

## New interface of verification for calibration and conversion in HEAT : Hayabusa2 Exploration Assistant for TIR

\*Tatsuro Kobayashi<sup>1</sup>, Kentaro Suko<sup>1</sup>, Hirohide Demura<sup>1</sup>, Yoshiko Ogawa<sup>1</sup>, Takehiko Arai<sup>2</sup>, Naoya Sakatani<sup>3</sup>, Tatsuaki Okada<sup>3</sup>, Satoshi Tanaka<sup>3</sup>, Tetsuya Fukuhara<sup>4</sup>

1. The University of Aizu, 2. Ashikaga University, 3. Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, 4. Rikkyo University

Hayabusa2 is an ongoing mission for sample return from the asteroid Ryugu.

Candidates of sampling sites are selected based on surface mapping by optical instruments such as Thermal Camera (TIR). TIR observes surface infrared radiation from the asteroid. A software package peculiar to TIR is HEAT: Hayabusa2 Exploration Assistant for TIR. The software has four functions; Database for ground tests, calibration of flight data based on the ground tests, conversion from raw data to temperature one, and analysis for verifying the calibration and conversion. The converted data products are divided into some levels: Lv1 Raw data [DN], Lv2a Temperature [K], Lv2b is Brightness [W/m<sup>2</sup>], and higher thermal model with VTK format [K]. This research implements new interface of verification for calibration and conversion based on hearing and survey for requirements from TIR science team. The environment of implementation is following tool. OS: macOS Mojave 10.14.2. Computing language: C++, OpenGL. Frameworks: Qt5.4. Tools: Fits, Qt creator, SPICE toolkit, Visualization Toolkit, QcustomPlot, Xcode10.1.

Keywords: Hayabusa2, Software, Ryugu, Calibration