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A CANADIAN PERSPECTIVE ON EARLY PLANNING FOR GATEWAY UTILIZATION

Abstract

Canada's contribution of the Canadarm3 to the Lunar Gateway enables Canadian access to this platform and its utilization. As a Gateway Partner, along with ESA, JAXA and NASA, the Canadian Space Agency (CSA) is currently defining options for science and technology utilization activities to be carried out on Gateway, while delivering on the vision defined in Canada's Space Strategy. Our participation in Gateway will not only build on existing Canadian strengths, such as robotics and human health, but will also support innovation in science and technology as well as inspire future generations of youth to engage in science, technology, engineering and math (STEM).

The overall process for planning and defining Gateway Utilization (GU) payloads is coordinated through the Gateway Utilization Coordination Panel (GUCP). Given the constraints, e.g., programmatic and technical, associated with Gateway, Partners agreed to maximise benefits by using a multilateral and collaborative approach. In this context, a set of overarching objectives were defined and further developed by seven (7) Disciplines Working Groups (DWG) that report to the GUCP: (1) Technology Materials, (2) Education Outreach, (3) Heliophysics Space Weather, (4) Astrophysics Fundamental Physics, (5) Space Biology, (6) Lunar Science, and (7) Human Health.

On the Canadian side, and in parallel to these international collaboration efforts through the GUCP, the CSA has in the context of the GU Planning and Options Analysis Phase, developed high-level objectives and evaluated the relevancy and strength of potential Canadian science and technology activities aboard Gateway. As part of this development, subsets of activities were defined, analyzed and optimized with respect to rational and programmatic requirements; resulting in an overall multi-criteria options analysis. The conceptualization and option analysis methodology adopted by the CSA to prioritize activities for Canada's Lunar Gateway science and technology utilization will be presented in this paper. Specifically, the driving Canadian GU needs will be addressed, the prioritization approach and the option analysis process will be presented.