



ExoMars 2016 en route to Mars

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The ExoMars programme takes its name from the field of exobiology, the science that seeks to detect traces of extraterrestrial lifeforms. It will comprise two missions, the first of which was launched yesterday. The second will depart in 2018. ExoMars 2016 will insert a satellite into Mars orbit to study the planet's atmosphere and evolution, while also providing a platform to relay telecommunications to Earth for later surface operations. Called Trace Gas Orbiter (TGO), this satellite is carrying European and Russian instruments to detect any trace gases like methane or other hydrocarbons in Mars' atmosphere. Just before its insertion into Mars orbit, TGO will release an entry, descent and landing demonstrator module (EDM) that will descend by parachute to the surface. ESA has named this module Schiaparelli after the Italian astronomer who famously mapped Mars' surface features in the 19th century. The module is equipped with sensors that will be turned on during its descent and landing. It will operate a suite of sensors on the surface to collect environmental data for four Earth days before its batteries run out, as it has no solar panels. As part of the DREAMS experiment (Dust characterization, Risk assessment and Environment Analyser on the Martian Surface), the MicroARES instrument developed in France will provide the first measurements of electric fields on the surface of Mars.

ExoMars 2018 will land a Russian platform and a European rover on Mars. The platform will carry European and Russian instruments that will acquire measurements of the planet's environment for one Mars year (687 Earth days), while the 310-kg rover will have nine scientific instruments to study the soil and subsoil. Able to drill down to a depth of two metres, this rover will collect and analyse samples that have not been exposed to the radiation and oxidizers that would otherwise destroy organic materials. CNES and French research laboratories are building two instruments on the European rover : MicroOmega, a spectrometer capable of imaging in the visible and infrared to study samples' mineral composition ; and WISDOM, a radar to study and characterize the structure of the subsoil. France is also contributing to three other instruments—MOMA, RLS and CLUPI—being developed by other ESA member nations. CNES is also working with ESA on entry and descent studies for the 2016 lander module, is supplying visual navigation software for the 2018 rover and conducting navigation tests on the Mars test ground at its Toulouse Space Centre.

On the announcement of the successful completion of initial orbital manoeuvres, CNES President Jean-Yves Le Gall commented : "Mars is generating growing interest from scientists and the public. With ExoMars 2016 now on its way to Mars, Europe is showing once again that it is the vanguard of space exploration. France, CNES and our scientists and industry are proud to be playing a key role in this new adventure."