

**Time variation in composition and temperature of plasmas in the Io plasma torus obtained  
by the EUV spectroscopic observations with Hisaki/EXCEED**

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In the Jovian inner magnetosphere, plasmas originating from Io's volcanoes are picked up by the Jovian magnetic field and co-rotate to form the Io plasma torus (IPT). Previous observations have shown that the composition and temperature of the plasmas vary in accordance with the volcanic activity, although they have not captured the whole temporal aspect of the effect of the volcanic activity. In this research, we will show the long-term variation in composition and temperature of plasma in the IPT, obtained by using spectral diagnosis for dataset obtained by EXCEED on the Hisaki satellite. We will also show the characteristics of plasmas during brightenings of the IPT and aurora, which indicate the energy transportation between the inner magnetosphere and the distant region (magnetically connected to the polar region).