



Halophilic habitats: earth analogs to study Mars habitability and Mars surface simulation conditions with extremophiles

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Recent results from orbiters around Mars reported the possible existence water on the subsurface of the planet. New data about the internal structure of the planet are showing interesting habitability possibilities. Some data reported by Mars missions located the presence of permafrost in some areas of the equator (Murray, 2005) and North Pole (Titus, 2001) of the red planet. Then, an interesting Mars analogue is permafrost on Earth. Data from a campaign to Alaskan permafrost are reported on this paper. Geophysical analyses and a bore hole were developed on Bearing Land Bridge National Preserve (Alaska) in order to permafrost study.

A second example of extreme halophilic habitat that could support an Mars chemistry analogue is Rio Tinto. Some data about its extreme habitat and microbiology characterization are presented. An acidic river with metals content on solution located at South-West Spain. Recently, a drilling campaign in collaboration with NASA Ames Research Center was developed in order to identify and characterize subsurface life on the source area of the extreme river (M.A.R.T.E. project). The second objective of the project was to simulate automated Mars drilling exploration for looking for life.

Scientific campaigns to every one of these two main analogues ecosystems are presented in this paper, and microbial metabolisms models under different environmental circumstances are depicted. Acknowledgments: The laboratory experimental procedures were supported by Grant ESP 2006-06640 "Desarrollo de Tecnología para la identificación de vida de forma automática" from the Spanish Government.

Bibliography

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