# POES衛星による放射線帯電子の消失の観測

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# Loss of radiation belt electrons observed by POES satellite

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The Earth's radiation belts; Van Allen radiation belts, consist of two regions, and these regions accommodate highly energetic electrons. Especially in the outer radiation belt, the energetic electron is highly variable during the magnetic storm time. Energetic electrons sometimes cause satellite charging, resulting in gradual degradation of the instrument and devices of the satellite. It is, therefore, important to understand basic physics of the energetic electron variation in the radiation belt from the space weather point of view. Nowadays, simultaneous ground-based and satellite observations have been performed together with theoretical studies, which aim better understanding of the energetic electron variations in the outer radiation belt. According to the recent studies of the radiation belt, electron acceleration and precipitation due to the wave particle interaction and Pc-5 ULF oscillations are considered as the key factor.

We have focused on the loss process and analyzed variations of the outer belt electrons based on the observations by the Space Environment Module-2 (SEM-2) on board NOAA/POES satellites. Two possible processes have been proposed for the dropout of the electron flux; i.e. i) precipitation into the upper atmosphere and ii) magnetopause shadowing. When the precipitation causes the loss; case i), the flux enhancement of the precipitating electrons can be expected. Results of our analyses, however, doesn't confirm such responses, which suggests that the latter process; case ii) may be the main cause of the electron flux dropout during the magnetic storm time.