SPACE OPERATIONS SYMPOSIUM (B6)
Human Spaceflight Operations Concepts (1)

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EVALUATION RESULTS OF THE HTV ATMOSPHERIC REENTRY TRAJECTORY

Abstract

The H-II Transfer Vehicle (HTV) "KOUNOTORI" is an unmanned cargo transport and waste disposal vehicle for the International Space Station (ISS) developed by the Japan Aerospace Exploration Agency (JAXA). The first operational flight (HTV-2) was launched by the H-IIB launch vehicle on January 22, 2011, and the rendezvous operation was successfully completed on January 27, 2011. and its atmospheric reentry will be planned to conduct in late March, 2011. Hopefully, the safe reentry operation will have completed by confirming de-orbit trajectory as planned, which will result in a performing an accurate splashdown within the restricted ocean area by the end of March.

Meanwhile, JAXA has started conceptual study of the HTV with a return vehicle, called HTV-R. The HTV-R can accommodate a new reentry vehicle, called HRV. It has two main purposes. First is an establishment of safe and confident return technology to the Earth for Japanese future manned space activities. Second is an implementation of return capability for utilization specimen and on-orbit replaceable units from the ISS. As well as being desired the HTV-2 and subsequent mission success to be achieved, it is necessary to accumulate their technical data and to give feedback to design study and development of the HTV-R. This paper shows evaluation results and findings relating to the HTV-1 and HTV-2 atmospheric reentry trajectory, and also introduces concept study results of the HTV-R and the HRV regarding their reentry trajectories.