

**Space Science Seminar  
Tuesday, 2021 June 29  
10:30 a.m.  
NASA/MSFC TEAMS**

**Space Weather Impacts to Satellites: Science and Applications**

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Host: Dr. Alphonse Sterling / Dr. Ghee Fry (Sponsored by NASA/MSFC/ST13)

The intense particle radiation environment near Earth fluctuates dramatically in response to changes in the connected sun-Earth system (known as space weather), and is a constant challenge for maintaining continuous satellite operations. The high intensity radiation can damage electronic components, resulting in temporary malfunctions, degraded performance, or a complete system/mission loss. As the number of satellites in orbit grows with the increasing demand for services such as global internet and imaging, the need for tools to monitor on-orbit performance and understand space-weather-related anomalies also increases. However, providing such tools is challenging due to the breadth of measured data, scientific understanding, engineering knowledge, and software expertise that must be brought together in order to specify the environment and define its impact on individual satellite systems. Here we discuss our current progress to model the space-radiation environment and translate that output into actionable information for satellite operators to assess real-time, space-weather hazards.