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## Curiosity Rover Offers Proof Mars' Atmosphere Has Thinned Over Time

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By Tamarra Kemsley

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NASA's Mars rover Curiosity is pictured in this February 3, 2013 handout self-portrait obtained by Reuters February 9, 2013. Just months after launch, scientists believe the rover may have proven that Mars once had a thriving atmosphere. (Photo : REUTERS/NASA/Handout)

After years of trying to tie down conclusive evidence that Mars has thinned over time, scientists were finally able to corner their proof in the form of reports recently sent back by the rover Curiosity.

"We've been waiting for this result for a long time," Sushil Atreya from the University of Michigan told the BBC.

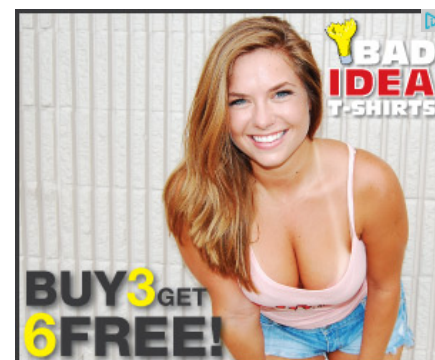
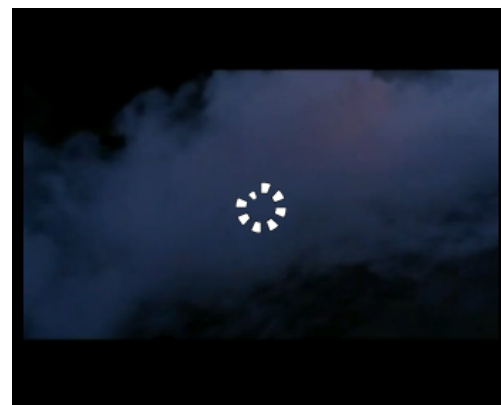
The evidence comes in the form of argon, one of the most Universe's most inert elements. The benchmark for "primordial" amounts of argon is, according to Atreya, a ratio of 5.5 argon-36 atoms for every one argon-38 atoms. This is, for example, the ratio found on the gas planets and the Sun and indicates that the lighter atoms in Mars' atmosphere are abandoning the heavier ones as they head out into space.

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Mars, on the other hand, has a ratio of 4.2, leading Atreya and his colleagues to believe that the theory of a gaseous shroud once

surrounding Mars is all but proven.

"We've been seeing the same kind of behavior in the carbon dioxide isotopes and the water isotopes - they're all telling us the same story; that gases have been escaping from Mars over time, and the argon isotope just



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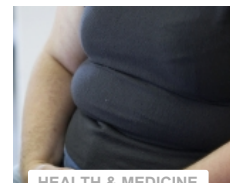
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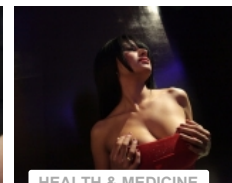
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Quite simply, there is nowhere else the essentially unreactive element could have gone, Atreya explained, since it doesn't respond to anything and Mars had every reason to start off with the same ratios as those in the past.

Today, the air pressure is so low that water would boil instantly off the planet's surface. And while some researchers doubt Mars held onto an atmosphere capable of retaining water on its surface for very long, John Grotzinger, the principal investigator for the rover mission, argues against this point.

"We see these mudstones and we see the textures that indicate stratification," he told the BBC. "It's kind of hard to imagine that [these textures] would be preserved if the mud was boiling - if the water in the mud was boiling."

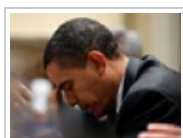
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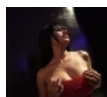


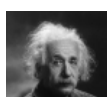


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