ESA ESOC

Services supporting Europe's most complex Missions

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ESA ESOC, Head of Mission Operations and Deputy Head of Establishment

17/09/2026

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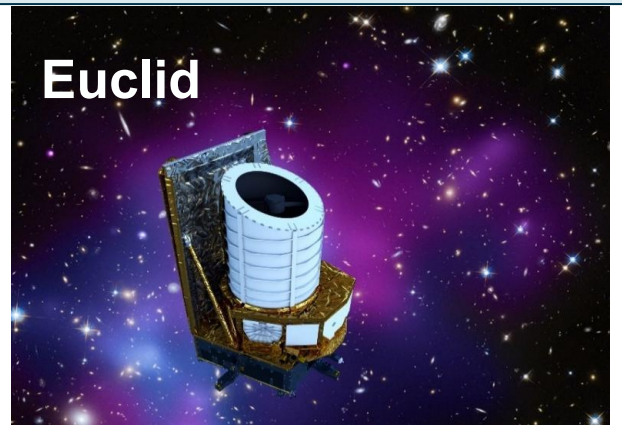
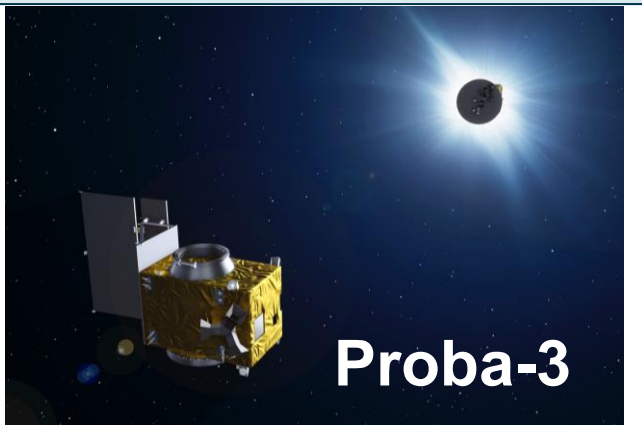
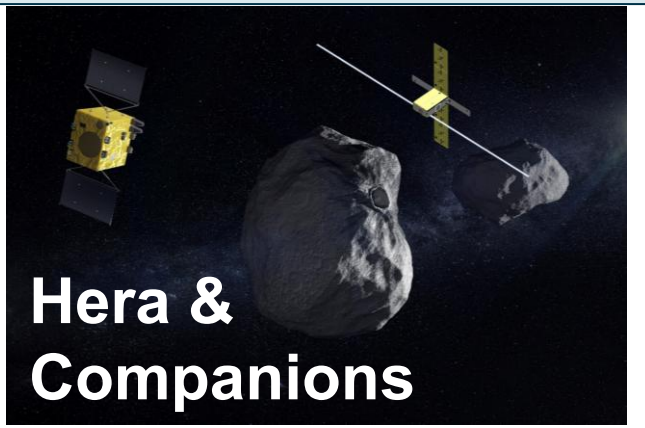
Mission Operations – Highlights

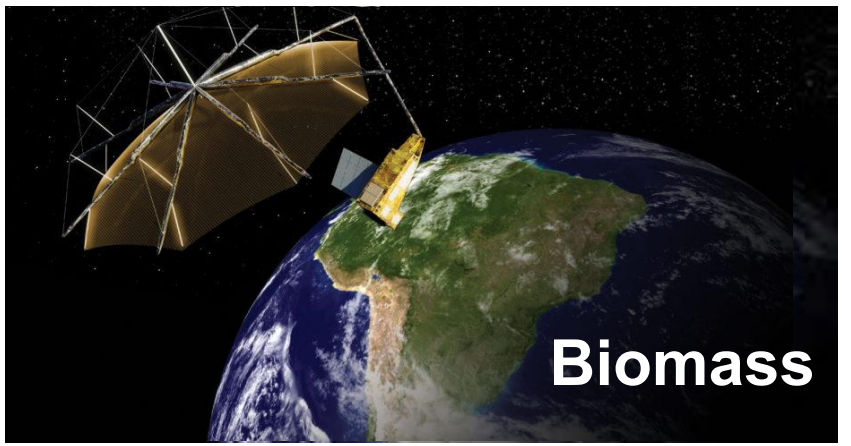
Record number of mission conducted at ESOC

- Ensuring Mission Objectives are met -









ESOC - with a focus on bringing prototypes to live

- **Missions in flight**
  - Flex
  - Biomass
  - Hera + 2
  - Earthcare
  - Euclid
  - Juice
  - Mars Express
  - ExoMars TGO
  - BepiColombo
  - Solar Orbiter
  - XMM
  - Integral
  - Cryosat
  - Swarm (3 spacecraft)
  - Sentinel 1 (3 spacecraft)
  - Sentinel 2 (3 spacecraft)
  - Sentinel 3C
  - Sentinel 5P
  - Operated from Redu:
    - Proba 1, 2, 3, V
    - CyberCube

- **Missions in preparation**
  - Copernicus Sentinel-2 and -3 D models
  - Copernicus Sentinel Expansion missions A/B-models
    - CO2M, CRISTAL, LSTM, ROSE-L, CIMR, CHIME
  - Plato
  - Forum
  - ARIEL
  - Comet Interceptor
  - Harmony
  - Vigil
  - Ramses
  - Argonaut
  - EnVision
  - LISA
  - Exomars RFM
  - OPSSAT-2, Volt

- Ground operations achievements and plan …
  - NNO3 run in
  - Number of launcher tracking
  - Number of missions supported
  - Cross support execution NASA, ISRO, JAXA
  - 3rd party, …

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Other Events ..

☑ SMILE Launch (CAS/ESA)	May 2026
☑ NNO3 phase-in for missions (ESTRACK)	Q2 / 2026
☑ CLUSTER: Re-entry of third and fourth spacecraft,	Aug 2026
☑ Roman Space Telescope (NASA/ESA)	Aug-2026
☐ BEPICOLOMBO: Mercury Arrival,	Dec 2026
☑ MTM sep.	03.09.
☐ Mercury Orbit Insertion	21.11.
☐ MIO sep.	09.12.
☐ MOSIF sep	16.12.
☐ JUICE: Earth Fly By	Sep 2026
☐ HERA: Start of Proximity Operations at Didymos,	Dec 2026
☐ SolO: Venus Fly By	Dec 2026
☐ …	

Mission Operations High Level Architecture

New home to ESAs Space Operations
set as critical infrastructure
---- coming 2028 / 2029 ------

(1) Core ESA Owned Missions SCI, HRE, EOP-EE
(2) Copernicus++ (EU owned missions)
(3) IIQE IOD / IOV / Qualification Environment
THE SANDBOX [UNCLASSIFIED & CLASSIFIED]
(4) "Flying" Operations Teams / Flight Director
Doing / supporting operations somewhere else
MATRIX Support in doing as well as training others

VISUALISATION OF MAIN CONTROL ROOM

ESOC will leverage industry capabilities more then ever

Supporting double the missions by 2030:

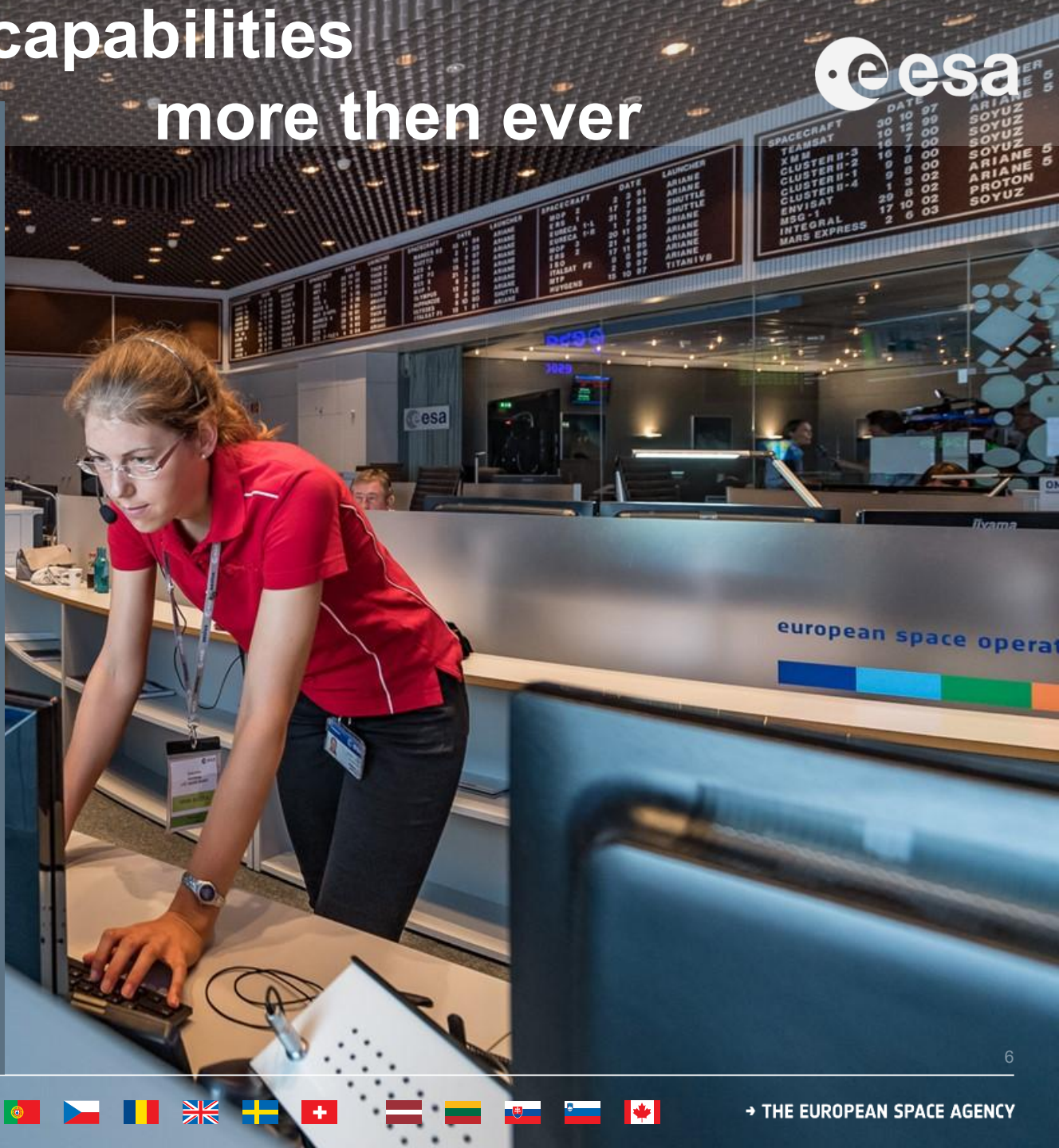
- Enabled by Future Mission Control Center, new operations concepts, increased automation, standardisation, on-site, off-site, near site, security and testing facilities

Modern world-leading control centre:

- Centre of excellence matching high functionality and representation with sovereignty, sustainability and security
- ESOC as attractive and modern workplace, facilitating team collaboration and offering an inspirational working environment

Working hand-in-hand with industry:

- Nurturing available industrial eco-system
- Supporting industry as enabler for their endeavours



Copernicus Flight Operations Support (aka COP-3)

Copernicus Flight Operations Support Service

01
Routine and OPS Prep Service

Cost profile based on service volume and cost model (**FFP**)

This Service will cover the support to the Copernicus Routine operations and OPS Preparation activities of the recurrent models (e.g. SVT, GSVs, LITs, support to Sat and GS reviews).

02
Onboarding Service

Cost profile based on service volume and cost model (**FFP**)

This service will cover the onboarding of a new mission into the contract handling e.g. the recruiting of new incumbent, training, update of the Service processes, handover of the operations.

03
Critical OPS Service

Cost profile based on service volume and cost model (**FFP**)

This service will cover the additional support to Critical OPS activities of the recurrent Copernicus models (e.g. Sim Campaign, LEOPs, IOCs, deorbiting, orbit transfers)

04
FOS IVV Service

Cost profile based on foreseen service volume (**FUP**)

This Service will cover the support to the FOS GS IVV activities (e.g. major GS migrations, new MCS or SIM baselines, integration of new GS infrastructure, cloud, AI tools, enhanced automation)

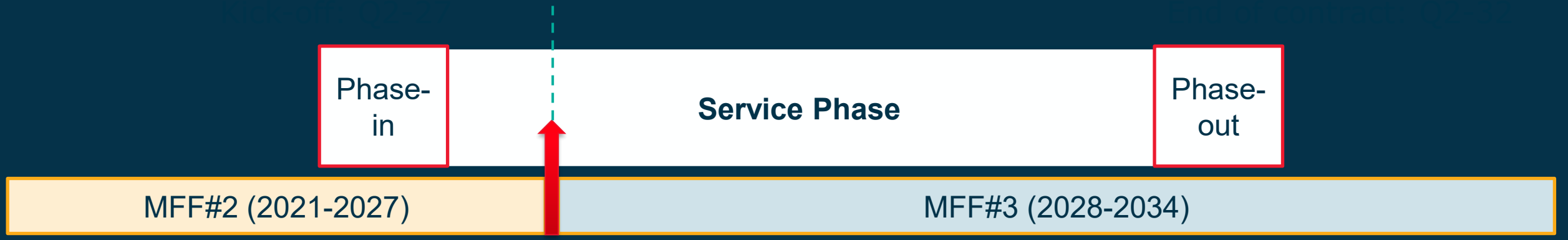
05
Service Management

Cost profile based on service volume and cost model (**FFP**)

This Service will cover:
- PMO (Admin, PA, Architect)
- Service Training
- Security
- Service Delivery Management

Contract duration

- Total contract duration: **5 years**
- Kick-off in Q2-2027 and running until Q2-2032



ESEC/Redu Flight Operations Support (aka ESEC-2)

WP-01
Small SAT Operations

Cost profile based on service volume and cost model (**FFP**)

This Service will cover the support to Small Sats operated from ESEC

WP-02
Galileo Hosting

Cost profile based on service volume and cost model (**FFP**)

Support to Galileo Hosting activities in ESEC

Contract duration

- Total contract duration: **3+2 years**
- Kick-off in Q1-2027

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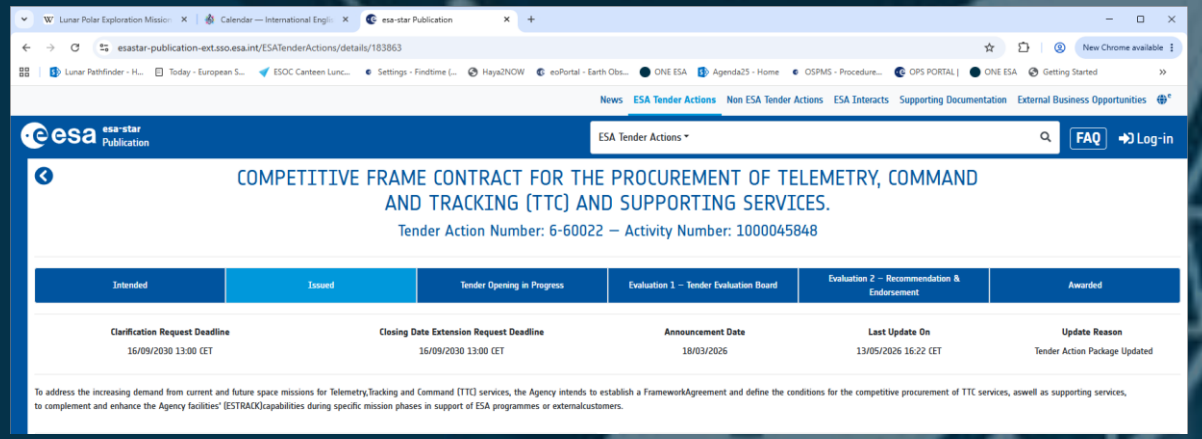
Stations owned and operated by commercial providers.
Procured in support of routine operations and Launch and Early Orbit phase execution

ESTRACK & Commercial TT&C Services



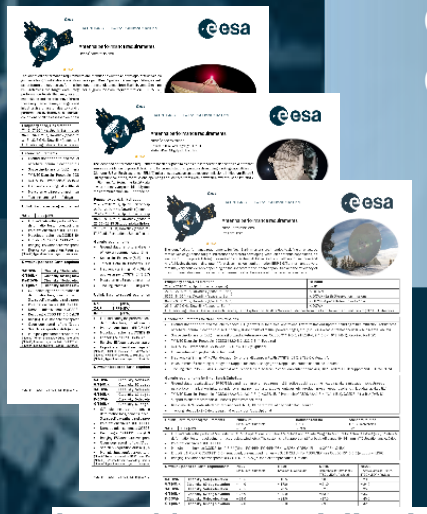
- Published **Open Call for Proposal** to establish new Frame Contracts (2027+) covering all market segments. **Open until 2030**.

https://esastar-publication-ext.sso.esa.int/ESATenderActions/details/183863

- Once per year, new tenderers with capacity to provide **TT&C services** can submit a proposal for a Frame Contract and become part of the competitive Frame Contractors.

Next Submission Deadline: 13th September 2027

What we are looking for…



https://commercialisation.esa.int/opportunities/expanding-estrack-opportunities-for-european-ground-stations/

Facility for Operations Experimentation (FOX)

https://www.esa.int/Enabling_Support/Operations/Facility_for_Operations_Experimentation_FOX

Flexible Ground Segment & Operations facility

in support to both traditional and New Space missions

enabling **operational experimentation**, **technology validation**,

in-orbit demonstration/validation (**IOD/IOV**),

qualification and end-to-end operational activities

Get in touch: fox@esa.int

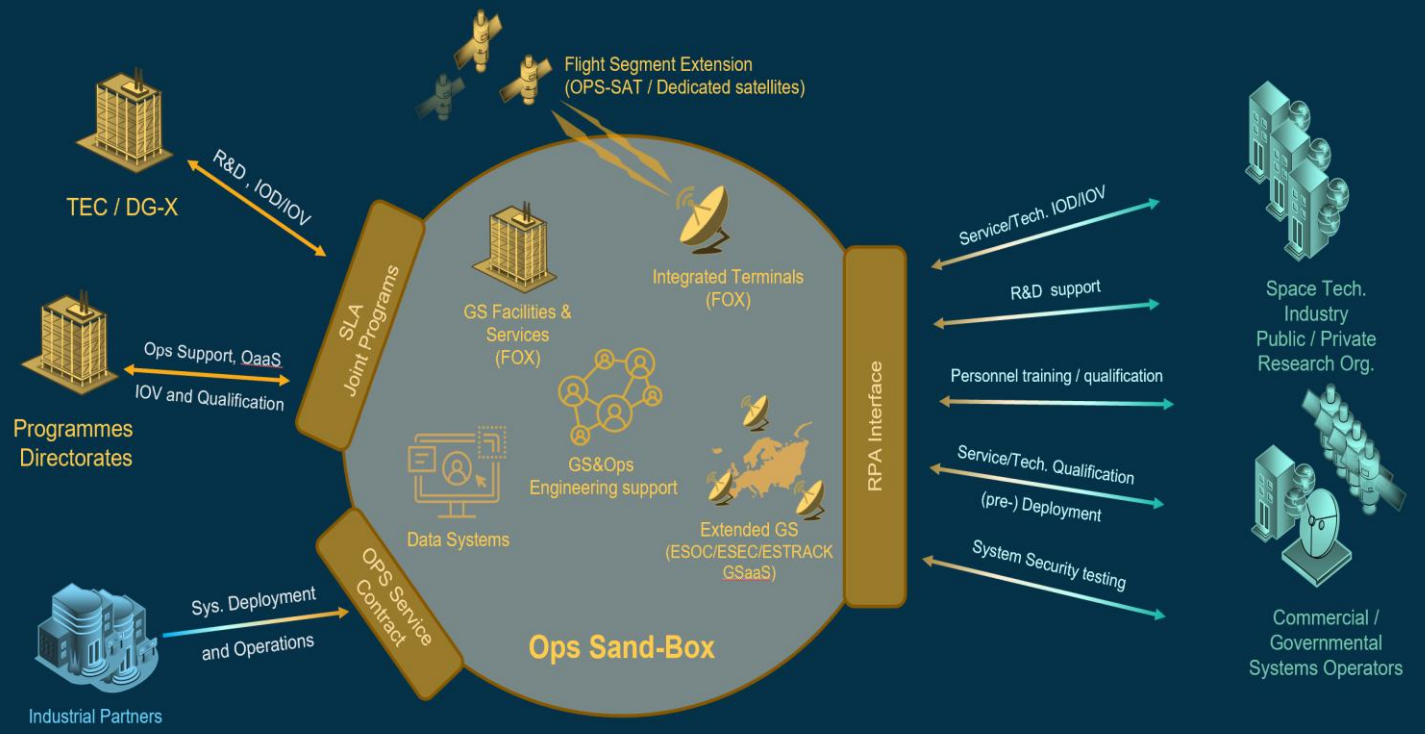
Powered by

ESTRACK

IOD, IOV & Qualification Environment: Ops Sand-Box

Operational and modular ground segment to offer a portfolio of operations engineering services for experimental, demonstration, validation, and qualification activities

- Permanent hosting environment
- Flexible open architecture
- Scalable security level
- Accessible to ESA internal, public, and private actors
- OPS know-how and leveraging flexible infrastructures (**FOX**)



Large participation of Industry, service-oriented contractual frame for deployment and operations

Training Courses Offered – Our Portfolio

Mission Operations Academy – Advanced (4 days) ~5 times per year

- Target: Experts
- Focus: Deep technical & operational expertise
- Value: Excellence, credibility, core competence

Small Sat hands on course (1 day)

- Hands on session for Ladybird Guide to Spacecraft Operations Training Course
- OPS-SAT live passes, mission planner for a day

NEW: Mission Operations – Fundamentals & Applications (2.5 days) ~12 times per year

- Target: Early-career professionals, non-specialists, authorities, research, startups, data users
- Focus: Big picture of mission operations; roles, processes, real mission examples
- Delivery: Mainly contractors, selective ESA inputs, regular (≈ monthly), scalable format
- Value: Broad reach, community building, resource-efficient

NEW: Mission Operations for Policy & Decision-Makers (1 day) on-demand

- Target: Politicians, ministries, senior management
- Focus: Strategic value of mission operations; links between policy, funding, risk, resilience
- Delivery: Senior ESA experts, small groups; on-demand, highly interactive
- Value: Improved decision quality & political understanding

SUMMARY: Needs and Support Offered in Space and Ground Operations

PROVIDING PURPOSE TO SPACE MISSIONS

Needs of ESOC **– we are procuring -**

1. Even Higher Service Utilization for ESOC core services
   - Several Services in various domains, such as Flight & Ground Operations Engineering, Security Operations Engineering, Training & Simulations Services, IT & Logistic Services
2. Commercial TTC Services

Enable and Support of ESOC **– we are providing -**

1. ESTRACK (Deep) Space Communication Service
2. Facility Provision – very wide portfolio -
3. Space Lab …. ESA in-flight testing from ESOC Darmstadt & ESEC Redu
4. Testing / Assessing / Consultancy in all areas of Mission Implementation
5. Training of staff & industry

THANK YOU