

## Ground-based observation of Iogenic plasma and neutral clouds in Jovian magnetosphere at Haleakala observatory

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Optical observations of Jupiter were carried out using our facility at Mt. Haleakala in Maui island in June and July, 2008. Location of our observatory and its altitude (3000m) provide us with clear sky and good seeing condition. The observations are focused on distribution of neutral sodium atoms and sulfur ions which have their origin in volcanoes on Io. Brightness, size and shape of sodium clouds change with respect to the position of Io and volcanic activity. Imaging observation of sodium cloud was made with a 10 cm telescope to determine short term variability. On the other hand, observation of sulfur ions in the Io plasma torus, which is nearly corotating with Jovian magnetic field, was carried out by using a 40 cm Schmidt Cassegrain telescope, which is consisted of tip-tilt mirrors and an echelle spectrograph to determine the delay of Io plasma torus from rigid corotation. Our aim is to understand the atmospheric escape mechanisms from these observations. Preliminary results of these observations will be presented.