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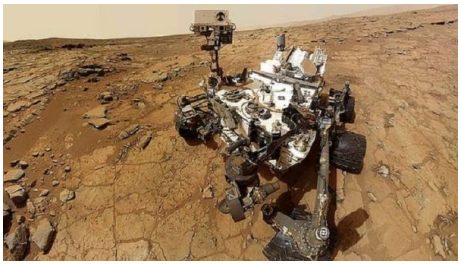

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This year's been a busy one for NASA's Curiosity rover, which first landed on Mars in August, 2012. The following are some of the probe's biggest stories for 2013.

Curiosity Uncovers Surprising Amount of Water

By heating a soil sample on its onboard oven, Curiosity found that Mars' fine dust contains roughly 2 percent of water by weight. The discovery, published in September in the journal Science, could hold the answer as to where water for future manned missions to the neighboring planet will come from.

Extensive testing by the rover found a distinct absence of methane - a blow to scientists' hopes of finding life on the Red Planet given the gas's role in signaling the presence of living organisms. The results of the study, published in the journal Science Express in September, came from six different analyses of the Martian atmosphere carried out between October 2012 and June of this year. Each time, the probe came up empty.

"It would have been exciting to find methane, but we have high confidence in our measurements, and the progress in expanding knowledge is what's really important," said the report's lead author, Chris Webster of NASA's Jet Propulsion Laboratory in Pasadena, Calif. "We measured repeatedly from Martian spring to late summer, but with no detection of methane."

Curiosity Reveals Origins of Martian Meteorites

An analysis of Martian rock samples by Curiosity announced in October armed scientists with the tools needed to determine with greater confidence than ever before which meteorites discovered here on Earth originated from Mars.

Published in the journal Geophysical Research Letters, the revelation came after a high-precision analysis by Curiosity successfully identified the precise ratio of two argon isotopes - Argon-36 and Argon-38 - on Mars.

"We really nailed it," said lead study author Sushil Atreya of the University of Michigan, Ann Arbor. "This direct reading from Mars settles the case with all Martian meteorites."

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Evidence of Ancient Martian Lake Clearest Evidence Sign Yet Planet Once Boasted Life

The announcement in December that Curiosity had uncovered evidence of a freshwater lake on the Red Planet was big news for the search for evidence of past life on Mars. The finding was reported in the journal Science, and included an analysis of sedimentary rock outcrops located at a site in Gale Crater called Yellowknife Bay. The results, researchers said, overwhelmingly suggested that the area once held at least one lake roughly 3.6 billion years ago.

"It is important to note that we have not found signs of ancient life on Mars," explained Sajeev Gupta, a member of NASA's Mars Science Laboratory and a professor at Imperial College London. "What we have found is that Gale Crater was able to sustain a lake on its surface at least once in its ancient past that may have been favourable for microbial life, billions of years ago."

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