



Mantle convection in the Mediterranean-Middle East

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The Mediterranean region represents a key site within the Tethyan domain where continental break-up, collision, backarc extension and escape tectonics are kinematically linked together. We perform global mantle circulation computations to test the role of slab pull and mantle dynamics as driving forces for the kinematics of the Mediterranean – Middle East system, evaluating different boundary conditions and mantle density distributions as inferred from seismic tomography or slab models. Model results are compared with geological data, geodetically inferred crustal motions, residual topography, and shear wave splitting measurements. We found that the best match can be obtained by combining the effect of slab pull exerted from Aegean and Calabrian slabs with mantle upwelling and, more generally, with the large-scale flow associated with a mantle, Tethyan convection cell.