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Bounce averaged diffusion coefficients in a physics based magnetic field geometry from RAM-SCB LEI ZHAO, YIQUN YU, GIAN LUCA DELZANNO, VANIA K. JORDANOVA, Los Alamos National Laboratory — In this work we explore wave-particle interaction in the radiation belt. By applying quasilinear theory, we obtain the particle diffusion coefficients in both pitch angle and energy for different configurations of the Earth's magnetic field. We consider the Earth's magnetic dipole field as a reference, and compare the results against non-dipole field configurations corresponding to quiet and stormy conditions. The latter are obtained with RAM-SCB, a code that models the Earth's ring current and provide a realistic modeling of the Earth's magnetic field. The bounce averaged electron pitch angle diffusion coefficients are calculated for each magnetic field configuration. The equatorial pitch angle, wave frequency and spectral distribution of whistler waves are shown to affect the bounce averaged diffusion coefficients. In addition, wave-particle resonance is significantly influenced by the magnetic field configuration: in storm conditions, diffusion is strongly reduced for some equatorial pitch angles.

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