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Quantifying the Contribution of keV-Energy Electrons to the Ring Current

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The Hot Electron and Ion Drift Integrator (HEIDI) inner magnetospheric drift physics model has recently been modified to include keV-energy electron scattering rates by VLF chorus and hiss waves, thus allowing for the calculation of the electron phase space distribution in the inner magnetosphere. Comparisons of calculated electron fluxes are made with low-Earth orbit electron precipitation data and dayside electron measurements to validate the scattering implementation procedure. Changes to the original scattering rate coefficients are made to take into account geomagnetic activity and plasmapause location. The electron ring current intensities and spatio-temporal evolution are compared against simulation results for the hot ion species. While the electron total energy content is typically 10 times smaller than the ion total energy content in the inner magnetosphere, it can be significantly higher than this during the main phase of magnetic storms.