Abstract Submitted
for the NMC15 Meeting of
The American Physical Society

Theoretical Non-ideal Extensions and Mass Influx Correction to a One-dimensional Model of Magnetohydrodynamic Coronal Hole Heating DANIEL PACHECO, ORIEL RODRIGUEZ, ROGER BOZA, JOSE ORTA, Miami Dade College Kendall Campus — Our previous numerical simulations have revealed that magnetohydrodynamic (MHD) shock waves are a viable mechanism for solar coronal heating. From these studies we established that large-amplitude perturbations of the background magnetic field generated sharp gradients of temperature. We are extending the current model to assess the potential heating effects of plasma viscosity at those gradients. MHD momentum and energy equations were extended to include the contribution of viscosity. Some simulations show a mass evacuation by the bottom boundary of the computational region. This cavitation effect is thought to be an artifact of the current implementation of the boundary conditions and the siphoning effects that mhd waves produce. We are extending the model to allow mass influx at the bottom boundary. Extrapolations of various degrees are being considered.

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Date submitted: 28 Sep 2015 Electronic form version 1.4