

Physicochemical context synthesis for the MASE Mars analogue sites

E.P. MONAGHAN¹ AND THE MASE TEAM: P. EHRENFREUND (NL), C.S. COCKELL, P. SCHWENDNER (UK); P. RETTBERG, K. BEBLO-VRANESEVIC, M. BOHMEIER, E. RABBOW (DE); F. WESTALL, F. GABOYER, N. WALTER (FR); M. MOISSE-EICHLINGER, A. PERRAS (AT); F. GOMEZ, R. AMILS, L. GARCIA (ES); V. MARTEINSSON, P. VANNIER (IS)

¹Huygens Laboratory, J.H. Oort Building, Niels Bohrweg 2, NL-2333 CA Leiden, The Netherlands, monaghan@strw.leidenuniv.nl

MASE (Mars Analogues for Space Exploration) is a four year collaborative research project supported by an EC FP7 contract. Its aim is to understand how combined environmental stresses affect the habitability of a number of Mars analogue environments on Earth, specifically for anaerobic organisms. Crucial to assessing the habitability of any environmental system is a detailed understanding of the geological, physiochemical and biological context in which the environment is set. One of the key outcomes of MASE is a comparison and synthesis of just such a collection of context data from a varied set of Mars analogue sites.

Field sites already sampled for MASE include deep subsurface salts, sulfidic springs, acidic cold lakes, acidic deep subsurface environments and permafrost.

This work synthesises physiochemical and biological data and is complemented by a detailed analysis of field samples to detect and quantify amino acids, organics and other biologically relevant molecules in the system. The first release of results, including synthesis and comparison for field sites, are discussed here. This work will further our knowledge of Mars-like environments on Earth and allow us to field test and improve the next generation of life detection instrumentation that will be sent to Mars.

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