



EU-funded space research

EO technologies

Space-based Earth observation (EO) technologies deliver reliable and repeat-coverage datasets, which provide a unique means for gathering information about the Earth's physical, chemical and biological systems to monitor and assess the status of the natural and manmade environment.

The challenge is to **mature application-oriented EO technologies** to underpin competitiveness and contribute to the integration of space in the society and economy.

The **focus of EU-funded activities in EO technologies** is on improving

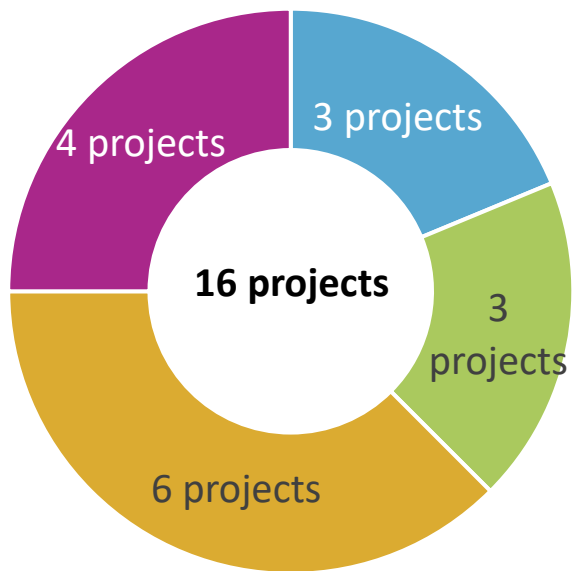
- timeliness and reactivity of observations,
- their resolution and swath,
- the performance of sensors,
- the underlying technologies

... while addressing the new challenges associated to larger data gathering from remote sensing missions.



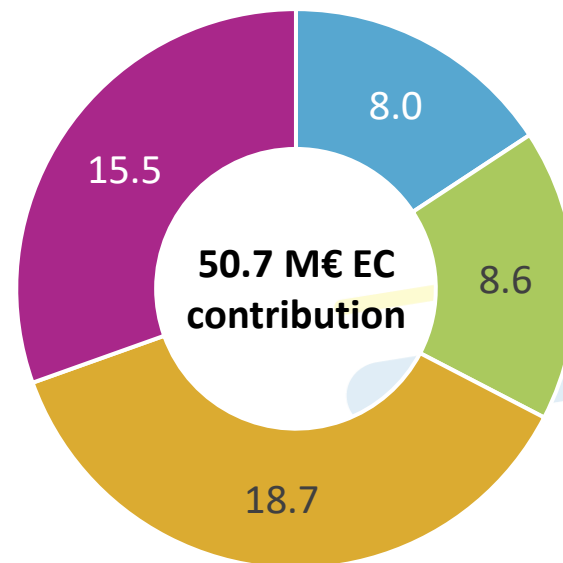
In Horizon2020 **16 projects with EO technology focus** have been funded within the four sub-domains: new system concepts, active and passive remote sensing technologies and high-speed data chains.

Number of projects by sub-domain 2014-2020



- New system concepts for Earth Observation
- Passive/Optical remote sensing technologies

EC contribution by sub-domain in M€ 2014-2020

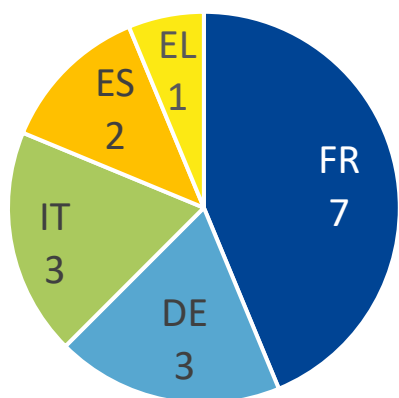


- Active/Advanced Radar and LiDAR technologies
- High-Speed data chain/end-to-end systems

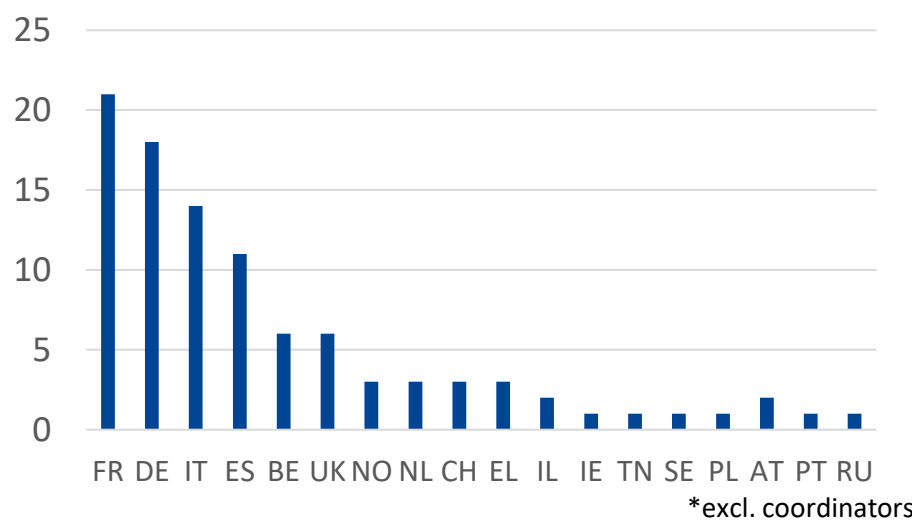


A total of 93 beneficiaries received funding:

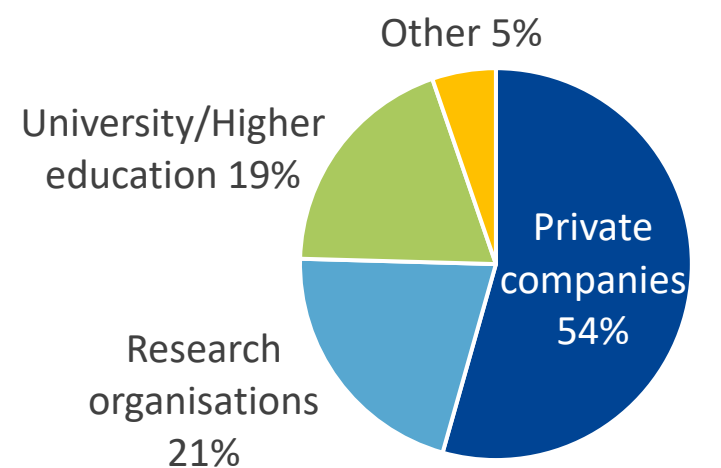
Country split of 16 project coordinators



Country split of 98 participants* (incl. associated and third countries)



% of beneficiaries by type (coordinators and participants)

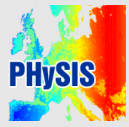


EU-funded space projects with focus on

EO technologies - H2020 projects

High-Speed data chain/end-to-end systems

2015-2017, completed



PHYSIS – 1.0 M EUR

Development of sparse signal processing technologies for hyperspectral imaging systems

IT, FR, BE, **GR**

2018-2021, ongoing



S4Pro – 2.7 M EUR

Smart, scalable satellite high-speed processing chain, designed for LEO missions with a focus on EO and SatCom systems

IT, TN, FR, **GER**

2018-2021, ongoing



EO-ALERT – 4.8 M EUR

Development of a next generation satellite processing chain for rapid civil alerts

AT, IT, GER, **ES**

2018-2021, ongoing



HI-SIDE – 7.0 M EUR

Improvement of space on-board data handling and transfer capabilities in support of future data networks

UK, GR, NO, ES, FR, **GER**

Passive/Optical remote sensing technologies

2017-2021, ongoing



ASTEROID – 5.0 M EUR

Development of a large infrared (IR) imager for EO, science and astronomy missions

AT, ES, **FR**

2018-2022, ongoing



SWIRup – 2.8 M EUR

Development of an alternative photosensitive material that allows higher operating temperatures

UK, BE, NO, **FR**

2019-2022, ongoing



VIDEO – 2.0 M EUR

Video imaging demonstrator for Earth Observation

ES, BE, **FR**

2020-2022, ongoing



SURPRISE – 3.0 M EUR

Super-resolved compressive instrument in the visible and medium infrared for Earth observation applications, operating from GEO

CH, GER, FR, **IT**

Active/Advanced Radar and LiDAR technologies

2018-2021, ongoing



HOLDON – 2.5 M EUR

Optimisation of LIDAR detection of greenhouse gases & miniturisation of the payload to be integrated in future SmallSats

ES, GER, CH, **FR**

2018-2021, ongoing



ATOS – 2.6 M EUR

Demonstration of a new generation of Active Electronically Steerable Antenna (AESA) for satellite radar at X band

GER, CH, **IT**

2018-2021, ongoing



RETINA – 3.0 M EUR

Development of a miniaturised photonics enabled next generation SAR

IT, GER, UK, **ES**

2019-2023, ongoing



LEMON – 3.4 M EUR

Provision of a new versatile differential absorption Lidar (DIAL) sensor concept for greenhouse gases and water vapor measurements

GER, SE, NO, **FR**

New system concepts for Earth Observation

2016-2017, completed



ONION – 2.5 M EUR

Analysis if small satellites (modularisation & miniaturisation) constellations provide an advantage for EO systems

PT, RU, ES, PL, BE, **FR**

2016-2018, completed



S3NET – 2.6 M EUR

Work on key enablers required to develop the full potential of "swarms" to drive understanding of swarm sensor networks

IL, IT, FR, **GER**

2017-2021, ongoing



SCARBO – 3.0 M EUR

Tracing of CO₂ & CH₄ emissions accurately, cost-effective and with unmatched temporal resolution

NL, GER, BE, **FR**

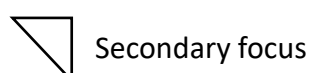
2020-2022, ongoing



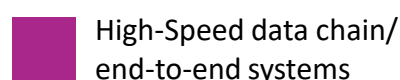
SPACEBEAM – 3.0 M EUR

SAR system with integrated photonic beamforming enabling reconfigurable multi-beam Scan-on-Receive SAR for EO applications

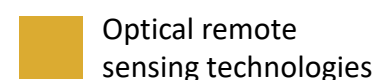
GER, NL, BE, IE, **IT**



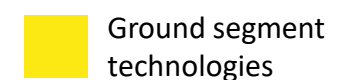
Secondary focus



High-Speed data chain/end-to-end systems



Optical remote sensing technologies



Ground segment technologies