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Simulating radial diffusion of energetic electrons in the outer radiation belt

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We present a study of the response of outer radiation belt energetic electrons to perturbations in the electric and magnetic fields. In this study a model of realistic compressional electric and consistent magnetic field perturbations are interacting with particle populations; the evolution of the phase space density of the particle populations is monitored. Particle radial diffusion is calculated from particle motion for various conditions of electromagnetic perturbations; these calculations are compared to theoretical estimates of the radial diffusion coefficient.