

The satellite Io, which has many volcanoes and is located at  $5.9 R_J$  from the center of Jupiter, is a powerful plasma source in the magnetosphere. The resulting specificity of the Jupiter's magnetosphere is the magnitude of energy that circulates internally. Previous researches, using data obtained by Voyager and Cassini spacecraft and chemical models complementarily, showed that the pickup energy of heavy ions originating from volcanoes on Io and the energy of hot electrons are converted into radiation reaching  $\sim 3$  TW. However, the origins of hot electrons, that is, heating and/or transport mechanisms are still unrevealed. Therefore, in this research, we focus on the response to the change in the amount of plasma supplied to the magnetosphere and explore the above problem. In this study, the radial distributions of plasma density and temperature were derived from the intensities of emission lines in the extreme ultraviolet range obtained by Hisaki satellite. In this presentation, we will show the results using data obtained from DOY 331 in 2014 to DOY 134 in 2015. The activation of volcanoes on Io was confirmed by ground-based infrared observations in early January 2015. We found that plasma density changed dynamically with the activation of volcanoes during the volcanic event. We found that hot electron fraction increased from DOY  $\sim 50$  to DOY  $\sim 120$  in 2015. Prior to that, the short-lived auroral brightening associated with reconnection with mass loading frequently occurred. This finding suggests that the increase in hot electron fraction in the torus is caused by the active radial circulation.