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Tests of collision operators using measurements of shear Alfvén wave dispersion and damping DEREK THUECKS, CRAIG KLETZING, FRED SKIFF, SCOTT BOUNDS, University of Iowa, STEPHEN VINCENA, University of California- Los Angeles — The effects of electron-ion collisions on the parallel phase velocity and damping of shear Alfvén waves are examined for a variety of different collisional operators. The results from the inclusion of different collision operators in warm-plasma theory are compared with measurements of the dispersion relation made using the LArge Plasma Device (LAPD) located at UCLA. Theory and measurements are compared for the parallel phase velocity and damping as a function of perpendicular wave number k_{\perp} in both the kinetic ($v_{te} \gg v_A$) and inertial ($v_{te} \ll v_A$) parameter regimes. Results show that in the inertial regime, the best match between measurements and theory occur when a non-conserving Krook operator is used to describe electron-ion collisions. In contrast, using a non-conserving Krook operator in the kinetic regime produces very poor agreement between measurements and theory. In this case, the best agreement is found when collisions are completely ignored.

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