

Subduction and continental collision in the Eastern Mediterranean during the closure of the Tethyan gateway

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DOI: <http://dx.doi.org/10.17169/refubium-40987>

Plate tectonics and mantle dynamics controlled the continental collision and tectonics of the Eastern Mediterranean – Tethyan realm, including by closing the Tethys Seaway linking the Atlantic and Indo-Pacific oceans. This led to reorganizations in ocean circulation, diversification and migration of marine and terrestrial species, and climatic change. Here, I review some of the work on the geodynamics of the region, including on the evolution of topography, and how paleotopography was influenced by mantle convection and volcanism. Mantle convection appears to have had a significant impact on the paleoenvironment, including by ultimately establishing the Gomphotherium Landbridge in the Miocene, enabling greater faunal exchanges between Africa-Arabia and Eurasia.

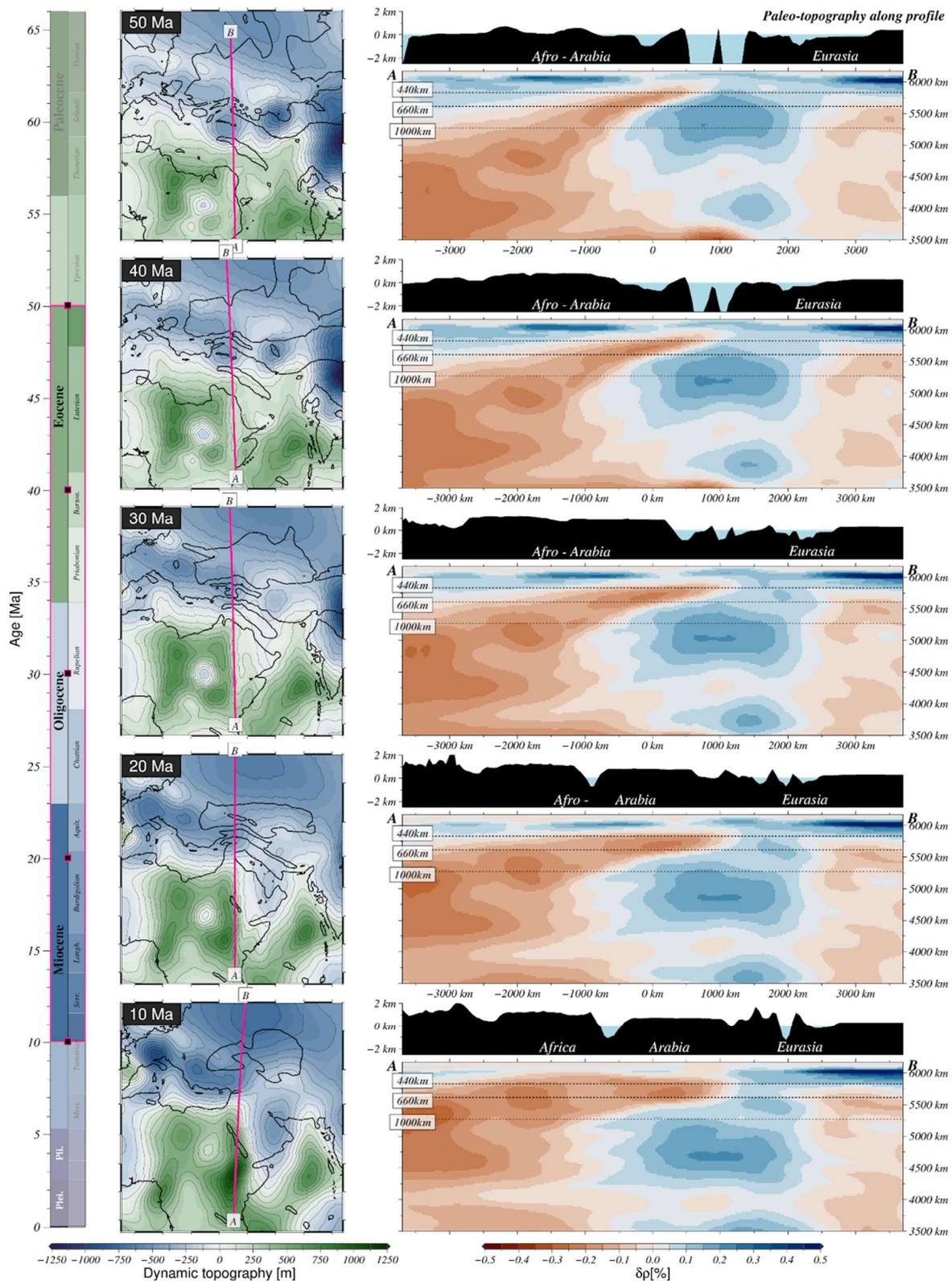


Figure 1: Paleo-dynamic topography, paleotopography, and mantle cross sections. | The maps on the left show paleo-dynamic topography computed by Straume et al. (2023) using TX2019 (Lu et al., 2019) seismic tomography. The right panels show the paleotopography and mantle density structure along the profiles colored pink in the maps on the left. Profiles are moving with the mantle in the paleomagnetic reference frame of Torsvik et al. (2019).