

IAF SPACE OPERATIONS SYMPOSIUM (B6)  
Mission Operations, Validation, Simulation and Training (3)

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PROGRAMMATIC ASPECT OF HAYABUSA2 SAMPLE RETURN CAPSULE RECOVERY  
OPERATION**Abstract**

Hayabusa2 has come back to Earth on December 5, 2020 and the sample return capsule was landed in Woomera Prohibit Area (WPA), Australia as planned. With considering off nominal cases, several sub teams were formed to ensure the capsule recovery operation for the risk reduction. Ground Optical observation System (GOS) team could observe the fireball to reconstruct the trajectory. Direction Finding Systems (DFS) team could detect the beacon signal to identify the position of the capsule by the principle of triangulation. Marine Radar System (MRS) team and C-band radar team could track the parachute and the capsule without the beacon signal. Also, Drone (DRN) team could take continuous aerial photography and automatically identified the capsule and heatshield after landing. In the recovery operation all the function of the capsule system worked fine. The recovery operation teams found and recovered the capsule smoothly. After gas collection from the sample container, the capsule was quickly transported to Extraterrestrial Sample Curation Center in Sagamihara, Japan. After carefully opened, 5.4g of C-type asteroid material was confirmed. Our activity in the WPA was kindly supported by Department of Defense (DOD). With supported by Australian Space Agency (ASA), the foreign affaire team discussed with the government about the transport procedure and the environment impact even in the off-nominal cases. With reflecting the discussion, the recovery operation plan was applied to Australian government with safety plan and emergency plan in August 2019. However, the COVID-19 problem has been increased in early 2020. It made the situation difficult. The entry to Australia was restricted and the regular international flight was suspended. After many discussions, the counter measure plan was added on the operation plan and we finally obtained AROLSO (Authorisation of Return of Overseas-Launched Space Object) in August 2020. This talk will summarize the programmatic aspect of the recovery operation.