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Author: Mr. Marshall Smith
National Aeronautics and Space Administration (NASA), United States, Marshall.Smith@nasa.gov

Dr. Greg Chavers
NASA Marshall Space Flight Center, United States, greg.chavers@nasa.gov

Mr. Douglas Craig
NASA, United States, douglas.a.craig-1@nasa.gov

Mrs. Kandyce Goodliff
NASA, United States, kandyce.e.goodliff@nasa.gov

Ms. Erin Mahoney
Stardog Union, United States, erin.c.mahoney@nasa.gov

Dr. Julie A. Robinson
National Aeronautics and Space Administration (NASA), United States, julie.a.robinson@nasa.gov

Ms. Michelle Rucker
NASA, United States, michelle.a.rucker@nasa.gov

DESIGNING LUNAR SYSTEMS AND OPERATIONS FOR MARS

Abstract

As NASA prepares for the next decade of deep space exploration, all eyes are on the Moon and the human-robotic activities ramping up in the agency's Artemis program. The Moon is an exciting and scientifically valuable destination for humans, but also holds the promise of the next great leap: human exploration of Mars. Working with U.S. industry and international partners, NASA is focused on developing dual-purpose systems and operations that will support long-term human exploration at the Moon and Mars. Common systems addressed in this paper will include habitation, surface mobility, spacesuits, and more. Operations at the Moon also will provide critical early opportunities to simulate mission to Mars, including in-space vehicle aggregation, orbit-to-surface operations, planetary protection. Most importantly, our astronaut experiences on and around the Moon will provide vital data on crew health and performance while living and working in the deep space environment for extended periods of time.