SPACE EXPLORATION SYMPOSIUM (A3)
Mars Exploration – Part 1 (3A)

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THE SCIENCE CONTRIBUTIONS OF THE JOINT ESA/NASA 2016 EXOMARS TRACE GAS ORBITER AND THE POTENTIAL IMPACT ON FUTURE MARS EXPLORATION

Abstract

This presentation discusses the scientific objectives for the joint ESA/NASA 2016 ExoMars/Trace Gas Orbiter (ExoMars/TGO) and the potential impact that these discoveries will have on future Mars Exploration. 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 potential scientific results from the 2016 ExoMars Trace Gas Orbiter mission could lead to a paradigm shift in the way we understand and see Mars today. The scientific data from the sensitive survey of trace gases, potentially showing gases escaping from the sub-surface, either biological or geological, would indicate that Mars is very active. The instruments and measurements that would allow these discoveries will be discussed in detail and presented at the conference. Potentially the data obtained from this mission could show that Mars has extensive chemical activity, with sub-surface environments, and it is not an inactive planet as commonly believed, and this would have profound impact in our future Mars Exploration.