

In situ U-Pb zircon dating on metapelitic granulites of Beni Bousera (Bético-Rifean belt, N Morocco)

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Integrating geochronological analysis of in situ zircons with the petrological study of their microstructural growing microdomains –through petrography and phase diagram modelling– yields to a more precise interpretation and understanding of any geological process –specially in polymetamorphic histories– than the study of ages from separate zircons. We present in situ U-Pb analyses of zircons from metapelitic granulites exposed in contact with the ultramafic massif of Beni Bousera (N Morocco, western Mediterranean). Our aim was constraining the time of the responsible episodes of the metapelitic granulites formation, as they represent key pieces in the puzzle-evolution of the Bético-Rifean belt.

Results reveal two main groups of ages, namely Permian-Carboniferous (~ 285-330 Ma) and early Miocene (~ 20 Ma) matching a higher- and a lower-pressure episodes, respectively, at high temperature (c. 800°C). The combination of these estimates with the petrological, geophysical and geodynamical studies in the area give us new clues to constrain the geodynamic evolution of the region from Permian-Carboniferous to Jurassic times, being that from 140 Ma to recent widely accepted by previous tectonic proposals.