

Space telescope on Small Satellite for Planet Observation

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Phenomena occurring in the planetary atmosphere, ionosphere and magnetosphere show quite variable behaviors. In order to understand the mechanisms of their dynamics, continuous and long-term monitoring is essential. However, observations by ground-based telescope are quite limited in spectral range and in spatial resolution by the atmospheric absorption/scattering and scintillation. On the other hand, only an in-situ planetary orbiting spacecraft would not be enough in the roadmap of planetary science, considering risks, time and cost effectiveness. Here, we propose a small space telescope mission, TOPS --- Telescope Observatory for Planets on Small-satellite, which is customized for planet observation. Two telescopes with a diameter of 30 cm are installed at a small satellite bus (~200kg).

The telescopes cover in the wavelength range from 100 nm to 1um with interference filters and liquid crystal variable filters. Four imaging sensors are used according to spectral range and the scientific purpose. In this presentation observation targets for TOPS are reviewed as well as status of engineering developments.