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PEM07-P05 Room:Convention Hall Time:May 23 15:30-17:00

Pitch angle scattering of relativistic electrons by EMIC waves in the inner magnetosphere

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Pitch angle scattering arising from the anomalous cyclotron resonance of left-hand polarized EMIC waves with relativistic electrons contributes to the sharp decrease in relativistic electron flux in the outer radiation belt in the main phase of magnetic-storms. Although we have focused on acceleration mechanism of relativistic electrons by the cyclotron resonance with whistler-mode chorus emissions, we also investigate the loss mechanism of relativistic electron flux by the anomalous cyclotron resonance with EMIC waves in the radiation belts. We perform test particle simulations to reproduce the nonlinear orbits, pitch angle scattering and energy change of relativistic electrons due to the anomalous cyclotron resonance by interacting with left-hand polarized EMIC waves generated in the equatorial region and propagating along the magnetic field line of the mirror magnetic field model. In the simulation, we trace a large number of electrons to verify the effectiveness of EMIC waves on pitch angle scattering of the relativistic electron flux in the Earth's radiation belts.