宇宙望遠鏡群による木星オーロラの多波長観測：極冠領域におけるX線発光

木村 智樹 [1]; 垰 千尋 [2]; 吉岡 和夫 [3]; 村上 豪 [4]; 山崎 敦 [5]; 土屋 史紀 [6]; 江副 祐一郎 [7]
[1] RIKEN; [2] LPP, Ecole Polytechnique; [3] 立教大; [4] ISAS/JAXA; [5] JAXA・宇宙研; [6] 東北大・理・惑星プラズマ大気; [7] 首都大・理工・物理

Multi-wavelength observations of Jupiter's aurora with Hisaki and other space telescopes: X-ray aurora in the polar cap region

Tomoki Kimura[1]; Chihiro Tao[2]; Kazuo Yoshioka[3]; Go Murakami[4]; Atsushi Yamazaki[5]; Fuminori Tsuchiya[6]; Yuichiro Ezoe[7]
[1] RIKEN; [2] LPP, Ecole Polytechnique; [3] Rikkyo Univ.; [4] ISAS/JAXA; [5] ISAS/JAXA; [6] Planet. Plasma Atmos. Res. Cent., Tohoku Univ.; [7] Tokyo Metropolitan University

From January to April 2014, two observing campaigns by multi-wavelength remote sensing from X-ray to radio were performed to uncover energy transport process in Jupiter's plasma environment using space telescopes and ground-based facilities. These campaigns were triggered by the new Hisaki spacecraft launched in September 2013, which is an extremely ultraviolet (EUV) space telescope of JAXA designed for planetary observations. In the first campaign in January, Hubble Space Telescope (HST) made imaging of far ultraviolet (FUV) aurora with a high special resolution (0.08 arcsec) through two weeks while Hisaki continuously monitored aurora and plasma torus emissions in EUV wavelength with a high temporal resolution (10 min or less). We discovered the internally-driven auroral brightening associated during the solar wind quiet period. The second campaign in April was performed by Chandra X-ray Observatory (CXO), XMM newton, and Suzaku satellite simultaneously with Hisaki. Relativistic auroral accelerations in the polar region and hot plasma in the inner magnetosphere were measured in both X-ray and EUV wavelengths. Driving mechanisms for the relativistic accelerations are discussed mainly based on daily variations and source location of X-ray aurora.