



Late Cretaceous to Present protracted convergence between Arabia and Iran: time constraints from Zagros foreland basins studies

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The Zagros orogeny took place during a protracted period of time, and its complete evolution is difficult to ascertain due to the multiple stages starting with oceanic obduction related processes and culminating with arc-continent and continent-continent collision. In addition to this long-lasting evolution, the Neogene shortening partially masked previous compressive histories. These earlier fold and thrust events are discontinuously preserved and thus authors working in different areas reached different but certainly complementary results.

In this short review we summarize the recent results on the timing of the northwestern Zagros foreland evolution constrained by biostratigraphy, magnetostratigraphy and both bedrock and detrital AFT ages. Four main periods of denudation correspond to Early-Late Cretaceous at ~91 Ma, to Maastrichtian at ~66 Ma, middle-late Eocene at ~38 Ma and Oligocene-early Miocene at ~22 Ma. Both late Cretaceous (obduction related thrusting and folding reaching far regions of the foreland basin) and early Miocene collision processes produced bending of the Arabian plate and concomitant foreland deposition. Between the two major flexural foreland episodes, the middle-late Eocene phase mostly produced a long-lasting slow- or non depositional episode in the inner part of the foreland basin that is supported by the recognized 15 My long sedimentary hiatus between the Kashkan and Shahbazan formations in the study region. During this period the deformation migrated towards the Sanandaj-Sirjan domain and its Gaveh Rud fore-arc basin.

Well constrained growth strata across the Zagros fold and thrust belt indicate a forward propagation of the folding wave starting in middle Miocene time along the footwall of the High Zagros Fault and reaching the front of the Pusht-e Kuh arc in latest Miocene to Pliocene times.