

IISL COLLOQUIUM ON THE LAW OF OUTER SPACE (E7)
Remediation of Space Debris: A Fundamental Legal Challenge? (7)

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OUT INTO THE DARK: REMOVING SPACE DEBRIS FROM THE GEOSTATIONARY ORBIT

Abstract

During the first decades of placing space objects in the Geostationary Orbit, satellite owners and operators abandoned space objects at their end-of-life, or just freed the slot by removing their satellites with the last kilograms of fuel. Also rocket stages that propelled geostationary satellites were abandoned therein. Due to the gravitational pull of the Earth at 36,000 km, orbits of objects that do not have station-keeping systems naturally decay and re-enter the Earth's atmosphere that could last one million years. The accumulation of space debris that permanently crosses the Geostationary Orbit is a growing hazard to operational satellites. When the amount of space debris in this orbit reaches a critical mass, there is the risk that collisions of space objects lead to follow-on fragmentations, so that the resulting space debris will collide with other space objects in a cascading effect (Kessler Syndrome). Researchers at the IADC who published a set of Space Debris Mitigation Guidelines in 2002, updated in 2007, identified the Geostationary Orbit as a 'protected region'. One Mitigation Guideline recommends to re-orbit space objects that are reaching their end-of-life outside of this protected area. International organizations and national legislation of a growing number of States reflect the IADC Mitigation Guidelines in recommendations and standards. However, there is still an increase of large space debris objects in this area. Since it is not realistic to wait (up to one million years) for the natural deorbiting of these space objects, remediation measures need to be initiated, such as debris removal with external systems. This paper will describe the State practice of re-orbiting and propose a strategy for debris removal to maintain a sustainable access and use of the Geostationary Orbit.