P2-ROTECT

Prediction, Protection & Reduction of OrbiTal Exposure to Collision Threats

PROTECTING EUROPE'S SATELLITES

Progressively, Europe is building its satellite infrastructure in Low and Medium Earth Orbit, as well as in High Geostationary Orbit. The risk from space debris to satellites varies between these different environments. The P2-ROTECT project will provide comprehensive insights to make Europe's satellites safer everywhere they fly.

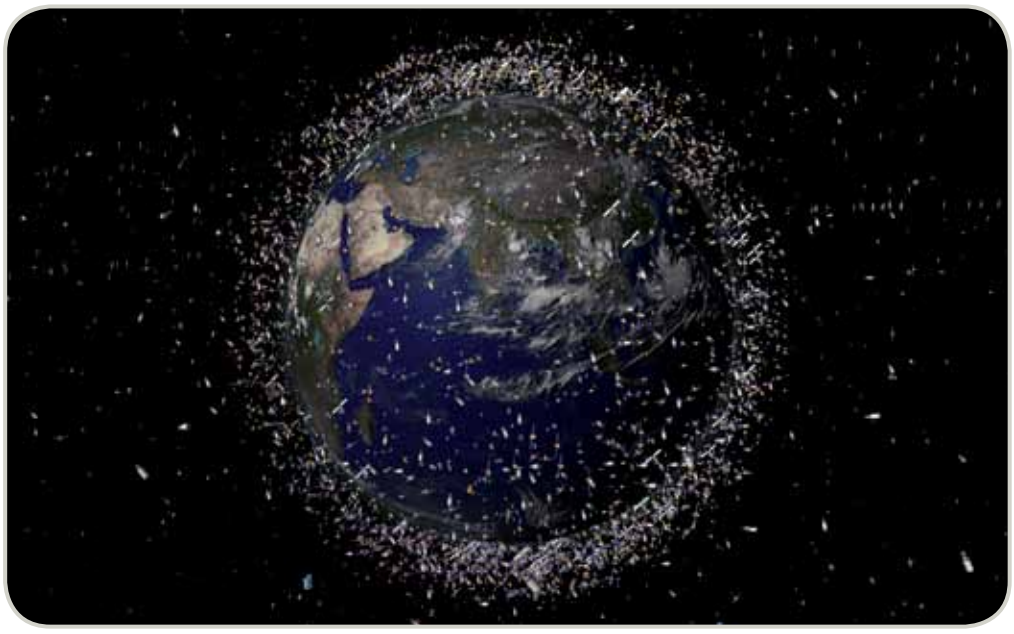
In the coming years, Europe is set to expand its satellite infrastructure with the launch of a series of Earth observation and navigation satellites. The flagship Galileo and GMES space initiatives will open new market opportunities for EU businesses and help us deal with climate change.

In order to harvest the full potential of such valuable infrastructure, the satellites that are its building blocks must be protected against hazardous space debris.
Better space situational awareness of the risks that satellites are faced with both in Low Earth Orbit (LEO), Medium Earth Orbit (MEO) and Geostationary Orbit (GEO) is a precondition for such protection to be most effective.

The P2-ROTECT project responds to this challenge, aiming to assess the risks associated with collisions between satellites and space debris in these different orbits.

Whether a satellite is flying in LEO some 100 and 2000 km above us, or is geostationary at an altitude of some 35,786 km, P2-ROTECT will assess its degree of vulnerability, providing access to sensitive terms of collision probability or severity. The aim is to improve existing methods for collision prediction, thus enhancing Europe's capability to undertake effective space surveillance. Moreover, the project will also provide recommendations into new designs that would limit the negative impacts satellites colliding with small scale space debris.

THÉRÈSE **DONATH**
IS PROJECT COORDINATOR



Trackable objects in Low Earth Orbit © ESA

P2-ROTECT calculates the risks that space debris poses for Europe's satellite infrastructure, and proposes new means to mitigate such risks.

QUESTIONS & ANSWERS

What do you want to achieve with this project?
The P^2-ROTECT project will assess the risks due to space debris collisions in LEO, MEO and GEO and will recommend possible solutions - better prediction, better protection or action on debris environment - to reduce vulnerability of future space missions.

Why is this project important for Europe?
The strategic importance of space systems is growing in Europe, for civil and defence applications. Recent examples have shown that on-orbit collisions due to space debris are actual threats. This project will assess the risks depending on orbits and will recommend better ways of reducing them.

How does your work benefit European citizens?
Life of European citizens is depending more and more on space systems. This work, recommending better ways of reducing their vulnerability with trade-offs made between efficiency and cost, will contribute to the reliability of future space systems.

SPACE DEBRIS

P2-ROTECT

Prediction, Protection & Reduction of OrbiTal Exposure to Collision Threats

LIST OF PARTNERS

- Onera, France
- OHB-System AG, Germany
- Thales Alenia Space – Italia, Italy
- Fraunhofer EMI (Ernst-Mach-Institut), Germany
- TUBITAK Uzay, Turkey
- Technische Universität Braunschweig, Germany
- TELINT RTD Consultancy Services, United Kingdom

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PROJECT INFORMATION

Prediction, Protection & Reduction of OrbiTal Exposure to Collision Threats (P2-ROTECT)
Contract no: 262820
Duration: 30 months
EU Contribution: € 1.995.781
Estimated total cost: € 2.933.485

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