

R009-10

Zoom meeting D : 11/1 AM2 (10:45-12:30)

11:45~12:00

Long-term monitoring of Jupiter's aurora and Io torus by Hisaki EXCEED

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Hisaki is an Earth-orbiting spacecraft equipped with a UV spectroscopy that primarily observes planetary atmospheres and magnetospheres. The spectrometer EXCEED (Extreme Ultraviolet Spectroscopy for Exospheric Dynamics) has a unique dumbbell-shaped slit for observing the Io plasma torus and Jovian aurora simultaneously. Hisaki EXCEED can continuously observe the Jovian system along the 106 min orbit for several months, which is a feature never available for large facilities such as Hubble Space Telescope. Hisaki EXCEED began its monitoring of the Jovian aurora and Io plasma torus in December 2013 with the dumbbell slit. Because of the degradation of the Hisaki EXCEED field of view camera, it is more difficult to track the target with the guide camera after mid-2016. The location of Jupiter was set to in the narrow slit region, however, sometimes aurora moved away from the narrow slit region. Therefore, we use two observing modes, torus mode and aurora mode since 2017. The Jovian disk is located in the wide-slit region for the aurora mode. Both north and south auroras are observed, and only one side of the torus can be seen. For the torus mode, we set the location of Jupiter to the narrow slit region, and the torus fit within the wide-slit region. We have been developing a pipeline to correct the center position of the Jovian disk and derive the time series of the aurora over 900-1480 Å and torus power over 650-780 Å. Several transient and solar wind induced brightenings were observed after 2016. The optical observation of the torus showed that sulfur ribbon brightness increased in mid-2019 and mid-2020, however, the UV torus brightness did not show a notable change during this period. In this study, we will show the time series of the total auroral power as well as the torus emission.