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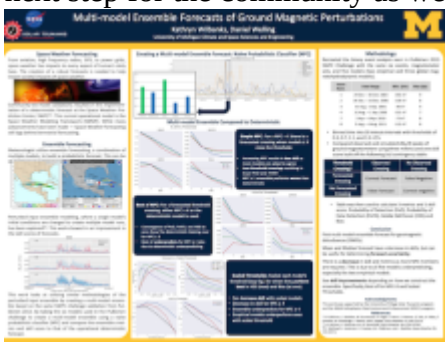
Poster
In our dynamic space weather environment, there are several impacts of space weather to our current infrastructure. Notably, ground magnetic disturbances (GMDs) that can interrupt and damage power grids. As such, it’s paramount to provide actionable space weather forecasts of GMDs. Meteorological forecasting has already shown the robust uses of ensemble forecasting. However, a multi-model ensemble forecast for GMDs has yet to be implemented.

In this work, we present results from a first-of-its-kind multi-model ensemble for forecasting GMDs. Utilizing the open data set from Pulkkenin et al. 2013, we combined five models to produce different configurations of a multi-model ensemble forecast. Analysis of these ensembles were compared to results from the operational Space Weather Modeling Framework, the state-of-the-art in deterministic GMD forecasting. It was found that some ensemble combination strategies are able to improve forecast performance, while others lower predictive skill. The main obstacle to improving skill via multi-model ensembles is the predilection of all models towards underprediction. Being able to show feasibility of ensemble models in space weather forecasting is an important next step for the community as we explore new methodologies and applications.


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19
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