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### The Mission



**Mission:** Mars Science Lab  
**Rocket:** Atlas 5 (AV-028)  
**Launch:** Nov. 26, 2011 @ 10:02am EST (1502 GMT)  
**Landing:** Aug. 6, 2012 @ 1:32am EDT (0532 GMT)  
**Site:** Base of Mount Sharp in Gale Crater

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- [Landing preview story](#)
- [Sky crane overview](#)
- [Communications plan](#)
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## Curiosity sniffs Martian air, but finds no methane

BY [STEPHEN CLARK](#)

SPACEFLIGHT NOW

Posted: November 2, 2012



Scientists on Friday reported the Curiosity rover's first whiffs of the Martian atmosphere have turned up no sign of methane, an object of fascination from many scientists due to its ramifications on the search for life on Mars.

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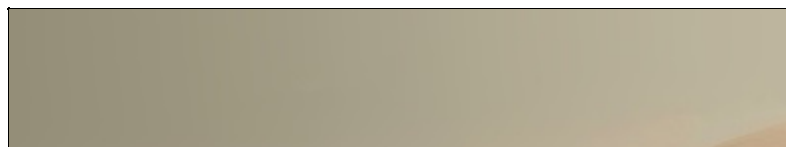
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Christopher Riley,...



Curiosity's self-portrait. Credit: NASA/JPL-Caltech/MSSS

Observations from Earth and from Europe's Mars Express orbiter have pointed toward off-and-on methane in the red planet's atmosphere. A tunable laser spectrometer on Curiosity ingested Martian air on four nights since August to weigh in on the methane question.

"The bottom line is that we have no detection of methane so far," said Chris Webster, a scientist at NASA's Jet Propulsion Laboratory. "But we intend to keep looking in the months ahead since Mars may continue to hold surprises for us."

The announcement Friday may well suppress the hopes of many scientists. Potential sources of Martian methane could be microbial life or geologic interactions between water and rocks.

More than 90 percent of methane in Earth's atmosphere comes from biological activity.

But scientists said they were not surprised by the results of Curiosity's initial search for methane. The team did not go into the mission with any expectations, according to Sushil Atreya from the University of Michigan, an investigator for the

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from the University of Michigan, co-investigator for the rover's Sample Analysis at Mars - or SAM - instrument.

After initial methane detections from ground-based data in 2003, follow-up observations showed the methane almost completely vanished by 2006, indicating its concentrations could change with Martian seasons.

Scientists expected methane would stay in the Martian atmosphere for up to 300 years, but the extremely variability of the measurements indicate Mars must have unexpected methane sinks - regions or methods in which the gas is absorbed or destroyed.

While earlier measurements detected methane abundances of up to 50 parts per billion, Curiosity's search found no methane down to at least 5 parts per billion, Webster said.

"At this time, we don't have a positive detection of methane on Mars," Atreya said. "But that could change over time, depending on how methane is produced and how it is destroyed on Mars."

Scientists said they would use the SAM instrument for more atmospheric measurements over the next few months in hopes of catching a whiff of methane as Martian seasons change.

SAM's tunable laser spectrometer has 100 times better spectral resolution than any other instrument which has ever studied the Mars methane mystery, according to Webster.

The spectrometer's first atmospheric measurement detected a higher concentration of methane, but scientists believe the signature was from air from Earth still inside the instrument chamber.

Later measurements cleansed the chamber of Earth air, and the methane signal dropped, Webster said.

"No matter what we find in the end, it will be a significant result," Atreya said. So stay tuned. The story of methane has just begun and its not over."

Officials said the next step for the SAM instrument is to feed the sensor its first soil sample for analysis.

10 comments

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**outdoorguy54494** (signed in using yahoo)

Martians don't fart. That's a good thing.

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**Regina Lease**