

EXPLORATION AND EVALUATION OF LUNAR VOLATILES AS POTENTIAL RESOURCE WITHIN THE ESA LUNAR LANDER CONTEXT. M. Anand^{1,2}, J. Carpenter³ and the ESA Topical Team on the Exploitation of Local Planetary Materials (TT-ELPM)*, ¹Centre for Earth, Planetary, Space and Astronomical Research (CEPSAR), The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK (m.anand@open.ac.uk), ²Department of Mineralogy, The Natural History Museum, London, SW7 5BD, UK, ³European Space Agency, ESA-ESTEC, Keplerlaan 1, 2201 AZ Noordwijk, The Netherlands.

The European Space Agency (ESA) Topical Team on Exploitation of Local Planetary Materials (TT-ELPM) is investigating the viability of lunar volatiles as a potential resource for future exploration activities and the possible application of the ESA Lunar Lander [1,2] to help address unknowns on the abundance and distribution of volatiles on the Moon. The ESA Lunar Lander is a mission currently being investigated within the Human Space Flight Directorate of ESA, as a precursor mission to future exploration of the Moon. A candidate payload for the mission will measure lunar volatiles *in-situ*. We report on the findings of the Topical Team to date, in terms of the potential applications of lunar volatiles for exploration, the unknowns associated with the composition, abundance, distribution and extraction of those volatiles and the potential of the ESA Lunar Lander to address some of these issues.

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References: [1] J.D. Carpenter et al., Objectives and payload for human exploration preparation on ESA's first Lunar Lander, Proc. IAC, Prague, September 2010, IAC-10.A3.2B.9. [2] A. Pradier et al., The First European Lunar Lander and the ESA DLR approach to its development, Proc. IAC, Prague, September 2010, IAC-10.A3.2B.8.