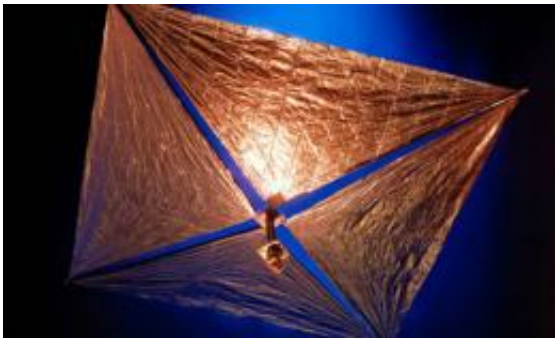


A mission to clear dangerous debris from space (w/ Video)

March 28 2010



CubeSail

(PhysOrg.com) -- New UK technology is set to play a major part in clearing dangerous clouds of debris hurtling around the Earth's lower orbit.

More than 5,500 tonnes of debris is believed to be cluttering space around the planet as a result of 50 years of abandoning spacecraft, leading to a threat of collision to any manned or unmanned spacecraft, the destruction of hugely expensive technology and the potential threat of large debris plummeting back to Earth.

The build-up of debris - expected to grow at a rate of 5% each year - is also believed to obstruct [satellite](#) television and other communications signals.

Scientists at the University of Surrey, working on the project funded by the European space company Astrium, have devised a 3 kg miniature satellite or "nanosatellite" fitted with a "[solar sail](#)".

"CubeSail" is a device which can be fitted to satellites or launch vehicle upper stages that are sent into orbit and then can be deployed to successfully de-orbit equipment that has reached the end of its mission.

A 5 x 5 m, 3 kg, deployable sail is being developed to fit in a 10 x 10 x 30 cm nanosatellite and will be used in a demonstration mission to be launched in late 2011 demonstrating passive means of deorbiting for future satellites.

Dr Vaios Lappas, lead researcher on the project and Senior Lecturer in [Space Vehicle](#) Control at the Surrey Space Centre, said: "Protecting our planet and environment is key for sustainable growth. CubeSail is a novel, low cost [space mission](#) which will demonstrate for the first time [space debris](#)/satellite deorbiting using an ultra light 5 x 5 sail stowed and supported on a 3 kg nanosatellite.

"Successful deployment and testing of the sail can enable a low cost/mass solution to be used for future satellites and launch vehicle upper stages reducing dramatically the problem of space debris.

"Following successful in orbit demonstration, the proposed deorbit system will be offered as a standard deorbit system for Low Earth [Orbit](#) missions for satellites with a mass of less than 500 kg at a very low cost."

CubeSail is due to be ready for launch on new satellites next year, and is expected to be available for shifting existing debris from 2013.

Dr Craig Underwood, Deputy Director of the Surrey Space Centre, and

Reader in Spacecraft Engineering at SSC, said: “The launch of this innovative new technology is very timely. This week's announcement of the creation of the UK's space agency is evidence of the commitment to space initiatives and their huge potential for creating growth in the UK economy. At the same time, this exciting future is increasingly dependent on finding a sustainable approach to launching and disposing safely of spacecraft.”

Provided by University of Surrey

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