

32nd IAA SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (E3)
Assuring a Safe, Secure and Sustainable Environment for Space Activities (4)

Author: Dr. Ray A. Williamson
United States

Prof. Lesley Jane Smith
Leuphana University of Lüneburg/Weber-Steinhaus & Smith, Germany

ACTIVE DEBRIS REMOVAL: LEGAL, POLICY AND ECONOMIC ASPECTS

Abstract

Each year, the amount of debris remaining in Earth orbit capable of threatening valuable operating spacecraft increases, not only in the important geosynchronous and sun synchronous polar orbits, but also in other orbital regimes. This situation threatens the long-term sustainability of outer space activities.

Space debris experts generally agree that active removal of debris from orbit (ADR), along with debris mitigation (compliance with established guidelines) is needed to lower the threat of collisions between active satellites and orbital debris. Unless spacefaring countries act soon to remove the largest debris, the potential for destructive collisions will increase substantially. This paper reports on the conclusions and recommendations of International Academy of Astronautics Cosmic Study, 5.10, which explores the policy, political, legal, and economics issues of ADR. A wide variety of ADR methods have been proposed, many of which are addressed in an earlier IAA Cosmic Study, IAA CS 5.5. Questions of technical feasibility are beyond the scope of this study.

ADR alone will not ensure the long-term sustainability of outer space. To reduce the risk of creating large amounts of new debris, compliance with existing mitigation rules need to be drastically improved; space situational awareness (SSA) will have to be markedly enhanced; and techniques allowing for just-in-time collision avoidance (JCA) will also have to be developed.

The IAA report focuses on the international political and legal acceptability of debris removal, and on the international political, policy and legal conditions necessary for ADR to take place. It further addresses the economic case for debris removal and explores the closely related topic of satellite on-orbit servicing (OOS). This paper offers legal, policy, and economic recommendations for approaching ADR efforts.