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Political, Legal, Institutional and Economic Aspects of Space Debris Mitigation and Removal - STM
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QUESTIONS OF FAULT LIABILITY: A CASE STUDY ANALYSIS OF IN-ORBIT COLLISIONS
WITH DEBRIS

Abstract

In 1972, the international community established a regime of liability for damages occurring in outer space based on ‘fault’. Fifty years later, the congested and polluted reality of the space environment has limited dramatically its effectiveness. Only in very few instances, filing a claim under such regime can reasonably ensure compensation to an injured satellite operator. The present paper describes different study cases where resorting to a fault-based liability claim appears problematic. Based on real conjunction assessment alerts, the authors look into various hypothetical scenarios from the perspective of a fictitious satellite operator, whose spacecraft was damaged by an accidental collision in orbit. The aim is to analyse the effective observability over orbital collisions involving small satellites and space debris (attributable or not) and to evaluate the real chances of obtaining compensation, from the operational and legal points of view. At the centre of this study, therefore, is the evaluation, in fact and in law, of the solidity of a potential claim against the perpetrator of the harm. To that end, the discourse takes into consideration the legal difficulties that are generally connected to fault-based liabilities in international law. The definitional vagueness of the term ‘fault’, the necessity to identify a fault-standard, the proof of failure in the performance of a duty of care, are all elements to consider for filing a claim under the liability regime of 1972. However, next to them, the space environment poses additional hurdles with regard to facts and evidence. Satellite operators do not always have the technological instruments to retrieve all the information related to orbital events, such as collisions. Moreover, a complete observability over in-orbit events can be hard to reach for several classes of spacecraft (e.g. small, nano- or pico-satellites). This is especially troublesome for establishing one of the essential elements of ‘fault’: the so-called “chain of causation”. The authors will present their views on how the uncertainties posed by the liability regime of 1972 can be dealt with from a legal and from a technical perspective. In addition, several possible solutions and recommendations for the upcoming years of in-orbit operations and space traffic management will be proposed at the end.