

49th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE  
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Cyber-security threats to space missions and countermeasures to address them (4)

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A SIGNIFICANT THREAT TO SPACE SYSTEMS?**Abstract**

In order to claim that the cyber threat is significant to space systems to questions need to be answered 1. What makes space systems more attractive to cyber attacks than are other targets? 2. Why do cyber attacks pose significant threats to space systems?

In order to answer these questions, this article would examine the following issues: The potential tangible damage to space systems caused by cyber attacks; the symbolic and strategic damage; accessibility and the ability to perform cyber attacks; the advantages for the attacker; and on the other hand, the attractiveness and meaning of other forms of harming space systems, especially through Anti-Satellite capabilities.

The primary argument of this article is that space systems are an attractive target for cyber attacks, and cyber attacks are an attractive form of attacking space systems. The reason space systems are attractive to cyber attacks is threefold: First is the large potential damage of the attack. Space systems are crucial for daily life worldwide. An attack on them may have significant implications on the terrestrial economy and security. In addition, strategic and symbolic damage is also incurred because of the role that space systems play in world politics. Second, space systems, especially commercial ones, are rather easy to access by means of cyber attack. Third, an attack on space systems is considered to be a sophisticated attack glorifying the attacker. In addition, a cyber attack is an attractive means for attacking a space system because, in contrast to anti-satellite weapons, which create space debris that can have a catastrophic effect on the space environment, a cyber attack causes limited environmental damage.