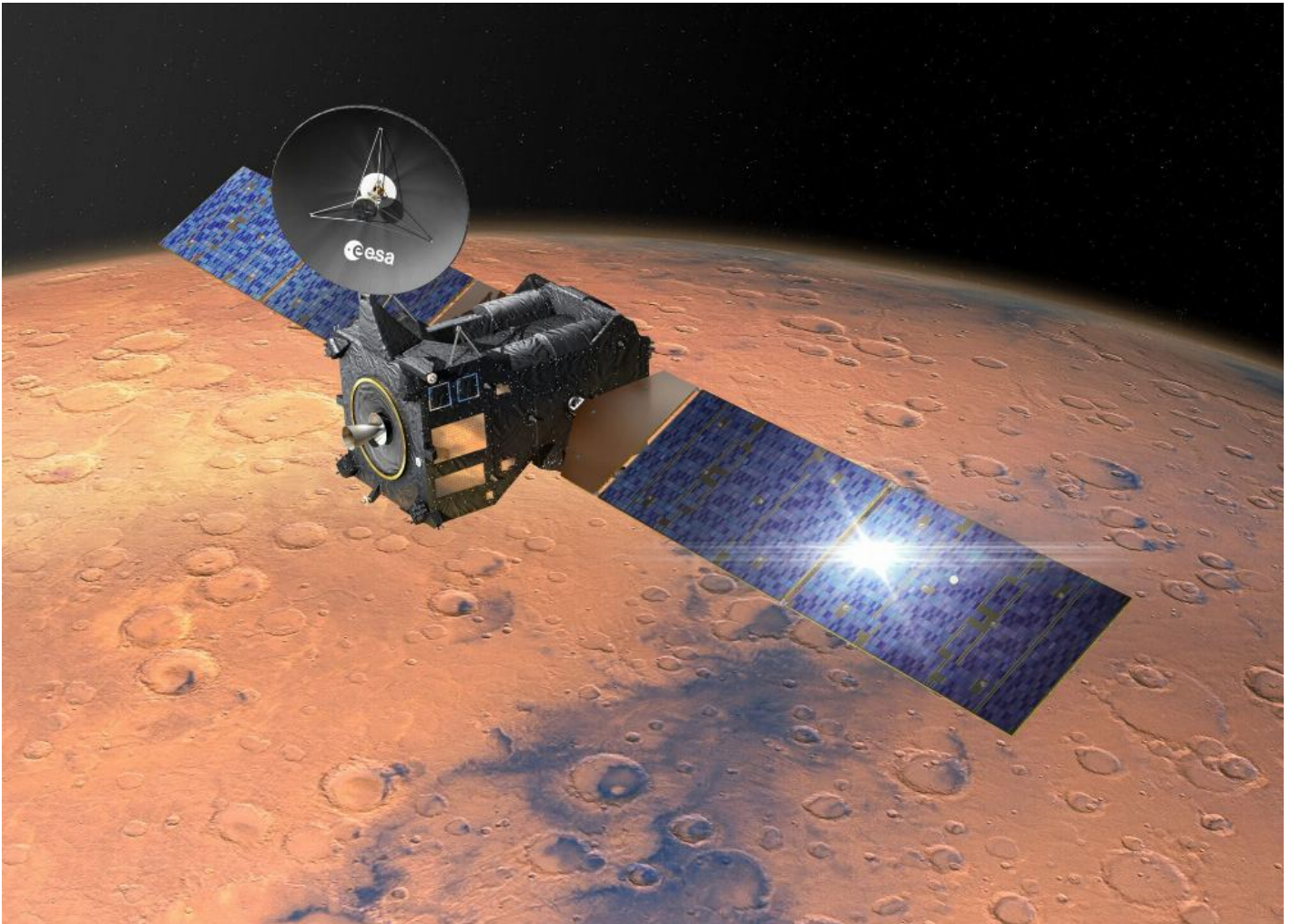


What is the ExoMars Trace Gas Orbiter (TGO)?

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About ExoMars Trace Gas Orbiter (TGO):

- TGO is the **first in a series of joint missions between the European Space Agency (ESA) and Roscosmos, the Russian space agency.**
- **Goal:** To gain a **better understanding of methane and other atmospheric gases** that are **present in small concentrations** (less than 1% of the atmosphere) **in the Martian atmosphere.**
- The orbiter's sensitivity to hydrogen has also allowed it to **search for water buried underneath shallow layers of Martian soil.**
- It's also **meant to test technology for future missions.**
- It was **launched in March 2016** and began operations after entering Mars orbit on Oct. 19, 2016.
- TGO **carried the Schiaparelli lander** with it to Mars. However, **it was crashed during landing.**

- The **spacecraft itself is a 3.2 meter by 2 meter by 2 meter box, fitted with one antenna to communicate with Earth** and another to communicate with spacecraft on the surface of Mars.
- It is **powered by a pair of solar arrays** that protrude from its sides like wings, along with two small batteries to keep it running during eclipses, when it doesn't receive any sunlight.
- It **carries several instruments including**,
 - **NOMAD** (Nadir and Occultation for MArS Discovery);
 - **ACS** (Atmospheric Chemistry Suite);
 - **CaSSIS** (Colour and Stereo Surface Imaging System);
 - **FREND** (Fine Resolution Epithermal Neutron Detector);

Q1) What is NOMAD (Nadir and Occultation for MArS Discovery)?

(NOMAD) instrument is a spectrometer suite led by the Belgian Institute for Space Aeronomy (BIRA-IASB), being flown on the ESA/Roscosmos ExoMars Trace Gas Orbiter mission. NOMAD consists of three separate channels, Solar Occultation (SO), Limb Nadir and Occultation (LNO) and Ultraviolet and Visible Spectrometer (UVIS), all controlled via a single main electronics unit (SINBAD).

Source: [First contact: Alien signal beamed to Earth from Mars for the first time](#)

Source: <https://vajiramandravi.com/current-affairs/what-is-the-exomars-trace-gas-orbiter-tgo/>

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