[EE] Evening Poster | P (Space and Planetary Sciences) | P-EM Solar-Terrestrial Sciences, Space Electromagnetism & Space Environment

[P-EM16]Dynamics of Earth's Inner Magnetosphere and Initial Results from Arase

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Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Earth's inner magnetosphere is a fascinating source of space research problems. There remain many fundamental questions concerning the physics of the radiation belts, the ring current, the plasmasphere and the ionosphere. The JAXA spacecraft Arase(ERG) was successfully launched in December 2016, and has since been providing excellent data on waves, particles and fields over a range of L-shells in the inner magnetosphere. This session particularly welcome submissions related to the Arase mission. As well, data from other recent missions to the magnetosphere are also welcome, including the Van Allen Probes, MMS, and THEMIS. Topics of interest include charged particle interactions with the predominant electromagnetic wave modes such as whistler-mode chorus and hiss, ion cyclotron waves, magnetosonic waves, and ULF waves. Projects involving the prevailing issues of particle acceleration and loss, and particle transport are also of interest. In addition, projects involving the coupling of plasma populations in the inner magnetosphere are also timely. Studies involving observations, simulations, theory and modeling are all invited.

[PEM16-P20]Electric field disturbances observed by THEMIS mission at dipolarization sites in the magnetotail

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The electric fields measured at dipolarization sites when geomagnetic AL index decreases in the inner plasma sheet from 2008 to 2011 by the Electric Field Instrument (EFI) of THEMIS mission were analyzed and some cases show that the electric fields are disturbed with wave-like signatures. Preliminary results show that the frequencies of these disturbances are found to be between proton gyrofrequency (f_{cH}+) and half of the electron gyrofrequency (f_{ce}), so possibly to be whistler-mode and lower-hybrid waves.

In this study, the wave properties of these fields will be investigated in detail. Since electric fields have been suggested to be able to accelerate electrons and can be a significant non-adiabatic acceleration mechanism for particles during dipolarization, acceleration of electrons and scattering in their pitch angles by these observed field disturbances will also be evaluated. This will be beneficial to our understanding on the role of the electric field disturbances play on electrons during dipolarization.

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