

Media Release

A European project to eliminate space debris

Operation space clean-up

Neuchâtel, April 3, 2018 – The proliferation of space debris represents a time-bomb, as we are seeing with the return to Earth of the remains of the Tiangong-1 “Celestial Palace” spacecraft. The European project RemoveDEBRIS is designed to test – in real situations – techniques for eliminating this debris. The “hunter” satellite developed for this purpose was successfully launched on April 2 from the base at Cape Canaveral (USA). CSEM is lending its “eyes” to this mission.

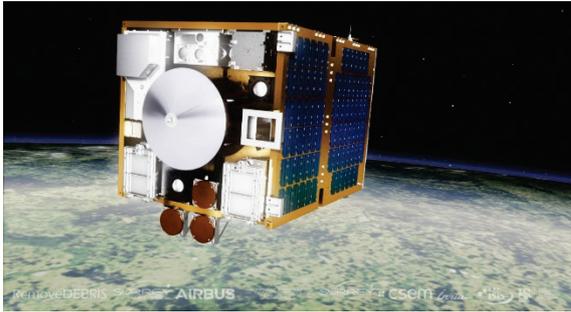
The return to Earth of the debris of a Chinese space station highlights a much bigger problem – how to manage “space junk”. Hundreds of thousands of pieces of debris are floating around in orbit. This presents a danger to working satellites, and actually forced the International Space Station (ISS) to take evasive action. In 2015, its crew had to take refuge in a Soyuz spacecraft because of a close encounter with the remains of a Russian satellite.

First European experience in a real situation

Several research projects are being undertaken to perfect technologies that are capable of eliminating space debris. Among these is RemoveDEBRIS. This European project, launched as part of the FP7 program, comprises ten partners, including CSEM. On April 2, it entered the operational phase with the launch by SpaceX of a “hunter” satellite from Cape Canaveral (USA). This space vehicle was taken on board the ISS, from which it will be deployed, over several months, to test various technologies associated with the elimination of this debris. The mission represents a European “first”.

CSEM lends its “eyes” to the mission

“We believe the technologies we will be demonstrating could provide feasible answers to the space junk problem - answers that could be used on future space missions in the very near future,” explains Professor Guglielmo Aglietti, Director of the Surrey Space Centre (UK), which is coordinating the project. Sample debris will be captured in a net or eliminated using a harpoon. To visualize this debris, the vision system is critically important. This consists mainly of a LIDAR capable of obtaining 3D images and a color camera, which were developed by CSEM in partnership with Airbus and INRIA. “Thanks to this project, we have acquired cutting-edge competencies in a technology with high potential,” enthuses Alexandre Pollini, Project Manager at CSEM. Already used in driverless vehicles on Earth or in space, this type of LIDAR also offers interesting perspectives for the precision landing of space exploration probes or for automatic orbital docking.



The RemoveDebris satellite will test technologies associated with the elimination of space debris between June and December.

The vision system developed by CSEM consists of a LIDAR, enabling the capture of 3D images, and a 2D color camera.

More information on this project:

<https://www.surrey.ac.uk/surrey-space-centre/missions/removedebris>

CSEM in space (Space missions time-line)

<https://www.csem.ch/csem-in-space>

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About CSEM

CSEM—technologies that make the difference

CSEM, founded in 1984, is a Swiss research and development center (public-private partnership) specializing in microtechnology, nanotechnology, microelectronics, system engineering, photovoltaics and communications technologies. Around 450 highly qualified specialists from various scientific and technical disciplines work for CSEM in Neuchâtel, Zurich, Muttenz, Alpnach, and Landquart.

Further information is available at www.csem.ch



About RemoveDebris

RemoveDebris is a low-cost mission funded jointly by the European Commission (EU) and 10 partners. Surrey Space Centre (University of Surrey) leads the consortium. The consortium consists of: Airbus, the world's second largest space company; Ariane Group (France); Surrey Satellite Technology Ltd, a world leader in small satellites (UK); Innovative Solutions In Space (Netherlands); CSEM (Switzerland); Inria (France); Stellenbosch University (South Africa).

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