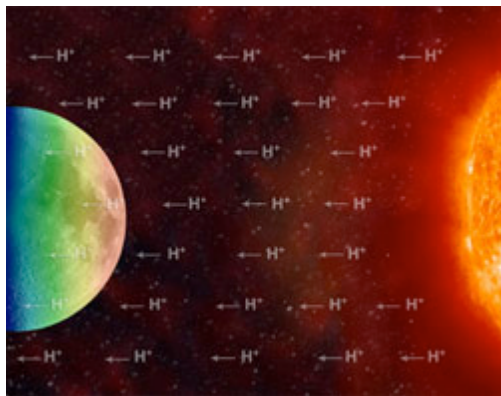


Moon may have water

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Courtesy Science
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Data collected by three spacecrafts suggest there may be water on the Moon, scientists say.

The data, according to researchers, point to the presence of either water or hydroxyl, a molecule consisting of two of the three atoms in a water molecule. These findings are forcing a reexamination of the traditional notion that our Moon is completely dry, researchers said.



A diagram showing a stream of charged hydrogen atoms flowing outward from the Sun to the Moon. One possible scenario to explain water on the lunar surface is that when the Moon is exposed to this solar wind, the charged particles liberate oxygen from lunar minerals to form water and hydroxyl. The surface of the Moon is color-coded in this image to mark different temperatures. (Image courtesy U. Maryland/F. Merlin/McREL)

Carle Pieters of Brown University in Rhode Island and colleagues reviewed data from the Indian Space Research Organisation's Chandrayaan-1 space mission. They found that light was being absorbed near the lunar poles at wavelengths, or energies, consistent with hydroxyl- and water-bearing materials.

Scientists said it wasn't clear how much water there might be. Regardless, the findings are published in the Sept. 25 issue of the research journal *Science*. The report by Pieters and colleagues, along with two other papers, say the water or hydroxyl on the Moon's surface seems to become more abundant as one gets closer to the poles.

Roger Clark of the U.S. Geological Survey used data from a high tech instrument on the the Cassini mission of NASA and the European Space Agency to identify

this water or hydroxyl near the poles and at lower latitudes as well.

Jessica Sunshine of the University of Maryland and colleagues described infrared light mapping by NASA's Deep Impact spacecraft that likewise confirmed the presence of water or hydroxyl in trace amounts over much of the Moon's surface.

Hydroxyl consists of an atom of oxygen and an atom of hydrogen. Water molecules have an additional hydrogen atom.

The findings suggest that the formation and retention of these molecules is an ongoing process on the lunar surface. Moreover, the solar wind, a constant outflow of particles from the Sun, could be responsible for forming these molecules, according to researchers. They speculate that the water or hydroxyl in the polar regions of the Moon might have migrated there over time, attracted to the colder environment.