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Poster
The 10–13 May 2024 Gannon storm saw some of the most severe geomagnetic activity over the past 20 years, providing a space weather event that scientists and engineers will study for decades. We use the Gannon storm to compare the effectiveness of various simulation models in development. Although geomagnetically induced current (GIC) estimates recorded from the storm can be accessed at any point, the measured values are sensitive to the power network configuration at the time of the event. Unfortunately, power network data, such as power grid configuration, often are lost in the weeks and months after a major Geomagnetic Disturbance (GMD), motivating a rapid study of recent events. This research aims to collect both GIC and magnetic field data (measured and modeled) from the Gannon storm to compare different methods of estimating GIC, ?B, and the electric field. GIC estimates produced by the Tennessee Valley Authority (TVA) network simulation model for four substation locations, populated with real asset data and parameter values, were obtained, along with measured GIC and ?B values from TVA. Additional measured GIC and ?B estimates were accessed through North American Electric Reliability Corporation (NERC)’s ERO Portal. Finally, modeled ?B data was obtained from the Space Weather Modeling Framework (SWMF) and Multiscale Atmosphere-Geospace Environment Model (MAGE). By comparing these various data sets, we hope to understand the predictive effectiveness of different approaches to GIC estimation.

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