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Application of space law to cyber activities (4)

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TESTING THE LAWFULNESS OF STATE-SPONSORED CYBER OPERATIONS AGAINST SATELLITES BEYOND IUS AD BELLUM AND IUS IN BELLO

Abstract

Non-kinetic means of interfering with or disrupting satellites has become an increasingly widespread practice across the globe. Jamming, using electromagnetic radiation to create interference in a satellite's signal, has occurred since at least 1948, when the Soviet Union used the technology to block western radio broadcasts. More recently reports suggest Russia has used jamming and spoofing technology to affect Ukraine's GPS receivers. Cyber hacking, unauthorized access to the satellite systems (or their ground components), is a newer form of such operations, but there are reports that five NASA satellites were hacked in 2007-2008 and that a UK military communications satellite was held ransom by hackers in 1999.

The threat of cyber operations against satellites are likely to increase in the coming years, especially as broadcasting and communication services become ever more prevalent. While such operations may be carried out by private individuals or entities for the mere purpose of causing harm or seeking ransoms, this paper will focus on these types of actions that are done by or under the control of States.

When a State-sponsored cyber operation against a satellite takes place, it raises a number of legal issues, the most fundamental of which is the identification of the applicable law governing such operation. To date, research on this subject has mostly focused on the applicability of *ius ad bellum* and *ius in bello* norms to cyber operations, but the time is now ripe to question whether – and to what extent – State-sponsored cyber operations against satellites during peacetime may breach other norms of international law (other than the prohibition of the use of force or humanitarian rules). To answer this question, we will focus in particular on the *corpus juris spatialis*, but also, per Article III of the Outer Space Treaty, look at general international law. Furthermore, even if it is determined that cyber operations against satellites violate international rules, under the law of State responsibility there may be arguments that the wrongfulness of such actions is nevertheless precluded. Further related questions to be explored include whether satellite hacking could ever constitute proportionate counter-measures and, if so, whether such actions meet other requirements therefor. Moreover, we will explore whether, as a result of a state of necessity, there are instances in which satellite hacking would not interfere with the essential interests of any other State or of the international community.