Geophysical Research Abstracts,
Vol. 10, EGU2008-A-04081, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-04081
EGU General Assembly 2008

Numerical simulations of the interaction of Enceladus' interaction with Saturn's magnetosphere using a 3D multi-species, Hall MHD model.

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We have used our new multi-species, Hall MHD model to study the interaction of Saturn's magnetosphere with Enceladus. The neutral densities used in the model, calculated by an extensive 3D Monte Carlo model, are consistent with the values observed during the Cassini's July 14, 2005 flyby of Enceladus. We used a simple ion

chemistry scheme and approximated the upstream conditions from CAPS and MAG observations. We compare our calculated plasma and magnetic field values for this flyby with the observed ones. There will be another close flyby of Enceladus in March 2008, and we will also attempt to complete our model calculations and compare them with observations for this flyby.