Statistical EMIC diffusion models calculated by averaging observation specific diffusion coefficients

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Electromagnetic ion cyclotron (EMIC) waves play an important role in relativistic electron losses in the radiation belts through diffusion via resonant wave-particle interactions. We present a new statistical model of electron diffusion by EMIC waves calculated, using Van Allen Probe observations, by averaging observation specific diffusion coefficients. The resulting diffusion coefficients therefore capture a wider range of wave-particle interactions than previous average models which are calculated using average observations. These calculations, and their role in radiation belt simulations, are then compared against existing diffusion models. The new diffusion coefficients are found to significantly improve the agreement between the calculated decay of relativistic electrons and Van Allen Probes data.