

Audio voice-over

Water on the Moon

Hi! Remember those summer nights with your grandparents looking up at the moon?

What lovely conversations, weren't they? When you asked your grandmother why the moon shone so brightly, or why there were days when you couldn't see it, or "Doesn't anyone live there, granddad? Aren't there any trees or water?"

Possibly their answer was, no... there is no life there and no water... but that's... not entirely true.

The podcast for everyone who wants to change the world. Now is the time to be thinking about the future of the planet. What do you need to know about... discovering water on the Moon?

(introduction)

Our satellite has inspired more stories, songs and works of art than any other in human history. Aristarchus of Samos had already calculated its size 2,300 years ago, and later Galileo began to map it. The Moon has never ceased to interest us, but today it is trending again, thanks to the discovery of water on its surface. A voyage that began a few decades ago.

(time machine/time travel sound, neutral tone) Year 1959

Successful landing on our satellite by the Luna 2 module, a Soviet Union probe.

(time machine/time travel sound, neutral tone) Year 1969

Neil Armstrong and Buzz Aldrin are the first humans to set foot on the Moon, aboard Apollo 11.

(time machine/time travel sound, neutral tone) Year 1971

Apollo 15 discovers that some diffuse water molecules are to be found on the lunar surface.

(time machine/time travel sound, neutral tone) Year 2009

A NASA mission to the Cabeus crater, on the visible side of the Moon, establishes that the water concentration in this crater was around 6%.

(time machine/time travel sound)

But the confirmation everyone had been waiting for came in 2020: the presence of water on the sunlit surface of the Moon



(explanatory, water and space sounds)

SOFIA, the Stratospheric Observatory for Infrared Astronomy, which is housed in a Boeing 747 aircraft, facilitates space observation by flying above the layer of water vapour that cloaks the atmosphere.

Thanks to their sharp vision, the researchers detected molecular water trapped in bubbles of lunar glass and between the grains of moon dust. But there are also more than 40,000 square kilometres of permanent shadow that could harbour pockets of water in the form of ice.

This discovery changes the understanding of the scientific community: from the presence of water in shaded areas near the poles to it being present across the entire lunar surface.

(explanatory)

Where does all this water come from? The origin of the water on the Moon is not entirely clear. It is believed to have resulted from the impact of icy celestial bodies on our satellite.

But there is also a theory that argues it is produced on the Moon's surface. When hydrogen ions from the solar wind combine with the oxygen in minerals, hydroxyl is formed and stored in crystals and bubbles, safe from solar radiation.

Thanks to this water we are one step closer to literally living on the moon. Will this future resemble the one depicted in science fiction?

(a bit fantasy-like, sci-fi resources)

This quote is taken from Andy Weir's novel *Artemis*, which describes the turn-of-the-century Lunar City as a series of aluminium spheres covered in Lunar rock. There are plenty of windows and life is similar to life on Earth today, except that you can't cook, because everything happens inside a sealed, pressurised block filled with oxygen.

A slightly older story, written in 1910 by H.G. Wells, was the first to mention the Selenites, who are indigenous to the Moon. They live in a sophisticated, techie society, light years ahead of terrestrials in terms of their knowledge.

And 2009 saw the release of the film *Moon*, set in a near future where the Moon is a major producer of helium-3, the primary material that enables fusion energy on Earth. Science has advanced in areas such as cloning, artificial intelligence and interplanetary communications.

(explanatory)

In order to live on the Moon, before achieving the milestones presented in science fiction, it is first necessary to obtain oxygen and water.



Oxygen can be extracted from the rocks, and the discovery of water on the Lunar surface makes colonisation of the satellite possible within a few years.

Several challenges need to be addressed prior to mass migration:

- Analysis of the lunar ice for information regarding potential impacts on the Moon
- Extraction of the ice and conversion into a liquid suitable for drinking and cultivation
- Splitting the water by electrolysis using lunar energy, providing hydrogen for fuel and oxygen for breathing.

But the most important first step, in order to avoid future conflicts, is to decide who owns lunar water. The United Nations prohibits the appropriation of lunar resources by individual nations. But the proof will come when this idea takes off.

The Moon may be plan B if the consequences of climate change, waste and pollution on Earth worsen to the point where life becomes impossible. Plan A continues to be taking care of our planet's increasingly limited resources.

Thank you for caring about the future. Now it's time for action. Discover more inspiring initiatives for the planet in the following podcast, on your favourite listening platform, or in the innovation and sustainability sections at [Iberdrola.com](https://www.iberdrola.com)

