

Latitudinal structures of ion density in the ionosphere and the plasmasphere detected by ISS-IMAP/EUVI

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The Extreme Ultra Violet Imager (EUVI) of the ISS-IMAP (Ionosphere, Mesosphere, upper Atmosphere and Plasmasphere mapping) mission has taken images of He II radiation (30.4 nm) and O II radiation (83.4 nm) from the International Space Station (ISS) since October 2012. EUVI has FOV of 13.2 degree x 13.2 degree with the 128 x 128 bins and looks toward the back limb direction of the ISS orbit. The target of this observation is the distribution of He⁺ and O⁺ in the ionosphere and plasmasphere. Latitudinal structures of He⁺ in the plasmasphere and O⁺ in the ionosphere were detected by EUVI. In general, plasma density of the plasmasphere increases at low latitudes but decreases at high latitudes. This latitudinal gradient was captured by EUVI at He II radiation. EUVI also captured the latitudinal enhancements of O⁺ density associated with Equatorial Ionization Anomalies (EIAs). The longitudinal variability and the geomagnetic activity dependence of these latitudinal structures will be discussed in this presentation.