

RemoveDebris Mission Confirms Launch in 2017 using the International Space Station

Surrey Space Centre and NanoRacks are pleased to announce the RemoveDebris mission will be deployed into low-Earth orbit from the International Space Station (ISS) using the NanoRacks Kaber Satellite Deployment System (Kaber).

Since the beginning of the space era, a huge amount of orbital debris has progressively been building up; from old rocket casings to dead satellites, there are almost 7,000 tonnes of it around the Earth. Active debris removal missions have been suggested as a way of limiting and controlling future growth by actively sending up spacecraft to capture and remove the debris from space – to date this has never been fully achieved.

The RemoveDebris mission, which started in 2013 and has more than 60 people assigned to the mission, draws on the expertise of some of Europe's most prominent space companies and institutions. The project is co-funded by the European Commission and the partners (the research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n°607099). The mission will launch a 100 kg satellite (designed by Surrey Satellite Technology Limited – SSTL, and Surrey Satellite Technology US LLC – SST-US) to demonstrate four different debris removal technologies. In the mission, CubeSats, provided by the Surrey Space Centre (SSC), will be ejected from CubeSat deployers (provided by ISIS - Innovative Solutions In Space) to be used as “artificial debris”. Airbus DS France is in charge of the mission design and the system engineering.

Professor Guglielmo Aglietti, a Royal Academy Research Chair in Space Engineering at the Surrey Space Centre, and Principal Investigator for the mission, said: “The RemoveDebris mission, which captured the public's imagination at the “Cleaning up space junk” exhibit at the Royal Society in London recently, is a world-class endeavour and opens the possibilities for future debris removal missions.”

In the two capture experiments a net (developed by Airbus DS Bremen) is fired at a CubeSat to demonstrate net capture in space, and a harpoon (developed by Airbus DS Stevenage) is fired at a deployable target plate to demonstrate safe grappling in orbit, without generating additional debris. The third experiment involves vision-based navigation (developed by Airbus DS Toulouse and Inria) which aims to demonstrate rendezvous navigation using cameras and a LiDaR (provided by CSEM). Finally, the mission will demonstrate de-orbiting using a large dragsail (produced by SSC). All parts of the mission will rapidly de-orbit, and thus will not contribute to space debris.

The RemoveDebris consortium has just finalised signing a launch contract with NanoRacks, a commercial company offering launch opportunities and satellite deployment services from the International Space Station (ISS), targeting a June 2017 launch. NanoRacks is able to offer this Space Station opportunity via the company's Space Act Agreement with NASA's U.S. National Labs. The unconventional launch sequence will involve the satellites on the Kaber platform being launched in a box to the ISS on-board an ISS cargo resupply mission, being unpacked by astronauts

on the ISS then being attached to a slide table in the Japanese experiment module (JEM), finally being deployed into space.

The RemoveDebris mission should be the first of many active debris removal missions, and is a vital prerequisite to achieving the ultimate goal of a cleaner Earth orbital environment.

The RemoveDebris mission is being presented at the 67th International Astronautical Congress (IAC) in Guadalajara, Mexico from 26th to 30th September, 2016. The IAC is one of the largest space conferences in world and this year has attendees from 74 countries.

About the Consortium

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 Defence and Space (DS), the world's second largest space company; Airbus Safran Launchers (France); SSTL, a world leader in small satellites (UK); ISIS (Netherlands); CSEM (Switzerland); Inria (France); Stellenbosch University (South Africa).

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About NanoRacks

NanoRacks LLC was formed in 2009 to provide commercial hardware and services for the U.S. National Laboratory on-board the International Space Station via a Space Act Agreement with NASA. As of July 2016, over 375 payloads have been launched to the International Space Station via NanoRacks services, and our customer base includes the European Space Agency (ESA) the German Space Agency (DLR,) the American space agency (NASA,) US Government Agencies, Surrey Space Centre, Planet Labs, Urthecast, Space Florida, NCESE, Virgin Galactic, pharmaceutical drug companies, and organizations in Vietnam, UK, Romania and Israel.

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