

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

Author: Dr. Koichi Wakata

Japan Aerospace Exploration Agency (JAXA), Japan, wakata.koichi@jaxa.jp

Mr. Fumiya Tsutsui

Japan Aerospace Exploration Agency (JAXA), Japan, tsutsui.fumiya@jaxa.jp

Ms. Tomoka Nagase

Japan Aerospace Exploration Agency (JAXA), Japan, nagase.tomoka@jaxa.jp

JAXA'S INITIATIVE ON HUMAN SPACEFLIGHT PROGRAM FOR ISS AND BLEO

Abstract

The Japanese Experiment Module (JEM) “Kibo” on ISS has been operational since 2008, and it has matured to its stage of full utilization. To maximize the benefits of ‘Kibo’s utilization, JAXA is making a continuous effort to create various new capabilities for the utilization on the ISS. JAXA astronaut Norishige Kanai stayed onboard the ISS for six months in 2018 and contributed to bringing benefits to Earth. JAXA is promoting various functional missions such as the deployment of small satellites, a mouse rearing mission, the Electrostatic Levitation Furnace (ELF), Amyloids, the material exposure mission using Exposed Facility (ExHAM) on “Kibo”. In the field of medical research, JAXA focuses on high-quality protein crystal growth experiments utilizing the Protein Crystallization Research Facility in the “Kibo” module.

The international lunar vicinity mission is a likely option for JAXA as a part of human space capability beyond low earth orbit (BLEO). At the International Space Exploration Forum 2 (ISEF2) held in Japan in March 2018, Japan suggested its role in the international cooperation for future space exploration programs. As a core national R&D agency of Japan, JAXA focuses on technology research for long-duration missions, exploration activity on partial gravity environment, and transportation. As a key-technology research for manned missions, JAXA stresses the importance of technology demonstration such as radiation monitoring, automatization and autonomization of astronaut task, the water recovery system, and the air revitalization system, which will be using JEM for on-orbit demonstration. Furthermore, based on the HTV (H-II Transfer Vehicle) technology obtained from past missions, JAXA engages in the development of the next generation HTV (HTV-X), and the return capsule as a re-entry demonstration.