

## New pictures of Jovian magnetosphere obtained from the Hisaki satellite observation

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In 2013, we got an opportunity to have an extreme ultra-violet (EUV) space telescope orbiting around the Earth, the Hisaki satellite. The strong EUV emissions come from both magnetospheric plasma and aurora through electron impact excitation of ions and molecular hydrogen, respectively. From the spectral observation, we can obtain not only total amount of energy deposited in each region but characteristic energy of electrons. Hisaki is dedicated for observing solar system planets. The monitoring capability of HISAKI provided us discoveries of dynamical behavior of the giant magnetosphere. Here, we show new pictures of Jovian magnetosphere obtained from the Hisaki satellite observation. This paper includes following topics: (1) Origin of hot electron in the inner magnetosphere, (2) Transient brightening of Jovian aurora and subsequent global expansion of the disturbance in the whole magnetosphere, (3) Global response of the magnetosphere to volcanic activity of the satellite Io, (4) Solar wind effects on the inner and middle magnetospheres, (5) Driver of radial diffusion in the Jovian radiation belt, (6) Electromagnetic magnetosphere-satellite interaction, and (7) Identification of new emission lines and new energy states of ion.