

A wet Moon

March 26 2014



The Moon's status as a "dry" rock in space has long been questioned. Competing theories abound as to the source of the H₂O in the lunar soil, including delivery of water to the Moon by comets.

This week, Tartèse et al announced in *Geology* that new analyses of [lunar soil](#) samples demonstrates that basalts from the Moon's mantle contain hydrogen from water indigenous to Earth.

According to the authors, their work is "challenging the paradigm of a "dry" Moon, and arguing that some portions of the [lunar interior](#) are as wet as some regions of the Earth's mantle."

The Moon's origin is believed to be the Earth itself, which gave rise to the Moon when a Mars-sized object impacted our planet around 4.5 billion years ago. The Earth's mantle is known to be partially water.

These latest findings raise the odds that the Moon may have a partly-aqueous core today. These results promise that at some time in the past there was water in the Moon's mantle, inherited from an ancestral proto-Earth, which rose to the surface in magma, and became trapped in crystals called apatites.

How much water remains, and how it can be accessed to support human habitation, will be a subject of ongoing study.

More information: Romain Tartèse, Mahesh Anand, Francis M. McCubbin, Stephen M. Elardo, Charles K. Shearer, and Ian A. Franchi. "Apatites in lunar KREEP basalts: The missing link to understanding the H isotope systematics of the Moon." *Geology*, G35288.1, first published on February 25, 2014, [DOI: 10.1130/G35288.1](https://doi.org/10.1130/G35288.1)

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