

RADIATION BELT LOSSES DUE TO EMIC WAVES

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Complex response of electron fluxes to varying geomagnetic activity is determined by multiple competing electron acceleration and loss mechanisms. Mechanisms act on both “global” scales, braking the second and/or the third invariant of trapped electrons, and on “local” scales, breaking the first invariant. Predictive understanding of the outer belt can be achieved only by quantifying contributions of individual local and global mechanisms to global variability of relativistic electron fluxes. One of the local loss mechanisms of radiation belt electron is pitch-angle scattering by Electromagnetic Ion Cyclotron (EMIC) waves. In this work we use data from multiple spacecraft to investigate EMIC wave properties which determine their efficiency in scattering radiation belt electrons.

radiation belts, waves, wave-particle interaction

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