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EXTENDED UTILISATION OF JAPAN'S ISS PROGRAM

Abstract

Japan has been contributing to the International Space Station (ISS) Program, with its first manned space laboratory, the Japanese Experiment Module (JEM) and with its first unmmaned cargo ressuply vehicle to the ISS, the H-II Transfer Vehicle (HTV). The various experiments on the JEM have been conducted since its assembly complete in 2009. The HTV 2 was also successfully launched in January 2011. Japan obtained several key technologies for a manned space craft through the development of JEM and the HTV. The successful missions of JEM and the HTV demonstrated the Japan's high technology competence and reliable development management. ISS community has been requested to gain more results from the ISS utilization since its operation will be extended beyond 2016. JAXA updated its technical roadmap for long-term space activities in 2011, targeting the next two decades. After the shuttle retirement in 2011, ISS cargo return capability would be shorten. JAXA plans to obtain new ISS cargo return capability based on the HTV technologies, so called the H-II Transfer Vehicle –R (HTV-R). The HTV-R would be also considered a stepping stone in Japan in adding human capability to the HTV-R after 2020. The first launch of the HTV-R will be expected in the 2016-17 timeframe. For long-term perspectives, Japan will be expected to participate in manned Lunar, Near Earth Object (NEO) and/or Mars explorations. JEM is expected to be used as a testbed for the key technologies development and demonstration for future space systems. Development of more effective core human support systems such as water reclamation, air revitalization and revitalized fuel-cell etc. are under study to be demonstrated in the JEM to accumulate the technologies and knowledge for long duration manned missions. This paper summarizes JAXA's achievements through JEM development and assembly operartions as well as the HTV development, then introduces next JAXA's efforts to proceed new steps for future manned exploration progam.