

17th IAA SYMPOSIUM ON SPACE DEBRIS (A6)
Policy, Legal, Institutional and Economic Aspects of Space Debris Detection, Mitigation and Removal
(Joint Session with IAF Space Security Committee) (8)

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LEGAL FRAMEWORKS FOR SPACE DEBRIS MITIGATION: EXAMINING STATE PRACTICES
AND TREATY OBLIGATIONS

Abstract

The legacy of over 50 years of space flight has brought us impressive technical and scientific developments and achievements — but it has also led to the growing population of space junk. As early as 1978, NASA Scientist, Donald J Kessler, proposed that a chain reaction of debris exploding in space could end up making it impossible to use satellites, and ending many other space activities. This orbital crisis known as the Kessler Syndrome seems to be tending towards reality. If the occurrence of such events were to increase, all existing space programs could be in jeopardy. Many services that humans have come to rely on such as GPS, military and scientific research, would be threatened. The concern, of course, is that the possibly irreversible accumulation of space debris in the crucial orbital space would hinder the usage of outer space environment. Given the urgency of the situation, it is important to look at how the current regulatory regime can be used to manage and control this threat. In order to comprehend the working of such regulatory framework, the paper will draw on specific situations where space debris has caused an incident, both in orbit and on the surface of the earth, such as, the in-space collision incident of Iridium-Cosmos, intentional destruction in orbit incident of Fengyun1-C and the space debris returning to Earth incident of Kosmos-954.

Additionally, this paper will address two fundamental issues of space debris management – (i) the responsibility States have under international law to mitigate their production of excess space debris and (b) the liability States have in the event that their debris causes damage to another State's assets. It will also analyse the applicability of relevant hard law and soft law to address the issue of space debris. Lastly, the technological advancements to heal the space debris situation, including various State practices and the legal implications of such activities will also be examined.

Following from this assessment, this paper will analyse some of the proposed options to help mitigate the production and accumulation of space debris.