[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-P24]Spatial distribution of radiation belt protons deduced from unexpected output of HEP on board the Arase satellite

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HEP instrument on board the Arase satellite measures electrons with energies from 70 keV to 2 MeV. The Van Allen probes observation revealed that the electrons of MeV energy range never exist in the inner radiation belt. However, the HEP has detected unexpected counts even at the 2 MeV energy channel in the inner radiation belt (L <2.0). Any contamination of high energy protons (> 30 MeV) is supposed to result in the unexpected counts. By assuming no contribution from electrons, we can obtain spatial distribution of energetic protons from the unexpected counts. The result shows a concentration on the magnetic equator especially at L >1.5, which is basically consistent with pitch angle observation of tens of MeV protons near the magnetic equator from the Van Allen probes.