

# ScienceNews

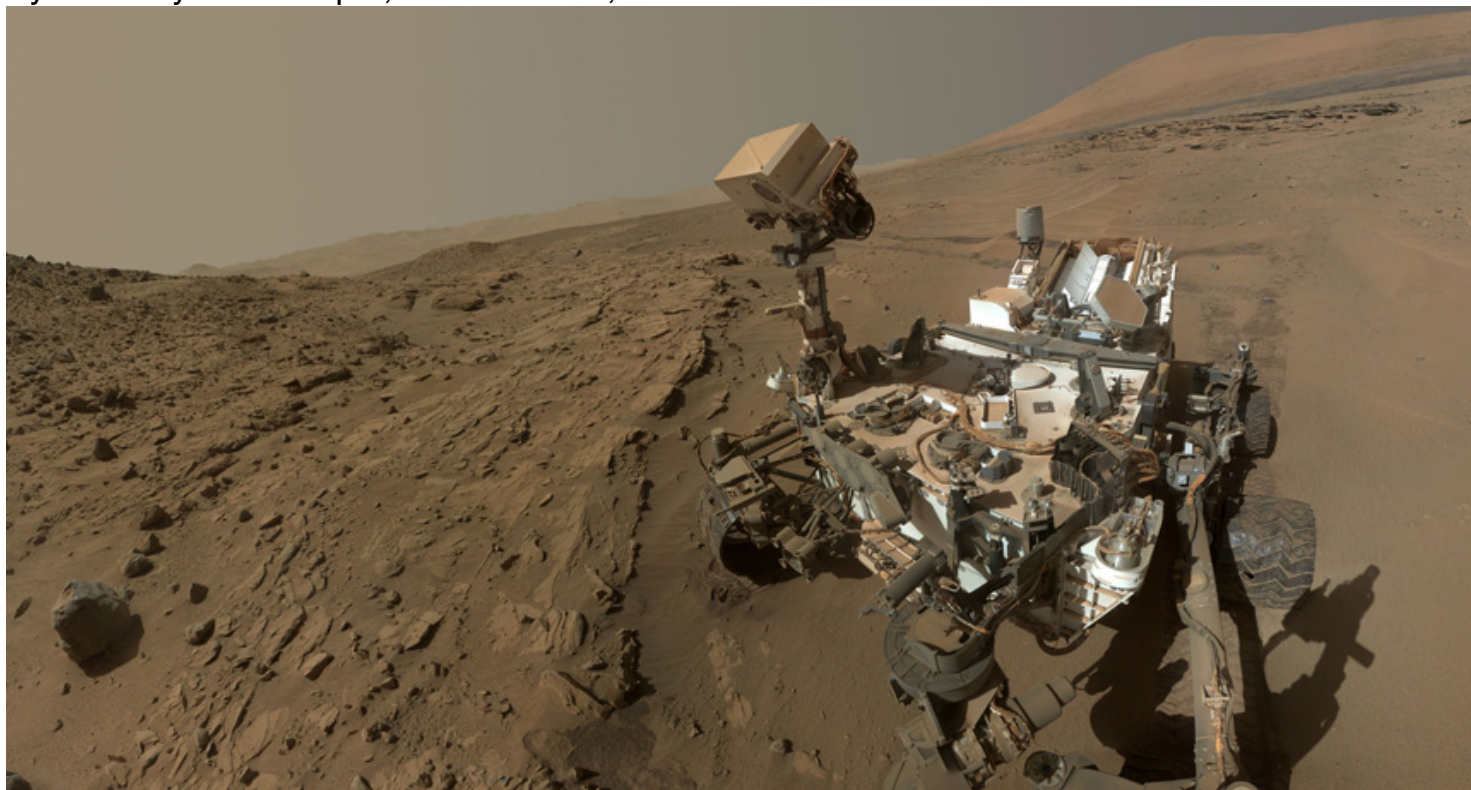
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News in Brief: Planetary Science

## Rover finds methane in Mars air, organics in rocks

*Curiosity reports signs of gas, other chemicals possibly produced by ancient life*

By Erin Wayman 4:46pm, December 16, 2014



**IN THE AIR** Measurements collected by NASA's Curiosity rover indicate that methane is periodically released into Mars' atmosphere from an unknown source.

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SAN FRANCISCO — NASA's Curiosity rover has caught a whiff of methane in Mars' atmosphere and has for the first time detected organic molecules in rocks on the planet's surface.

"After two years, we're basically declaring we had a major discovery," Curiosity's chief scientist John Grotzinger of Caltech said December 16 at the American Geophysical Union's annual fall meeting.

Curiosity detected several organic molecules, including what may be chlorobenzene, from rock at one study location. But the team can't say whether the molecules are signs of life or the result of nonbiological activity.

Similar uncertainty applies to life's role in the presence of methane. In 20 months of study, Curiosity generally recorded just trace amounts of methane in the Martian air. But during one 60-

Martian-day episode, the rover sniffed out 10 times as much methane as background levels, finding about 7 parts per billion of the gas. (Earth's atmosphere has about 1,800 ppb of methane.) That spike suggests that the Red Planet is home to periodic methane releases.

Researchers can't yet pinpoint the source of Mars' methane. On Earth, microbes make the majority of the methane, and it's possible that microbes are generating the gas on Mars. Any methane produced by organisms billions of years ago could be buried deep in the planet and periodically disturbed and vented to the surface through cracks, said mission scientist Sushil Atreya of the University of Michigan. Methane could also have a nonbiological source, perhaps generated by chemical reactions between water and minerals in Martian rocks or from reactions between the sun's ultraviolet radiation and cosmic dust.

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## Citations

C.R. Webster et al. Mars methane detection and variability at Gale crater. *Science*. Published online December 16, 2014. doi: 10.1126/science.1261713.

## Further Reading

T. Sumner. Solar winds probably leach Mars' lower atmosphere. Science News Online, December 15, 2014.

E. Wayman. Mars rover fails to find methane on Mars. *Science News*. Vol. 184, October 19, 2013, p. 7.

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