Japan Geoscience Union Meeting 2013
(May 19-24 2013 at Makuhari, Chiba, Japan)

PEM08-P01 Room:Convention Hall Time:May 20 18:15-19:30

Initial Results from the Extreme Ultraviolet Imager (EUVI) of ISS-IMAP

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The extreme ultraviolet imager (EUVI) on the international space station (ISS) was launched in July 2012 and started observations in December 2012. The EUVI detects resonantly scattered EUV emissions from He^+ (30.4 nm) and O^+ (83.4 nm). It directs toward the Earth's limb and provides images of He^+ and O^+ distribution in the ionosphere and plasmasphere on the night side with 15 degrees of field of view. The maximum spatial resolution is 0.1 degree and the exposure time is 1 minute. In this presentation, we show images taken by EUVI at various latitudes, longitudes and local times. We will discuss temporal and spatial variations of He^+ and O^+ in the ionosphere and plasmasphere.

Keywords: ionosphere, plasmasphere, ISS, EUV

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Performance of the Extreme Ultraviolet Imager (EUVI) of ISS-IMAP mission

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The Extreme Ultraviolet Imager (EUVI), which is the part of ISS-IMAP (Ionosphere, Mesosphere, upper Atmosphere and Plasmasphere mapping) mission, was successfully launched in July 2012 and began its on-orbit operations. EUVI has two prime-focus telescopes that are designed to detect the resonantly scattered emissions from He^+ (at the wavelength of 30.4 nm) and O^+ (83.4 nm) respectively. In order to clarify the plasma transport process in Earth's upper atmosphere, EUVI observes distributions of He^+ and O^+ in the ionosphere and plasmasphere.

The optical instruments consist of multilayer coated mirrors, metallic thin filters and microchannel plate detectors. The EUVI ground calibration has been carried out and the total sensitivities are estimated to be 0.060 cps/R for He^+ and 0.0023 cps/R for O^+.

In this poster, the instrumental design and performance of EUVI are presented.

Keywords: ISS, EUV, ionosphere, plasmasphere

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GPS PWV Estimation during Dust Storm Season

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Dust storms originate from the arid area are of concern to microwave propagation and satellite telemetry due to they can be influenced to carrier depolarization and phase delay. As technology advances, and new methods of making measurements are developed or made more economical, it becomes feasible to make comparative measurements of the same parameters using independent techniques. One such technique is the ground-based GPS meteorology, which is able to quickly and inexpensively expand the number of global upper-air moisture observations for radiosonde and satellite verification. On 31 March-02 April 2007, heavy Asian dust storm hit the Korean peninsula in East Asia causing extensive damages. In this paper, the Korean GPS permanent stations were used to estimate precipitable water vapor (PWV) during dust storm season. The GPS PWV estimates have monitored the density variations of dust storm associated with anomalous atmospheric wet/dry conditions. In order to monitor the GPS PWV variations to establish the relationship with the level of atmospheric concentration of aerosol particulates during an Asian dust storm, GPS PWV estimations were analyzed during March 30-April 04, 2007. In this period, the maximum value of PM10 (2,019 microgram/cubicmeter) was recorded in Daegu station at 07hr April 01 2007 (UTC) and at Seoul is 1,233 microgram/cubicmeter (12hr April 01) and at Cheonan is 1,261 microgram/cubicmeter (15hr April 01). It can be found that the actual GPS PWV variations are correlated with the spatio-temporal variability of the PM10 data.

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Keywords: GPS PWV, Dust Storm, PM10