SPACE OPERATIONS SYMPOSIUM (B6)
New Space Operations Concepts and Advanced Systems (2)

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SURFACE OPERATIONS PLANNING FOR THE TEAMINDUS LUNAR LANDER: SELECTED ANALYSIS AND METHODOLOGIES

Abstract

Planning the surface mission and operations for the TeamIndus Lunar Lander poses some unique challenges. Participating in the Google Lunar XPRIZE, with a problem statement to soft-land on the Moon, move 500m and return data, there are differences from purely science-driven missions of the past to the Moon. The Lander is a solar-powered craft and the maximum time to complete the mission's objectives is limited by the availability of sunlight. This constrains how the Lander supports the two micro rovers carried by it to the Moon. The TeamIndus Mission Planning and Operations team has performed analysis in coordination with the Lander Systems Engineers to negotiate the boundaries between system design and margins while aiming to complete all primary mission objectives at the earliest.

The studies that will be covered in the paper include inputs from mission design, including orbital strategy and the landing and terrain conditions, power, communication and thermal design limits, rover support requirements as well as some details on the relationships between each of the above. The interaction between these inputs when preparing the preliminary operations plan was a major learning highlighting the tight coordination required between design and operations.