Modelling the Sn and W evolution in peraluminous leucogranites from the Central-Iberian Zone

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Leucogranites from Jálama Batholith show Sn and W mineralizations [1] commonly related to peraluminous granitic magma systems [2]. Equilibrium and fractional crystallization models have been obtained for two extraction assemblages (Fig. 1). The comparison of the models with the original leucogranite data permits to establish two distribution trends: a magmatic trend, which represents Sn and W concentration and another one from W enrichment, not reproduced by the modelling.

Therefore magmatic process could explain Sn mineralization whereas W mineralization can not be attributing at the same process.

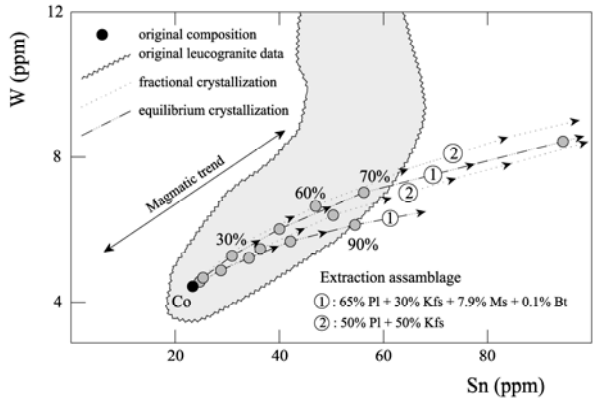

Figure1: Comparison of the models with the leucogranite data

[1] Ruiz *et al.* (**2008)** *Chem. Erde* 68-4, **337-450** [2] Haapala, I. (1997) *J. Petrol.*, **38**, 1645-1659.

Preservation under the Río Tinto extreme acidic conditions and a potential location on Aram Chaos, Mars

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MER, Mars Express and MRO have provided evidence in the form of sulfate deposits that some regions of Early Mars experienced episodic exposure to low-pH solutions. Spectral analysis shows the salts to be dominated by ferric oxides, with associated hydrated sulfates [1, 2]. Moreover, iron-rich caps appear topping different layers of this salty unit. This suggests that the cap may correspond to weathering horizons [1, 2], with dehydration and desulfation resulting in ferric oxide enrichment. A similar mechanism is observed in the acidic Rio Tinto system, where preservation of biological information can be traced over three terraces of different ages, and compared to that seen in the modern deposits of Río Tinto [3]. This results in deposition of a fine mineral coating over biological surfaces, where plant and animal tissues are permineralized and microbes are trapped inside ferric gels. Paleobiological analysis of each of the sucessive iron rich terraces demonstrates both morphological and compositional information is preserved, even in the 2 Ma deposits. Here we show a multi-disciplinary geobiological approach combining structural, mineral and molecular methods to characterize preserved biological markers. These data can then be used to optimize our search for signatures of extinct life in these Mars acidic materials.

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[1] Massé *et al.* (2008) *JGR* **113**, doi: 10.1029/ 2008JE003131.[2] Lichtenberg (in prep.) *JGR*. [3] Fernández-Remolar & Knoll (2008) *Icarus* **194**, 72-85.