

Spatial Variations of O⁺ Resonance Scattering Emission Estimated by the UPI-TEX on KAGUYA

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In 1980s, terrestrial Oxygen ion (O⁺) outflow was observed much more than expected amount in the polar region where the magnetic field connects to interplanetary space. However, it is not yet obvious when and how much O⁺ outflow are produced. In order to observe terrestrial O⁺ outflow, we use the Upper Atmosphere and Plasma Imager-Telescope of Extreme ultraviolet (UPI-TEX) on board the lunar orbiter, KAGUYA(SELENE). TEX imaging observations can detect both temporal and spatial variations of O⁺ resonance scattering emissions, which reflects to the O⁺ column density. However, O⁺ scattering light is too weak to see the spatial variations obviously. Therefore, this analysis is to estimate spatial variations of O⁺ scattering light that is removing filter support effects and spatial integrated it. In this study, we discussed about validity of its estimate and changing O⁺ scattering light associated with geomagnetic activity (AE).

Keywords: KAGUYA Satellite, UPI-TEX, Oxygen ion outflow, Solar wind, Geomagnetic activity