

Hisaki による EUV 強度及び地上観測による木星デカメータ電波の比較解析

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Comparison study of EUV brightness obtained by Hisaki and Jovian decametric radiation obtained by ground-based observations

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An analysis between the variations of the extreme ultraviolet (EUV) brightness measured by Hisaki and the activity of Jovian decametric radio emissions (Jovian DAM) measured by several ground-based observations at Nancay observatory of Paris Astronomical Observatory, and at Yoneyama and Iitate Observatories of Tohoku University during Jupiter observation campaign performed in January 2014.

The EUV telescope EXCEED (Extreme Ultraviolet Spectroscopy for Exospheric Dynamics) onboard the Japan's small satellite Hisaki (SPRINT-A) was launched in August 2013, and continues successful operations. One of the main purposes of this mission is to study the connections between the Io plasma torus (IPT), the Jovian aurora, and the Jovian magnetosphere in order to determine the mass and energy transfer through the Jovian magnetosphere. Based on the measurements of the EUV brightness in 105-115 nm and 64-77 nm, we can discuss the variations of Jovian aurora activity, and the variations of plasma density and electron temperature of IPT, respectively.

Jovian DAM showing clear dependence on the Io phase are known as Jovian Io-DAM. Io footprint aurora also suggest that there are energy transfer among Io, Jovian magnetosphere, and Jovian ionosphere. The energy source of Jovian Io-DAM is interactions between Io and rotating magnetosphere including IPT. Therefore we can expected that there are some correlations between the Jovian Io-DAM, and the EUV brightness variations, which are caused by the variations of Jovian auroral activity and plasma conditions in IPT.

In the presentation, we are going to indicate the spectrograms of Jovian decametric radio emissions obtained in the ground-based observations during the Jupiter observation campaign with Hisaki and other remote sensing observations performed in January 2014. Then, we will discuss the correlations with EUV brightness measured by Hisaki.