



ExoMars 2016 Status and Future Plans

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The ExoMars programme is a joint activity by the European Space Agency (ESA) and ROSCOSMOS, Russia. It consists of the ExoMars 2016 mission, launched 14 March 2016, with the Trace Gas Orbiter, TGO, and the Entry Descent and Landing Demonstrator, EDM, named Schiaparelli, and the ExoMars 2020 mission, to be launched in May 2020, carrying a lander and a rover.

TGO and EDM arrived at Mars on 19 October 2016. After a nominal entry and first phase of the descent, the EDM failed at an altitude of about 4 km and fell freely to the surface, near the centre of the landing ellipse in Meridiani Planum. The communication link was maintained up until the failure and a large data set was acquired, allowing for a complete analysis of the first successful part of the mission, and an investigation of the on board anomaly leading to the failure.

The TGO spacecraft was inserted into a highly elliptical 4 sol period, near equatorial, capture orbit. Two orbits in late November were dedicated to instrument calibration and initial science observations, where an excellent performance of all instruments could be confirmed. In January 2017 the orbital plane will be changed to its final inclination of 74 degrees and the period will be reduced to one Sol. Early March two orbits are scheduled for another set of instrument observations, after which a long period of aerobraking will commence. The final operational orbit, with a 2 hour period, is expected to be reached early 2018.

The TGO scientific payload consists of four instruments. These are: ACS and NOMAD, both infrared spectrometers for atmospheric measurements in solar occultation mode and in nadir mode, CASSIS, a multichannel camera with stereo imaging capability, and FREND, an epithermal neutron detector for search of subsurface hydrogen. The mass of the TGO is 3700 kg, including fuel and the mass of EDM was 600 kg. The EDM was carried to Mars by the TGO and was separated three days before arrival at Mars.

This presentation will cover a brief description of the 2016 mission, results from the initial phase since arrival, present status, and future activities.