Potential biomarkers on Mars and the use of subcritical water as an alternative extraction medium. D.Luong[1] R.W.Court[1], M.R.Sims[2], D.C.Cullen[3] and M.A.Sephton[1]. [1]Affiliation (Impacts and Astromaterials Research Centre, Department of Earth Science and Engineering, South Kensington Campus, Imperial College London, SW7 2AZ, UK), [2]Affiliation (Space Research Centre, Michael Atiyah Building, Department of Physics and Astronomy, University of Leicester, Leicester LE1 7RH, UK), [3]Affiliation (Cranfield Health, Vincent Building, Cranfield University, Bedfordshire MK43 0AL, United Kingdom)

Introduction: The first step in many life detection protocols on Mars involves attempts to extract or isolate organic matter from its mineral matrix. A number of extraction options are available and include heat and solvent assisted methods. Recent operations on Mars indicate that heating samples can cause the loss or obfuscation of organic signals from target materials, raising the importance of solvent-based systems for future missions. Sub-critical water is liquid water whose temperature is above 100^0C and below 375^0C and under a pressure sufficient to maintain its liquid phase. Water is readily available, hazard-free, physically and chemically stable therefore poses very little engineering problem to the instrument required to perform wet chemistry on Mars. Laboratory study at Imperial College funded by the UK Space Agency has successfully tested and proved the capability of such system

References:

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