

SPACE DEBRIS SYMPOSIUM (A6)  
Mitigation, Standards, Removal and Legal Issues (4)

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OVERVIEW OF THE LEGAL AND POLICY CHALLENGES OF ORBITAL DEBRIS REMOVAL

**Abstract**

Quite a bit of attention has been paid recently to the issue of removing space debris from Earth orbit. Much of this attention was sparked by modeling and research done by both NASA and ESA on the space debris population and the conclusion that mitigating debris is not sufficient: debris-on-debris collisions will continue to generate new debris even without additional launches. Several techniques for removing space debris have been proposed and a few, at least in a technical aspect, are plausible enough to merit further research and eventually operational testing. However, all of the proposed techniques present significant legal and policy challenges which will need to be addressed for debris removal to become viable. This paper summarizes the most promising techniques for removing space debris in both low Earth orbit (LEO) and geostationary orbit (GEO), including electrodynamic tethers and ground- and space-based lasers and discusses the major legal and policy challenges these techniques create, including:

- Lack of a separate legal definition for useless or abandoned space debris from useful operational satellites
- Establishing a global reference catalog of objects in Earth orbit which is needed for identifying and conducting removal operations
- Creating international agreement on which space debris objects should be removed and their relative priority for doing so
- Sovereignty issues related to who is legally authorized to remove pieces of space debris placed in orbit by other launching States
- Instituting transparency and confidence building measures to reduce perceptions of anti-satellite weapons development and deployment
- Liability concerns with failed, erroneous, or aborted removal attempts which result in damage to other space objects as well as damage caused on Earth by intentional atmospheric re-entry
- Intellectual property rights associated with salvaging space debris and economic incentives

The paper concludes that work in the legal and policy fields on these issues must take place in parallel to the technical research on the removal techniques, and argues that debris removal needs to be done in an environment of international collaboration and cooperation.