

Executive Summary

Date Prepared: 5 September 2007

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Presentation Title

Mobile Lunar Landers and their Implications for Science

Key Ideas

As part of the NASA Lunar Architecture Team, one of the options considered (Option 4) was to make some or all of the lunar landers mobile. The presenter was a member of the Option 4 study team, and will describe the architectural and science implications of making landers mobile.

Supporting Information

A lunar lander can be made mobile using a mobility system as little as 5-8% of landed mass. Mobile landers can move well away from the landing zone, preventing ejecta damage to other assets. They can congregate and dock together, eliminating the need to separate, handle, and transport large payloads, as well as any "civil engineering" tasks associated with site preparation and emplacement. They have integrated power and communications elements, so that such elements don't need to be emplaced on the surface along with their attendant power and communications cables that pose a risk if laid out on the surface. Perhaps most importantly, mobile landers can be used as "Winnebagos" for long-range exploration. Scenarios will be described where one Winnebago and one small pressurized rover can explore thousands of kilometers, and two Winnebagos and two small pressurized rovers can provide global-scale exploration (e.g. visiting the 10 "ESAS sites" selected for their scientific and/or resource interest).