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HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)
Human Exploration of the Moon and Cislunar Space (1)

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CONCEPTS FOR EARLY EXPLORATION MISSIONS

Abstract

Multiple agencies and industry companies are working to define concepts to extend human presence to lunar space and beyond. International collaboration, as exemplified by the ISS program, is a critical enabler to provide the full range of elements needed for these future exploration missions. In this paper, we will describe the current Boeing concept for an early exploration mission architecture which emphasizes early flexibility, international elements and extensibility for future missions.

Starting with an early habitation module that extends mission durations in lunar space, additional elements and systems are added over time to increase vehicle functionality. In addition to primary mission objectives, the systems must also provide opportunities for deep space systems testing and crew performance evaluation. This concept provides the flexibility to accomplish near term objectives, such as lunar surface interactions and asteroid exploitation while steadily building a Mars capability. We will describe a set of mission and vehicle concepts within a proposed launch sequence, discuss required capabilities and key features and demonstrate the viability of flexible yet lightweight mission architecture.