

SPACE DEBRIS SYMPOSIUM (A6)
Interactive Presentations (IP)

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ACTIVE DEBRIS REMOVAL: OVERVIEW AND FIGURES OF MERIT OF DEBRIS GRABBING
STRATEGIES

Abstract

During the last two decades the problem of space debris and safe access to Low Earth Orbit has been one of the most controversial and discussed issue in the space community. Along with mitigation actions (e.g. the 25-year Post Mission Disposal rule currently adopted by most agencies), analyses of the current situation and future projections have shown the necessity of active debris removal (ADR) operations aimed to a direct intervention in relatively short time as a remediation action.

Apart from the problem of considering the potential political and legal consequences of dealing with spent space objects, many methods have been proposed for the despinning and grabbing phases of ADR missions, but in spite of the variety in the ideas and concepts on the ground, not all of them are ready to be sent to space.

Starting from an overview on the different approaches proposed for in-orbit grabbing of uncooperative targets, this work analyses the current status of the solutions designed so far, both in terms of technical readiness and methodological maturity, and identifies the characteristics that can be used as a metric for the quality and feasibility of those systems.

From these figures of merit, different scenarios will be simulated to obtain additional supporting data in order to validate the results of the preliminary analyses.