

Near-Earth Objects: Targets for Future Human Exploration, Solar System Science, Resource Utilization, and Planetary Defense

U.S. President Obama stated on April 15, 2010 that the next goal for human spaceflight will be to send human beings to a near-Earth asteroid by 2025. Given this direction from the White House, NASA has been involved in studying various strategies for near-Earth object (NEO) exploration in order to follow U.S. Space Exploration Policy. This mission would be the first human expedition to an interplanetary body beyond the Earth-Moon system and would prove useful for testing technologies required for human missions to Mars and other Solar System destinations. Missions to NEOs would undoubtedly provide a great deal of technical and engineering data on spacecraft operations for future human space exploration while conducting in-depth scientific investigations of these primitive objects. In addition, the resulting scientific investigations would refine designs for future extraterrestrial resource extraction and utilization, and assist in the development of hazard mitigation techniques for planetary defense. This presentation will discuss some of the physical characteristics of NEOs and review some of the current plans for NEO research and exploration from both a human and robotic mission perspective.