

Last updated on July 19, 2013 at 11:06 EDT

Log In and Sign Up with: ◀ ▶



Home Video News Images Health Education Topics Blogs Daily Orbit Search

Space Science Technology Health General Sci-Fi & Gaming Oddities International Business Education Mars Science Laboratory Curiosity

Home » News » Mars Science Laboratory Curiosity » Curiosity Offers Insights Into How Mars Lost Its Atmosphere

Curiosity Offers Insights Into How Mars Lost Its Atmosphere

July 18, 2013

7 Like 4 3 0

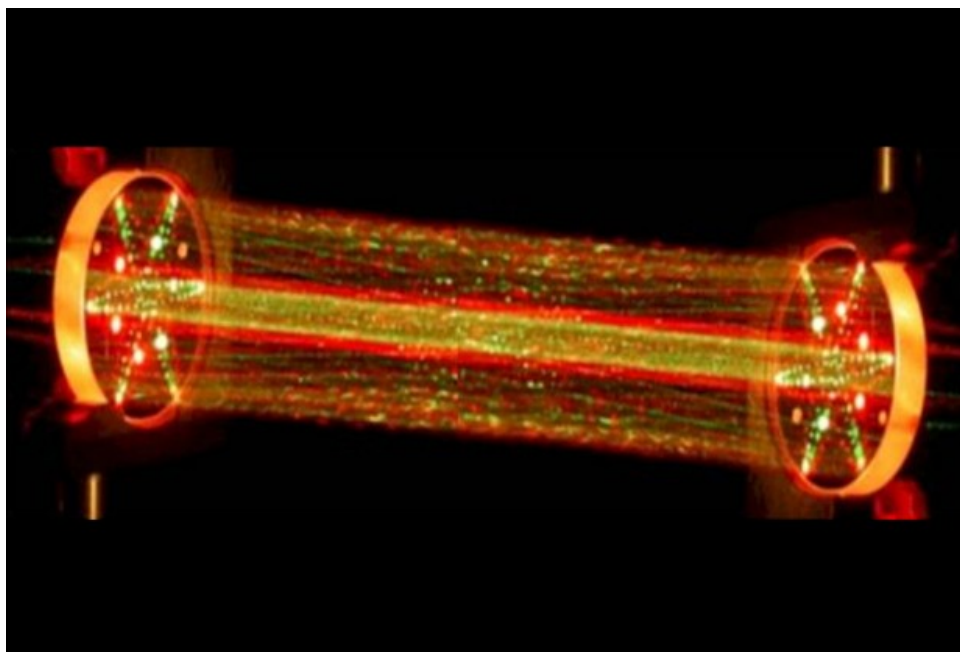


Image Caption: This picture shows a lab demonstration of the measurement chamber inside the Tunable Laser Spectrometer, an instrument that is part of the Sample Analysis at Mars investigation on NASA's Curiosity rover. Image Credit: NASA/JPL-Caltech

[Watch the Video: [Searching for Mars' Missing Atmosphere](#)]

Lee Rannals for redOrbit.com – Your Universe Online

NASA's Curiosity rover has helped bring in some [new insights](#) about how Mars lost its original atmosphere.

Scientists believe the original Martian atmosphere was much thicker than it is today, leading many to wonder how it became so thin. The [Mars Curiosity](#) laboratory has provided some clues into this mystery, which scientists recently reported about in the journal *Science*.

"The beauty of these measurements lies in the fact that these are the first really high-precision measurements of the composition of Mars' atmosphere," said [Sushil Atreya](#), professor of atmospheric, oceanic and space sciences at the University of Michigan.

Curiosity's Sample Analysis at Mars (SAM) instrument measured the abundances of different gases and isotopes in samples of Martian air. Isotopes are variations of the same chemical elements that contain different numbers of neutrons. SAM analyzed the ratios of heavier to lighter isotopes of carbon and oxygen in the carbon dioxide that makes up most of Mars' atmosphere today. These measurements showed that heavy isotopes of carbon and oxygen were more abundant in today's atmosphere compared with the proportions in the raw material that formed the planet.

Related Articles

- [80 Percent Of Malaysian Borneo Degraded By Logging](#)
- [Stop Marine Pollution To Protect Kelp Forests](#)
- [Human-driven Change Good For Parasites But Bad For Birds In Argentine Forests](#)
- [Trade-offs Between Food Security And Climate Change Mitigation Addressed By New Study](#)
- [Two Million Die Each Year As Result Of Air Pollution](#)
- [Mars Curiosity Rover Rolls Past One Kilometer Mark](#)
- [Curiosity Completes Third Drive, Covers 135 Feet In One Day](#)
- [NASA Announces Details Of 2020 Mars Rover Mission](#)
- [Mars Rover Curiosity Heads Toward Mount Sharp](#)
- [Winners Of 2012 George M. Low Award Announced By NASA](#)

Related Images

- [The 2001 Great Dust Storms 8 Repetition](#)
- [Mars Weather](#)
- [HiRISE Composition and Photometry](#)
- [HiRISE Amenthes Region Volcanic Processes](#)
- [HiRISE Fans and Polygons Seasonal Processes](#)
- [Rays, Rays and More Rays](#)
- [Best and Worst time to Start a Fire](#)
- [Burning Fields in Eastern Russia](#)
- [Burning Fields Near the Angara River](#)
- [Rover's First Kilometer](#)
- [West Fork Complex Fires, Colorado](#)
- [Wildfires in the Yukon](#)
- [Mountain Fire, California](#)
- [Spotting Opportunity](#)

Related Videos

- [Searching for Mars' Missing Atmosphere](#)
- [Autism Linked To Pollution](#)
- [Tag Team for Tickers! Hybrid Help for AFib](#)
- [NASA Announces 2020 Mars Rover - The Daily...](#)
- [NASA To Pursue Manned Mars Mission - The...](#)

The measurements provide supporting evidence for the loss of much of Mars' original atmosphere as well as clues as to how the loss occurred. The findings suggest that Mars' atmosphere escaped from the top, rather than due to the lower atmosphere interacting with the ground.

"The isotope data are unambiguous and robust, having been independently confirmed by the quadrupole mass spectrometer and the tunable laser spectrometer, two of the SAM suite instruments," Atreya said. "These data are clear evidence of a substantially more massive atmosphere, hence a warmer, wetter Mars in the past than the cold, arid planet we find today."

Curiosity's measurements did not directly measure the current rate of atmospheric escape, but NASA's next planned Mars mission will be able to.

"The current pace of the loss is exactly what the MAVEN mission now scheduled to launch in November of this year is designed to determine," said Paul Mahaffy of NASA Goddard Space Flight Center, Greenbelt, Md.

MAVEN's assembly was completed back in February, and then underwent environmental testing at Lockheed Martian Space Systems facilities. This mission is scheduled to launch in November of this year and will be able to examine in greater detail how Mars lost its atmosphere.

Source: Lee Rannals for redOrbit.com - Your Universe Online

Topics: Environment, Mars exploration, Space technology, Spaceflight, Climate of Mars, Exploration of Mars, NASA, Atmosphere of Mars, Mars Science Laboratory, Mavem, Unmanned spacecraft, Astrobiology, Mars, National Aeronautics and Space Administration

0 0 0 0 0 0

Inspiring Innovative LOL Amazing Geeky Scary

Recommended For You

[Suspected Vampire Burial Unearthed In Poland](#)

[Teen's Life Saved By Removing Tumor From His Face](#)

[Antibiotic Ocean Microbe Could Be An Anthrax Killer](#)

[Archaeologists Unearth Stone Monument Detailing 'Dark Period' In Maya History](#)

[Listening Stations In Deep-space Gain Hearing Boost](#)

[New Alien-like Species Discovered Off Coast Of California](#)

[Personality, Not Taste Buds, Determine How You Feel About Spicy Foods](#)

[Cause Of Leaky Spacesuit Still A Mystery For NASA Astronauts](#)

[TW Hydrae's 'Snow Line' Offers Insight Into Solar System Formation](#)

[Image Of The Mars Rover 10 Years After Launch](#)

Recommended by

- [Proposed 2020 Mars Rover Science Goals KSC Now! June 2013](#)
- [Golden Opportunity From Two Colliding... T-Rex Tooth Found In Duckbill Dinosaur...](#)
- [Sky Show Coming During Mars Landing Wet Era on Early Mars Was Global Possible Water Flows on Mars](#)

Related Reference Library

- [Dark-Winged Groundling, Brachythemis...](#)
- [Green Hooktail, Paragomphus genei](#)
- [Corkscrew Clubtail, Paragomphus elpidius](#)
- [Project Constellation](#)
- [NEAR - Shoemaker Mission](#)
- [von Braun, Wernher](#)
- [Stephanie Wilson](#)

Most Recent Blogs

- [Dear Stoners: We Love You. Sincerely, Jack In The Box](#)
- [A High Five To Greek Yogurt](#)
- [A Luxury Kind Of Litter](#)
- [Giving Touch To Prosthetics](#)
- [Orange Is The New Black Tops Netflix](#)
- [Travel Journal \(Day 3\)](#)
- [Seventh Generation Reflection: Halo](#)
- [Iconic Antagonists: Bandits](#)
- [Daily Round-Up For July 19, 2013](#)
- [Southern Exposure](#)

Post a new comment

0 Comments

[RSS](#) | [Subscribe](#)