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Spacecraft are particularly vulnerable to space weather events; solar energetic particles (SEPs) discharge large amounts of energy to spacecraft electronics, degrading system performance, causing malfunctioning software, and physically damaging hardware. Astronauts face health risks from radiation exposure in space. To protect high-value assets and human lives, we present a methodology for creating global space radiation risk maps for spacecraft guidance, navigation, and control (GNC). We aim to improve operational spacecraft GNC and onboard autonomous capabilities for mitigating the effects of space weather through global space environment risk mapping for use in navigating space weather hazards.



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