

Title: DESTINY Application: Geospace Imaging Mission

(DESTINY 応用ミッション : 地球圏イメージング)

Yuichiro Ezoe¹, Kunihiro Keika², Shingo Kameda³, and
Geospace Imaging Mission Team

¹Department of Physics, Tokyo Metropolitan University
1-1 Minami-Osawa, Hachioji, Tokyo 192-0397, Japan.

²Solar-Terrestrial Environment Laboratory, Nagoya University
Furocho, Chikusa, Nagoya 464-8601, Japan.

³Rikkyo University
3-34-1 Nishi-Ikebukuro, Toshima, Tokyo, Japan.

ABSTRACT

This presentation introduces an imaging mission that investigates global structures of Earth's magnetospheric boundaries (magnetopause), escape of Earth's atmospheric particles into the magnetosphere, and plasma transport and acceleration in the Earth's magnetosphere, all of which are caused by interactions of the magnetosphere with the solar wind. The mission will carry three instruments: an X-ray camera, an ENA (energetic neutral atom) camera, and a VUV camera. The X-ray camera covering 0.3–2 keV detects X-ray emitted through collisions of solar wind ions such as O^{7+} with cold neutrals around Earth (called geocorona). The ENA camera detects ENAs that originate from 1–a few 100s keV ions in the ionosphere/magnetosphere and are generated through charge exchange collisions with the geocorona. With the VUV camera which observes the Lyman-alpha line emitted from the geocorona, this mission will provide with an unprecedented, comprehensive imaging of the Earth's magnetospheric/ionospheric system, which can extract global plasma dynamics and identify typical spatial and temporal scales of significant physical processes.