

Abstract Submitted
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Use of a magnetohydrodynamic model to investigate the viscous potential in Earth's magnetosphere¹ ROBERT BRUNTZ, RAMON LOPEZ, UT Arlington — The solar wind flowing out from the Sun interacts with the Earth in a number of ways. While the most effective method of energy transfer occurs due to magnetic field merging, the mechanical viscous interaction between the solar wind and the Earth's magnetic field is a significant, though less well-understood mechanism. Using the Lyon-Fedder-Mobarry (LFM) global magnetohydrodynamic (MHD) computer simulation, we have modeled a variety of solar wind conditions which are not readily available for study from satellite data. We then analyzed the simulation results to observe the relationships between solar wind density and velocity values versus the resultant viscous potential, projected onto the Earth's polar caps. Our analysis results are also compared to recent empirical model predictions for those same solar wind inputs.

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