

Low Cost Robotic and Human Lunar Mission Concepts

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Over the last three years, SpaceDev has completed three studies of low cost robotic and human lunar lander missions of a private sector customer – Lunar Enterprises of California and Hawaii. The goal of the International Lunar Observatory was to design a fast, low cost science lander mission for the Moon's South Pole. The Human Servicing Mission study was to create a conceptual mission architecture and mission design for a human servicing mission to the Lunar south pole targeted for the period of 2010 to 2015. The studies explored the use of existing technology, technology currently under development, and proposed technology that could be developed by NASA, other countries or the private sector in time to be incorporated into the missions in time. The studies combined those technology capabilities to arrive at missions low in risk and low in cost.

Our approach to the study focused on developing a concept that would not only demonstrate that a low-cost, near-term manned Lunar mission is feasible, but would also generate excitement about returning humans to the Moon, something which the NASA plan has failed to do.

The human mission objective is to send a crew of four people to the site of the International Lunar Observatories (ILOs). The length of stay on the Moon will be seven to ten days. Mission constraints include available technology and the desired launch date range of 2010 to 2015. Additional constraints are imposed by the landing site: the mission will require precision landing techniques in order to put the crew and their habitats close enough to the existing ILOs to perform a useful servicing mission.

The mission consists of two phases: the pre-deployment phase and the crew phase. The pre-deployment phase places fuel for the return trip in Lunar orbit, and deploys a habitat and cargo on the Lunar surface. The habitat will be fully deployed and checked out prior to the initiation of the crew phase of the mission. The crew phase includes the assembly of the outgoing stack in LEO and two launches of SpaceDev Dream Chaser, in addition to the trip to and from the Moon.

This presentation will describe both the robotic and human servicing mission study results and will include a dramatic and exciting four minute animation of the low cost human mission to the surface of the Moon and back.