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Poster
Solar energetic particle (SEP) events pose radiation hazards to aviation crews and passengers. As such, the International Civil Aviation Organization (ICAO) issues radiation advisories supported by the U.S. Federal Aviation Administration (FAA) CARI-7A aviation dose rate model. These advisories divide the globe into 30 degree latitude by 15 degree longitude bins. The coarse nature of the spatial binning has the potential to exaggerate the location and extent of SEP impact, which can lead to overly cautious and/or broad advisories in regions that may not locally exceed radiation thresholds. One approach to refining these advisories to finer spatial bins is to utilize sensor fusion techniques with ground-based assets capable of observing SEP dynamics. In this poster I utilize the University of Calgary's expansive riometer network across Canada to directly measure the ionospheric region of impact for SEP events. I examine the characteristics of electron and proton flux measurements from the GOES mission, and use those in conjunction with ground-based riometers to study whether these datasets can be confidently used to improve the spatial and temporal resolution of SEP impacted areas. The ultimate goal of this work is to explore if (and how) ground assets can potentially constrain the geographic and temporal extent of operational radiation advisories.
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Poster location
11
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