

Mantle heterogeneity records by xenoliths beneath In Teria (SE Algeria)

M.-A. KACZMAREK, O. ALARD, J.-L. BODINIER, D. BOSCH, J.-M. DAUTRIA AND A. TOMMASI

Université Montpellier 2, INSU-CNRS, Laboratoire Géosciences Montpellier, E. Bataillon 34095 Montpellier (mary-alix.kaczmarek@gm.univ-montp2.fr)

The In Teria district (N-Hoggar, SE Algeria) is located along a high heat flow (100-120 mW.m⁻²). In Teria area is composed of melilite pipe, which contains xenolith of spinel and garnet peridotite, pyroxenite, mega-crystals of amphibole. This study provides constraints on reaction/percolation processes recorded by the mantle and allow to tracking melt sources.

Garnet and spinel peridotites record percolation of alkali silicated magmas allowing phlogopite and/or amphibole formation. The spinel peridotites record carbonatitic metasomatism producing melt pocket with clinopyroxene (cpx), olivine, feldspath. The garnet peridotite expresses a deep deformation corresponding to a slip (010)[001] system. The spinel peridotites display gliding along [001] maxima axe and epitaxy underline by amphibole and cpx crystallization. Trace element pattern of clinopyroxene in garnet peridotite and pyroxenite are quite similar. Primary cpx from spinel peridotite are depleted in LREE and secondary cpx from melt pocket are enriched in LREE. Nd, Pb and Sr isotope analyses of all lithologies highlight two distinct domains in the ²⁰⁷Pb/²⁰⁴Pb- ²⁰⁶Pb/²⁰⁴Pb. A first one carried by spinel peridotites and pyroxenites shows a clear himu affinity. The second domain contains the garnet peridotite (± spinel peridotites) and is close to the EM1 pole.

Mantle sequence beneath In Teria and particularly below the small area study (<35km²) represents a large window from 2.5-2.7 GPa (garnet peridotite) to 1.6-1.9 GPa (spinel peridotite). The mantle is heterogeneous and records several melting processes. The results indicate interaction between reservoirs via melting and metasomatism reactions and an isotopic stratification of the lithosphere. The In Teria peridotites sample provide a complex sequence related to melilite volcanic rocks, which are commonly related to rifting context, associated with carbonate, or related to initialization of thermic anomaly in the lithosphere.

Geochemical characteristics of podiform chromite ores from the ultramafic massif of Karadağ (northeastern ophiolitic belt, Turkey)

H. KADAYIFCI^{1*} AND H. KOLAYLI²

Karadeniz Technical University, Department of Geological Engineering, 61080, Trabzon, Turkey
(*correspondence: haticekadayifci@ktu.edu.tr)
(hkolayli@ktu.edu.tr)

The Upper Cretaceous aged ophiolites of the Alpine-Himalayan orogenic belt are the remnants of the Neotethys in Turkey. Karadağ ophiolitic complex consists of ultramafic and mafic plutonics, ranging from dunite and peridotite to gabbro.

Chromitites, enveloped by serpentized dunitic rocks, occur as small pods in the serpentized harzburgites, and have massive and disseminated textures. All chromitites are of high-Cr and Alpine type character. Chromite crystals in the chromitites have a wide compositional range of Cr₂O₃ (45-60%), MgO (8-16%), Al₂O₃ (10-25%), TiO₂ (0,02-0,1%), and total FeO (13-20%). The Cr# (Cr/(Cr+Al) atomic ratio) and Mg# range from 0,55 to 0,79 and from 0,43 to 0,67 respectively.