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Influence of the plasmasphere on the dynamics of the electron radiation belts fluxes

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Geomagnetic storms may produce a net increase or decrease in the relativistic electrons in the radiation belts. Various loss and source processes which operate inside and outside plasmasphere and in the regions of plumes are discussed. In particular inside plasmaspere hiss waves will scatter particle in pitch angel. Outside plasmasphere ring current electrons will excite chorus waves which will scatter radiation belt electrons in both energy and pitch-angle while EMIC waves exited by the anisotropy of ring current ions in the regions of plumes will produce pure pitch-angle scattering and consequently loss of electrons. The discussed loss and source mechanisms will be illustrated by the simulations with 1D 2D and 3D diffusive code simulations an d compared to observations on CRRES, HEO and SAMPEX satellites.