



Modification of plate-slab coupling in subduction zones : the large-scale (>3000km) Neotethyan example

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We provide evidence for a regional-scale modification of the plate-slab coupling along the Neotethys suture zone from Turkey to the Himalayas, which was responsible for the short-lived exhumation of the rare occurrences of blueschists along this suture during the late Cretaceous. We report new single grain laser probe $^{40}\text{Ar}/^{39}\text{Ar}$ ages from the Zagros blueschists that yield two distinct age sets (106-94 Ma and 85-80 Ma respectively) interpreted to reflect the diachronous formation and exhumation of two high-pressure units juxtaposed along serpentinite slices. These cretaceous ages coincide with those provided by other Neotethyan blueschists, despite the long-lasting duration of convergence during the Neotethys closure from the Jurassic to the Tertiary. These ages also encompass the age of intra-oceanic obduction as recorded by the various ophiolitic metamorphic soles present along the suture. These results provide new evidence that blueschist exhumation and obduction are intimately related, large-scale and short-lived processes that testify to a major geodynamic reorganization of the Neotethys during the Late Cretaceous, possibly in response to a drastic change in kinematics and convergence velocities.