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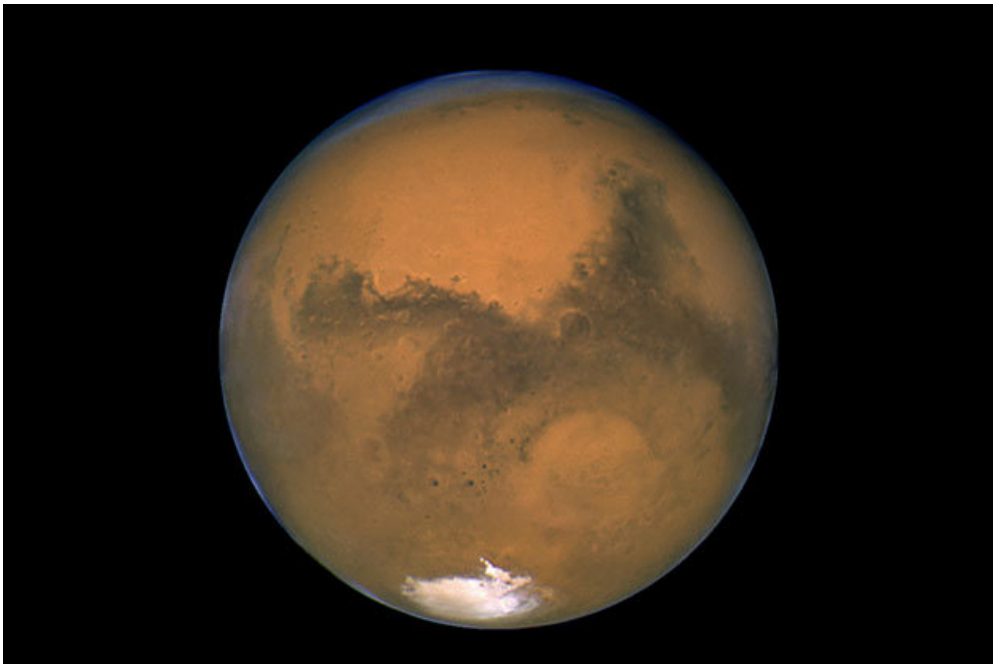
Martian Rover Makes Curious Methane Discovery

The Curiosity space rover has found methane on Mars. But where did the methane come from? And where is it going?



There are several technological hurdles that would have to be solved before humans can set foot on the red planet.

By Andrew Soergel | Dec. 18, 2014 | 2:34 p.m. EST + More

A burst of methane gas and a dash of carbon compounds in Martian rock samples are leading some scientists to believe Mars may have once – or may still – hold the ingredients necessary for life.

NASA announced in September 2013 that its Curiosity rover had found no signs of methane gas on the red planet, according to The New York Times. But scientists this week reported the Martian rover had found a spurt of methane gas detectable for at least two months.

Methane is a relatively simple organic compound that has a short shelf life, according to the Times. Scientists believe the Martian atmosphere would naturally break up a compound like methane within a few hundred years, so methane found today was likely produced in the not-so-distant past.

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“Right now, it’s too much of a single-point measurement for us really to jump to any conclusions,” said Paul Mahaffy, chief of NASA’s Atmospheric Experiments Laboratory, according to Space.com. “Maybe there are microbes on Mars cranking out methane, but we sure can’t say that with any certainty. It’s just speculation at this point.”

The existence of Martian methanogens – microbes that release methane as waste – is one possible explanation for the methane discovery, according to the Times. Another possibility is serpentinization, a geologic process involving both heat and water.

Scientists announced Tuesday that Curiosity had drilled into Martian rock and found an ancient entrapment of water. Scientists are still unraveling the mystery of how Mars lost its surface water, but Tuesday’s announcement reaffirms that water likely existed on the planet’s surface at one point.

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Recordable Martian methane levels have jumped up and down over the last decade, adding complexity to the mystery of what’s creating the gas and why it’s disappearing relatively quickly. Scientists reported seeing “plumes” of methane in the Martian atmosphere in 2003, according to the Canadian Broadcasting Corporation.

Those plumes appeared to have vanished two years later, according to the Times.

Since Curiosity’s arrival on the red planet in 2012, its methane readings have jumped on four separate occasions to almost 10 times the faint wisps of methane it had detected previously. Those readings then dropped back to normal soon afterward, according to the NASA and CNN.

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“This temporary increase in methane – sharply up and then back down – tells us there must be some relatively localized source,” said Sushil Atreya, a member of the Curiosity rover team, according to NASA. “There are many possible sources, biological or non-biological, such as interaction of water and rock.”

NASA scientists on Tuesday also announced the discovery of organic material found in Martian rock samples. Though the carbon-based organics could have been carried to Mars by a meteorite, the discovery gives credence to the theory that Mars at one point possessed the ingredients necessary for life, according to the Times.

"The first confirmation of organic carbon in a rock on Mars holds much promise,” said Roger Summons, a Curiosity participating scientist from Massachusetts Institute of Technology, according to NASA. “Organics are important because they can tell us about the chemical pathways by which they were formed and preserved.”

TAGS: Mars, space, science, NASA

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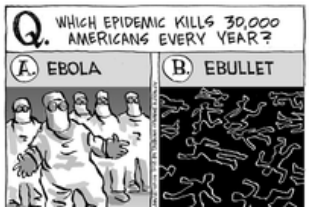

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