

R006-55

Zoom meeting B : 11/4 AM2 (10:45-12:30)

11:00-11:15

Comparative study of flux and pressure variations in inner magnetosphere using Arase and RAM-SCB simulations

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Understanding the physical processes that control the dynamics of energetic particles in the inner magnetosphere is important for both space-borne and ground-based assets essential to the modern society. The storm time distribution of ring current ions in the inner magnetosphere depend strongly on their transport in evolutions of electric and magnetic fields along with acceleration and loss. In this study, we compare the ion flux (H⁺, He⁺, and O⁺) and electron flux variations during geomagnetic storms using Arase observations with the self-consistent inner magnetosphere model: Ring current Atmosphere interactions Model with Self Consistent magnetic field (RAM-SCB). We compare pressure distributions of H⁺, He⁺, O⁺ and electrons from the Arase LEPi/MEPi, LEPe/MEPe/HEP-L as well as the thermal electron density from PWE/HFA measurements and the RAM-SCB simulation to investigate the contribution of the different species (ions and electrons) to the magnetic field deformation observed at ground magnetic stations. The results show that the ions are the major contributor (~ 90 %) to the total ring current pressure. It is also found that electrons (~ 10 %) also contribute significantly to the ring current pressure at post-midnight and dawn sector where electrons flux is higher compared to ions flux.