

Laboratory Analysis of Analogue Samples from ILEWG EuroMoonMars campaigns

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Abstract

We report on the laboratory analysis from samples obtained during ILEWG EuroMoonMars campaigns (2009 to 2013) at Mars Desert Research station, near Hanksville Utah. The samples were acquired, transported and curated, and then measured in the laboratory using diverse techniques. We shall present new measurements from latest campaigns relevant to the study of minerals, and the detection of organics and signs of life.

Keywords: *sample analysis, Mars field analogue research, astrobiology, habitability, life detection, organics.*

Summary results

We analyzed how geological and geochemical evolution affected local parameters (mineralogy, organics content, environment variations) and the habitability and signature of organics and biota. Among the important findings are the diversity in the composition of soil samples even when collected in close proximity, the low abundances of detectable PAHs and amino acids and the presence of biota of all three domains of life with significant heterogeneity. An extraordinary variety of putative extremophiles was observed [3,4,9]. A dominant factor seems to be soil porosity and lower clay-sized particle content [6-8]. A protocol was developed for sterile sampling, contamination issues, and the diagnostics of biodiversity via PCR and DGGE analysis in soils and rocks samples [10, 11]. We compare measurements for samples from last campaign [12] to previous results.

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