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# RAMAN-LIBS and MÖSSBAUER Spectroscopic Study of Alteration Minerals from Potential MARS Analogue Areas in TENERIFE ISLAND ( SPAIN)

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The study of the mineralogical and geochemical variations occurred on Mars as a consequence of the fluid-rock interactions such as hydrothermal episodes and external weathering processes incuding possible subaerial and submarine frameworks is of prime importance in understanding the role of water in the geological history of Mars. And also in the searching for possible evidences of past or present life in the red planet related with the objectives of ongoing missions as ExoMars [1].
The Canary Islands and in particular Tenerife represent an area of great interest for carrying out field research and technological studies with planetary and astrobiological implications [2,3].
Preliminary results including the utilization of "in situ" spectroscopic techniques ( Raman and LIBS spectroscopy) were recently obtained in one of these areas [4].
In this work a detailed study of several samples collected at Las Arenas volcano, the spectacular area of Los Azulejos and the malpais of Güimar using a combination of Raman, LIBS and Mössbauer spectroscopy has been undertaken. All these techniques are directly related with the Mars exploration participating in different missions.
The main objective of this study is the analysis of mineralogical and geochemical changes associated with low-temperature hydrothermal and weathering alteration processes in such settings.
Results are discussed in the framework of the combined potential of these techniques for precise description of water related processes from volcanic materials.

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