

Estimation of surface of asteroid 25143Itokawa

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The Hayabusa spacecraft will arrive at the asteroid Itokawa in summer 2005. One of the biggest challenges at the arrival of Itokawa will be collecting the samples from the asteroid surface. However we do not know whether there are no block or many large blocks on the surface. If there are many large blocks, a minor collision might occur when the spacecraft touch down the asteroid surface. In order to estimate the collision probability, we calculated the regolith thickness and the space and size distributions of the large blocks (larger than 1m) on the surface of asteroid Itokawa. Our results indicate that, when the spacecraft touch down the asteroid surface, the collision probability between the spacecraft and the large block is very low.