**MASE MARS ANALOGUE SITES: PHYSICOCHEMICAL CONTEXT SYNTHESIS AND ORGANIC INVENTORY.** E.P. Monaghan[1] and the MASE team: P. Ehrenfreund (NL), C.S. Cockell, P. Schwendner (UK); P. Rettberg, K. Beblo-Vranesevic, M. Bohmeier, E. Rabbow (G); F. Westall, F. Gaboyer, N. Walter (F); M. Moissl-Eichinger, A. Perras (A); F. Gomez, R. Amils, L. Garcia (ES);; V. Marteinsson, P. Vannier (IS), [1]Huygens Laboratory, J.H. Oort Building, Niels Bohrweg 2, NL-2333 CA Leiden, The Netherlands, monaghan@strw.leidenuniv.nl

**Introduction:** The MASE (Mars Analogues for Space Exploration) [1] project is a four year collaborative research project supported by the European Commission Seventh Framework Contract. The aim of the project is to understand how combined environmental stresses—e.g. low pH and temperature—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, whether for anaerobes specifically or for life more generally, is a detailed understanding of the geological, physiochemical and biological context in which the environment is set. One of the key outcomes of the MASE project is a comparison and synthesis of just such a collection of context data from a varied set of Mars analogue sites.

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.

**Field sites:** Field sites already sampled for MASE include deep subsurface salts at Boulby Mine in the UK, sulfidic springs in Germany, acidic cold lakes in Iceland and acidic deep subsurface environments at the Río Tinto in Spain. Permafrost samples are to be investigated in the next phase of the project.

**Context data:** This work synthesises physiochemical data (including mineralogy, environmental temperature and pH; carbon and nitrogen analyses; cations and anions; $H_2S$, sulphite and nitrite measurements) with biological data (FISH analysis, DNA extractions, studies of isolated organisms).

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.

**References:**

[1] www.mase.esf.org

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