

Soviet find of water on the Moon in the 1970s ignored by the West

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Luna 24

(Phys.org) -- In August 1976 Luna 24 landed on the moon and returned to Earth with samples of rocks, which were found to contain water, but this finding was ignored by scientists in the West.

US missions to the moon brought back a total of around 300 kilograms of [moon rocks](#). Many samples were found to contain traces of water, but NASA believed the water was a contaminant originating on Earth, because [lunar dust](#) had clogged the seals of some of the containers and prevented them from being closed properly.

The presence of water on the moon will be important if a [moon base](#) is ever to be established, but for many decades the moon was believed by Western scientists to be dry. Three articles by Professor Arlin Crotts, an astrophysicist from Columbia University in New York, has now examined the history of scientific research on the presence of water on the moon and discovered that the Russians had found water in moon rocks in 1976.

The US sent Clementine to the moon in 1994 to use radar to look for water ice by analyzing the reflected [radio waves](#) beamed at the surface, and it provided the first Western proof of crystals of water ice under the [lunar surface](#). The Lunar Prospector mission in 1998 also looked for water, this time by comparing the amount of neutrons emitted from the surface with the amount that should be present if there was no water to absorb them. Even more recently, in 2009, the Indian mission Chandrayaan-I found evidence of water on the moon by using infrared photography.

NASA also carried out an experiment in 2009 in which the upper stage of an empty Centaur rocket was crashed into a permanently shadowed [lunar crater](#) (the most likely place to find [water ice](#)). The Centaur hit the moon at 2.5 km/s and formed a crater four meters deep and 25 meters wide. The plume of ejected material was analyzed and found to contain around 5.6 percent water.

The Soviet Luna 24 mission of 1976 drilled two meters down and extracted 170 grams of [lunar soil](#), which it brought back to Earth for analysis, taking every possible precaution to avoid contamination. The scientists found that water made up 0.1 percent of the mass of the soil, and published their results in the journal *Geokhimiia* in 1978. The journal does not have a wide readership among Western scientists even though it was also available in English, and Crotts said the work was never cited by any scientist in the West.

More information: Water on The Moon, I. Historical Overview - arxiv.org/abs/1205.5597

Water on The Moon, II. Origins & Resources - arxiv.org/abs/1205.5598

Water on The Moon, III. Volatiles & Activity - arxiv.org/abs/1205.5599

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