

Moon Views: Rabbits in the Rocks

Panel 1

Throughout history, different cultures have seen different figures when they looked at the Moon.

What do you see when you look at the Moon? A person's face? A drummer? Turtle? Tree? The dark patterns on the lighter surface of the Moon can be imagined to be shapes of familiar objects. Many cultures have stories about how these features came to be on the Moon.

According to an Aztec legend, the gods wanted to place two suns in the sky. Two gods – one strong and one weak - volunteered to leap into the sky to become the suns. The stronger one became afraid and only jumped to the sky after the weaker god had done so. The other gods threw a rabbit onto the face of this cowardly sun, dimming its brightness. You can still see the rabbit on this dimmer “sun” – our Moon.

To some cultures, features on the Moon make a human face. One story from India tells of a blacksmith who grew tired of his role in life. He pestered a Wiseman to turn him into a stone, then a stone cutter, then the Sun, then the Moon. Weary of the demands, the Wiseman finally refused to change the man again, and so we see him on the Moon today.

These are just two stories about shapes seen on the Moon. Lunar scientists may see these shapes, but when they look at the Moon, they also see two different types of rock that tell some of the scientific story of our Moon.

Panel 2

The light and dark areas that make up the “rabbit” on the Moon are different types of rocks.

The dark features we see on the Moon's surface are made of a type of volcanic rock called basalt. The basalt formed long ago, when molten lava erupted through cracks and flowed across the Moon's surface, filling in low basins. The lava cooled, forming the large dark patches of basalt on the Moon that scientists call “lunar maria.”

The brighter or lighter areas on the Moon are made of a different type of whitish to light grey rock called anorthosite. These are the oldest rocks on the Moon's surface. Scientific models suggest anorthosites crystallized out of an ocean of magma that covered the Moon's surface soon after it formed. The brighter areas we see on the Moon – called the lunar highlands – are made of anorthosite.

The next time you look at the Moon, look for these different types of rock! Lunar scientists are looking even more closely, using modern tools and techniques to see the Moon in more detail to better understand its history.

Panel 3:

*Lunar scientists use modern tools
to look beyond the “rabbit” in the Moon to discover its history.*

To our eyes, the Moon’s shades of grey show two different rock types. However, the minerals forming these rocks vary slightly across the Moon’s surface. These variations are important because they hold clues to the Moon’s formation. Using instruments called spectrometers, scientists can detect light reflected from the Moon, some of which is visible to our eyes and some which is not. Each of the different minerals that make up the rocks reflects a unique spectrum of light.

Lunar scientists use these spectra collected by spacecraft to create maps to show the locations of different minerals across the Moon’s surface. These maps provide details about what the Moon’s rocks are made of and how they are distributed.

Image Caption:

Mineral map of the Moon. Different colors represent different minerals. Black stripes represent areas where data was not collected. Credit: SRO/NASA/JPL-Caltech/ Brown Univ./USGS

Dr. Georgiana Kramer at the Center for Lunar Science and Exploration studies spectra from the Moon’s surface to learn more about the minerals in the Moon’s anorthosite and basalt rocks. Her recent studies have confirmed the presence a mineral that supports the model of the magma ocean being present early in the Moon’s history. By looking at the Moon’s rocks in more detail, she is helping to tell the story of our Moon’s history.

This exhibit was developed by the Center for Lunar Science and Exploration
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