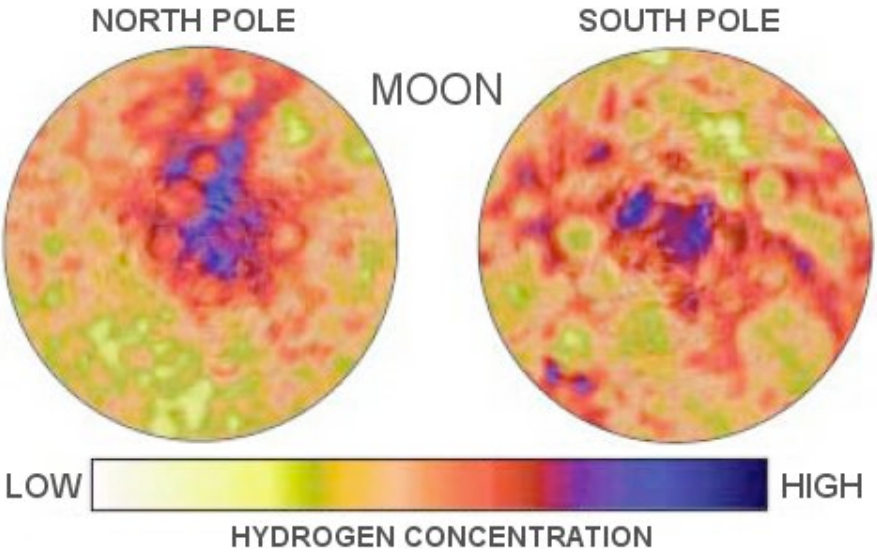
Water on the Moon | Universe Today

Water on the Moon

Written by Fraser Cain



The Moon looks dry and dusty, even to the Apollo astronauts who set foot on the Moon and returned sample moon rocks back to Earth. But is it possible that there's water on the Moon? If there is water on the Moon, it would be a huge benefit to future astronauts and colonists for when we return to the Moon.

Why isn't the Moon covered in water, like the Earth? The problem is that the Moon doesn't have enough gravity. The solar wind from the Sun constantly buffets the Moon, blasting away particles into space. Any deposits of water struck by the solar wind would be carried away from the Moon, and out into space. If it had more gravity, the Moon would have been able to hang onto its water, like Earth.

But there might be some spots on the surface of the Moon where deposits of water might still exist. There are craters at the Moon's north and south poles which are in eternal darkness. Light from the Sun never reaches the bottom of these craters, and so it never gets a chance to blast away the water. It's possible that there are huge deposits of water ice right there on the surface.

NASA's Clementine spacecraft orbited the Moon back in 1994, mapping it carefully, looking for water. It also bounced radar signals down into those craters covered in eternal darkness. The reflections that came back seemed to indicate that there was icy material at the bottom of those craters. It wasn't conclusive evidence, but it was a good start. NASA sent a second spacecraft, Lunar Prospector, in 1998 with better instruments to continue the search for water. Lunar Prospector found evidence of large deposits of hydrogen at the Moon's south pole. This hydrogen would probably be locked up with water.

When Lunar Prospector finally ran out of fuel, it was crashed into one of the craters in the south pole. Astronomers were hoping to see a plume of water ejected from the impact, but they didn't detect anything. Either there wasn't any water, or there wasn't enough water to be visible in the plume.

NASA's next mission to the Moon, the Lunar Reconnaissance Orbiter, will bring a sophisticated suite of instruments designed to search for water in four different ways. If anything will find water on the Moon, it's going to be the LRO.

Here's an article that talks about how astronauts might extract water from the Moon in the future, and here's an article about NASA's violent plans to find water on the Moon – by crashing into it.

Here's an article about water on the Moon from NASA. And here's a link to NASA's Lunar Reconnaissance Orbiter website.

You can listen to a very interesting podcast about the formation of the Moon from Astronomy Cast, Episode 17: Where Did the Moon Come From?

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