Stephen
Litterini
United States Military Academy
Natane Randall, United States Military Academy
Mason Bay, United States Military Academy
Poster
With the upcoming solar maximum, users may find themselves unable to navigate in high-latitude regions due to a higher likelihood of geomagnetic storm activity combined with the fewer high elevation satellites in view of high latitude receivers. Through analyzing data from high-resolution Connected Autonomous Space Environment Sensor (CASES) GPS receivers and simulations run on SkyDel Global Navigation Satellite System (GNSS) simulator, we have aimed to develop an index to categorize the severity of geomagnetic storms and the effects they have on the operational use of GPS receivers at higher latitudes. Our results are based on a geomagnetic storm on August 26th of 2018 as observed by a CASES receiver located at the Poker Flat Research Range. Manipulating CASES receiver files and importing them to Skydel allowed us to isolate the effects of scintillation. We calibrated our system by running a model void of external precision-harming processes, like tropospheric delays. We have been able to use simulated position navigation solutions to explore correlations in the raw data with the goal of finding a variable that strongly correlates to a directionless offset from the actual receiver location.

Poster category:

Poster category
Ionosphere and Thermosphere Research and Applications
Poster session day
Wednesday, April 17, 2024
Poster location
28
Meeting homepage
Space Weather Workshop 2024
Download to PDF