

SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 3 (2C)

Author: Mr. Benjamin Ballard

JHU Applied Physics Laboratory, United States, ben.ballard@jhuapl.edu

Dr. Greg Chavers

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

Ms. Cheryl Reed

The John Hopkins University Applied Physics Laboratory, United States, cheryl.reed@jhuapl.edu

Ms. Cynthia Stemple

NASA MSFC, United States, Cindy.stemple@nasa.gov

Mr. Dewey Adams

The John Hopkins University Applied Physics Laboratory, United States, dewey.adams@jhuapl.edu

Dr. Barbara Cohen

National Aeronautics and Space Administration (NASA), Marshall Space Flight Center, United States,
Barbara.A.Cohen@nasa.gov

Dr. Timothy McGee

The John Hopkins University Applied Physics Laboratory, United States, thimothy.mcgee@jhuapl.edu

Mr. Timothy Cole

The John Hopkins University Applied Physics Laboratory, United States, timothy.cole@jhuapl.edu

Mr. David Artis

The John Hopkins University Applied Physics Laboratory, United States, david.artis@jhuapl.edu

Dr. Huu Trinh

NASA MSFC, United States, huu.p.trinh@nasa.gov

Dr. Jeffery Farmer

NASA Marshall Space Flight Center, United States, jeffery.t.farmer@nasa.gov

Mr. Todd Freestone

NASA Marshall Space Flight Center, United States, todd.freestone@nasa.gov

Mr. Eric Lowery

NASA Marshall Space Flight Center, United States, john.e.lowery@nasa.gov

Mr. Paul Lafferty

The John Hopkins University Applied Physics Laboratory, United States, paul.lafferty@jhuapl.edu

Ms. Sanae Kubota

The John Hopkins University Applied Physics Laboratory, United States, sanae.kubota@jhuapl.edu

Ms. Julie Bassler

National Aeronautics and Space Administration (NASA), Marshall Space Flight Center, United States,
Julie.a.bassler@nasa.gov

Ms. Monica Hammond

NASA Marshall Space Flight Center, United States, monica.s.hammond@nasa.gov

Mr. Douglas Eng

The John Hopkins University Applied Physics Laboratory, United States, doug.eng@jhuapl.edu

Mr. Todd Holloway

NASA Marshall Space Flight Center, United States, todd.holloway@nasa.gov

Mr. Brian Mulac

National Aeronautics and Space Administration (NASA), Marshall Space Flight Center, United States,
Brian.mulac@nasa.gov
Mr. Lawrence Hill
NASA Marshall Space Flight Center, United States, larry.hill@nasa.gov
Mr. Daniel Harris
National Aeronautics and Space Administration (NASA), Marshall Space Flight Center, United States,
Danny.W.Harris@nasa.gov
Mr. Michael Hannan
NASA Marshall Space Flight Center, United States, mike.r.hannan@nasa.gov

NASA'S ROBOTIC LUNAR LANDER DEVELOPMENT PROGRAM

Abstract

Over the last five years, NASA has invested in development and risk-reduction for a new generation of planetary landers capable of carrying instruments and technology projects to the lunar surface and other airless bodies. The Robotic Lunar Lander Development Program (RLLDP) is jointly implemented by NASA Marshall Space Flight Center (MSFC) and the Johns Hopkins University Applied Physics Laboratory (APL). The RLLDP team has produced mission architecture designs for multiple airless body missions to meet both science and human precursor mission needs. The mission architecture concept studies encompass small, medium, and large landers, with payloads from a few tens of kilograms to over 1000 kilograms, to the Moon and other airless bodies. To mature these concepts, the project has made significant investments in technology risk reduction in focused subsystems. In addition, many lander technologies and algorithms have been tested and demonstrated in an integrated systems environment using free-flying test articles. These design and testing investments have significantly reduced development risk for airless body landers, thereby reducing overall risk and associated costs for future missions.