

The role of the plasmopause on energetic electron precipitation fluxes during space weather events

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Abstract.

In this study we will present a description of the FP7 Space Weather project PLASMON-developed model of energetic electron precipitation (EEP) fluxes that occur inside and outside of the plasmasphere during space weather events. The aim of the PLASMON EEP model is to identify 3 or 4 MLT zones which are populated by ULF/VLF waves that can generate energetic electron precipitation. The MLT zones contain regions of wave-particle interactions that are influenced by MLT-dependent plasmaspheric density structures such as the plasmopause. During geomagnetic disturbances the intensities of the ULF/VLF waves are enhanced, plasmaspheric structures are modified, and differing levels of precipitation flux are generated. The model will characterise the storm-time variations in electron precipitation relative to the plasmopause, building on the outputs of the data assimilative model of plasmasphere undertaken by the PLASMON project, and observations of EEP characteristics made by the PLASMON ground-based VLF receiver network.