

Abstract Submitted  
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**The interplay of Alfvén waves and energized electrons with auroral ionospheric plasma**<sup>1</sup> JAMES HORWITZ, FAJER JAAFARI, SAM JONES, YI-JIUN SU, WEN ZENG, Department of Physics, The University of Texas at Arlington, Arlington, TX 76019 — Replace this text with your abstract body. Alfvén waves propagating along magnetic field lines in the auroral ionosphere-magnetosphere system involve parallel electric fields which can accelerate auroral electrons. Here, we examine the propagation of Alfvén waves within O<sup>+</sup> and H<sup>+</sup> auroral ionosphere-magnetosphere density profiles from the UT Arlington Dynamic Fluid-Kinetic (DyFK) ionospheric plasma transport model, and explore the energization of Alfvénic electrons and their effects on the ionosphere-magnetosphere plasma system. A linear one dimensional gyrofluid code is used for the Alfvén wave description, incorporating electron inertia, electron pressure gradient and finite ion gyroradius effects. This allows determination of the characteristics of the propagating Alfvén waves which generate the inertial parallel electric field responsible for energizing electrons. Using a test particle we simulate the response of a distribution of electrons to these Alfvén wave electric fields. These electrons are incorporated into the DyFK model to produce the associated ionization and thermal electron heating.

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