International Session (Oral) | Symbol P (Space and Planetary Sciences) | P-EM Solar-Terrestrial Sciences, Space Electromagnetism & Space Environment

[P-EM06_30PM2]Study of coupling processes in Sun-Earth system with large radars and large-area observations

Convener:*Mamoru Yamamoto(Research Institute for Sustainable Humanosphere, Kyoto University), Yasunobu Ogawa(National Institute of Polar Research), Satonori Nozawa(Solar-Terrestrial Environment Laboratory), Hiroyuki Hashiguchi(Research Institute for Sustainable Humanosphere, Kyoto University), Chair:Hiroyuki Hashiguchi(Research Institute for Sustainable Humanosphere, Kyoto University)
Wed. Apr 30, 2014 4:15 PM - 6:00 PM 312 (3F)

The Earth accepts huge input of energy and material from the Sun. The Earth's environment is maintained by the balance between their inputs and outputs. It is important to study energy and material transport of the Earth. This is an international session that discusses studies of the coupling processes in the Sun-Earth system based on the projects of large radars and large-area observation network. The facilities and networks included are the Equatorial MU Radar (EMU) in Indonesia to study the whole equatorial atmosphere, the EISCAT_3D radar system to study detailed structures and elementary processes of the magnetosphere-ionosphere in the polar region, and global observation networks of magnetometers and radio and optical instruments to study the coupling processes with the global scale. We will show outline of the project and discuss sciences by soliciting variety papers. This session is open to the world, and we strongly encourage submission of papers related to other facilities and projects, i.e., atmospheric or incoherent-scatter radars, observation networks, satellites, and simulation or theoretical studies, etc.

5:15 PM - 5:30 PM

[PEM06-P03_PG]Statistical study of F-region field-aligned irregularities based on Equatorial Atmosphere Radar in Indonesia

3-min talk in an oral session

*Tam DAO[1], Yuichi OTSUKA[1], Kazuo SHIOKAWA[1], Mamoru YAMAMOTO[2] (1.STEL, Graduate School of Science, Nagoya University, 2.Research Institute for Sustainable Humanosphere, Kyoto University)

Keywords:F-region Ionosphere, Field-Aligned Irregularities (FAIs), VHF radar

I examined the statistical characteristics of Field-Aligned Irregularities (FAIs) echoes from the F-region of Ionosphere using Equatorial Atmosphere Radar (EAR) in Indonesia during three years from 2010 to 2012. We investigated the differences between post-sunset and post-midnight FAIs. Some results are analyzed in the daily and monthly average of echo power, spectral width, and Doppler velocity. We found that post-midnight FAIs occurred mostly in summer solstices from May to August in 2010 and 2011, and only in June and July in 2012. We realized some different characteristics between post-sunset and post-midnight FAIs observed from EAR as follow. (1) Echo intensity of the post-midnight FAIs is weaker than that of post-sunset FAIs. (2) The post-sunset FAIs often exceed an altitude of 450 km, whereas the post-midnight FAIs mostly occur in a range from 200 to 450 km in F-region. (3) Spectral width of the post-midnight FAIs is smaller than that of the post-sunset FAIs. These results suggest that plasma instability operates more actively at post-sunset than at post-midnight.