

SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – Part 2 (3B)

Author: Dr. Ramon P. De Paula

National Aeronautics and Space Administration (NASA), United States, rdepaula@hq.nasa.gov

Mr. Phillip Barela

National Aeronautics and Space Administration (NASA), Jet Propulsion Laboratory, United States,
phillip.r.barela@nasa.gov

Dr. Tomas A. Komarek

National Aeronautics and Space Administration (NASA), Jet Propulsion Laboratory, United States,
tomas.a.komarek@nasa.gov

Dr. Leslie Tamppari

National Aeronautics and Space Administration (NASA), Jet Propulsion Laboratory, United States,
leslie.tamppari@jpl.nasa.gov

Dr. Philippe Crane

National Aeronautics and Space Administration (NASA), Ames Research Center, United States,
philippe.crane@nasa.gov

Mr. Don McCoy

European Space Agency (ESA), The Netherlands, don.mccoy@esa.int

Mr. giacinto gianfiglio

European Space Agency (ESA), The Netherlands, giacinto.gianfiglio@esa.int

Dr. Agustin Chicarro

European Space Agency (ESA), The Netherlands, agustin.chicarro@esa.int

NASA'S CONTRIBUTION TO THE JOINT ESA/NASA 2016 EXOMARS/TRACE GAS ORBITER
(EXOMARS/TGO) MISSION

Abstract

The paper discusses NASA's contribution to the joint ESA/NASA 2016 ExoMars/Trace Gas Orbiter (ExoMars/TGO), and how this mission will open up new ways for future exploration of Mars. NASA and ESA signed a joint Statement of Intent (SOI) in November 2009 that outlined a partnership agreement for the development of joint missions. The Agencies have agreed to work toward "... the establishment of a new joint initiative to define and implement their scientific, programmatic, and technological goals for the exploration of Mars. Initially focusing on 2016 and 2018 missions, this initiative would span several launch opportunities ... conducting astrobiological, geological, geophysical, climatological, and other high-priority investigations and aiming at returning samples from Mars in the mid-2020s." The 2016 ExoMars/TGO is the first in a series of joint NASA/ESA Mars missions with alternating NASA/ESA leadership. The 2016 mission will be led by ESA, with NASA providing the launch vehicle, a significant portion of the science instrument suite, and UHF and Ka-Band telecommunications. The paper will examine the scientific aspect and present in detail NASA's contribution to the 2016 ExoMars/TGO mission. The scientific measurements include detection, characterization and localization of atmospheric trace gases including methane. The paper will examine the suite of instruments carried by the spacecraft on this mission, and discusses this mission's importance as the pathfinder to the cooperation between ESA and NASA for future Mars exploration.