Xavier
Gaefke
United States Air Force Academy
Poster
Static charging of spacecraft is a phenomenon that occurs for a multitude of reasons while in the space environment. The hazards encountered due to static charging produce a necessity to predict and mitigate the charging. In the case of the International Space Station (ISS), three major factors are the photoelectric effect, photovoltaic charging, and electron flux from the ionosphere. In this project, we will analyze data collected by an instrument on the ISS, which is highly susceptible to static charging due to its size and large solar array. By filtering out and analyzing patterns in the data, our research could lead to a better understanding and prediction of satellite static charging. Using Matlab, STK, and other software, we will glean insight into the causes and magnitudes of each mode of static charging. Data will be compared to events such as periodic solar exposure and geomagnetic storms. The final product of the research is an understanding of factors for static charging of the ISS, with hopeful applications to other spacecraft.

Poster category:

Poster category
Ionosphere and Thermosphere Research and Applications
Poster session day
Wednesday, April 17, 2024
Poster location
21
Meeting homepage
Space Weather Workshop 2024
Download to PDF