

ExoMars Trace Gas Orbiter reaches science orbit

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The TGO is expected to have finished its one year long aerobraking phase and have reached its near final science orbit in March 2018. The spacecraft in-orbit commissioning will commence in April and the scientific instruments will be switched on for the first time since the last check-out in February 2017. The first measurements will be done in a straight forward Nadir geometry, to be followed by Solar occultation pointing by the spectrometers. These very sensitive measurements have not yet been possible to perform and it is with great excitement these data are awaited. The communication link to the NASA rovers on the surface will be tested too. The first months will be devoted to an in depth characterization of the spacecraft response to the new environment and a verification, and possible extensions and/or relaxations, of the existing flight rules. After this period more advanced pointing modes, like off track pointing and limb pointing, may be introduced. During this first period some additional tuning of the orbit will still be needed in order to achieve an orbit phased correctly to cover the entry descent and landing of the Exomars Rover and Surface Platform mission, expected to arrive in March 2021.

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 rover and a surface station.

The TGO scientific payload consists of four instruments: 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. With an end-to-end dimension of the solar panels of 17.5 m and a total mass of 3700 kg the TGO is a large spacecraft. This presentation will cover a status summary of the mission, an overview of the past year's aerobraking activity and the related scientific results, and a global plan for the activities in next six months.