

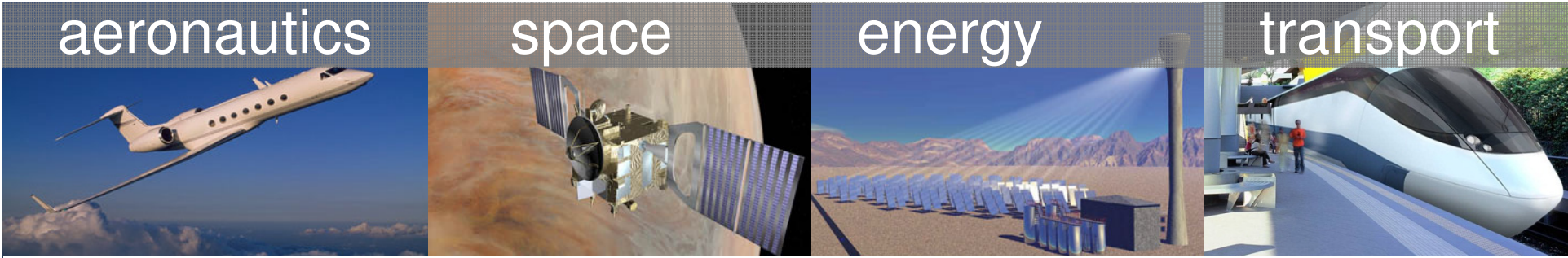
# National strategies for Internal Cooperation in space

- The case of Germany -



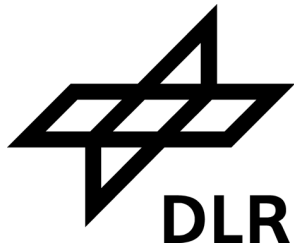
Christoph Becker  
Hans-Joachim Kroh  
DLR  
Brussels, 13 September 2012





**Research Center  
&  
German Space Agency  
&  
Project Management Office**





## Sites and Staff

7.200 employees

30 institutes and test facilities

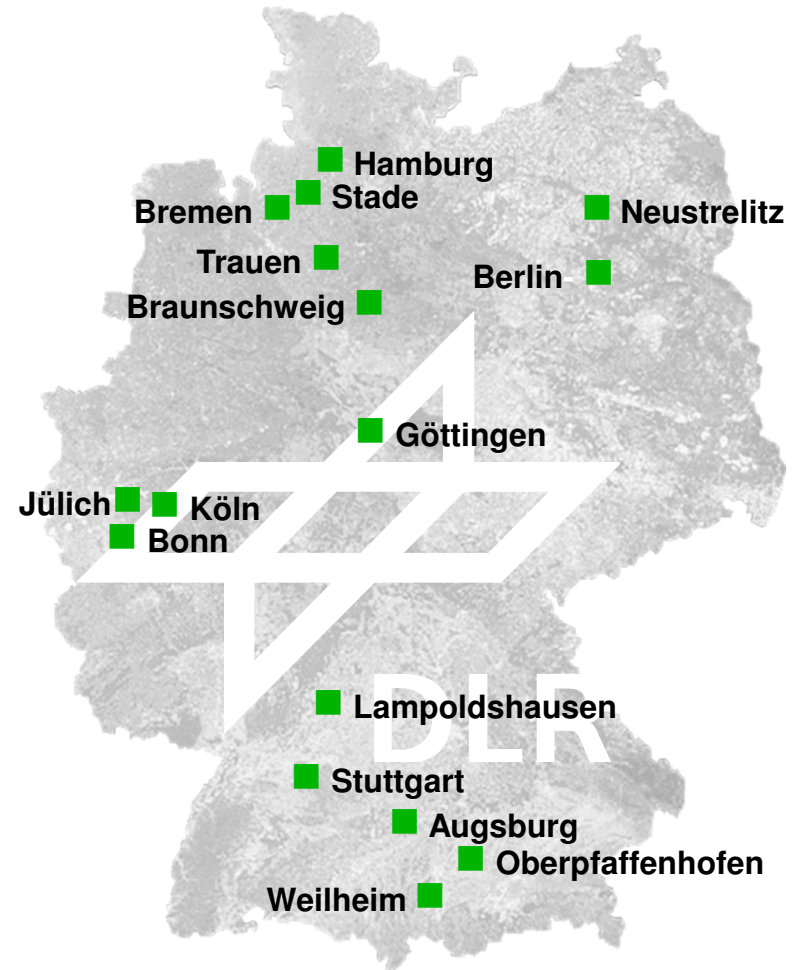
Budget 1.8 B€ (Space Agency+R&D)

■ 16 Sites

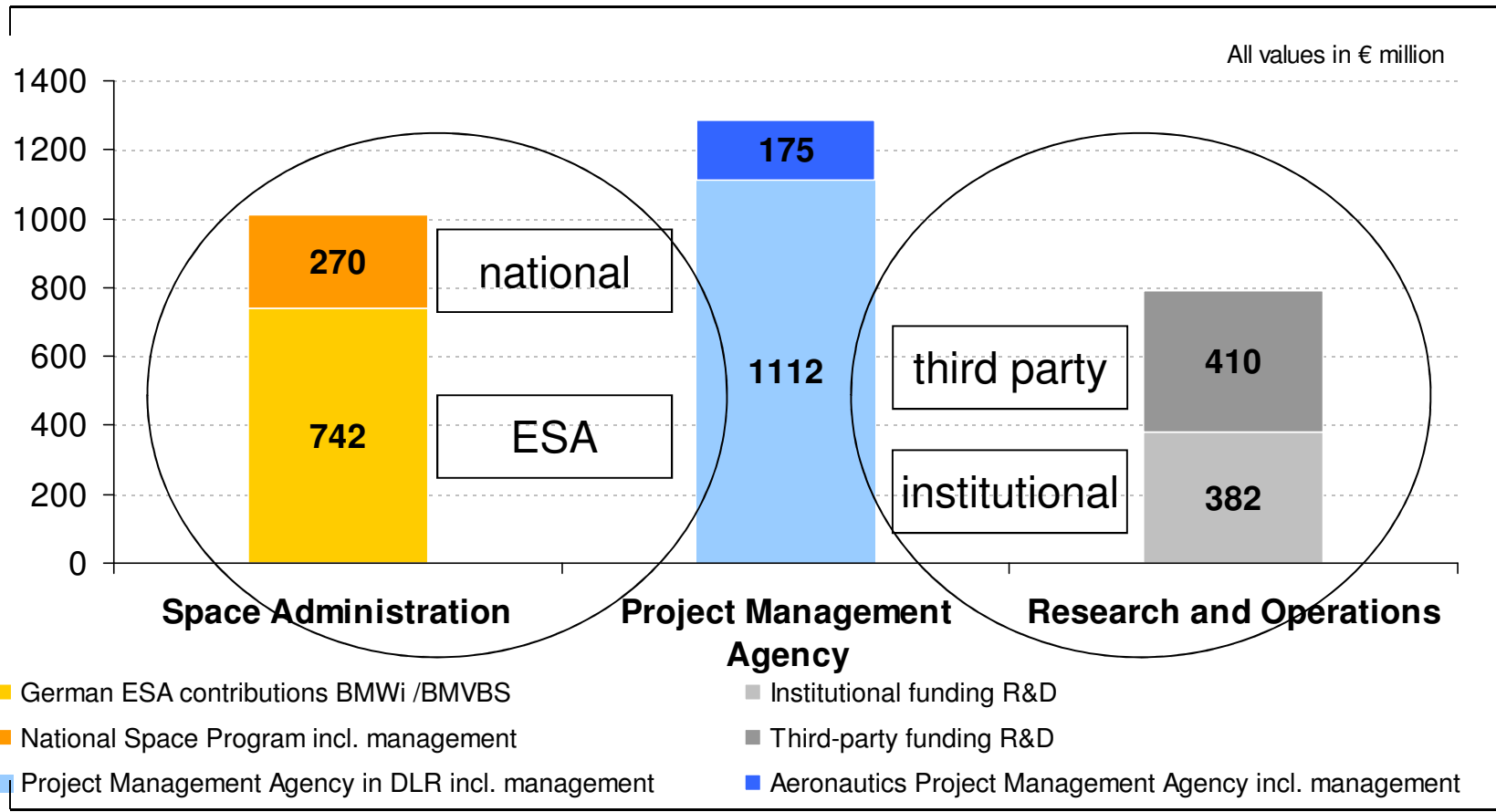
DLR\_Stations O'Higgins, Inuvik,  
Chetumal

DLR\_Lab Almeria

DLR\_Offices Berlin, Brussels, Paris,  
Washington D.C., Tokyo (2013)



# Financing of DLR and research funding 2012 (planned)



- German ESA contributions BMWi /BMVBS
- National Space Program incl. management
- Project Management Agency in DLR incl. management
- Institutional funding R&D
- Third-party funding R&D
- Aeronautics Project Management Agency incl. management

without settlement of cross-financing



# International Cooperation

**International Cooperation** in space programmes/projects being pursued **to achieve objectives** which cannot be achieved alone by

- **Distribution of responsibilities/workpackages** over more players
- **Complementing/pooling their capabilities and resources**

**For European States International Cooperation naturally starts in Europe**



## Lisbon-Treaty



- Lisbon-Treaty provides EU with an **explicit competence for “space”**
  - “Space” competence of EU, like competence for “research”, however not a full “shared” competence, but rather a **“parallel” competence**
- => Lisbon-Treaty **does not restrict the competence of Member States and therefore of ESA** with regard to “space”, hence, **does not place the European Union into an overall coordination role**
- => Lisbon-Treaty calls for general discussion/decision on the **sharing/division of work and responsibilities between EU, ESA and Member States**



# Sharing/Division of main responsibilities between European actors

**European Union:** ?

**ESA:** ?

**Member States:** ?

**International relations:** ?



# Sharing/Division of main responsibilities between European actors DLR views (I)

## European Union and ESA:

- Joint development of a **European space policy**  
(call for such a policy in Lisbon-Treaty and also in ESA-Convention)

**European Space Policy** to be implemented by all three actors EU, ESA and MS

- **Clear division of responsibilities** in order to achieve objectives of policy
- **Avoidance of mixed funding** (mixed rules)
- **Avoidance of unnecessary duplication**

**Actor financially responsible for activity represents activity on international scene**  
and takes over **responsibility for related International Relations/Cooperation**





# Sharing/Division of main responsibilities between European actors DLR views (II)

## European Union: Applications and Legislation

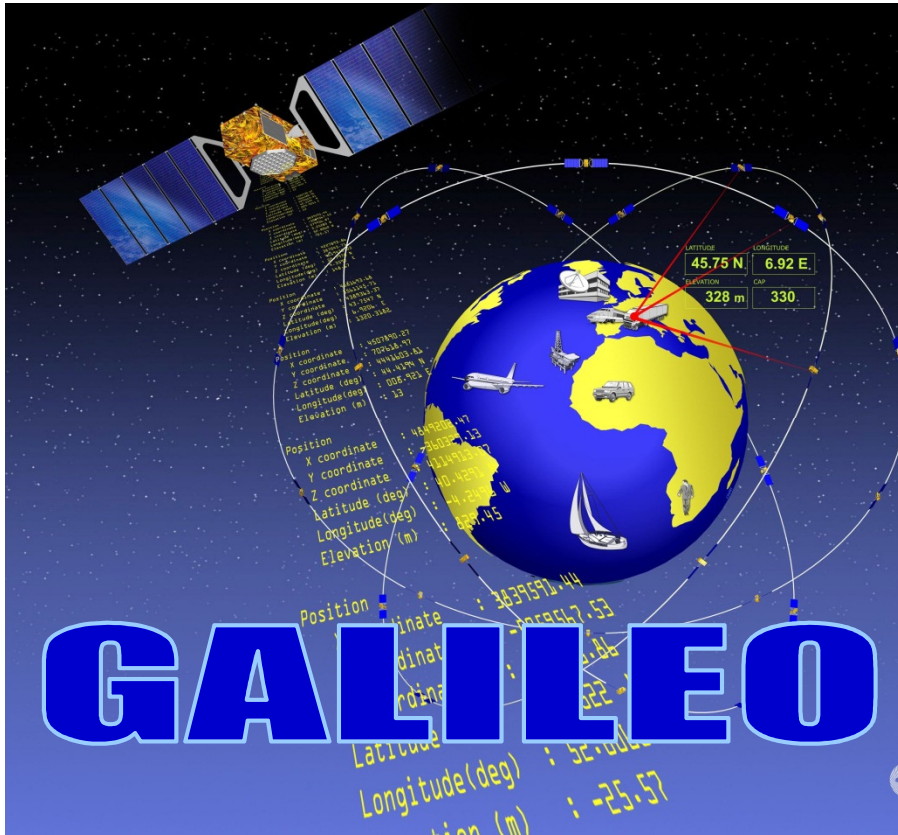
- EU flagship programmes **Galileo** and **GMES**, including
- the **development of their services/downstream markets**
- space-related **legislation**

## ESA: Foundations

- **Science and Technology**
- **Launchers and Exploration/Human Space Flight**
- if needed, also **funding of development activities related to Galileo and GMES, technical implementation of EU programmes** (e.g. procurement)



# European Union



## GMES

Global Monitoring for Environment and Security

Applications & Services



Space Segment



In Situ Systems



Ground Segment & Data Management



# European Space Agency

Cryosat (Science)



ISS



Ariane 5



EDRS (Technology)



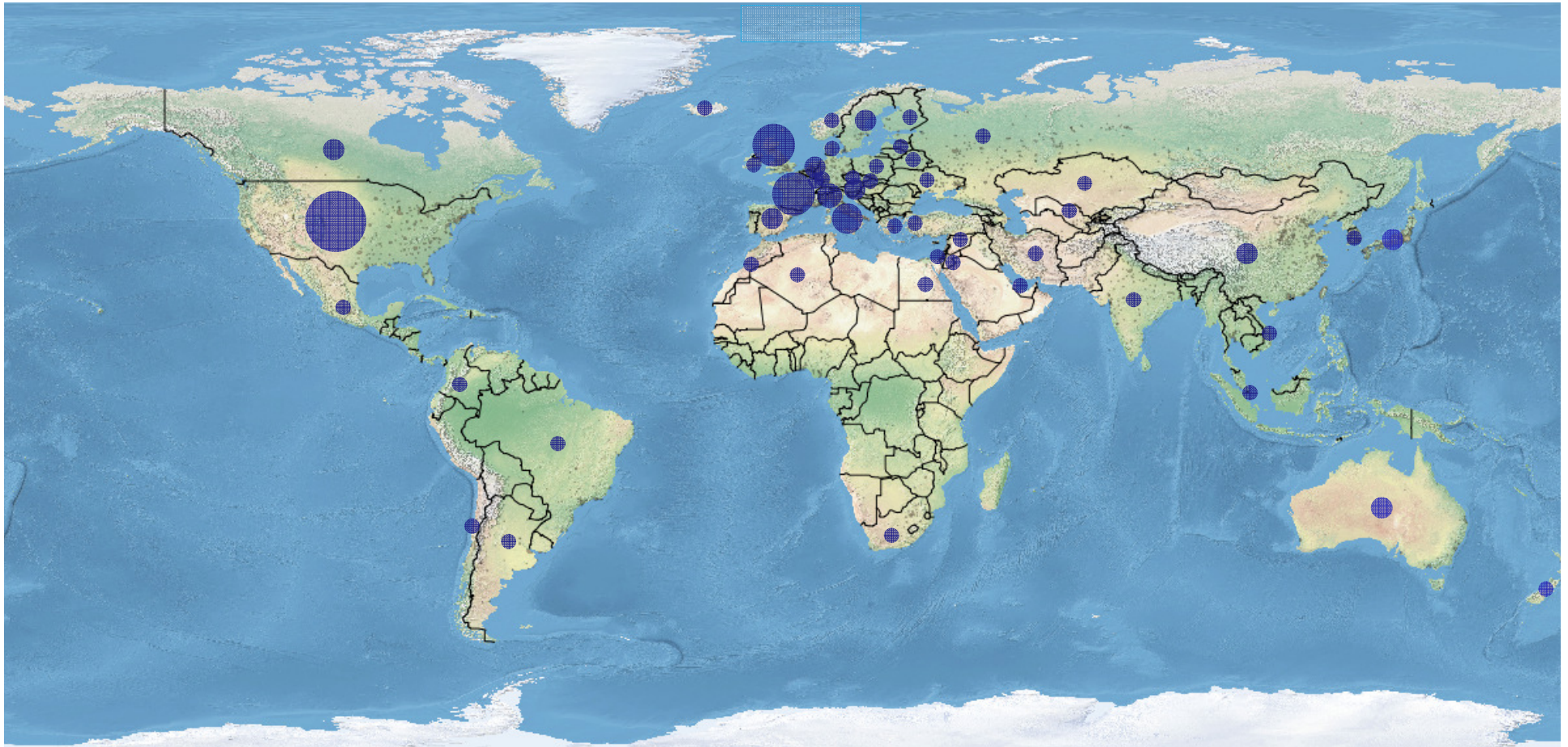
# Sharing/Division of main responsibilities between European actors DLR views (III)

## **Member States:**                      **Applications and Foundations, Legislation**

- supportive **R&D** and **payloads**
- **small missions/precursor missions, small constellations, infrastructure contributions**
- space-related **legislation**



# DLR international research cooperation with Universities (space & aeronautics)



● > 70 projects    ● > 30 projects    ● > 10 projects    ● < 10 projects

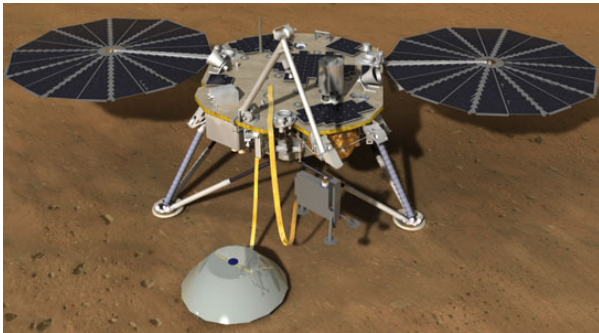


# DLR cooperation with space agencies



# German Payloads – International Flight Opportunities

(ESA Science programme following same principles)



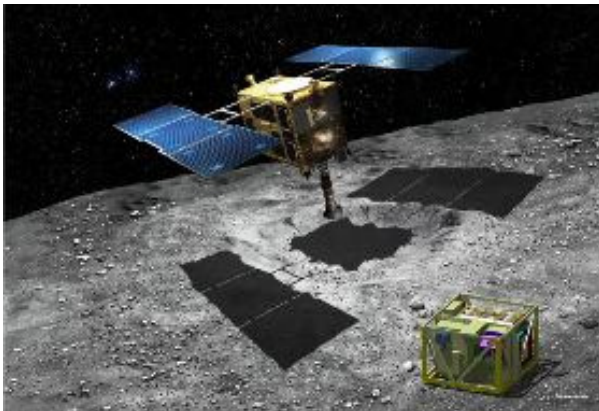
InSight (NASA, US)

SIMBOX (CMSEO, China)



**Win-Win Deal:**  
Sharing of science  
for  
sharing of flight opportunity

E-Rosita (RSA, Russia)



Hayabusa (JAXA, Japan)

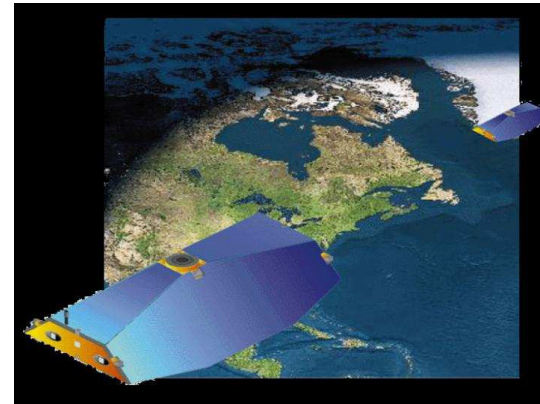


# German precursor missions (new science, new technology)



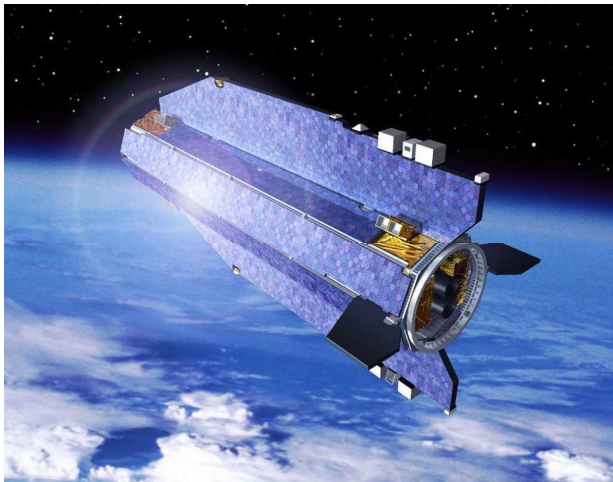
CHAMP  
DE-FR

=>



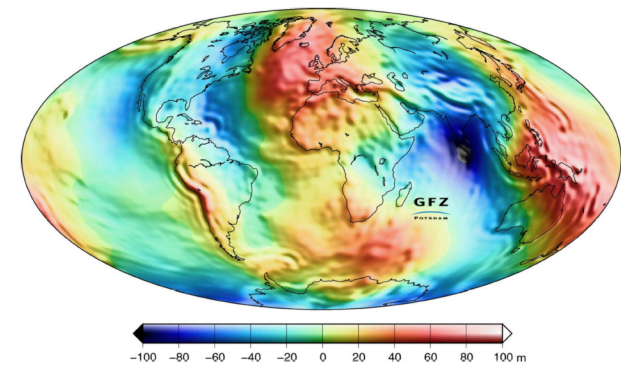
GRACE  
DE-US

=>



GOCE

ESA



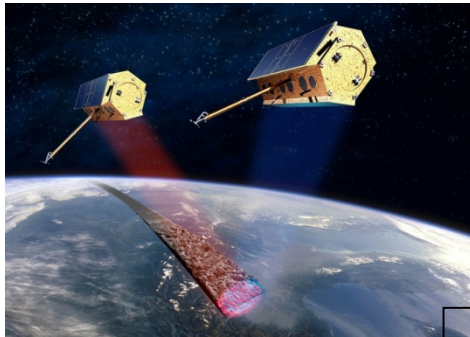
Geoid from GRACE-data





# German small missions/small constellations

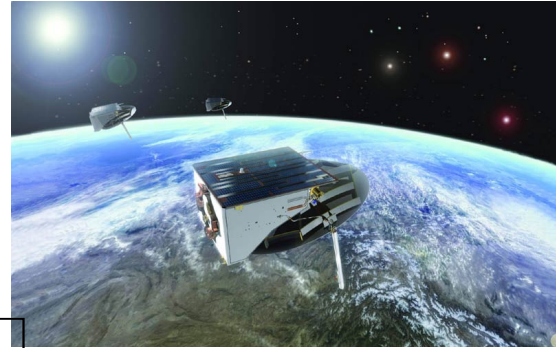
TerraSAR/Tandem-X



Incorporation of national HR-missions into GMES via data procurement still unresolved  
<=>

SAR-Lupe constellation (military)

Close cooperation with FR Pleiades, and other MS



Data provision to EUSC

Merlin, DE-FR



Earth Observation

EnMAP



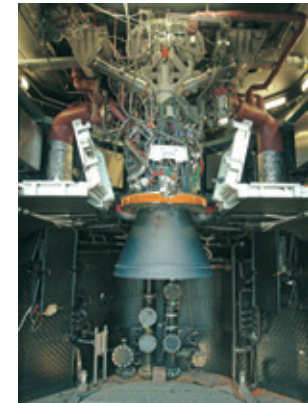
# DLR infrastructure contributions to European programmes



Galileo-CC, Munich



GSOC – Columbus-CC,  
Munich



Test-Stand Ariane  
engines,  
Lampoldshausen



**GATE (Berchtesgaden, Bavaria)**  
test environment for Galileo applications



EOC – Munich (GMES)



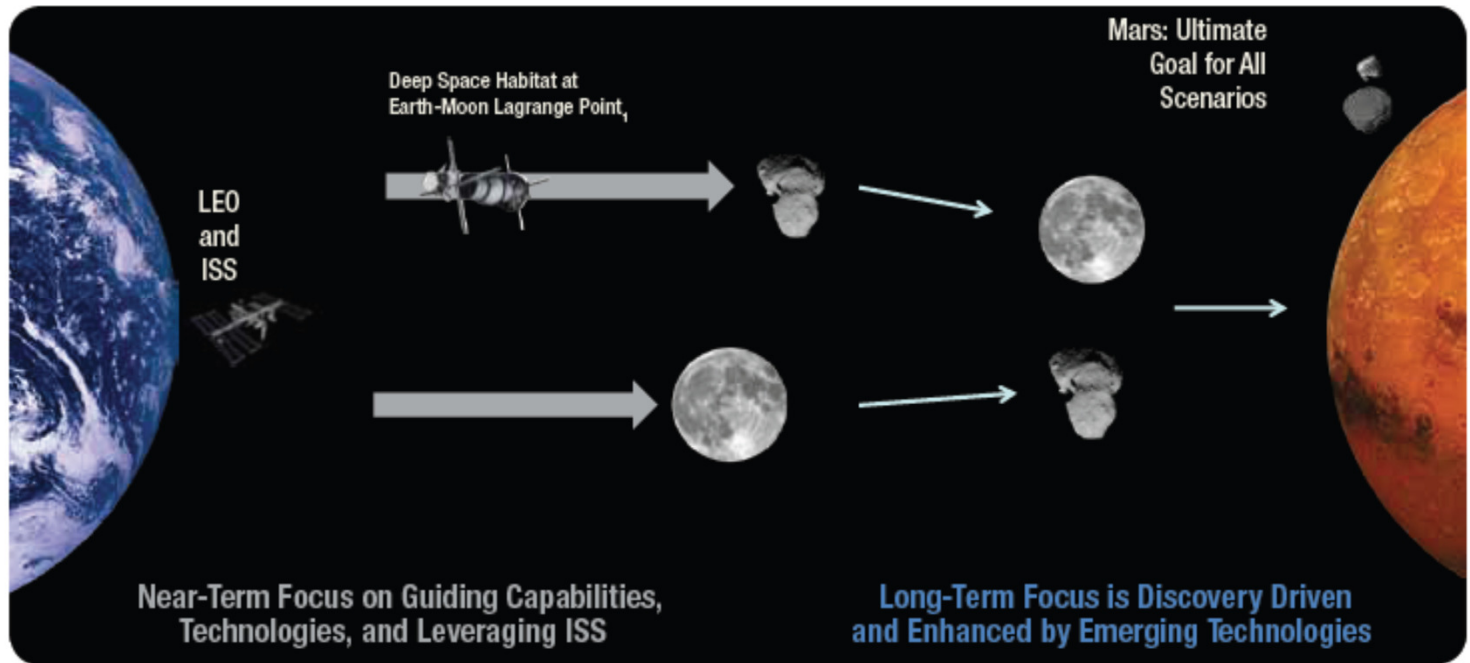


# International Space Exploration Coordination Group

Cooperation between all leading space agencies of the world

Europe to find and negotiate its role/contribution in/to global endeavour

## Optional Pathways in a Common Strategy



## National Cooperation Strategy – Case of Germany

In the field of **science and research cooperation with the whole world** guided by principle of scientific excellence

**On mission level** in essence **only activities of direct relevance for European programmes/policies** in order to support European independence

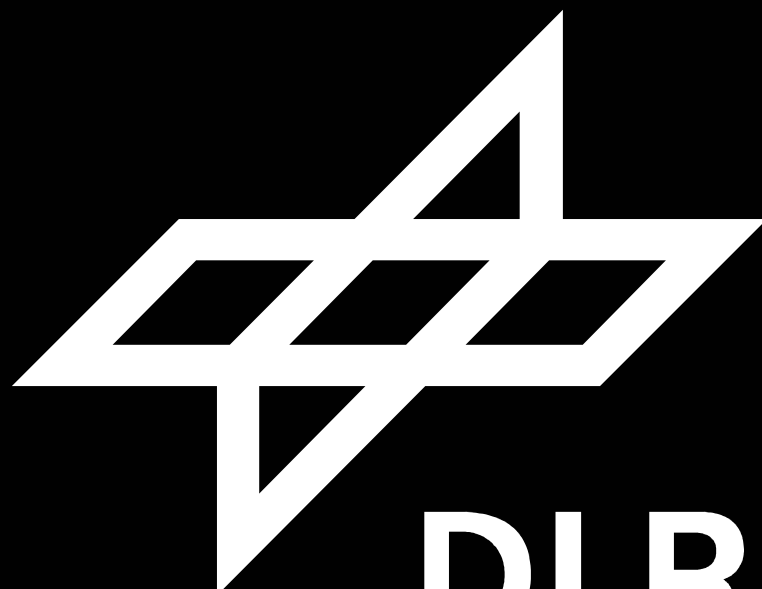
**Main public operational capacities** directly linked to **European programmes**

Promotion of **one European Space Policy**, implemented by **clear division of responsibilities between the European actors**

**Support to transparent inner-European coordination** to allow for coherent appearance of Europe in International Cooperation despite variety of European actors (also via Space Council)



**Knowledge for  
Tomorrow**



**DLR**