

Building commercial applications to safeguard satellites from space weather hazards

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Space radiation poses a constant hazard to Earth orbiting satellites that must operate reliably in this extremely harsh and highly variable environment. Much has changed since the first satellite launched nearly 6 solar cycles ago. Our understanding of the space radiation environment and the technology to reduce its impacts have both significantly improved. Despite these advances, space weather is still a concerning hazard. As the number of satellites in orbit grows and the complexity of coordinating their operation increases, so do the potential consequences of an intense space weather event.

To address this hazard, requires solutions that combine fundamental physics, unique modeling approaches, and software systems that can deliver space weather monitoring and assessment tools to satellite industry users. Here we discuss the growing and challenging role that commercial providers play to make space weather information routinely accessible and actionable. We review several collaborative projects between academia, industry, and government with the practical goal to improve specification and assessment of space weather impacts to satellites from the Earth to the Moon.

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