

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Space Station Utilization (3)

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KEYNOTE: THE INTERNATIONAL SPACE STATION: A KEY STEP TOWARDS SUSTAINABLE
HUMAN SPACE EXPLORATION**Abstract**

The International Space Station (ISS) is a highly capable platform in low Earth orbit (LEO) which has been realized by the commitment and achievements of an international partnership of agencies; NASA, the Canadian Space Agency (CSA), the European Space Agency (ESA), the Japanese Aerospace Exploration Agency (JAXA) and the Russian Space Agency (Roscosmos). Since completion of in-space assembly in 2010, the ISS has been focused on a wide range of utilization activities which benefit from its unique environment and location. Utilization activities include life science research, fundamental microgravity physical sciences research, earth and space observation, technology demonstrations, as well as numerous educational activities and initiatives. General and applied research activities in each of these areas contribute to overall scientific knowledge and generate significant benefits for humanity. In addition, the ISS supports many types of activities which are essential for understanding and reducing the risks associated with human missions beyond low Earth orbit. The activities ongoing or planned for operation onboard ISS to support exploration are described in this paper. Additional potential opportunities which contribute to realization of high priority objectives are also discussed.

With the decision to continue ISS in-orbit operations until at least 2020, the ISS partner agencies have the opportunity to ensure that the ISS is used for the critically important exploration preparation activities which are necessary to enable or enhance emerging global exploration scenarios which are described in the ISECG Global Exploration Roadmap. ISS activities fall into 4 main areas: 1) exploration technology demonstration, 2) maturing critical systems, such as life support systems, 3) human health and performance risk management, and 4) operations simulations and techniques. This paper describes multiple activities across the ISS partnership in each of these areas and demonstrates the essential role of ISS and its partnership in enabling agencies to conduct future exploration missions with acceptable risk, therefore ensuring a sustainable exploration effort.