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The effects of electron and ion temperature anisotropy on stationary Alfvén waves in the kinetic and inertial regimes.[1] S.M. FINNEGAN, M.E. KOEPKE, West Virginia University, D.J. KNUDSEN, University of Calgary — The two-fluid model describing nonlinear stationary Alfvén (StA) waves [Finnegan *et al.*, Phys. Plasmas **15**, 052108 (2008)] has been extended to include electron and ion temperature anisotropy. A StA wave is a nonfluctuating, nontraveling spatial pattern in plasma fluid variables and electric and magnetic fields. Electron inertia and parallel gradients in electron pressure balance a magnetic-field-aligned component of electric field capable of accelerating electrons along magnetic field lines. Electron temperature anisotropy is shown to either reduce or enhance the parallel component of electric field depending on the sign of the anisotropy parameter $a_e = 1 - T_{e\|}/T_{e\perp}$. In the small amplitude limit, electron temperature anisotropy is predicted to reduce the parallel wave phase speed for $T_{e\|} < T_{e\perp}$ and increase the parallel phase speed for $T_{e\|} > T_{e\perp}$. Ion temperature anisotropy is shown to have no effect to first order in the ratio of perturbed magnetic field to ambient field strength $\delta B_\perp / B_0$.

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