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# The Hayabusa-2 sample return mission: Raw materials of the Earth, ocean and life

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The Hayabusa mission, a sample-return mission from the asteroid Itokawa, is now on the way back to the Earth, and is expected to bring the sample back from the asteroid Itokawa in June 201 0. X-ray fluorescence spectroscopy of Itokwa showed that the surface chemical composition of Itokawa resembles to that of LL- or L-chondrites (Okada et al., 2006), indicating that the retuned samples may consist mainly of inorganic minerals.

There have been returned samples neither containing ice and volatile organics nor keeping the interactions between inorganics, ice and organics intact although recent progress in research of extraterrestrial materials has revealed that the most pristine materials in the solar system are an interacted mixture of minerals, ice, and organic matter.

It is accordingly important to study the interactions between minerals, ice, and organic matter within the pristine materials in the dynamically active protosolar disk to understand the very early evolution of minerals, ice, and organic matter, which would have later evolved to the Earth, ocean, and life, respectively. We will talk on goals of returned sample science in a future asteroidal sample return mission, Hayabusa-2, to the C-type asteroid 1999 JU3.

Keywords: C-type asteroid, sanple return, pristine materials, early solar system