Transpressional refolding in Mahirud region, caused by collision of LUT and Afghan continental blocks east of Iran

Shahriar Keshtgar¹ and Bagheri S²
¹University of Applied Science and Technology, Iran
²University of Sistan and Baluchestan, Iran

The Mahirud Volcano-Plutonic Complex (MVPC), known as Cheshme Ostad Group as well, is an rock assemblage including several plutons and volcano-sedimentary successions crops out at the northeastern part of the Sistan Suture Zone, in east of Iran. The plutonic part composed of basaltic andesite, andesite, microgabbro and diabase was intruded by late Cretaceous tonalitic stocks. Structural studies focused on the Cretaceous to Eocene sedimentary rocks laying on the MVPC notify us about complicated tectonic history of the complex. First, a progressive deformational phase-D₁ is the event before Lut-Afghan collision – coeval to subduction and accretion of the Mahirud Island-arc to the active margin of the Afghan block. Second deformational phase-D₂ is a syn-collision event – was happened during the late Eocene-Oligocene time. The previous folds were refolded in a new trend of north-south, appeared Ramsay’s interference fold pattern type I in form of the dome-and-basin arrangement. The last deformational phase, D₃ and continues to be, is a post-collision compressional event can be seen everywhere. Its origin can be explained by the opening of Red Sea. The formation of two groups of conjugate strike-slip faults, the first is a NW-trending left-lateral strike-slip fault group while the second is a NE-trending right-lateral strike-slip fault group. The presence of an island-arc chain in the Sistan Suture Zone, which some of its parts is considered here as the MVPC, is comparable and even in continuation of the Chagai-Raskoh and Kuhistan Cretaceous-Eocene island-arc/s (in Pakistan). So, the Continental rifting theory in east of Iran is inconsistent with new structural data.

shahriar.keshtgar@gmail.com