

THE INITIAL DESCRIPTION METHOD OF ITOKAWA PARTICLES RECOVERED FROM A COVER OF HAYABUSA SAMPLE CATCHER ROOM B.

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Introduction: Hayabusa spacecraft made twice touchdown on Itokawa to recover particles from its surface [1]. The sample catcher consists of Room A and Room B (RA and RB) contain particles from different places. Our team members of Extraterrestrial Sample Curation Center (ESCuC) of JAXA tapped the catcher, causing particles drop down to quartz glass disks. We have performed initial description of particles using SEM, after handpicking the particles from the glass disks by a micromanipulator. But as we describe the particles by this way, some sampling biases may appear. For example, larger particles may tend to be more recovered than smaller ones. In addition, because the particles which are apparent non-mineral materials tend to be avoided in handpicking, we could not obtain some kind of information such as contaminants of the sample catcher. So metal disks, which are capable of directly being observed by SEM and we can describe all particles on them, were considered to be adopted instead glass disks. Now we are revising the initial description flow for the particles on an aluminum cover of RB. It can be also applied to the description of the particles on the metal disk in the future. Here, we introduce the initial description flow of particles on the cover of RB.

Methods: Our initial description flow mainly consist of 7 steps; (1) obtaining ESED image map of the certain 1/6 region of RB's cover, (2) surveying the particles whose major axis is larger than about 15 μm in the region, and analyzing their chemical composition by EDS to distinguish whether they are minerals or not, (3) giving "pre-ID" each particle, and measuring the particle size, (4) picking up particles from RB's cover in the case that the particle shows enough size (total of major and minor axis is larger than 30 μm) and mineral signature, using an electrostatically controlled micromanipulator equipped in a clean chamber filled with N_2 [2], and moving onto the sample holder for SEM, (5) analyzing their detailed chemical composition and structure by FE-SEM/EDS, (6) picking up and moving particle to quartz glass slides which are storages of particles, using same apparatus as step 3, (7) registering information of each particle given "official" ID in the curation database and releasing that information all over the world through the our web page;

<http://hayabusaa.isas.jaxa.jp/curation/hayabusa/index.html>

References: [1] Yano *et al.*, (2006) *Science*, 320 1350-1353. [2] Yada *et al.*, (2014) *Meteoritics & Planetary Science*, 49 135-153.