

Precursor Asteroid Missions and Synergies to Human Exploration of Phobos and Deimos

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 and then on to the Martian system in the 2030s. 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. These missions would be the first human expeditions to interplanetary bodies beyond the Earth-Moon system and would prove useful for testing technologies required for human missions to Mars and its moons, as well as other Solar System destinations. Robotic precursor 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, which may play a vital role in leveraging potential resources from the Martian moons that in turn could enable robotic and human exploration of Mars.