



The MEBE Paleotectonic maps: Evolution of the Middle-East since Mesozoic

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We propose a model of tectonic evolution of the Middle-East through 15 Paleotectonic maps. Our objective is establishing a reconstruction of each of the Tethyan margins since the end of the main Eo-Cimmerian orogeny in Mid-Late Triassic. This model includes the Cenozoic Eurasia-Arabia collision as well as the Mesozoic pre-collision periods, when both Tethyan margins were passive margins. The paleotectonic maps are based on an up-to-date kinematics reconstructions of Africa-Arabia with respect to Eurasia. They are palinspastic maps of the Neo-Tethyan domain, margins and platforms. In our reconstructions, we precise the age of the major tectonic events that have succeeded in the Middle East since Late Triassic as well as the main paleofacies. These events include: riftings, openings of marginal basin, subsidences of basins, basin inversions, major regional orogenic phases, main transcurrent faults, Major orogenic belts, ... We include the most recent tectonic, geodynamic, sedimentological, stratigraphic, kinematic data gathered during the 4-years MEBE Programme.

Following the collision of Gondwanian blocs with the Eurasian margin), that lasted from Middle Triassic to Early Jurassic developed (1) an active margin along the southern Eurasian margin marked by the northward subduction of the Neo-Tethys oceanic crust beneath Eurasian margin, and (2) a passive margin north of the Arabian plate. This configuration remained stable until the closure of the Neo-Tethyan oceanic domain during Cenozoic. In this latter margin, extensional events and basins developed until Late Cretaceous when major basin inversions and obductions marked the Arabian margins and platform. On the contrary, the Northern active margin recorded a complex tectonic evolution characterized by: (1) opening of back-arc and marginal

basins (Black Sea basin, South Caspian basin, Central Iranian basins) from Jurassic to Early-Middle Cretaceous, (2) regional compressions associated with basin inversions in Mid-Jurassic, Early Cretaceous, and uppermost Cretaceous Paleogene.

The deformations related to the Arabia-Eurasia collision appeared in Mid-Late Eocene. Until Oligocene, this early stage of the collision involved the Eurasian and Arabian continental margins in inner Zagros. The beginning of the inversion of the Mesozoic basins of the Eurasian plate in Caspian-Caucasus domain is related to this event. After the complete closure of the remnant Tethyan oceanic domain, the continent-continent collision started, and mainly developed during Neogene, originating the main orogenic belts of the Middle East.