

## Variation of lunar sodium exosphere associated with 2001 Leonid meteor shower

# Tetsuji Kuroda[1], Shoichi Okano[2], Takeshi Sakanoi[3], Shin Takahashi[4], Reiji Ikada[5]

[1] Planet. Plasma Atmos. Res. Cent., Tohoku Univ., [2] PPARC, Tohoku Univ., [3] PPARC, Grad. School of Sci., Tohoku Univ., [4] Planet. Plasma and Atmos. Res. Cent., Tohoku Univ., [5] Dept. Astro. and Geophys., Tohoku Univ.

Exosphere whose lower boundary is a solid surface is qualitatively different from the classical exosphere, and it is important to understand such a surface-bounded exosphere.

Appearance of Leonid meteor shower on the night of November 19, 2001 was a great one as expected. We carried out observation of sodium exosphere of the Moon before and after the Leonid meteor shower in 2001, expecting that the micrometeoroids on the orbit of mother 55P/Tempel-Tuttle comet will hit also the moon, based on the prediction by David Asher. Observations were made with a newly developed monochromatic imager (FOV: 5.6-degree, optical throughput:  $1.2 \times 10^{-6} \text{cm}^2 \text{sr}$ ) installed on an equatorial at our Iitate observatory on the nights of November 10 (moon age 24), 19 (moon age 4), and 20 (moon age 5), 2001. Impacts of micrometeoroids onto the Moon were expected approximately at 0100JST on November 18 and at 0150JST on November 19.

On each night, images at wavelength of sodium D lines and at 620nm for the background were recorded. Intensity distributions of sodium emission around the Moon were obtained by removing scattered solar light and terrestrial sodium airglow using these image data. Preliminary results indicate discernible increase of the sodium emission intensity on the data of November 19 and 20, compared to the night of November 10.