R006-25
A 会場 ：11/7　AM1 （9:00-10:30）
09:45～10:00

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Plasma pressure distribution of ions and electrons in the inner magnetosphere during CIR and CME storms observed by Arase

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Geomagnetic storms are the main component of space weather, and the main phase of the geomagnetic storms are driven by Coronal Mass Ejections (CMEs) or Corotating Interaction Regions (CIRs). It is well known that CME-driven storms and CIR-driven storms have different evolutions of the Sym-H and the ion distributions in the inner magnetosphere [Miyoshi and Kataoka, 2005]. Enhancement of the ring current is a typical feature of the geomagnetic storm and a global decrease in the H component of the geomagnetic field is observed during the main phase of the geomagnetic storm. The ring current represents a diamagnetic current driven by the plasma pressure in the inner magnetosphere. The plasma pressure is mainly contributed by protons in an energy range of a few to a few hundreds of keV. The O+ contribution is also important, and sometimes dominates H+ during the geomagnetically active period. Recently, we showed that the electron pressure also contributes to the depression of ground magnetic field during the November 2017 CIR-driven storm by comparing Ring current Atmosphere interactions Model with Self Consistent magnetic field (RAM-SCB) simulation, Arase in-situ plasma/particle data, and ground-based magnetometer data [Kumar et al., 2021]. It has been shown that ion and electron distributions of CME/CIR-driven storms are different, especially for recovery phase [Miyoshi and Kataoka, 2005]. In this study, we examine statistically the spatial and temporal distribution of electrons and ions pressure with different energies and their contribution to the depression of the magnetic field during main phase, early recovery and late recovery phase for selected CIR and CME storms using in situ plasma/particle data obtained by Arase.