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Hitchhiking to the Moon (8)

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LUNETTE AS A FAMILY OF SMALL LUNAR LANDERS

**Abstract**

The Lunette concept began as an effort to develop a versatile lunar lander that could be launched as a secondary payload on a lunar or GTO-bound EELV. The key focus was on simplicity and low cost, and the study team pushed boundaries to devise a multiple lander flight system capable of performing a variety of scientific and exploration missions. The Lunette “product line” was subsequently broadened through the tailoring of a single lander variant, capable of independent operation anywhere on the lunar near-side. Additional variants studied have included adaptation of the lander bus to serve as a communication satellite, allowing expansion of Lunette capabilities to operation on the lunar far side. Most recently a significant redesign was undertaken over the last two years to develop a much more focused and capable lander to serve as nodes for a global lunar geophysical network achievable within a constrained Discovery-level budget. Adapting to this mission concept brought with it the need for instrument operation and data-taking over the lunar night, a requirement which significantly drove the design, since the Lunette team had determined to achieve this capability without the use of radioisotope heating or power. The evolution of the Lunette concept over the past five years has resulted in significant changes in the outward configuration of the landers, but remarkably little change in the basic concept and system block diagram between the variants. This paper provides a review of the Lunette family of small landers, with comparisons of the design features of the lander and flight stack variants, including updates on the latest design.