



## **Recent Mars: a habitable planet?**

Jean-Pierre Paul de Vera, Andreas Lorek, and Alexander Koncz

DLR, Institut of Planetary Research, Berlin, Berlin, Germany (jean-pierre.devera@dlr.de, +49(0)3067055507)

The GANOVEX X expedition (German Antarctic North Victoria Land Expedition) in the Antarctic summer season 2009/2010 took place on the Antarctic continent. Besides analysis on the geological formations, the distribution of microorganisms as lichens, fungi, green alga and cyanobacteria has been studied along a longitudinal and altitude transect. A diversity of micro-niches has been discovered. Cosmopolites and endemic microorganisms developed adaptation strategies to colonize retreat areas of eroded surfaces, fissures and cracks of granite, volcanic and metamorphic rocks in permafrost regions. These specific habitats were additionally characterized by measurements of the macro- and microclimate (UV-, IR-, VIS-/PAR- radiation, humidity, temperature, atmospheric ozone, water and aerosol content). Based on the discoveries in the mentioned area of the Transantarctic Mountains and due to comparisons to previous results obtained from some of the space-exposed cosmopolites in the space experiments "Lithopanspermia" on BIOPAN 6 / FOTON M3 satellite and "LIFE" on EXPOSE on the International Space Station (ISS) as well as from Mars simulations at the HUMILAB (DLR Berlin), we conclude, that these investigated microorganisms from the Antarctic transect as well as from Spitsbergen and from alpine regions can be characterized as resistant to Mars conditions and that the recent Mars is probably still a habitable planet for Arctic, Antarctic and alpine microorganisms.