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Comparing the ionospheric cross-polar cap potential from an assimilative model to a semi-empirical equation CEZANNE NARCISSE, JOSEPH SCHINCO, KYLE VAN ZUIDEN, ROBERT BRUNTZ, RAMON LOPEZ, Univ. of Texas at Arlington — The cross-polar cap potential (CPCP) in Earth's ionosphere is often used as an indicator of the level of interaction between the solar wind and Earth's magnetic field. Measuring the CPCP directly is often difficult, requiring other approaches. One way of obtaining the CPCP is to combine data from various sources, such as is done with the Assimilative Mapping of Ionospheric Electrodynamics (AMIE) model. Another method is to run computer simulations with real solar wind measurements as input. Recent research indicates that the Weimer (2005) empirical model's CPCP values hit a minimum "floor" value for certain solar wind conditions, while the Lyon-Fedder-Mobarry (LFM) simulation finds that the CPCP can continue to drop below that value. We are comparing data from the AMIE model to the Bruntz et al. (2012) formula for the viscous interaction between the solar wind and Earth's magnetosphere, to see whether AMIE also has a floor value, like the Weimer (2005) model, or whether the AMIE CPCP can continue to drop, as is seen in LFM.

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