

HEAT: Image and database browser for the thermal imager on Hayabusa2

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Hayabusa2 is a sample return mission to asteroid 162173 Ryugu, which will arrive at the asteroid in 2018. The Thermal Infrared Imager (TIR) on Hayabusa2 performs thermal observations of the asteroid to select sites for a safe touchdown and sample return, and to know the origin and thermal history of the asteroid. Procedures of nominal TIR data analysis are as follows; (1) Metadata of TIR image is collected. (2) Local time of a center of the raw image is solved as a specified longitudinal zone on the shape model. (3) the temporal profile of surface temperature is tagged with individual TIR images and the local time. (4) Thermal inertia of the local site is estimated from the profile. (5) Thermal model based on the thermal inertia is established on the shape model. This report introduces an efficient tool for the TIR to resolve the issues as mentioned above. The developed software includes functions of the calibration database and the visualizing browser, called HEAT: Hayabusa2 Exploration Assistant for the TIR. The HEAT has three specific use: visualization, calibration, and analysis.

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