Crowdfunded lunar mission will put donors’ hair on the moon

Kickstarter-funded project planned for 2024 will also drill deep into the surface to probe the origins of the Earth and the moon

A crowdfunded moon lander that will drill deep into the lunar surface to study rocks that formed soon after the birth of the solar system has been announced by a British organisation.

[Lunar Mission One](http://lunarmissionone.com/) aims to transform how space exploration is done by covering the costs of expeditions with millions of small payments from the public instead a major investment from national space agencies.

Its leaders have turned to [Kickstarter](http://www.theguardian.com/technology/kickstarter), the crowdfunding platform, to raise the £600,000 ($1m) needed to get the project off the ground. Enough support over the next month will see planning and fundraising ramp up in 2015.

“It is increasingly difficult to fund space science and exploration of the kind aimed at developing understanding and knowledge,” said David Iron, a former adviser to the UK government on space projects and the founder of Lunar Missions Ltd. “We are introducing a new form of funding, and if it works we’ll have a legacy that shows it’s possible to fund these missions very differently.”

Under plans revealed on Wednesday, the robotic lander will be designed and built from 2018 onwards and sent to the moon in 2024. Provided the spacecraft makes it that far, it will land in the Aitken basin at the lunar south pole, one of the largest craters in the solar system and a promising spot for a future moonbase. Once down, the lander will drill a 5cm-wide borehole between 20 and 100 metres deep and collect samples of moon material that has never been studied before.

Supporters who pledge £60 ($95) or more towards the mission can upload personal histories, pictures, video and other media to digital time capsules that the lander will drop down the borehole once the moon rock has been collected. For around £200 ($300), supporters can add a strand of hair to their time capsules, though the company cannot guarantee that any DNA will survive. Iron said market research suggested that around 10 million people might be prepared to pay for hairs to be stored, bringing in around £2bn ($3bn).

“It will survive for a geological timescale. They’ll be able to look up in the sky and say ‘there’s a bit of Uncle Harry, or there’s a bit of me’,” Iron told the Guardian.

Instruments onboard the lander will analyse the rock’s composition and check whether its isotopic signature matches that of rocks on Earth. A match would be strong confirmation that the moon was created in a giant impact with Earth around 4.5bn years ago.

Studying rock from deep inside the moon will answer questions about the Earth’s formation too. The task is harder on Earth itself, because much of the oldest rock was either destroyed by asteroid and comet impacts soon after Earth formed, or has been recycled through geological activity.

The lander will carry a second archive of detailed information about life on Earth, human history and plant and animal biodiversity. This will be available online during and after the mission.

Iron said the cost of the mission was expected to be around £500m ($800m), not including marketing and public outreach. Provided it raises enough money, the mission will be handed over to industry to build and launch. Any money left over will go into a non-profit trust to back future space science and exploration.

“The project is plainly ambitious and challenging, but its special cultural and scientific features should generate wide interest and support. It deserves to succeed,” said [Lord Martin Rees](http://www.ast.cam.ac.uk/~mjr/), the astronomer royal.

Scientists at the Rutherford Appleton Laboratory in Oxfordshire, who have worked on scores of space missions, including the recent Philae comet lander, are advisers to the moon mission. [Richard Holdaway](http://www.stfc.ac.uk/ralspace/43265.aspx), director of RAL Space, said: “A key task for the mission is final confirmation that the moon did come from an impact with Earth. But secondly, understanding the geology on and under the surface of the moon will tell us about the geology on Earth in ways we cannot do. After the collision that created the moon, the Earth was still being bombarded by asteroids and comets, so a lot of what happened on Earth, we don’t have any more.”

Research on subsurface moon rock could help companies decide whether the moon is viable to mine, Holdaway added.

“Lunar Mission One is exhilarating because it’s a new way of doing things. It’s not a mission created by a space agency, but by the people for the people,” said [John Zarnecki](http://science-people.open.ac.uk/j.c.zarnecki), emeritus professor of space science at The Open University. “It creates a fantastic opportunity for everybody to be involved in a mission to the moon, which will not only answer some of the most important scientific questions about the origins of our solar system, but inspire generations to reach for the stars and be part of the future of space exploration.”