

## CURRENT STATUS OF JAXA'S EXTRATERRESTRIAL SAMPLE CURATION CENTER.

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**Introduction:** We report the current status of JAXA's Extraterrestrial Sample Curation Team (ESCuTe). JAXA curation facility of Extraterrestrial Sample Curation Center was completed in 2008 for Hayabusa return sample acceptance. Its conceptual examination was started in 2005, and the specification was decided in 2007 by advisory committee of the Curation Facility [1]. The special feature of JAXA curation facility is the ability to be able to observe, and take out and keep a precious return sample scientifically, without being exposed to the atmosphere. Thereby, for example, noble-gas analysis and space weathering observation were enabled while they are difficult in the meteorite research due to the influence of terrestrial contamination. Moreover, in this facility the handling of the 10-micrometer size particle is also possible using electrostatically controlled micromanipulation system installed in clean chamber. The curation facility in which handling of such as small sample without exposing to the atmosphere is available is only in the world [1].

**Initial description and detailed analysis of Hayabusa sample:** About 500 particles of Hayabusa sample of 10 to 300-micrometer size are collected until now. Optical observation and SEM/EDS observation are carried out in almost all those particles, and the Hayabusa samples information is catalogued. Statistical discussion in the initial description was executed using the mineral composition of the 1 to 40-micrometer sized particles scratched by another tool. Using this information, it was judged that recovered samples were returned from asteroid Itokawa [1,2]. In the preliminary examination phase started about six months after Hayabusa return, detailed analyses by XCT/XRD, TEM, SIMS, FTIR, NAA, noble-gas-MS, etc were conducted [2-8]. In these examinations, they are resolved the relationship between S type asteroid and ordinary chondrite, the figure of pre-rubble-pile body, and the mechanism of the space weathering.

After the sample distribution to NASA following the preliminary examination, international AO analyses were started and offer of the analysis opportunity to the global researchers was performed from 2012. In these researches, the investigations of the formation history and surface evolution of small bodies are progressing. Furthermore, in the curation facility, consortium researches on the rare particles which are not distributed for the international AO are also advanced, and the effort to obtain the maximum scientific result about a precious sample is made.

**Future plan of curation facility:** There is still recovery of the Hayabusa return sample on the way, and it is expected that more than 500 particles are remaining into the sample catcher. Therefore, about two more years are needed to clarify the total amount of the Hayabusa return samples. We are planning to carry out the distribution for the international AO research with succeeding renewal of the sample catalog.

**References:** [1] Yada et al. (2014) *Meteorit. Planet. Sci.*, 49, 135–153. [2] Nakamura et al. (2011) *Science*, 333, 1113–1116. [3] Yurimoto et al. (2011) *Science*, 333, 1116–1119. [4] Ebihara et al. (2011) *Science*, 333, 1119–1121. [5] Noguchi et al. (2011) *Science*, 333, 1121–1125. [6] Tsuchiyama et al. (2011) *Science*, 333, 1125–1128. [7] Nagao et al. (2011) *Science*, 333, 1128–1131. [8] Nakamura et al. (2011) *Science*, 333, 1113–1116.