

Initial In-flight Calibration for Hayabusa2 Optical Navigation Camera (ONC) by using images of the Moon, Earth, Mars, and stars.

(月、地球、火星、恒星を用いた はやぶさ 2 可視分光カメラの機
上校正観測)

**H. Suzuki¹, M. Yamada², T. Kouyama³, E. Tatsumi⁴, S. Kameda⁵, R. Honda⁶, H. Sawada⁷,
N. Ogawa⁷, T. Morota⁸, C. Honda⁹, N. Sakatani¹, M. Hayakawa⁷, Y. Yokota⁷, Y.
Yamamoto⁷, and S. Sugita⁴**

¹Meiji Univ. Kawasaki, Kanagawa, ²Chiba Inst. Tech., Tsudanuma, Narashino, Chiba, ³National
Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, ⁴Univ. of Tokyo,
Hongo, Bunkyo, Tokyo, ⁵Rikkyo Univ. Nishi-Ikebukuro, Toshima, Tokyo, ⁶Kochi Univ., Kochi,
Kochi, ⁷Japan Aerospace Exploration Agency, Sagami-hara, Kanagawa, ⁸Nagoya Univ., Nagoya,
Aichi, ⁹Univ. of Aizu, Aizu Wakamatsu, Fukushima

ABSTRACT

The Hayabusa2 optical navigation camera (ONC) system consists of three individual cameras, ONC-T for a telescopic view, ONC-W1 for a wide-angle view, and ONC-W2 for a wide-angle slant view will be used to observe the surface of the asteroid Ryugu. The cameras will be used to measure the global asteroid shape, local morphologies, and visible spectral properties. Image data obtained by ONC will provide essential information to select sampling (landing) sites on Ryugu. This study reports the results of initial inflight calibration based on observations of Earth, Mars, Moon, and stars to verify and characterize the optical performance of the ONC, such as flat-field sensitivity, spectral sensitivity, point-spread function (PSF), distortion, and stray light of ONC-T, and distortion for ONC-W1 and W2. (This paper is published online in *Icarus* (Suzuki et al., *Icarus*, Vol. 300, pp. 341-359, 2018))