Abstract Submitted
for the TSS14 Meeting of
The American Physical Society

Numerical experiments to investigate Alfvénic fluctuations using a global MHD simulation KEVIN PHAM, RAMON LOPEZ, Univ. of Texas at Arlington — The ambient solar wind flowing out from the Sun is typically magnetically calm and slow in speed. The solar wind flowing out at the edges of coronal holes is faster and will pile up the slower solar wind in front of it. This compression region can cause moderate magnetic storms in Earth's magnetosphere. The large amplitude magnetic fluctuations in the z component of the interplanetary magnetic field, contained in the compression regions and corresponding to faster solar wind, is thought to increase the strength of geomagnetic storms. The fluctuations are from Alfven waves that travel transverse to the propagation of the solar wind. The waves will cause oscillations in the velocity and magnitude of the magnetic field in the transverse direction. We will present an investigation of the Alfvénic fluctuations using the Lyon-Fedder-Mobarry (LFM) global magnetohydrodynamic (MHD) simulation. The LFM simulation was driven using quiet standard conditions for the solar wind and idealized random fluctuations in the magnetic field and velocity were added in incremental steps with only one modification made per simulated event. Their total energy output and geoeffective length will be presented.

Robert Bruntz
Univ. of Texas at Arlington

Date submitted: 28 Feb 2014 Electronic form version 1.4