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THE LEGAL IMPLEMENTATION OF SPACE DEBRIS REMEDIATION AS A NECESSARY CONDITION FOR THE SUSTAINABILITY OF NEAR-EARTH SPACE

Abstract

The importance of sustainability of outer space, understood as the sum of measures ensuring that the outer space environment is preserved for current and future generations, has gained international recognition from a technical, legal and policy perspective. In the backdrop of the risks for some of the most used orbital regions in near-Earth space posed by the growing number of space debris, the adequate consideration of instruments aiming at the mitigation and remediation of space debris represent important tools to ensure the viability of space activities also in the future. However, studies based on orbital modelling show that the application only of mitigation measures will not suffice to ensure the future access and usability of outer space. Thus, space debris remediation in the form of models for active debris removal and on-orbit servicing will play a crucial role for the sustainability of outer space and thus, for preserving the access and usability of near-Earth orbits in the long-term for future generations.

While technical mitigation measures for future missions have already acquired legal relevance and have been implemented through voluntary guidelines and some national laws, space debris remediation models, although at a technically advanced stage, have not yet become part of the legal framework. The aim of this paper will be to provide an overview on the legal background relevant to space debris remediation, to examine proposed technical solutions for LEO and GEO, and, against this backdrop to analyse the main legal challenges for their implementation through binding and non-binding instruments.

By exploring the factual status of orbital space based on data provided by orbital modelling studies and propagation scenarios, it will be shown that effective remediation mechanisms need to be implemented through legal regulation and that although the law is still far behind the technology, legal avenues exist to regulate on active debris removal and on-orbit servicing.