[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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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-P22]Prediction of high-energy electron spectra from quasi-realtime data by the Arase satellite

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High-energy electrons in the radiation belts cause satellites anomalies due to deep dielectrics charging by electrons penetrating and accumulated inside satellites. The penetration depth of electrons into exterior material depends on energy. Therefore, it is important to predict the energy spectrum of high energy electrons to evaluate the risk of deep charging. Particle detectors of XEP (extremely high-energy electron experiment) and HEP (high-energy electron experiment) onboard the Arase satellite measure electron fluxes of energies from ~100 keV to a few MeV, which is a critical range causing deep charging. The data is provided in quasi realtime. Since it is Qualitatively known that the high-energy electrons in the radiation belts are accelerated throughout interaction processes between energy layers, and there are delays in variation between energies and between regions. Simple correlation analyses using observation data of Arase showed delayed peaks of electron variations. In this presentation, we report prediction results of electron energy spectrum using Kalman filter and its prediction accuracy.