Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)

PCG31-10 Room:202 Time:May 28 14:15-14:30

Space-borne observation of the ionosphere, thermosphere and the mesosphere

SAITO, Akinori[1*]

[1]Kyoto University

A micro satellite for imaging of the ionosphere-thermosphere-mesosphere-plasmasphere is being designed in aiming to be launched in the low-earth orbit. This new observation is expected to clarify the upper atmospheric processes that have been partially found by the ground-based techniques and the ISS-IMAP missions from the international space station. The new satellite can observe the Earth's upper atmosphere with a wide field of view that cannot be observed from ground-based instruments. Main targets of the observation are: (1) generation, evolution and decay mechanisms of mesoscale structures in the mesosphere and the ionosphere, (2) longitudinal and regional characteristics of the atmospheric gravity waves and tidal waves in the mesosphere, (3) disturbances of the thermosphere associated with the geomagnetic storms, (4) electron density distribution in the plasmasphere and its effect on GPS radio waves, (5) the ionospheric effect on the radio waves and development of the correction technique. Coordinated study among the satellite, ground-based instruments and numerical models is expected to expand our knowledge of the mesosphere, thermosphere, ionosphere and plasmasphere from the equatorial to the polar regions. The coupling mechanisms among high-, mid-, and low latitude regions, and between lower and upper atmosphere will be elucidated by this space-borne observation.

Keywords: Ionosphere, Mesosphere, Thermosphere, Plasmasphere, space-borne imaging observation