High-resolved temperature map of Ryugu surface observed with Thermal Infrared Imager onboard Hayabusa2

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The thermal infrared imager (TIR) onboard the Hayabusa2 spacecraft performed thermographic observations of the asteroid 162173 Ryugu (1999 JU3) from June 2018 to November 2019. Our previous report (Shimaki et al., 2020) indicated that the global thermal inertia of the Ryugu surface, obtained by the middle altitude observation of TIR (~5km), was 225 ±45 J m^{-2} $s^{-0.5}$ K^{-1}. This result implies that the surface is homogeneously filled in porous materials. On the other hand, boulders, which have high thermal inertia, have been founded by proximity observations of TIR (<1km). Therefore, local areas of the surface have various thermal inertia values and may not be homogeneous. In this study, we constructed high-resolved temperature maps of 0.5˚ by 0.5˚ gridded using the shape model of Ryugu (Watanabe et al., 2018). This study estimates the local thermal inertia, comparing the numerical simulation with the observed temperature.

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