

## セレーネ衛星による超高層大気とプラズマ圏の撮像観測計画

# 山崎 敦 [1]; 吉川 一朗 [2]; 菊池 雅行 [3]; 田口 真 [3]; 吉岡 和夫 [4]; 村上 豪 [5]; 坂野井 健 [6]; 塩川 和夫 [7]; 三宅 互 [8]; 中村 正人 [9]; 岡野 章一 [10]

[1] 東北大・理・惑星プラズマ大気; [2] 東大; [3] 極地研; [4] 東大院・理・地球惑星科学; [5] 東大・理・地球惑星; [6] 東北大・理; [7] 名大 STE 研; [8] 情報通信研究機構; [9] JAXA 宇宙科学本部; [10] 東北大・理

### Imaging of the terrestrial plasmasphere and upper atmosphere in the SELENE project

# Atsushi Yamazaki[1]; Ichiro Yoshikawa[2]; Masayuki Kikuchi[3]; Makoto Taguchi[3]; Kazuo Yoshioka[4]; Go Murakami[5]; Takeshi Sakanoi[6]; Kazuo Shiokawa[7]; Wataru Miyake[8]; Masato Nakamura[9]; Shoichi Okano[10]

[1] PPARC, Tohoku Univ.; [2] Univ. of Tokyo; [3] NIPR; [4] Earth Planet Phys. Univ of Tokyo; [5] Earth and Planetary Sci., Univ. of Tokyo; [6] PPARC, Grad. School of Sci., Tohoku Univ.; [7] STELAB, Nagoya Univ.; [8] NICT; [9] ISAS/JAXA; [10] PPARC, Tohoku Univ.

The two dimensional imaging has been known to be a powerful tool to see the magnetospheric and atmospheric plasma and neutral particles. We propose a imagery of the terrestrial upper atmosphere, ionosphere and plasmasphere from the lunar orbiter, SELENE and Engineering Explorer (SELENE), to be launched next summer. The instrument, Upper-atmosphere and Plasma Imager (UPI), has two telescopes (UPI-TVIS and UPI-TEX) for the visible and the extreme ultraviolet (EUV) light, and the gimbal system (UPI-G) to track the Earth from the orbit.

SELENE is a three-axial stabilized satellite, and one of axes turn to the Moon surface. UPI-G is used to prevent the field-of-view (FOV) of the telescopes from rotating with the satellite motion. The system has a two-axis control unit; One axis is parallel to the satellite rotating axis, and always moves during observational periods. The other is perpendicular to the satellite orbital plane, and can rotate by 180 degrees according to the revolution of the moon.

UPI-TVIS measures the visible light from the upper-atmosphere, such as aurora and atmospheric airglow. It has a catadioptric system with an aperture of 136mm, a focal length of 320mm and a FOV of 2.4degrees, and has a CCD device to detect the photons. Five interference filters are used as band-pass filter to be sensitive at 427.8nm, 557.7nm, 589.3nm, and 630.0nm and above 730nm. The main science targets are the simultaneous observation of conjugate aurora at both polar regions, and atmospheric airglows at the equatorial region.

UPI-TEX observes resonantly scattering emissions from He<sup>+</sup> and O<sup>+</sup> ions in the EUV region. It adopts a prime focus optics with an aperture of 12cm, a focal length of 168mm, and a FOV of 10 degrees. It has a multilayer-coated mirror, a band-pass filter divided into two area for He<sup>+</sup> and O<sup>+</sup> emissions, and a detector of MCPs. The imagery subjects are the global distribution of plasmaspheric He<sup>+</sup> and O<sup>+</sup> escaping from the polar ionosphere.