The challenges of Asteroid Exploration Mission Hayabusa2 and its results up to now

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As the follow-on mission of Hayabusa, the first asteroid sample return mission in the world, Hayabusa2 was launched in December 2014. While the main purpose of Hayabusa was demonstration of technology, the main purpose of Hayabusa2 is to do scientific researches. Particularly the important subject is to study water and organic matters that existed when the solar system was born. In addition to this, it is also an important purpose to establish more reliable technology for planet exploration based on the experience of Hayabusa, which had a lot of technological troubles.

After about three and half year space journey, Hayabusa2 arrived at Asteroid Ryugu in June 2018. At first, we observed Ryugu in detail by using remote sensing instruments on board, then we were successful to land small rovers and a lander on the surface of Ryugu. However, we postponed the touchdown to get the surface materials of Ryugu to February 2019 from October 2018 of the original plan. After the touchdown, we will carry out an experiment to make a small crater of the surface of Ryugu. Hayabusa2 will leave Ryugu at the end of 2019, and will return to the earth at the end of 2020.

The asteroid Ryugu, which has a shape of a spinning top and which is covered by a lot of boulders, is very interesting from the point of science. It is rather different from what we assume before the arrival.

In this presentation, we will talk about the challenges of Hayabusa2 based on Hayabusa and the scientific results up to now.

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