



Methane in the Martian Air

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.