

Design of space telescope for planet observation on small satellite

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In order to understand the mechanisms of dynamics in the planetary atmosphere/ionosphere/magnetosphere, long-term continuous monitoring is required. 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 a 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 space telescope mission, which is customized for planet observation. The mounted telescopes cover in the wavelength range from 100 nm to 1 μ m with interference filters and liquid crystal variable filters. Four imaging sensors are used according to spectral range and the scientific purpose. It is confirmed based on the engineering studies that the telescopes could have good performance for planetary imaging.