Abstract Submitted
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Linear and Nonlinear Whistler Wave Propagation in the Magnetosphere Based on Plasma Density Models from IMAGE Spacecraft Data[1] MAURICIO FLORES, Physics Department, The University of Texas at Brownsville, CYNTHIA CORREA, WENDEL HORTON, Institute for Fusion Studies, The University of Texas at Austin — From the radio plasma imager on the IMAGE satellite, spatial profiles of electron density in the inner magnetosphere were constructed [B.W. Reinisch *et al*, Geophys. Res. Lett., **28**, 1167 (2001)]. We use these profiles and the dipolar magnetic field model to analyze the propagation of whistler waves. We compute the dispersion characteristics of wave packets from the 2D $\omega(kx, kz, n, B)$ dispersion function, showing wave energy focusing into low phase velocity regions. We add model growth rates from S. Sazhin, *Whistler-mode waves in a hot plasma* (Cambridge U. Press, Cambridge, 1993) and nonlinear terms from Horton *et al* [W. Horton *et al*, Nonlinear Dynamics of the Electromagnetic Ion Cyclotron Structures, Firehose and Whistlers, preprint, Nonlin. Processes Geophys.] to determine saturation levels of whistler chorus waves and associated coherent structures. We explore NLS, DNLS and vortex models, consistent with experiments by Stenzel *et al* [R.L. Stenzel *et al*, Plasma Phys. Control. Fusion **50** 074009 (2008)].

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