

PEM035-11

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Ground-based observation of Jovian magnetosphere

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Jupiter, the most massive planet in the solar system, has its own magnetosphere due to volcanic activity on its satellite Io in addition to its intense magnetic momentum and rapid rotation. Although a number of in-situ observations made by various spacecrafts in the past contributed to the understanding of the Jovian magnetosphere, there still remains many unveiled aspects. On the other hand, the ground-based observation has its own importance because it can provide continuous and more precise measurements with large and heavy instruments that cannot be on board the space mission.

Tohoku University group has a long history of the ground-based observation of Jupiter since the start of observation of Jovian decameter wave in 1974. In recent years, observation of synchrotron radiation from the Jovian radiation belt at our Iitate observatory and optical observation of Jovian magnetosphere at the summit of Mt. Haleakala, Hawaii are being carried out. Observation of synchrotron radiation emitted from high-energy electrons in the Jovian radiation belt will contribute to understand the particle acceleration process, and optical observation of Iogenic sulfur ions and sodium atoms will also contribute to understand the Jovian magnetosphere.

We are proud of our unique group in which specialists in radio observation and in optical observation are collaborating together. Our latest observation results will be presented along with our future plan on the new telescope at Haleakala dedicated to observation of planets.

Keywords: Jovian magnetosphere, decametric radiation, synchrotron radiation, Jovian aurora, Io plasma torus, sodium nebula