

Abstract Submitted
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Propagation of kinetic Alfvén waves at the plasma sheet boundary layer ROBERT LYSAK, YAN SONG, University of Minnesota — Satellite observations have indicated that strong Alfvénic Poynting fluxes are present at the plasma sheet boundary layer, and that these Alfvén waves are associated with the field-aligned acceleration of electrons. The ionospheric signature of these Poynting fluxes are broad-band electron distributions, characterized as the Alfvénic aurora. In locations such as the boundary layer where there are gradients in the Alfvén speed perpendicular to the magnetic field, phase mixing can rapidly decrease the perpendicular wavelength of the Alfvén waves to the point where kinetic effects lead to a significant parallel electric field. A numerical model for this region has been developed based on a two-fluid approach to the modeling of kinetic Alfvén waves, with the inclusion of a term modeling Landau damping using an approximation for the plasma dispersion function. This model is applicable not only to the boundary layer but to other situations where there are perpendicular Alfvén speed gradients, such as the Large Plasma Device at UCLA.

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