Structure and Dynamics of the Magnetosphere
Convener:*Yoshizumi Miyoshi(Solar-Terrestrial Environment Laboratory, Nagoya University), Hiroshi Hasegawa(Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency), Chair:Yoshizumi Miyoshi(Solar-Terrestrial Environment Laboratory, Nagoya University), Shigeru Fujita(Meteorological College, Japan Meteorological Agency)
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This session provides an opportunity to present recent results from satellite and ground-based observations, and theoretical and simulation studies, and discuss magnetospheric structures and phenomena including the solar wind-magnetosphere interaction, magnetosphere-ionosphere coupling, magnetic storms, and substorms. Discussion on planetary and satellite magnetospheres, future missions and instrument developments are also welcome.

Comparison between particle environment around GEO from global MHD simulation and that from LANL satellite
3-min talk in an oral session
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Substorm injection is one of the important element of magnetospheric substorm, like auroral break up. Studying substorm injection is important to understand the physics of substorms. Also, substorm injection temporarily changes the particle environment around satellites at GEO. And dynamical variations of particle environment around GEO is one of the causes of satellite anomaly due to surface charging. We try to evaluate our magnetospheric global MHD simulation code by comparing output from global MHD code and LANL satellite particle data. Previous work has been done by Nakamura [2009]. We will examine the possibility of substorm injection prediction using global MHD simulation. Detailed comparison between simulation and observation will be shown in our presentation.