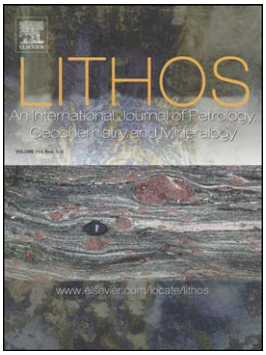

Extreme fractionation in a granite–pegmatite system documented by quartz chemistry: The case study of Tres Arroyos (Central Iberian Zone, Spain)

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EXTREME FRACTIONATION IN A GRANITE-PEGMATITE SYSTEM DOCUMENTED BY QUARTZ CHEMISTRY: THE CASE STUDY OF TRES ARROYOS (CENTRAL IBERIAN ZONE, SPAIN)

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ABSTRACT

The Tres Arroyos granite-pegmatite system is located in the SW margin of the Nisa-Alburquerque Variscan batholith. Two granitic facies (monzogranite and marginal leucogranite), and three types of aplite-pegmatite dykes (barren, intermediate and highly evolved Li-rich), have been distinguished in the area, with a zoned distribution from the granite southwards. Trace elements in quartz from the five facies have been analyzed by LA-ICP-MS in order to obtain information about the petrogenetic links among the different lithologies of this system, as well as to better understand the regional and individual fractionation processes that led to the distinct rocks. Aluminium, Ti, Li and Ge show continuous trends from the monzogranite, through the marginal granitic facies, the barren and intermediate aplite-pegmatites, up to the most evolved Li-rich dykes. Titanium and Ge contents, respectively, decrease and increase gradually with fractionation. In contrast, Al and Li show a more complex trend, with an initial descending trend to the marginal granitic facies, and then showing the highest Al and Li contents in the quartz from the most fractionated Li-rich aplite-pegmatites. This suggests the influence of different