

Initial Results of Aurora and Airglow Imaging by UPI-TVIS onboard KAGUYA

Makoto Taguchi[1]; Takeshi Sakanoi[2]; Shoichi Okano[3]; Ichiro Yoshikawa[4]; Atsushi Yamazaki[5]; Go Murakami[6]; Kazuo Yoshioka[7]; Shingo Kameda[5]; Fukuhiro Ezawa[6]; Takenori Toyota[6]; Masayuki Kikuchi[1]; Masato Nakamura[5]; Kazuo Shiokawa[8]

[1] NIPR; [2] PPARC, Grad. School of Sci., Tohoku Univ.; [3] PPARC, Tohoku Univ.; [4] Univ. of Tokyo; [5] ISAS/JAXA; [6] Earth and Planetary Sci., Univ. of Tokyo; [7] Earth Planet Phys. Univ of Tokyo; [8] STELAB, Nagoya Univ.

The Upper Atmosphere and Plasma Imager (UPI) onboard KAGUYA has been operated in the lunar orbit for the science from the Moon or imaging observations of the Earth's upper atmosphere and plasmasphere. UPI consists of two telescopes: the Telescope of Extreme ultraviolet (TEX) and Telescope of Visible light (TVIS), which are mounted on a two-axis gimbal system for pointing to the Earth's center. TVIS is equipped with a fast catadioptric optics and a high-sensitivity CCD to image swift aurora and dark airglow. TVIS has a field-of-view equivalent to the Earth disk seen from the Moon. Spatial resolution is about 30 km on the Earth's surface. Observed auroral and airglow emission lines can be changed by selecting one of five bandpass filters. TVIS is operational when the satellite is in the lunar shade, in the nightside of the Earth, and visible from the Earth. Using images of the northern and southern auroral ovals taken by TVIS intensities and shapes of conjugate auroras will be quantitatively compared. By airglow imaging global propagation of large-scale ionospheric disturbances together with equatorial plasma bubbles will be clearly seen. The instrumental performance and initial results will be presented.

References

Yoshikawa, et al., Earth, Planet, and Space. In press.