



Thermal electron population in the magnetotail: convection heating and scattering induced losses

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In this work we investigate electrons spectra simultaneously observed by three (or more) THEMIS spacecrafts at different radial distances in the magnetotail. Combining observational spectra of electrons trapped near the equatorial plane with the model of electron adiabatic heating due the earthward convection, we have estimated the electron losses needed to reproduce observation within the convection model. Model-observation comparison demonstrates that losses of hot (>1 keV) electrons should reach the strong diffusion limit, whereas the loss-cone is likely widened by field-aligned electric field driving electron precipitations. We consider possible mechanisms of electron losses and their role in shaping of electron distribution function.