

# Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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U005-02

Room:IC

Time:May 26 08:35-08:50

## Hayabusa missions outline and capsule recovery

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On June 13, 2010, the Hayabusa spacecraft and its re-entry capsule returned to the Earth, and separation of the capsule occurred at 19:51(JST). At 22:51, both the spacecraft and the capsule entered the Earth's atmosphere and the spacecraft was burned up. After the thermal shields separated from the re-entry capsule and parachute deployed at 22:56, the capsule landed on the ground and began sending out a radio beacon at 23:08. A helicopter, assisted by information from four direction finding ground sites, discovered the capsule at 23:56. The landing point was almost the exact center of predicted ellipse within the Woomera Prohibited Area (WPA), thanks to mild wind. The final recovery of the capsule was performed on the following day, June 14, including special safety operations at the landing point.

At the landing point, acquisition of scientific documentary photography, collection of the circumference soil samples, environmental measurements such as GPS positioning, temperature and humidity, and packaging the capsule into the temporarily plastic bag and initial/temporary transportation box for the recovery activity only were performed. The recovery capsule was then transported to the WPA Instrument Building where both the headquarters (HQ) of the Hayabusa capsule recovery team and Quick Look Facility (QLF) for this purpose were temporarily installed. One day was spent on the removal of the explosive device and the battery in the capsule. The next day was spent on the removal of contaminants adhering to the capsule and the packing the capsule into the another clean transportation box for internal transport. The surface cleaning of the capsule and packing operation were both executed in the temporary cleanroom at the QLF installed in the building. The transportation box has a purge function of pure nitrogen gas, and can ease the shock under transportation. On the afternoon of June 17, the remaining capsule I/M was flown from Woomera's Airfield in Australia, which is the nearest airport from the WPA, to Haneda Airport in Japan in a direct flight.

Keywords: Hayabusa, Capsule, Recovery