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EUROPEAN DEFENCE FUND

EDF 2024

SPADER PROJECT
NEWSLETTER 02

Latest SPADER News

SPADER PROJECT

SPADER is a project selected for funding under the EDF 2024 call. Its mission is to develop an innovative space debris removal system that uses concentrated solar rays to alter the thermal and kinetic energy of targeted debris particles.
Space debris includes any man-made objects, or fragments of such objects, that continue to orbit Earth without any form of ground-based control.

As the number of space missions grows - driven by more countries launching or participating in space programs - the amount of unmanaged debris in orbit increases as well.

Because there is no natural mechanism in space that removes this material, the debris remains in orbit. Over time, the overall number of these objects grows at an accelerating rate, adding to the long-term accumulation of space clutter and it poses significant risks to ongoing and future space operations

The SPADER project introduces the concept that is based on a dual catoptric optical system that concentrates solar radiation and directs it precisely through a final optical element toward the selected object. By applying intense solar energy, the system aims to significantly modify the debris particle's physical state, enabling controlled removal or trajectory alteration.

The project will guide research and technological development toward a laboratory-scale model, which will be tested to deliver a Proof-of-Concept. This work will pave the way for future deployment of SPADER in space debris clean-up missions and other advanced space applications.

Check out more

KICK-OFF MEETING

On 3–4 November, the Kick-Off meeting took place in Tallinn, Estonia.

Hosted by the project coordinator, VAAL Airships, all nine SPADER partners met at Technopol to launch the project and align initial activities. The Project Officer from DG DEFIS attended, providing guidance on workflow, reporting, deliverables and funding. A virtual meeting room enabled additional partner participation, with the DG DEFIS representative contributing to discussions on the project concept.

Workshops addressed the work plan, task administration, dissemination and communication. Ethics and security aspects were presented by the responsible partner. Key decisions were taken regarding the next plenary meeting and project web hosting. The Administrator finalized the project workbook, to be delivered within the overall administrative framework.

SPADER Kick-Off Meeting, 3-4 November 2025, Tallinn, Estonia

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Meet the SPADER Consortium

VAAL Airships - Beneficiary - ESTONIA (EE)

VAAL Airships builds and operates High Altitude Platform Stations (HAPS), also known as High Altitude Pseudosatellites.

👉 Visit VAAL Airships

INCDT COMOTI - Beneficiary - ROMANIA (RO)

COMOTI - National Research and Development Institute for Gas Turbines is the only unit in Romania specialized in development and integration of scientific research, constructive and technological design, manufacturing, experimentation, testing, technological transfer and innovation in the field of aviation turbine engines, gas turbine industrial machines and high speed blade machines.

👉 Visit INCDT COMOTI

SKYLD Ltd - Beneficiary - CYPRUS (CY)

SKYLD is focusing in the fields of Security and Defence domain, including European, International, and nationally funded Research projects and tenders and its personnel has extensive experience in managing complex ICT projects at the respective domains.

👉 Visit SKYLD Ltd

EU3STAR B.V. - Beneficiary - THE NETHERLANDS (NL)

EU3STAR B.V. is built in the 3-star business domain, the aerospace, the defense, and the maritime sectors.

👉 Visit EU3STAR B.V.

MGM - Beneficiary - ROMANIA (RO)

MGM STAR Construct is a Romanian private company specialized in physical and chemical vacuum deposition (PVD, CVD). Lithography technology, optical manufacturing, manufacturing of mechanical parts, construction works in civil area and activities for a wide range of industrial applications.

👉 Visit MGM

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Meet the SPADER Consortium

ICPEST SRL - Beneficiary - ROMANIA (RO)

ICPEST SRL specializes in manufacturing new and reconditioned mechanical parts, producing prototypes, and designing complex assemblies, devices, and molds. The company also conducts advanced research and development activities in precision engineering and processing technologies.

👉 Visit ICPEST SRL

PLUS ETHICS - Beneficiary - SPAIN (ES)

PLUS ETHICS provides expert support for European-funded projects, ensuring compliance with GDPR, ethics, fundamental rights, and legal standards through specialized research, management, and training.

👉 Visit PLUS ETHICS

ICCS - Beneficiary - GREECE (EL)

The Institute of Communication and Computer Systems (ICCS) is a leading non-profit research organization of the National Technical University of Athens (NTUA), advancing scientific excellence in computational science and engineering. Its interdisciplinary work spans AI, smart systems, communications, energy, climate, biomedical engineering, photonics, and advanced hardware–software technologies.

👉 Visit ICCS

GEORING - Beneficiary - GREECE (EL)

GEORING Services is the initiator of a system for On-Orbit Servicing Named HERMES, aiming to kick-start the On-Orbit Servicing (OOS) industry in Europe. GEORING has invented and is pursuing deployment of a 5 element system to enable efficient deployment and delivery of a series of services on orbit. Some of these services apply to existing satellites but the full spectrum to the future satellites.

👉 Visit GEORING

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OTHER SPACE NEWS

Musk's SpaceX applies to launch a million satellites into orbit

Elon Musk. Photo: ©BBC

SpaceX has applied to the US Federal Communications Commission to deploy up to one million solar-powered satellites as orbital data centres to support artificial intelligence computing. The proposal argues that space-based infrastructure could meet surging AI demand more efficiently than terrestrial facilities. Operating in low Earth orbit, the constellation would far exceed the scale of the existing Starlink network. While SpaceX highlights energy efficiency and global capacity, experts warn of launch costs, debris risks and growing orbital congestion concerns.

👉 Find out more

China Wants to Send Thousands of Satellites to Space and Challenge SpaceX's Dominance

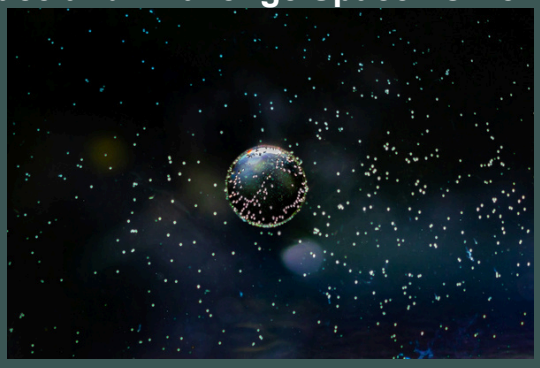

Photo: ©Kai Dahms

China has submitted proposals to the International Telecommunication Union outlining plans for up to 203,000 low Earth orbit satellites across 14 constellations, potentially launching by the early 2030s if approved. The most ambitious filings, CTC-1 and CTC-2, each envisage nearly 100,000 satellites. Backed by state-linked research bodies and major telecom operators, the initiative would dramatically expand China's space presence and challenge existing networks such as Starlink. Approval will depend on available orbital slots and radio spectrum, intensifying global competition over space governance and congestion.

👉 Find out more

EU Space Days 2026: Nicosia Hosts Europe's Space Policy Summit

The European Commission, under the Cypriot Presidency of the Council of the EU, will host EU Space Days 2026 in Nicosia on 26–27 May 2026, bringing together senior policymakers, industry leaders, entrepreneurs and investors to shape Europe's space future. The two-day flagship event will spotlight how the EU Space Programme delivers real benefits via Galileo, EGNOS, Copernicus, GOVSATCOM/IRIS² and Space Situational Awareness, while addressing emerging priorities such as space for defence, quantum communications and next-generation Earth observation. EU Space Days will also offer networking opportunities and side events connecting public authorities, innovators and the broader space ecosystem.

👉Find out more

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OTHER SPACE NEWS

Spacecraft from Chinese launch nearly slammed into Starlink satellite, SpaceX says

A Starlink satellite narrowly avoided a 200-metre close approach with a spacecraft launched aboard China's Kinetica 1 from Jiuquan. SpaceX stated no prior coordination or deconfliction had occurred, highlighting ongoing concerns over space traffic management. CAS Space responded that launch windows are selected using ground-based tracking systems and pledged further coordination if required. The incident underscores mounting orbital congestion and the growing need for transparent, cross-operator collision avoidance mechanisms.

Photo: ©space.com

👉 Find out more

Orbital Collision Risk Spurs New Satellite Safety Tools

Photo: ©INNOVATION NEWSNETWORK

Researchers at The University of Manchester have developed a model that integrates collision risk into satellite mission design to reduce in-orbit collision probability. With about 11,800 active satellites and projections exceeding 100,000 by decade's end, the risk of fragmenting debris fields endangers operational spacecraft and long-term orbital use. By incorporating collision forecasting early in mission planning, the approach seeks to balance mission performance with space sustainability, highlighting the urgency of responsible constellation deployment and improved space traffic coordination.

👉 Find out more

Ariane 6 Debuts Four-Booster Configuration

Photo: ©ESA

The European Space Agency has successfully launched Ariane 6 in its four-booster configuration for the first time, marking a major milestone in Europe's next-generation launch capability. The upgraded setup delivers increased thrust and payload performance, strengthening Europe's autonomous access to space. The mission demonstrated the rocket's flexibility for heavier institutional and commercial payloads, reinforcing Europe's competitiveness in a rapidly evolving launch market and supporting future scientific, security and connectivity missions.

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OTHER SPACE NEWS

Europe is set to redefine space safety with the upcoming PRELUDE mission

Photo: ©ClearSpace

The European Space Agency and ClearSpace are advancing active debris removal with the PRELUDE mission, designed to demonstrate technologies for autonomous debris capture and sustainable space operations. Scheduled for launch in 2027, the mission will test close-proximity navigation and cooperative manoeuvres, enabling future satellite servicing, inspection and cleanup. PRELUDE marks a step toward operational debris management and reflects Europe's efforts to maintain safe orbital environments as constellations and debris volumes grow, supporting both institutional and commercial space activity.

👉 Find out more

Study Warns Re-Entering Satellites May Alter Atmosphere

Photo: © Pixabay/CC0 Public Domain

A recent analysis warns that the increasing number of re-entering satellites could significantly alter Earth's upper atmosphere, contributing alumina and other by-products and impacting atmospheric chemistry and heating. With a projected million satellites possible in orbit by the 2030s, researchers highlight potential risks to climate modulation and long-term sustainability. Not all debris burns up, and the likelihood of fragments reaching the ground or affecting aviation systems is rising. The findings underscore the need for regulation and debris mitigation to preserve both atmospheric and orbital environments.

👉 Find out more

ESA's Zero Debris approach

ESA is testing the use of lasers to track space debris objects Photo: ©ESA

The European Space Agency is advancing its Zero Debris approach under the Clean Space initiative, aiming to significantly limit the creation of new space debris by 2030. The strategy promotes stricter end-of-life disposal, improved satellite design, collision avoidance and active debris removal, moving beyond mitigation toward prevention. By embedding sustainability into mission planning and procurement, ESA seeks to preserve critical orbital corridors and ensure long-term access to space. The initiative reflects growing recognition that orbital safety, environmental responsibility and strategic autonomy are increasingly interlinked.

👉 Find out more

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