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Poster
This project focuses on Arctic Sensing and forecasting, particularly concerning geomagnetic substorms and storms. This project is unclassified. There are no restrictions on the distribution of this presentation. This project supports several other projects as it is expected to be further used as an open-source service for the space weather community and essentially focuses on ‘big data’ collection for more straightforward analysis. The primary effort concerns ionospheric activity quantification and data collection and display, sourcing all data to one table. This also allows a user to specify a particular value that a variable must meet, allowing for quick filtering through many data points. This prevents the user from manually sifting through databases, saving time. Secondarily, this project focuses on analyzing the geomagnetic substorm indices IMF BZ, IMF |B|, Kp, Dst, SuperMag index, auroral electrojet index, and polar cap index, how they relate to one another, and when they become essential concerning one another. The experiment data provided through the query in this project is from the Poker Flat Research Range (PFRR), NOAA, and Madrigal database and is open to more sources in the future. This data is collected using the PFISR, Poker Flat Incoherent Scatter Radar, and previous sounding rocket experiments conducted at PFRR and indices. In the future, in addition to using PFISR data, this project will also incorporate data and images from NASA’s network of All Sky Imagers located across North America, providing valuable optical data on auroral activity.

Poster category:

Poster category
Space Weather Policy and General Space Weather Contributions
Poster session day
Wednesday, April 17, 2024
Poster location
36
Meeting homepage
Space Weather Workshop 2024
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