

In-Situ Resource Utilization (ISRU) Concepts for a Retrieved Asteroid in a Lunar Distant Retrograde Orbit

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Abstract

Mission studies at NASA have identified new ways of retrieving a Near Earth Asteroid (NEA) and returning it to Earth's sphere of influence by placing it in a lunar distant retrograde orbit for exploration, scientific investigations and resource utilization. By understanding the ISRU potential of asteroid resources and by developing appropriate technologies to acquire, process and utilize these resources, new mission concepts, mission architectures and space exploration campaigns can be formulated.

The latest asteroid ISRU concepts from NASA studies will be presented and implications for technology development will be discussed. In addition the "Mars Forward" aspects of the Asteroid resources have been identified and include possible utilization of Phobos resources and Mars surface resources.