Scientific objectives of TOPS : Jupiter's magnetospheric science

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TOPS is an earth-orbiting small-satellite in order to observe planetary atmospheres and plasma environment with Extreme ultraviolet (EUV) spectrometer. The Io plasma torus which is located in the inner magnetosphere of Jupiter is one of the primary science targets of the TOPS mission. The Io plasma torus is the main source of plasma for the Jovian magnetosphere and characterizes shape and dynamic of the rapidly rotating magnetosphere. In EUV wavelength range (from 65nm to 130nm), a lot of allowed transition lines of major ion spices such as sulfur and oxygen ions are radiated from the Io plasma torus. The EUV observation enables us to measure radial distribution of the ion density and hot electron temperature in the inner Jovian magnetosphere and to discuss unresolved electron heating process associated with unsteady plasma transport. In this presentation, we will introduce the scientific targets as for the inner Jovian magnetosphere in detail and discuss about collaboration with other optical and radio observations.