



Methane in the Martian Air

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NASA's Curiosity Rover has discovered high amounts of methane in the Martian air, a gas that on Earth is usually produced by living things.

- The Curiosity rover has found 21 parts per billion of methane, or three times the 2013 finding.
The gas seems to rise and fall with the red planet's seasons.
- **However, the Trace Gas Orbiter**, a newer European spacecraft launched in 2016 with more sensitive instruments, **did not detect any methane at all** in its first batch of scientific observations last year.
- Rovers scheduled for launch next year — one by NASA, one by a Russian-European collaboration — will carry instruments designed to search for the building blocks of life.

NASA Curiosity Mission

- The Curiosity is the largest and most capable rover ever sent to Mars. It landed on Mars in August, 2012.
- The purpose of the mission is to find chemical and mineral evidence of past habitable environments on Mars.

The ExoMars Trace Gas Orbiter (TGO)

- The orbiter is the first in a series of joint missions between the European Space Agency (ESA) and Roscosmos, the Russian space agency.
- It was designed to search for trace gases in the Martian atmosphere such as methane, water vapor, nitrogen oxides and acetylene.
These gases could provide evidence for possible biological or geological activity on Mars.
- It also will monitor seasonal changes in the Martian atmosphere and will look for water-ice beneath the surface.

- Exomars Trace Gas Orbiter began operations after entering Mars orbit in October, 2016.
- A second mission, **ExoMars 2020**, is planned for launch in 2020 and will include a rover capable of drilling about 6 feet (two meters) below the surface to search for clues for past life on Mars.