Lunar Exploration (2)
Lunar Exploration (1) (1)

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CALIFORNIA RESEARCH ANALOG FOR DEEPSPACE AND LUNAR EXPLORATION - VIRTUAL OPERATIONS AND TELEROBOTICS

Abstract

California Research Analog for DeepSpace and Lunar Exploration (CRADLE) Operational Assessment of CAM 1 2020

Testing and evaluation are essential processes for delivering capable technologies that will contribute to human exploration. Space analog testing centers provide a simulation environment for the validation of major systems. As the Artemis mission is underway, the aerospace industry finds the need for testing grounds to identify and solve problems that might arise for autonomous systems that will be essential for establishing a lunar base. With a growing number of international partnerships joining the Artemis missions opportunities for telerobotic connections to the US test locations become vital. Located in Lucerne valley California, CRADLE (California Research Analog for Deepspace and Lunar Exploration) provides the terrain needed to simulate operations on the lunar surface. CRADLE is evaluating logistical operations for humans, telerobotic, and space resource utilization and providing virtual opportunities to international partners. End-to-end simulations for the human-robotic interface are necessary for the advancement of the Artemis international partnerships. These simulations provide support to multiple commercial and private aerospace organizations to mitigate risk and ensure project success.

Nomenclature BP-1 = Black Point 1 ISRU = In-Situ Resource Utilization EVA = Extravehicular Activity HAB = Habitation module EDU = Engineering Development Units CAM-01 = CRADLE Analogue Mission Phase 01 PPE = Personal Protective Equipment