

Executive Summary

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Presentation Title

Feed Forward to Mars: Implications for Lunar Outpost Site Selection and the Nature of the Activity to be Carried Out There

Key Ideas

Over the past six months, a concentrated multi-disciplinary, multi-directorate (ESMD, SMD, ARMD, and SOMD) effort has been carried out to update our Mars human reference mission. Included within this analysis is evaluation of the probable objectives of the mission, implications for the kinds of sites on Mars that would be most useful, and assessment of the kind of activity that needs to be carried out there. A primary purpose of this study is to provide guidance to the lunar exploration program so that the heritage it establishes will be most useful to Mars.

Additional Information

Evaluation of the objectives of the human exploration of Mars requires a three-part analysis: 1) Objectives related to Mars planetary science that are most appropriately assigned to human explorers, 2) Objectives related to preparation for sustained human presence on Mars, and 3) Objectives related to non-Mars scientific objectives (astrophysics, heliophysics, etc.). For the purpose of this planning exercise, we have assumed a program of three missions. This has led to a series of important discussions about whether the three missions should be sent to the same site or multiple sites, the attributes of the site(s) that would make it attractive for a human landing, and the nature of the activity that would need to be carried out at the one or more landing sites to achieve the various envisioned objectives.