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

[P-EM12]Space Weather, Space Climate, and VarSITI

convener:Ryuho Kataoka(National Institute of Polar Research), Antti A Pulkkinen (NASA Goddard Space Flight Center), Kanya Kusano(名古屋大学宇宙地球環境研究所, 共同), Kazuo Shiokawa(Institute for Space-Earth Environmental Research, Nagoya University)

Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Past, Present, and Future of Solar-Terrestrial Environment is the keynote of this session. We share the latest scientific papers to understand how the solar-terrestrial environment changes in various time scales, and discuss the necessary international collaboration projects associated with VarSITI. More specifically, welcomed papers include space climate studies using tree rings and ice cores; cutting-edge observational and modeling studies of geospace, heliosphere and the sun; simulation and statistical studies to predict the future space weather and space climate.

[PEM12-P06]Comparison of Magnetospheric Magnetic Field Variations at Quasi-Zenith Orbit Based on Michibiki Observation and REPPU Global MHD Simulation

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Keywords:global MHD simulation, surface charging, magnetic field

We compare MHD simulation results with observations from Michibiki satellite, which is on the quasi-zenith orbit (QZO), for risk estimation of surface charging. The surface charging results from plasma injection related to substorm. We simulated some charging events and compared the magnetic field variation causing the plasma injection. However, magnetic field variations of simulation results tend to deviate from observations on QZO in disturbed geomagnetic condition. We consider that the deviation during disturbed geomagnetic condition is due to ring current enhancement in inner magnetosphere. In order to produce the magnetic field variation due to ring current, we added inner pressure model to MHD simulation, which produces ring current by artificially increasing pressure in inner magnetosphere. Then we investigated the magnetic field variation causing the plasma injection. As a result, we found that the magnetic field variation causing plasma injection is reproduced in simulation when we add the inner pressure model to MHD simulation. This result suggests that the change of magnetic field due to ring current in inner magnetosphere affects the magnetic field variation of the plasma injection caused by nightside reconnection.