SPACE DEBRIS SYMPOSIUM (A6)
Space Debris Removal Concepts (6)

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AN IN-ORBIT ACTIVE DEBRIS REMOVAL MISSION – REMOVEDEBRIS: PRE-LAUNCH UPDATE

Abstract

Since the beginning of the space era, a huge amount of debris has progressively been generated. Most of the objects launched into space are still orbiting the Earth and today these objects represent a threat as the presence of space debris incurs risk of collision and damage to operational satellites. A credible solution has emerged over the recent years: actively removing debris objects by capturing them and disposing of them.

This paper provides an update to the mission baseline and concept of operations of the EC FP7 RemoveDEBRIS mission drawing on the expertise of some of Europe's most prominent space institutions

in order to demonstrate key active debris remove (ADR) technologies in a low-cost ambitious manner. The mission will consist of a microsatellite platform (chaser) that ejects 2 CubeSats (targets). These targets will assist with a range of strategically important ADR technology demonstrations including net capture, harpoon capture and vision-based navigation using a standard camera and LiDAR. The chaser will also host a drag sail for orbital lifetime reduction.

The mission baseline has been revised to take into account feedback from international and national space policy providers in terms of risk and compliance and a suitable launch option is selected. A launch in the second quarter of 2016 is targeted. The payload flight models are currently scheduled to be delivered in the autumn of 2015 for platform integration (AIT) and subsequent EVT phases. The RemoveDEBRIS mission aims to be one of the world's first in-orbit demonstrations of key technologies for active debris removal and is a vital prerequisite to achieving the ultimate goal of a cleaner Earth orbital environment.