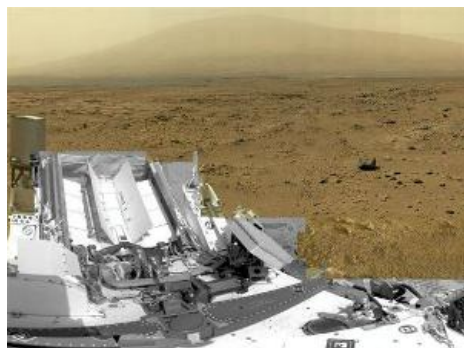


Life may have existed on Mars 4 billion years ago

Kounteya Sinha, TNN | Jul 20, 2013, 06:52 AM IST

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LONDON: Life may have existed on Mars till about 4 billion years ago. After studying the first measurements of [Martian atmosphere](#) taken by the [Curiosity](#) rover, researchers, including an Indian-origin scientist, say the red planet lost its oxygen four billion years ago, possibly after a massive collision with an object as big as Pluto.

"This data is clear evidence of a substantially thicker atmosphere, hence a warmer and wetter Mars in the past than the cold and arid planet we find today," said Sushil Atreya, professor of atmospheric, oceanic and space sciences at the

[University of Michigan](#). The team of scientists said a mysterious - and catastrophic - event tore away its oxygen-rich atmosphere, leaving back only carbon dioxide.

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[Nasa](#) said meteorite measurements indicate much of the atmospheric loss may have occurred during the first billion years of the planet's 4.6-billion-year history. Atreya, co-investigator on Curiosity's [Sample Analysis at Mars](#) (SAM) suite of instruments, said the scientists measured different gases and isotopes in samples of Martian air. Isotopes are variations of the same chemical element that contain different numbers of neutrons, such as the most common carbon isotope, carbon-12, and a heavier stable isotope, carbon-13, which contains an additional neutron.

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. Measurements showed that heavy isotopes of carbon and oxygen were more abundant in today's thin atmosphere compared with the proportions in the raw material that formed the planet. This provides not only supportive evidence for the loss of much of Mars's original atmosphere, but also gives clues to how the loss occurred, the scientists said. It suggests that the planet's atmosphere escaped from the top, rather than due to the lower atmosphere interacting with the ground.

In a first, snow discovered on star in far-off, infant solar system

Astronomers have discovered a snowy region in a far-off baby solar system, 175 light years away from the [Earth](#). The snow line, located in the disc around the Sun-like star TW Hydrae, has been found in a far-off [infant solar system](#) for the very first time. The discovery promises to reveal more about the formation of planets and comets, the factors that decide their composition, and the history of the solar system. Astronomers using the Atacama Large Millimetre/ Submillimeter Array discovered the snow line in an infant solar system. The study was published in Science Express.

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