

SPACE EXPLORATION SYMPOSIUM (A3)  
Moon Exploration – Part 3 (2C)

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## LUNAR MISSION ONE: A NEW WAY TO EXPLORE OUTER SPACE

**Abstract**

Lunar Mission One brings a unique approach to exploration of Earth's Moon, with global mass participation, education, and funding. Quickly achieving its initial \$1 million KickStarter campaign crowd-funding target in 2014, it now introduces a new Public-Private partnership model fulfilling not-for-profit objectives. Its twinned robotic mission aims are equally novel: drilling to unprecedented depth on another planetary body, and using the resulting cavity to store an archive of human and Earth history that, once secure tens of metres beneath the targeted drill site near the lunar South Pole, may endure undisturbed a billion or more years. In the here and now, the mission will facilitate key science objectives in support of the Global Exploration Roadmap, and lend direct support to investigations advancing future human bases at the Moon's antipodes.

Backed by a commercial consortium leading its programme management, technology developments and space operations, the project is driving innovations in the fields of deep wire-line drilling, remote control robotics, and precision extra-planetary landing. In aiming to drill from 20 to 100m's depth below the lunar surface, the Mission also positions to unlock a unique storehouse of our Solar System's multi-billion year history.

The Mission's data archive presents unique opportunity to capture a record of human life on Earth, as well to protect a database of our planet's biosphere and environmental history. The South Pole's exceptional preserving conditions offer an attractive lockbox for private information including DNA, and the challenges for future discovery and recovery are already enabling a global education programme.

The initial procurement team includes Surrey Satellite Technology Ltd, and an Industry RFI and ESA Call for Innovation response are already underway. Science Working Groups led by University College London are allocating tasks including lunar science, site selection, instruments, and advanced materials for archive protection, while early marketing campaigns include digi.me and Google Lunar XPrize contender Astrobotic.

A signature feature of the project, resonating with its KickStarter launch, is the online Lunar Missions Labs Collaboration Platform, sponsored by the UK Satellite Applications Catapult. Crowdsourcing ideas from across diverse talent pools, Lunar Missions Labs introduces specific Science, Mission, Education and Artistic challenges benefitting from the moderated online idea flow. Pilot schools, professional institutions, and local volunteer chapters from the Gulf states, France, the US, UK, India, Pakistan, Bolivia, South Africa, and Canada are amongst the first to accelerate this vanguard collective exploration of our nearest planetary neighbour.