PROGRESS OF THE MOONLITE PENETRATORS. R. A. Gowen and A. Smith[1], of the U.K.Penetrator Consortium, [1] University College London, Mullard Space Science Laboratory, Holmbury St Mary, Dorking, Surrey, Rh5 6NT, UK. Members identified in the Acknowledgements. (Email: rag@ucl.ac.uk).

Summary: We present the latest results from the full scale impact trials held on May 19-21 2008; the current program status including funding; and the possibilities for international contributions to this MoonLTIE mission arising from collaboration with communications and the natural but dramatic and useful ending of your mission with a valuable contribution to knowledge of the internal structure of the Moon. We also outline the next steps which hopefully lead to a launch in 2014.

Introduction: The MoonLITE mission is planned to operate for 1 year and involves implanting 4 penetrators globally spaced at impact speeds of ~300m/s. Each coming to rest a few metres under the lunar surface will provide a solid emplacement for an effective seismic network and for geochemical and heat flow investigations. Polar emplacement will also allow an exciting ability to characterize the presence of water-ice currently indirectly inferred in the permanently shaded craters. They will also allow investigation of the presence of other volatiles, possibly including organics of astrobiologic interest.

This mission will inform future ILN (International Lunar Network) missions of the global seismic environment; provide key information on regional sites at potentially high risk for damaging surface seismic events; and key information of the existence of IRSU water. Radiation monitors will also allow characterisation of the lunar regolith for astronaut shielding.

Potential International Collaboration: The timing of this mission may allow arrangement of coincident impacts of other spacecraft which are at the end of their natural mission lifetime, to provide strong artificial seismic signals to allow probing the deep interior of the Moon. Perhaps no better way to end an otherwise very successful mission ?

In addition, the presence of multiple Lunar orbiting spacecraft may allow the possibility of inter-communication between different missions to enhance telemetry rates from the lunar surface and provide mission fault tolerance.

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