

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

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THE THIRD EDITION OF THE GLOBAL EXPLORATION ROADMAP

Abstract

The third edition of the Global Exploration Roadmap reflects the consensus of ISECG space agencies on a common strategy and roadmap for expanding human presence into the Solar System, with the surface of Mars as the common driving goal. Released in January 2018, this new Global Exploration Roadmap highlights the importance of the Moon on the pathway to Mars. With this consensus and shared interests of space agencies to realise lunar missions on the way to Mars, new opportunities are created to forge the partnerships necessary to make it happen. Partnerships amongst government agencies, academia, public-private partnerships and purely private sector partnerships will bring to bear the best ideas and solutions from around the globe.

The updated Global Exploration Roadmap highlights a major new step for human space exploration: a conceptual Gateway in lunar orbit and its importance in a sustainable human exploration effort. The roadmap shows how the Gateway will be used as a staging post for human and robotic missions to the lunar surface and deep space. Human and robotic activity in lunar orbit and on the lunar surface in the next decade will drive the technologies and capabilities for human lunar exploration. These missions will provide information on the deep space environment impacts on crew health, advance crew autonomy in mission operations, and enable demonstration of key technologies and capabilities, such as surface power and extended mobility systems. All of this is needed for the human exploration of Mars.

The updated Global Exploration Roadmap reflects the on-going coordination amongst space agencies to prepare for future missions through research, science and technology development efforts. A new critical technology gap assessment is provided in hopes that it can stimulate partnerships among stakeholders

within and outside the space exploration community to close gaps for the purpose of promoting space exploration and other non-space benefits to people on Earth.

Human and robotic space exploration is pursued for the benefits of humanity. The fundamental benefits described in this paper include innovation and economic growth, knowledge gain, global partnerships and culture and inspiration. This paper will describe the updated Global Exploration Roadmap and its impact in preparing the future of space exploration.