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# ABSTRACT BOOK

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## Subduction-related hybridization of the lithospheric mantle in mantle xenoliths from Tallante (Betic Cordillera, Spain)

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Deep seated ultramafic xenoliths provide clues on the nature of the upper mantle giving insight on the nature and composition of sub-continental lithosphere; yet, they are rarely found at convergent plate margins. A notable exception is represented by the Betic Cordillera of southern Spain where the eruption of xenolith-bearing alkaline basalts during Pliocene post-dated the Cenozoic phase of plate convergence and subduction-related magmatism.

In this region the mantle xenoliths, hosted by a pyroclastic deposit of the monogenetic volcano of Tallante, display extreme compositional heterogeneities, plausibly related to multiple tectono-magmatic episodes that affected the area. Mantle xenoliths from Tallante show the occurrence of metasomatised veins of different size and mineralogy witnessing peculiar styles of metasomatism, which induces the crystallisation of quartz (qtz), orthopyroxene (opx), plagioclase (plg), phlogopite (phl), and amphibole (amph), beside the occurrence of several exotic accessory minerals such as apatite, thorite, huttonite, rutile, zircon and graphite. The metasomatic reactions produced different mantle metasomes characterised by “hydrous” opx-rich peridotite, locally crosscut by felsic veinlets. This indicates that the causative agents were hydrous silica-oversaturated melts rich in alkalis, plausibly related to the recycling - via subduction - of continental crust components within the mantle. The present study reports new evidence of suprasubduction metasomatic processes through new detailed major and trace elements and Sr-Nd-Pb analyses of the constituent minerals of composite Tallante xenoliths crosscut by centimetric felsic veins, in order to clarify the mode in which subduction related components are transferred to the mantle wedge in orogenic areas. The final goal is to provide new insights for the genesis of mafic alkaline potassic to ultrapotassic magmas in post-collisional tectonic settings