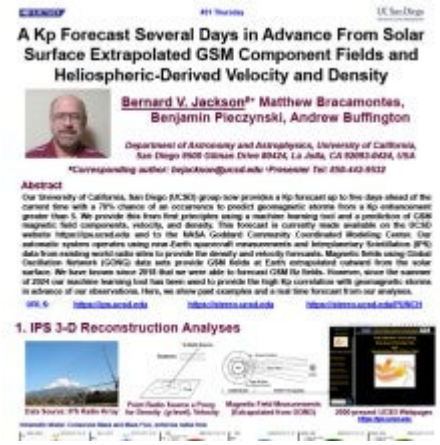
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Poster
Our UCSD group now provides a Kp forecast up to five days ahead of the current time with a 70% chance of an occurrence to predict geomagnetic storms from a Kp enhancement greater than 5. We provide this from first principles using a machine learning tool and a prediction of GSM magnetic field components, velocity, and density. This forecast is currently made available on the UCSD website https://ips.ucsd.edu and to the NASA Goddard Community Coordinated Modeling Center. Our automatic system operates using near-Earth spacecraft measurements and Interplanetary Scintillation (IPS) data from existing world radio sites to provide the density and velocity forecasts. Magnetic fields using Global Oscillation Network (GONG) data sets provide GSM fields at Earth extrapolated outward from the solar surface. We have known since 2018 that we were able to forecast GSM Bz fields. However, since the summer of 2024 our machine learning tool has been used to provide the high Kp correlation with geomagnetic storms in advance of our observations. We show past examples and a real time forecast of our analyses in this presentation.



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