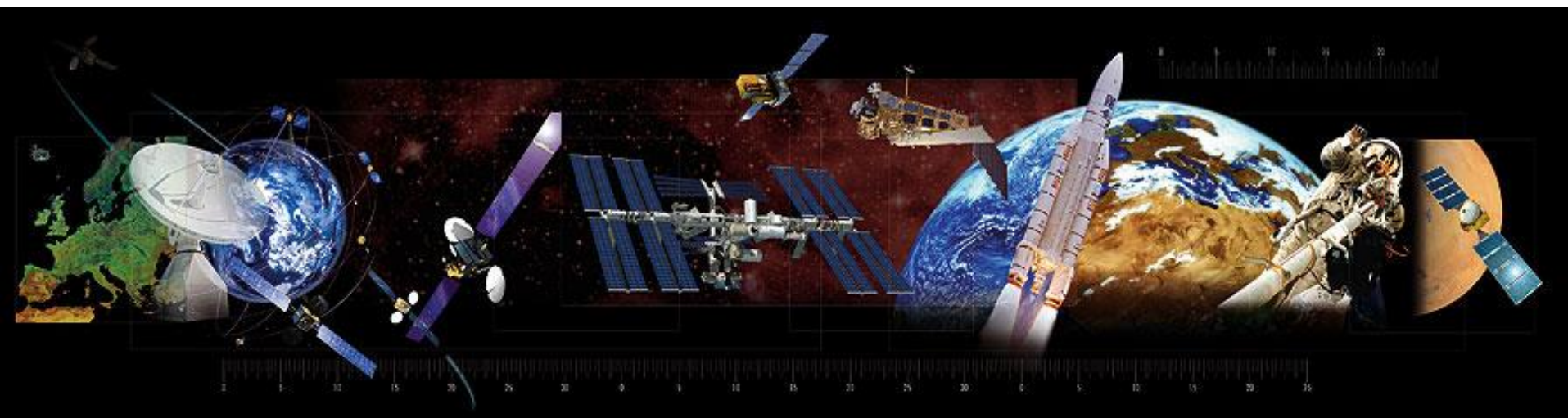
**ESA has 20 Member States: 18 states of the EU (AT, BE, CZ, DE, DK, ES, FI, FR, IT, GR, IE, LU, NL, PT, PL, RO, SE, UK) plus Norway and Switzerland.**

Eight other EU states have Cooperation Agreements with ESA: Estonia, Slovenia, Hungary, Cyprus, Latvia, Lithuania, Malta and the Slovak Republic. Bulgaria is negotiating a Cooperation Agreement.



ESA is one of the few space agencies in the world to combine responsibility in nearly all areas of space activity.

- **Space science**
- **Human spaceflight**
- **Exploration**
- **Earth observation**
- **Launchers**
- **Navigation**
- **Telecommunications**
- **Technology**
- **Operations**

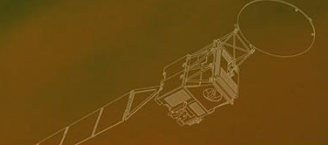


## *EO in a changing environment ...*

- In data availability
  - decommissioning of ERS-2 (2011) and the loss of Envisat (2012)
  - delays ADM-Aeolus and EarthCARE Earth Explorer mission schedules
- In the programmatic and financial environment:
  - co-operation and co-funding between ESA and the EC
  - GMES budgetary challenges for the Sentinel-5p mission and the missing Sentinel-3 atmospheric products
  - Horizon2020 tbd
  - the reduced ESA EO Envelope and the LTDP programmes
  - the reduced budgets due to the decommissioning of missions
- In technology and architecture enabling
  - new data flow architecture
  - new collaboration schemes
- The evolution of ESA mission requirements from science experiments to focussing on supporting Copernicus services, climate change, etc.

## ... but we currently have

- Nearly 20 years of EO missions with similar type instruments
  - GOME/SCIAMACHY/S5p, (A)ATSR/SLSTR, MERIS/OLCI, MWRs, etc.
  - New missions under preparation, ADM-AEOLUS, EarthCARE
- Vibrant, mature and competitive European EO research communities
- An ESA Earth Observation Envelop Programme approved for 4 additional years
- Strong institutional support (in addition to the ESA G/S) for algorithm development and processing:
  - ESA/DUE, ESA/STSE, ESA/CCI
  - CSC, Copernicus Services (and future collaborative centres)
  - Eumetsat SAFs
  - National programmes and collaborative centres, etc.
  - Horizon2020 tbd
- Increased IT processing/storage capabilities (as compared to a decade ago):
  - Brockmann's Calvalus, ACRI, FUB-system, DWD/CM-SAF, etc.
  - GPGPU, cloud computing, exploitation platforms, etc.



ESR-2

Phase E



Phase F

LTDP

Envisat

Phase E



Phase F

LTDP

Sentinel-3

Phase C/D

Sentinel-3 A Launch

Phase E

Sentinel-3 B Launch

Phase E



Sentinel-5 Precursor

Phase C/D

Launch

Phase E



ADM-AEOLUS

Phase C/D



Launch

Phase E

EarthCARE

Phase C/D

Launch

Phase E



Sentinel-4

Phase C/D

Launch MTG-S

Phase E

Sentinel-5

Preparation

Launch EPS-SG

Phase E

# ESA/Copernicus atmospheric missions

# Some Milestones for Dust and Aerosols

2-4 December 2013 | ESA-ESRIN | Frascati (Rome), Italy

## *Some Milestones for Dust and Aerosols*

- Early 2014: ADM-Aeolus AO for Calibration and Validation
- mid-2014: Sentinel-5 Precursor AO for Calibration and Validation
- 09/2014: EarthCARE Workshop, Japan (tbc)
- Q1/2015: Sentinel-3 Launch
- Q3/2015: ADM-Launch
- Q4/2015: Sentinel-5 Precursor Launch
- Q4/2016: EarthCARE Launch



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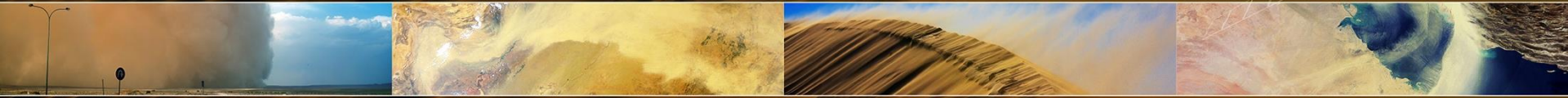
The objectives related to the workshop are:

- to obtain an update of current knowledge and research programs on dust and its impacts
- to disseminate recent scientific results
- to facilitate information exchange
- to identify current research priorities

In addition on ESA side objectives are:

- to present and discuss our projects and data sets
- to establish (and tighten) links between the Sand/Dust scientific community and ESA
- to get informed on specific recommendations for the preparation of future missions and programmes, in particular EarthCARE, ADM, S3 and S5p satellite missions, as well as SEOM and CCI programmes





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The organisers would like to especially acknowledge the financial support through

- the EarthCARE Project and its Project Manager Mr. Alain Lefebvre



- the Mission Management Office and its Head Mr. Henri Laur



Further, many thanks to the ESRIN Conference Bureau, Ms. Carmen Comparetto and her team, as well as the colleagues from the EO Graphics Bureau



Wishing you a successful workshop ...

