IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Governmental Human Spaceflight Programmes (Overview) (1)

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JAXA'S INITIATIVE ON HUMAN SPACEFLIGHT PROGRAM FOR ISS AND SPACE EXPLORATION ACTIVITIES

Abstract

JAXA's initiative on Human Space flight Programs is result of accumulation of space development and researches so far. JAXA is now accumulating new history.

JAXA has been steadily carrying out various missions in the Japanese Experiment Module, "Kibo" since its assembly complete in 2009. JAXA is also expanding and improving the functions of the Kibo such as the enhanced incubator called CBEF-L, Small Payload Support Equipment (SPySE) installed onto IVA-replaceable Small Exposed Experiment Platform(i-SEEP) and the next-generation Image Processing Unit (IPU-2). Utilizing such facilities that have become more convenient to use, JAXA is expanding the utilization not only for a wide range of scientific experiments use, but also for commercial use and international cooperation missions including Asian countries. In addition, JAXA is performing technological demonstration into Kibo including the environmental control and life support system (ECLSS) and IVR robotics for the future human space exploration. The outcome of these missions will contribute to various fields of society and industry on earth, and furthermore could lead to the acquisition of new technology for the future crewed space exploration. JAXA will continue making effort to maximize the utilization of Kibo, maintaining and improving its function and performance.

Regarding Space Exploration, Japan decided to participate in the U.S.-proposed international space exploration program, the "Artemis Program" in October 2019. In 2020, Japan signed Artemis Accords in October, and the Memorandum of Understanding regarding Gateway entered into force in December. According to the MOU, JAXA is planning to provide instruments for the Habitation and Logistics Outpost (HALO), to develop the Environment Control and Life Support System for the International Habitable Module (I-HAB), and furthermore, to supply logistics by our new space vehicle, HTV-X. For lunar exploration, JAXA isdeveloping Smart Lander for Investigating Moon (SLIM) to demonstrate precision landing on the lunar surface (targeting JFY2022). In addition, under collaboration with Indian Space Research Organisation (ISRO), JAXA is preparing for the Lunar Polar EXploration (LUPEX) to study water resources on the Moon (targeting JFY2023). Furthermore, JAXA has been conducting concept study regarding lunar surface mobility and started to develop ground models for its key technologies. For Mars exploration, utilizing the experiences through HAYABUSA2, JAXA is working on developing Martian Moon eXploration (MMX) aiming to bring back samples from one of the Martian Moon, Phobos. Brushing up the technique and knowledge obtained through past missions, JAXA continue to have initiative on Human Spaceflight Programs.