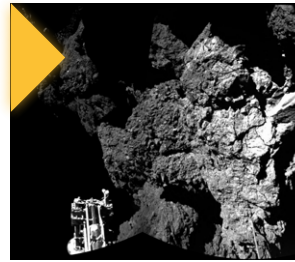
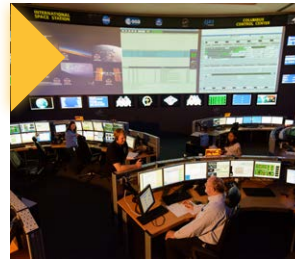




Space Operations and Astronaut Training Service Portfolio





Overview of the Institute

DLR Space Operations and Astronaut Training is the central institution for spaceflight operations in Germany. It is here, where groundbreaking space projects are realized and new ideas for the spaceflight of tomorrow are developed.



DLR Space Operations covers the following areas:

- German Space Operations Center (GSOC) and
- Mobile Rocket Base (MORABA) at Oberpfaffenhofen near Munich
- Ground Station Weilheim (ZDBS – Zentralstation des Deutschen Bodensystems), Bavaria
- MUSC (Microgravity User Support Center)
- EAC (European Astronaut Center) together with ESA
- LCC (Lander Control Center) in Cologne

Operational tasks

- Since 1969, the **German Space Operations Center (GSOC)** has been successfully operating spaceflight missions. In more than 60 missions with different applications, DLR demonstrated its competence in operating spacecraft of all kinds. In these spacecraft operations, the utmost security and quality requirements are taken. DLR Space Operations is certified according to ISO 9001, ISO 45001 and ISO 27001.
- Scientific satellites, for example Earth observation satellites, are monitored and controlled within a flexible and reliable multi-mission environment of the **Satellite Control Center (SCC)** at Oberpfaffenhofen. Within this environment several satellites are supervised by a single team in a single control room.
- Furthermore, the **Lander Control Center (LCC)** at the DLR location Cologne has extensive expertise in robotic exploration and specializes in the operation of landers.
- In addition, GSOC is one of the leading institutions for **Human Spaceflight Operations in Europe**. In February 2008, the commissioning of the ESA space

laboratory “Columbus” as the largest European contribution to the **International Space Station (ISS)** began. Since then, the **Columbus Control Center (Col-CC)** operations are being carried out in close cooperation with the control centers of the international partners.

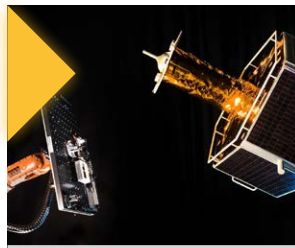
- At the DLR location in Cologne, the **Microgravity User Support Center (MUSC)** is a specific user center for space experiments. It is in charge of the preparation, execution and evaluation of experiments on board the ISS.
- Also in Cologne, astronauts from ESA as well as from other ISS partners are trained and supervised for their missions with the European ISS components in the **European Astronaut Center (EAC)**. The EAC is jointly operated by an integrated team from ESA and DLR.
- With its **Mobile Rocket Base (MORABA)**, DLR Space Operations launches missions with sounding rockets and balloons for scientific experiments in the areas of aeronomy, astronomy, geophysics and atmospheric physics among others.



Overview of the Service Portfolio Modules of Space Operations and Astronaut Training Services



Astronaut Training



European Proximity Operations Simulator (EPOS)



Flight Dynamics Services



Ground Station Weilheim



Ground Stations and Network Operations Center



Human Spaceflight Operations



Lander Engineering and Operations for Space Exploration



LUNA Moon Analogue Facility



Microgravity User Support



Mission Control and Data Systems (MCS)



Mission Operations Technologies



Mission Planning



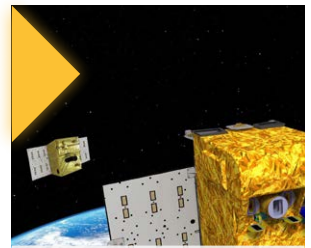
MORABA Mobile Launch and Range Infrastructure



MORABA Sounding Rocket Flight Experiments



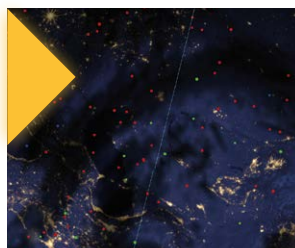
On-board Data Analysis and Real-time Information System (ODARIS)



On-Orbit Servicing Technologies (OOS)



Satellite Operations



Space Situational Awareness



Training & Consulting

Find detailed information about each Service Portfolio here:

www.dlr.de/rb/portfolio/