

Space impact experiment on Ryugu: Pattern of ejecta curtain and the properties of particles in surface and subsurface layers

*Toshihiko Kadono¹, Masahiko Arakawa², Rie Honda³, Ko Ishibashi⁴, Kazunori Ogawa⁵, Naoya Sakatani⁵, Yuri Shimaki⁵, Seiji Sugita⁶, Koji Wada⁴

1. University of Occupational and Environmental Health, 2. Graduate School of Science, Kobe University, 3. Department of Science and Technology, System of Natural Science, Kochi University, 4. Planetary Exploration Research Center, Chiba Institute of Technology, 5. Institute of Space and Astronautical Science, 6. Graduate School of Science, The University of Tokyo

Space-impact experiment was performed on the surface of the C-type asteroid 162173Ryugu using an instrument called the Small Carry-on Impactor (SCI), carried by JAXA spacecraft Hayabusa2. One advantage of the Hayabusa2 for space-impact experiments was the use of a small satellite separated from the spacecraft, the Deployable CAMera-3 (DCAM3), using which we observed the evolution of the ejecta curtain by the SCI impact in situ. In this presentation, based on the patterns of the ejecta curtain, we evaluated the properties of boulders and particles in the surface and subsurface of Ryugu. We found that the boulders on the surface layer had a strength of ~ a few hundred kPa. Furthermore, the particles in the curtain had a characteristic size of a few cm with the maximum size of several decimeters, mainly originated from the subsurface layer. We propose some processes to realize these features.

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