Why does the Moon look bigger and closer when it is at the horizon?

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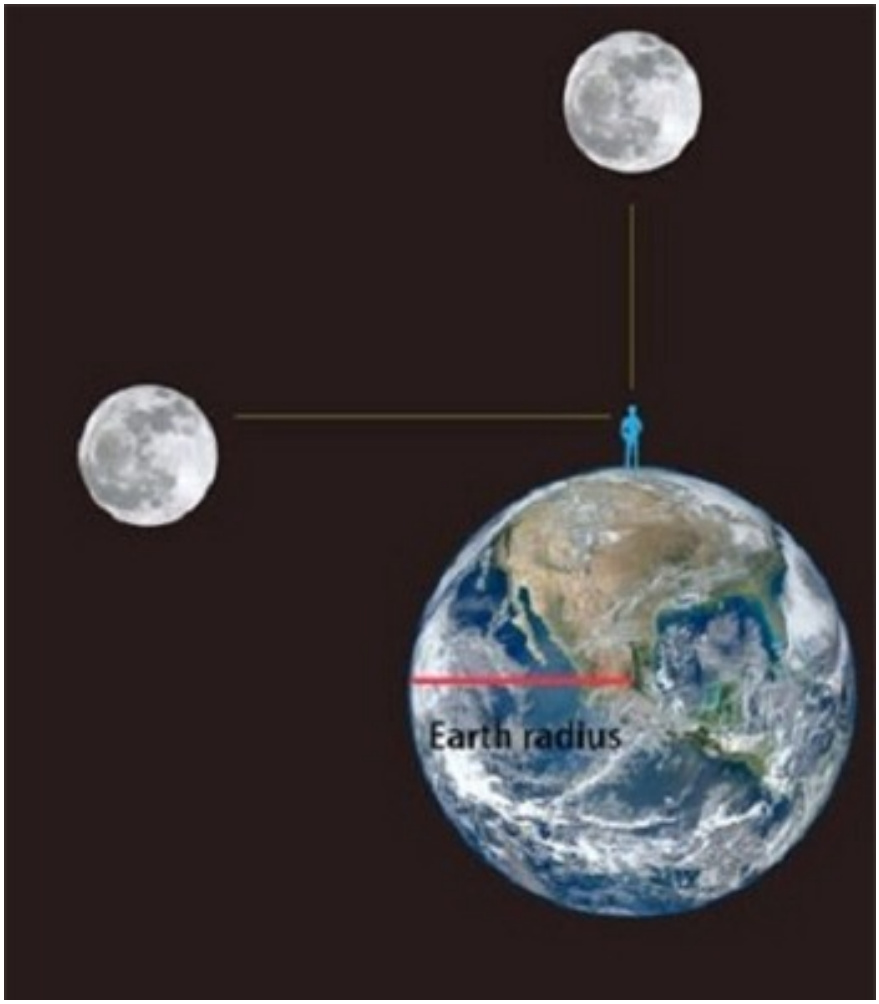
One of the first ideas explaining this mysterious illusion was that of Aristotle, the ancient Greek philosopher. He thinks that Earth's atmosphere as a giant lens magnifies the Moon when near the horizon. But this explanation is not correct because the scattering effects of air can only make the Moon red or orange but do not change its size.

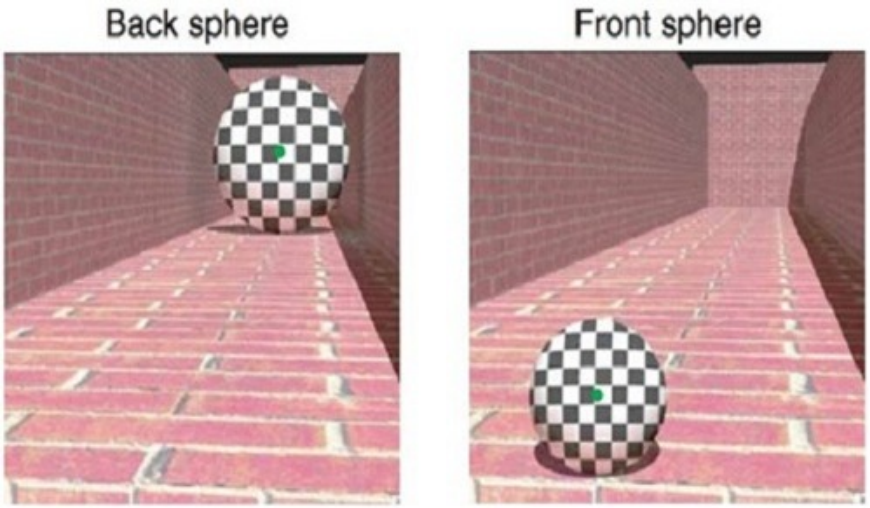
Astronomers have used a tool called theodolite to determine the size of the Moon at different points. The results show that the full moon has a width of 0.52 degrees (compared to 360 degrees for the whole sky) and remains constant throughout the night. In fact, according to accurate measurements, the distance to the horizon is far greater than the Moon at the top of the horizon by about 2%.



The moon is at the top of the head larger than the Moon at the horizon if measured by machine.(Photo: Bob King.)

According to the researchers, the larger Moon phenomenon when near the horizon is entirely due to the human brain. But now we still cannot discover all the functions of the human brain.

In 2006, scientists conducted a study using MRI magnetic resonance imaging, simulating the same hallucinations in the laboratory to find the cause of this phenomenon. The results showed that the left sphere felt larger and farther away than the right sphere, despite the true size of both. This phenomenon is similar to the illusion of humans seeing the Moon at a larger horizon.



In the laboratory, the left sphere looks bigger and is farther away from the right sphere, similar to the Moon at the horizon.(Photo: Murray.)

To explain this mistake of the brain, researchers have come up with a hypothesis. The angle of view of the eye with the car going far ahead will get smaller. But, since we all know that the car doesn't shrink, the brain will adjust its observation size so that our eyes still see the car of the same size when moving away.

As for the Moon, the distance is very large so we cannot feel the exact distance. When the feeling of the horizon is farther away than the top position, this mechanism will also trick the brain. At this time, the brain will assume that the Moon must also be larger than its real size to fill the same space.

When asked, most people responded that the Moon looked both big and close, not far away. Researchers have relied on neuroscience to hypothesize to explain this problem.

Our brain has two basic systems located in two different regions to process visual information: a decision about what you will see (the ventral stream) and a determination of the location of the observed object (dorsal). stream).

The new hypothesis is that these two systems work in order to create the illusion of the Moon. Ventral stream automatically co-ordinates the Moon to become bigger when it is found far away according to the old interpretation. After that, the Dorsal stream will redefine the Moon's position in the direction of new reasoning, the Moon is larger than normal, meaning it must be close.

Although it is just a hypothesis and there is no evidence yet, the scientists' results show that the size effect - the true distance is related to the illusion of the Moon at a larger horizon.

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