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SPOTLIGHT THE RED PLANET

Mars rover seeks clues about disappearing atmosphere

NASA's Curiosity rover has gulped in Martian air but failed to find methane — a gas linked to living things. But it has turned up signs that Mars may have lost much of its original atmosphere.

Mars' atmosphere is very thin — it's a mere 100th the density of the Earth's — and too thin to easily support life.

But planetary scientists think the atmosphere was once much thicker, and they want to find out why so much of it disappeared.

For this exercise, the Mars Science Laboratory rover, which landed on the Red Planet's surface Aug. 5, used the Sample Analysis at Mars suite.

Though the instrument is famous for being able to ingest dirt, it can also analyze gases.

It contains three instruments. One of them found that the carbon dioxide in Mars' atmosphere had a 5 percent increase in the share of heavier carbon isotopes than when the planet first formed.

The scientists took this as a sign that upper atmospheric layers, carrying carbon dioxide with the lighter carbon isotopes, were blown off, while the lower layers containing more gas with heavier carbon isotopes stayed behind.

Though they're not sure how much of the atmosphere was lost, said co-investigator Laurie Leshin of the Rensselaer Polytechnic Institute, it could possibly be more than half the carbon dioxide in Mars' atmosphere and near-surface reservoirs.

That could be a significant share of air, given that the Martian atmosphere is 95.9 percent carbon dioxide.

Scientists had also been itching to use the Tunable Laser Spectrometer to get a whiff of methane, which would indicate that living things were at some point hard at work.

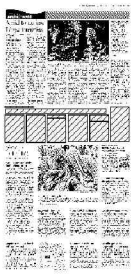
For the moment, though, the methane measurements were a bust.

"At this time we don't have a positive detection of methane on Mars ... but that could change over time," said co-investigator Sushil Atreya of the University of Michigan at Ann Arbor.

— Amina Khan, Tribune Newspapers

NASA COMPOSITE PHOTO

NASA's Curiosity rover used a set of thumbnail images stitched together to create this full-color self-portrait.



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