ISS-IMAP observation of the airglow structures in the MLT region

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ISS-IMAP (Ionosphere, Mesosphere, upper Atmosphere, and Plasmasphere mapping) mission was installed on the Exposed Facility of Japanese Experiment Module of the International Space Station, EF of ISS-JEM. It consists of Visible-light and Infrared Spectrum Imager (VISI) for the airglow observation and Extra UltraViolet Imager (EUVI) for the ion resonant scattering observation. VISI observed the airglow of 730nm (OH, Alt. 85km), 762nm (O2, Alt. 95km), and 630nm (O, Alt. 250km) in the MTI region, and EUVI observed the resonant scattering of 30.4nm (He+) and 83.4nm (O+) from ion in the Ionosphere and Plasmasphere. ISS-IMAP was operated from 2012 to 2015. VISI elucidated global distributions of the airglow structures whose scale size is 50-500km in the nightside of the Mesosphere and the lower Thermosphere (MLT). The wavy structures that are interpreted to be generated by atmospheric wave were frequently observed by VISI. Some of them showed clear relationship with tropospheric phenomena as its source. Coupling processes between the MLT region and the lower atmosphere will be discussed in the presentation.

Key words: ISS, airglow, resonant scattering, IMAP, gravity wave