

HUMAN EXPLORATION OF THE MOON AND MARS SYMPOSIUM (A5)
Going Beyond the Earth-Moon system: Human Missions to Mars, Libration points, and NEO's (4)

Author: Mr. Rob Landis
NASA Wallops Flight Facility, United States, rob.r.landis@nasa.gov

Dr. Paul Abell
National Aeronautics and Space Administration (NASA), Johnson Space Center, United States,
paul.a.abell@nasa.gov

Dr. Tom Jones
United States, thomasdjones@cox.net

Mr. Daniel Adamo
United States, adamod@earthlink.net

Mr. Ron Mink
National Aeronautics and Space Administration (NASA), Goddard Space Flight Center, United States,
ronald.g.mink@nasa.gov

Mr. Dan Mazanek
National Aeronautics and Space Administration (NASA)/Langley Research Center, United States,
daniel.d.mazanek@nasa.gov

Dr. David Korsmeyer
National Aeronautics and Space Administration (NASA), United States, david.korsmeyer@nasa.gov

A ROADMAP STRATEGY TO EXPLORE NEAR-EARTH OBJECTS: A FLEXIBLE PATH
APPROACH

Abstract

ABSTRACT: The idea of sending human explorers to asteroids is not new. Piloted missions to these primitive bodies were first discussed in the 1960s, pairing Saturn V rockets with enhanced Apollo spacecraft to explore what were then called 'Earth-approaching asteroids' (Cole, 1963 and 1964; Smith, 1966; Meston, *et al.* [editors], 1968). The United States has placed new priority on completing the near-Earth object (NEO) survey along with an emphasis on robotic precursor missions to these bodies. The development of a heavy lift booster also remains a priority, which is an early enabler for human expeditions to NEOs. To date, a small team across five NASA centers has identified 40 – 50 NEOs that are accessible for human exploration on a single launch Ares V heavy lift booster (Adamo, *et al.*, 2010). NEOs represent a target-rich environment for exploration via the Flexible Path option articulated by the U.S. Human Spaceflight Review Committee (Augustine, *et al.*, 2009). We present a provisional roadmap that suggests an integrated forward path for international robotic and human missions to NEOs.