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## Observation results of Io's thermal emissions at The University of Tokyo Atacama Observatory

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Io, one of the most remarkable moons of Jupiter, is also the most volcanically powerful body in the solar system. Io's atmosphere consists of its volcanic gas, and this atmosphere continuously escapes from Io to Jupiter's inner magnetosphere. In this decade, we've been making optical ground-based observations of Jupiter's inner magnetospheric plasma and neutral particles, and showing variations in their emissions. However, it has not been clearly revealed how they are correlated to Io's volcanic activity.

Previous observations of Io's volcanic activity have been made mainly at wavelengths of NIR (near infrared) because thermal radiation of Io's volcanoes has its peak in the NIR. However, reflected solar radiation from Io also has a strong flux in the same wavelengths. Hence, ground-based observations of Io's volcanoes have been made only when Io is in the Jupiter's shadow. In the wavelength of MIR (middle infrared), solar radiation has a much smaller flux than in that in NIR. On the other hand, decrease of volcanic thermal emission radiation from NIR to MIR is smaller compared to the solar radiation. This would make direct observations of Io's volcanic activity much easier. With this in mind, observations of Io's volcanic activity at 8.9 and 12.2 microns were made at The University of Tokyo Atacama Observatory in November, 2009. In these observations, a change in flux from Io at 12.2 microns was detected while there was no change at 8.9 microns. The initial result of these observations will be presented.

Keywords: Io, Jupiter, volcano, gas, plasma, infrared