

9th SYMPOSIUM ON STEPPING STONES TO THE FUTURE: STRATEGIES, ARCHITECTURES,
CONCEPTS AND TECHNOLOGIES (D3)

Strategies and Architectures to Establish a “Stepping Stone” Approach to our Future in Space (1)

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ISECG MISSION SCENARIOS AND THEIR ROLE IN INFORMING NEXT STEPS FOR HUMAN
EXPLORATION BEYOND LEO

Abstract

The International Space Exploration Coordination Group (ISECG) was established in response to “The Global Exploration Strategy: The Framework for Coordination” developed by fourteen space agencies and released in May 2007. This GES Framework Document recognizes that preparing for human space exploration is a stepwise process, starting with basic knowledge and culminating in a sustained human presence in space.

ISECG has developed several optional global exploration mission scenarios enabling the phased transition from human operations in Low Earth Orbit (LEO) and utilization of ISS to human missions beyond LEO leading ultimately to human missions to the cis-lunar space, Moon, Near Earth Asteroids, Mars and its environs. Mission scenarios provide the opportunity for judging various exploration approaches in a manner consistent with agreed international goals and strategies. Each ISECG notional mission scenario reflects a series of coordinated human and robotic exploration missions over a 25 year horizon. Mission scenarios are intended to provide insights into next steps for agency investments, following on the success of the ISS. They also provide a framework for advancing the definition of Design Reference Missions and the concepts for capabilities contained within. Each of the human missions contained in the scenarios has been characterized by a Design Reference Mission (DRM) which is a top level definition of mission sequence and the capabilities needed to execute that mission. While DRMs are generally destination focused, they will comprise capabilities which are reused or evolved from capabilities used at other destinations. In this way, an evolutionary approach to developing a robust set of capabilities to sustainably explore our solar system is defined. Agencies also recognize that jointly planning for our next steps, building on the accomplishments of ISS, is important to ensuring the robustness and sustainability of any human exploration plan. Developing a shared long-term vision is important, but agencies recognize this is an evolutionary process and requires consideration of many strategic factors. Strategic factors

such as the implications of an emerging commercial space industry in LEO, the opportunity provided by extending ISS lifetime to at least 2020, and the importance of defining a plan which is sustainable in light of inevitable domestic policy shifts are timely for agency consideration. For more information on the ISECG please consult the ISECG website at www.globalspaceexploration.org or contact the ISECG Secretariat at: isecg@esa.int.