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Orbital debris: What are the best near-term actions to take? A view from the field

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The Geostationary Earth Orbit (GEO) satellite belt is a unique location above the earth affording a continuous line-of-sight to satellite up-link and down-link stations. The volume defined by this belt is large, but available slots are limited. During the last fifty years of the space age, this volume has become more crowded, as humankind has launched more and more satellites into this particular orbital regime. Satellites that suffered incapacitating anomalies and space debris have remained in the belt along with the functional satellites. The latter poses a hazard since it is uncontrolled, and the only way for satellite operators to avoid collisions with space objects is to maneuver. Knowing when and where to maneuver requires Space Situational Awareness (SSA), but this is just one aspect needed to maintain safety of flight in this very valuable orbital regime. This paper reports on, from the point of view of an SSA practitioner, what the key issues and dangers surrounding the current situation in the GEO belt are, and what could be the best possible set of near-term actions, involving international cooperation (through bodies such as the UN COPUOS), data sharing between actors in the space arena, public and private sector SSA efforts, and nascent research efforts into active space debris removal. Where the limited available resources should be applied to affect the best possible outcome?

Biography

Mark A Skinner joined Boeing in 1999 as a Senior Scientist and Technical Manager with the Science & Analysis (S&A) team on Maui, Hawaii, where Boeing Operates the Maui Space Surveillance System for the Air Force Research Laboratory (AFRL). In 2015, he joined Boeing Research & Technology in Albuquerque, NM. Since 2005, he has also served as the Program Manager for the Broadband Array Spectrograph Sensor (BASS), leading the collaboration between Boeing, The Aerospace Corporation and AFRL in developing infrared sensing techniques of resident space objects. He specializes in the techniques of Non-Resolved Object Characterization (NROC) and Non-Imaging Space Object Identification (NISOI), and has extended this research into both the infrared and time domain arenas. His current research focus is on the detection and characterization of orbital debris, with an emphasis on debris in the Geosynchronous Orbital Regime (GEO). He is also the Head of Boeing's Commercial SSA thrust being conducted with the Boeing Satellite Systems Customer Support group in support of Boeing's commercial satellite customer base. He began his career in aerospace in 1991 at Pennsylvania State University as a Research Faculty Member, where he delivered the CUBIC X-ray CCD camera.

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