COMPARISON OF THE MINERAL RATIOS OF ITOKAWA PARTICLES RECOVERED FROM SAMPLE CATCHER ROOM A AND B BASED ON ADDITIONAL DATA.

K. Kumagai[1] , T. Yada[1] , M. Uesugi[1] , Y. Karouji[1] , A. Nakato[1] , T. Okada[1] and M. Abe[1]. [1]Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency.
E-mail: kumagai@planeta.sci.isas.jaxa.jp

Introduction: We continuously describe Itokawa particles, which were provided by the Hayabusa spacecraft in 2010 [Ref.]. Itokawa particles are discovered from both two rooms of Hayabusa's sample catcher—Room A and B— in its sample container which had been recovered from its reentry capsule. At first, we observed particles picked-up from quartz glass disks which were set catcher rooms [Ref.]. Later especially in the case of room B, the cover was directly observed by a field emission scanning electron microscope (FE-SEM) equipped with energy dispersive X-ray spectrometer (EDS). Here we mention the mineral ratios of Itokawa particles which were obtained by both processes.

Methods: In order to recover Itokawa particles from Hayabusa's catcher, quartz glass disks were set to the openings of room A and room B, then they received falling particles of each rooms. On the other hand, some samples were recovered from inner surface of the cover of room B. To pick-up these samples from disks and the cover, we operated an electrostatically controlled micromanipulator equipped in a clean chamber filled with nitrogen gas. After that, these particles were analyzed with the FE-SEM/EDS for initial description.

In order to describe all the particles on the room B's cover, an original SEM holder was developed and observeed directly the particles on it using FE-SEM/EDS. So far, we finished to describe all particles larger than 15 μm on the 1/3 region of the cover.

Results: The mineral ratios based on numbers of particles of each processes are described below; particles picked-up from quartz glass disks of room A are mainly consisted of 64 % olivine, 19 % low-Ca pyroxene, 9 % high-Ca pyroxene and 7 % plagioclase. In the case of room B, 60 % olivine, 14 % low-Ca pyroxene, 6 % high-Ca pyroxene and 20 % plagioclase. Particles on the cover of room B, which observed directly using SEM, were mainly consisted of 66 % olivine, 20 % low-Ca pyroxene, 3 % high-Ca pyroxene and 7 % plagioclase.

References: [1] [2]….