IAF SPACE EXPLORATION SYMPOSIUM (A3)
Interactive Presentations - IAF SPACE EXPLORATION SYMPOSIUM (IP)

Author: Mr. Shigeru Imai
Japan Manned Space Systems Corporation, Japan

SPACE RADIATION MITIGATION APPROACH TOWARD SUSTAINABLE LUNAR EXPLORATION AND BEYOND

Abstract

JAMSS has been involved in the development, operation and utilization of the ISS Kibo, Japanese Experiment Module, for about 30 years. Since the launch of Kibo in 2008, we have been in charge of operation and utilization as a prime contractor. Currently, we are promoting efforts for Gateway, lunar rovers, and Martian moons exploration advancing the expertise obtained thru the ISS. We believe that sustainable manned lunar activity is an important key as a place to return profits to the Earth and as a step in exploration toward Mars and beyond. Last year, we envisioned a world in which 1,000 people will stay on the moon and 10,000 people will visit the moon in the future, and introduced the various infrastructures needed for that purpose and the architecture in which they function organically and complementarily. In particular, in order to build such a safe lunar society, it is essential to properly protect people and equipment from space radiation. For that purpose, simulation technology for accurately predicting the radiation environment on the lunar surface and various measurement data to support it are required. Furthermore, for the predicted radiation environment, hardware design to reduce it and mission scenario / operation design such as construction of Safe Heaven when solar flare occurs are important. This paper introduces JAMSS's general efforts for achieving sustainable lunar and Mars exploration, as well as focuses on recent efforts and future scenarios as for space radiation protection on the moon. It will include our preliminary plan to bring measurement equipment to lunar surface within a few years.