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## **The Beni Bousera Peridotite (Rif Belt, Morocco): A Subsolidus Evolution Interpretation**

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The Beni Bousera ultramafic massif is a tectonically emplaced body of upper mantle material that is exposed over 72 km<sup>2</sup> at the base of the internal zones of the Alpine Rif belt of northern Morocco. The predominant lithology in the Beni Bousera massif is spinel lherzolite, although harzburgite and dunite are relatively common. The benches of pyroxenite are more or less continuous associated with the entire of lherzolites.

Trivalent elements (Al, Cr) and divalent (Fe, Mg), are mainly distributed in the mineral phases olivine, clinopyroxene and orthopyroxene, they present a significant variations. These variations are partly based on the action of the subsolidus evolution as a result of physical

changes (P, T), which are related to the establishment of the massif during its separation of the asthenosphere and its incorporation into the lithosphere. These chemical changes have generated the presence of a zonation due to the distribution of these chemical elements within the same crystal (while starting from its center towards its border) also in the couple of balanced minerals such as OL-Sp and Cpx-Opx.

Moreover the distribution of chemical elements such as Na, Ti is largely controlling by the action of partial melting, and varies depending peridotite facies.

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