

## Two-years observation of the mesosphere, ionosphere and plasmasphere by ISS-IMAP

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ISS-IMAP (Ionosphere, Mesosphere, upper Atmosphere, and Plasmasphere mapping) mission is a space-borne imaging mission on the international space station (ISS) to elucidate the mesoscale structures in the ionosphere, the mesosphere, and the plasmasphere, and the effect of the structures and disturbances on the space-borne engineering system. It consists of two imaging instruments on the Exposed Facility of Japanese Experiment Module of the International Space Station (ISS/JEM-EF). Visible-light and infrared spectrum imager (VISI) observes the Mesosphere and the Ionosphere. Extra ultraviolet imager (EUVI) observes the Ionosphere and the Plasmasphere. VISI observes the airglow of 730nm (OH, Alt. 85km), 762nm (O<sub>2</sub>, Alt. 95km), and 630nm (O, Alt. 250km) in the Nadir direction. The global distributions of the airglow structures whose scale size is 50-500km in the night side of the Mesosphere and the Ionosphere have been obtained by the VISI observation. EUVI measures the resonant scattering of 30.4nm [He<sup>+</sup>] and 83.4nm [O<sup>+</sup>]. The global distribution of total He ion content has been observed by EUVI 30.4nm observation. The continuous observation of ISS-IMAP started in October 2012. The two-years observation has clarified the energy transport processes by the structures whose horizontal scale is 50-500km in the Earth's upper atmosphere, and the effect of the structures and disturbances on the space-borne engineering system. In the presentation, the scientific results obtained by the ISS-IMAP observation will be reviewed.