

## **HYDROTHERMAL-LACUSTRINE DEPOSITS ON EARTH AS POSSIBLE ANALOGUE FOR MARTIAN EXOBIOLOGY EXPLORATION**

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Evidences for lacustrine environment have been found extensively on the surface of Mars. However, flowing liquid water cannot be maintained on the surface of Mars under the current climatic and atmospheric conditions and it is most likely that Mars has undergone periods of arid and dry conditions. Volcanic activity, in particular hydrothermalism, could also contribute to create local warm conditions suitable for the formation of standing body of liquid water and climatic habitat for bacterial proliferation as well. Evidences for hydrothermal phenomena are present in a few places on Mars as hot spring channels and small lakes. The sedimentary deposits (sulfuric and carbonatic precipitated deposits) related to this environment, are extremely rich of bacterial forms on Earth. We analyzed the mineralogy and petrography of recent sediments of Specchio di Venere, a lake formed in a caldera in the Pantelleria Islands (Italy). As remnants of past volcanic activity, diffuse hot springs bubble within the lake owing to deposition of typical hydrothermal minerals assemblage. These types of deposits have high exobiological potential because the life forms were trapped and conserved during mineral deposition. The geologic setting of this area is a remarkable analogue to understand the relationships between lacustrine environment and hydrothermal activity, which is likely to have been occurred on Mars and ,also, it provides compelling mineralogical information useful for future analysis of the Martian soils and rocks.