Abstract

Title: In-orbit risk assessment in the era of New Space

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Abstract: The arrival of new and innovative space systems, such as large constellations, comprising hundreds or even thousands of satellites, as well as in-orbit servicing missions proposing multiple spacecraft visitations, manoeuvres and orbital activities, pose potential new risks. The possibility that these new systems could adversely affect the space debris environment, adding more uncontrolled objects such as mission remains and failed satellites, is significant.

Currently there are a number of international treaties and conventions, providing best-practice guidelines and standards, to help combat the issues of space debris. To develop relevant national and international policies, as well as build a robust and appropriate licensing approach to these systems, it is essential that the effects of these undertakings on the orbital environment, both in the immediate future and in the longer term, are well understood.

To support this, the UK Space Agency is currently developing a new in-house risk assessment capability, with the goal of better understanding both the likelihood and the consequences of unexpected in-orbit events for these new systems. A key aim will be to ensure that these new capabilities are underpinned with first-principles physics models, combined with high-fidelity data, and validated thoroughly throughout. This talk seeks to better define some of issues that UKSA are attempting to better understand and provide details on the development currently taking place.