Jupiter's auroral observations by Hisaki/EXCEED and expectation toward collaborations with Juno

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Ultraviolet (UV) emissions from atmospheric H_2 and H reflect powerful polar energetics at outer planets. UV spectra provides information related with the precipitating auroral electron energy. Auroral electron energy and flux relationship shows variety among Jupiter’s auroral regions. The spectrometer EXCEED onboard JAXA’s Earth-orbiting planetary telescope Hisaki monitors extreme UV emissions from Jovian aurora and Io plasma torus continuously. Hisaki succeeded to detect sporadic, large auroral power enhancements lasting both short- (<1 planetary rotation) and long-term (>a few rotations) variations and their modulations by an Io’s volcanic activity over several weeks. The spectral information taken by Hisaki enables us to investigate (1) the time variation of the auroral electron during these emission enhancements, (2) statistical survey for occurrence of polar-dominant events, and (3) associated magnetospheric dynamics for these emission enhancement events using the Knight’s aurora acceleration theory. Expecting collaborative observation with Juno will be discussed.

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