



Lower Miocene coeval thrusting and strike-slip faulting in the Western Betics

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In the framework of the Africa-Europe convergence, the Mediterranean system presents a complex interaction between subduction rollback and upper subduction plate deformation since 30 Ma. The western end of the system shows an arcuate geometry across the Gibraltar arc, the Betico-Rifean belt, in which the relationship between slab dynamics and onshore tectonics is poorly constrained. The present study focuses on the Western Betics, which is characterized by two major thrusts: 1/ the Alboran Front limits the metamorphic domain (Alboran Domain) from the fold-and-thrust belts involving the Mesozoic cover of the Iberian margin (Subbetics Domain); 2/ the Alboran Internal Thrust allows the juxtaposition of a strongly attenuated lithosphere section, containing the large Ronda subcontinental mantle bodies, on top of crustal rocks. New structural data show that two major E-W strike-slip corridors controlled the deformation pattern of the Alboran Domain, in which E-W dextral strike-slip faults, N60° thrusts and N140° normal faults developed simultaneously during dextral strike-slip simple shear. The Alozaina piggy-back Basin, mainly formed by olistotromic deposits of Lower Miocene age, provides an age estimate for the continuous westward translation of the Alboran Domain, with reference to Iberia, that is accommodated mainly by an E-W lateral strike-slip ramp and a N60° frontal thrust ramp. In this context, a thrust sequence led to the piling up of thrust units in the Western Betics and to the crustal emplacement of the Ronda Peridotites bodies.