

A strategy to estimate thermal properties using Thermal Infrared Imager on board Hayabusa-2.

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Thermal InfraRed imager (TIR) on board Hayabusa-2, an upcoming japanese mission to C-type asteroid 1999JU3, is non-cooled bolometer which image mid-infrared thermal emission from the asteroidal surface. The field-of-view (FOV) of TIR is 16x12 degrees and its effective pixels are 320x240. So the spacial resolution, which depends on distance from the surface, is about 18m from an altitude of 20km (Home position) and less than 1m from an altitude of 1km.

By comparing the temperature distribution obtained by TIR and thermal evolution model, we can get thermophysical properties such as thermal inertia and emissivity. These parameters are diagnostic for the characteristic size of surface grain.

In this presentation we will present our strategy to estimate the thermophysical properties from TIR observation.

Keywords: hayabusa-2, thermal infrared imager, surface temperature, thermal properties, thermal inertia, emissivity