

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

[P-EM13] Study of coupling processes in solar-terrestrial system

convener: Mamoru Yamamoto (Research Institute for Sustainable Humanosphere, Kyoto University), Yasunobu Ogawa (National Institute of Polar Research), Satonori Nozawa (名古屋大学宇宙地球環境研究所, 共同), Akimasa Yoshikawa (Department of Earth and Planetary Sciences, Kyushu University)

Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

The Earth accepts vast 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 project "Study of coupling processes in solar-terrestrial system" that was approved by the Master Plan 2017 of Science Council of Japan. The facilities and networks included are the Equatorial MU Radar (EMU) in Indonesia to study the whole equatorial atmosphere, the EISCAT_3D radar in northern Scandinavia to study detailed structures and elementary processes of the magnetosphere-ionosphere coupling in the polar region, and global networks of various ground-based instruments and observation data. We will show current status 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.

[PEM13-P06] A study of the effect of solar activity on the meteor height distribution in the equatorial region of Indonesia.

*Mario Batubara^{1,2}, Masa-yuki Yamamoto¹, Waleed Madkour¹, Timbul Manik² (1. Kochi University of Technology, 2. Indonesian National Institute of Aeronautics and Space)

Keywords: meteor distribution, solar activity phase, density and temperature of the atmosphere

We investigate the distribution of meteor height and number of meteor echo for 13 years observed by the Meteor Wind Radar (MWR) at Kototabang (0.20° S, 100.32° E) and Biak (1.17° S, 136.10° E) in Indonesia. We aim to disclose the relation between solar activity represented by solar radio index and the fluctuate occurrence of meteor peak height in the equatorial region. In summary, (i) we found that the observed daily meteor count rates at Kototabang and Biak in the period from 2003 to 2011 and 2011 to 2016, showing the number of meteor echoes that may could be used in further analysis statistically. This result is consistent with the previous study [e.g. Liu et al., 2016 and Yi et al., 2016]; (ii) the periodic trend of meteor count rate diurnally shows the peak meteor count rate occurs in the middle of the year; (iii) the meteor peak heights annually observed by both meteor radar in Indonesia. Our results remark that the solar activity is a prominent factor of the meteor peak heights variation. However we also consider another factor to be investigated, namely total number density and mean temperature at 90 km around Indonesian latitude may relate with the solar sunspot number and solar radio index. We particularly attribute the result (iii) to the effects of solar activity and total number density and mesosphere temperature, that is, we suggest that the solar activity expressed by solar radio index and solar sunspot number could cause the variation occurrence on the meteor peak heights.