

[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

convener: Danny Summers (Memorial University of Newfoundland), Yoshizumi Miyoshi (Institute for Space-Earth Environmental Research, Nagoya University), Keisuke Hosokawa (電気通信大学大学院情報理工学研究所, 共同), Yusuke Ebihara (Research Institute for Sustainable Humanosphere, Kyoto University)

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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-P17]Energy spectra variations of high energy electrons in the inner magnetosphere depending on magnetic latitude and longitude observed by ARASE and HIMAWARI

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The ARASE spacecraft was launched in December 20, 2016 to investigate mechanisms for acceleration and loss of relativistic electrons in the radiation belts during space storms.

Interactions between waves and particles are the cause of particle acceleration and disappearance in the radiation belt. Because of these interactions, it appears as a change in the power law index of the energy spectrum and flux changes in the observation. The relativistic electrons in the outer radiation belt were disappeared/increased and their energy spectra were changed dynamically in some storms observed by XEP/HEP onboard the ARASE spacecraft. So, detailed calibration between observation instruments, HEP, XEP on ARASE and SEDA-e on HIMAWARI, is required to identify affected energy by wave-particle interactions. We have carried out mutual calibration using data of HEP, XEP and SEDA-e.

When comparing the energy spectra, there are times when the spectrum matches or does not match. It is also observed that the change in the power law index of the energy spectrum differs with time. These phenomena are observed even when there are two satellites at the same local time. We investigate the influence of difference of magnetic latitude on energy spectrum because ARASE satellite and HIMAWARI

satellite have different inclination angles on orbits and we will report results.