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PROPAGATION OF RIGHT-LATERAL STRIKE-SLIP DEFORMATION TOWARDS THE INTERNAL PART OF THE LURESTAN ZONE, ZAGROS BELT, WEST IRAN

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INTRODUCTION

The NW-SE trending Zagros fold and thrust belt (ZFTB) in west Iran is result of the Neogene collision between the Arabian and Eurasian plates. Collision probably occurred in the middle Miocene followed by the continental shortening and oblique convergence to the trend of the belt. The overall convergence caused partitioning of the right-lateral strike-slip and shortening component on fault systems (Talebian and Jackson, 2002). In the northwestern ZFTB, the orogen-parallel strike-slip is concentrated on the main recent fault (MRF) zone with NW-SE trend. Generally, this strike-slip movement of the oblique convergence is not confined to the MRF but also partitioned in the external parts of the belt, as the Marekhil-Ravansar fault system in the Kurdistan area of the Zagros (Sadeghi and Yassaghi, 2016). After the November 12, 2017 Ezgeleh-Sarpol-e Zahab Earthquake (Mw 7.3) it became clear that the Cenozoic strike-slip faulting is not confined to the orogen-parallel NW-SE trending faults, but it is distributed along the N-S trending active faults in the more external parts of the ZFTB. The focal mechanism of some aftershock events of the Ezgeleh-Sarpol-e Zahab Earthquake indicates an N-S strike-slip movement. The question arises about the effect of these N-S strike-slip faults on the folded structures of the Lurestan zone. Therefore, this study focused on the N-S trending strike-slip faulting along the Amiran anticline in the internal part of the Lurestan zone.

MATERIAL AND METHOD

Required data are obtained through field studies, geological maps, satellite images, well data, interpretation of seismic profiles and drawing regional geological cross sections.

DISCUSSION AND CONCLUSION

The Ezgeleh-Sarpol-e Zahab earthquake and aftershocks events indicating that the convergence in the Lurestan zone is not partitioned between thrust and orogen-parallel strike-slip faults. The strain partitioning accommodates a right lateral slip on the N-S trending faults. Our results highlight the presence of thin- and thick-skin shortening in the internal part of the Lurestan zone (along the Amiran anticline) as the thrust faults rooted within the detachment levels or originated from basement (Figure 1). Also, deformation pattern in the middle part of this anticline is accommodated as an N-S trending strike-slip faults as trend of this anticline changes from N130 in northeast to N110 in southeast. This nearly vertical strike-slip fault originated from basement thrust faults and cuts up-section to the surface. Thus, the Zagros basement and basal decollement in the internal part of the Lurestan zone actively contributed in continental shortening and the activity of multiple intermediate detachment levels in the sedimentary cover promotes a partly decoupled deformation.

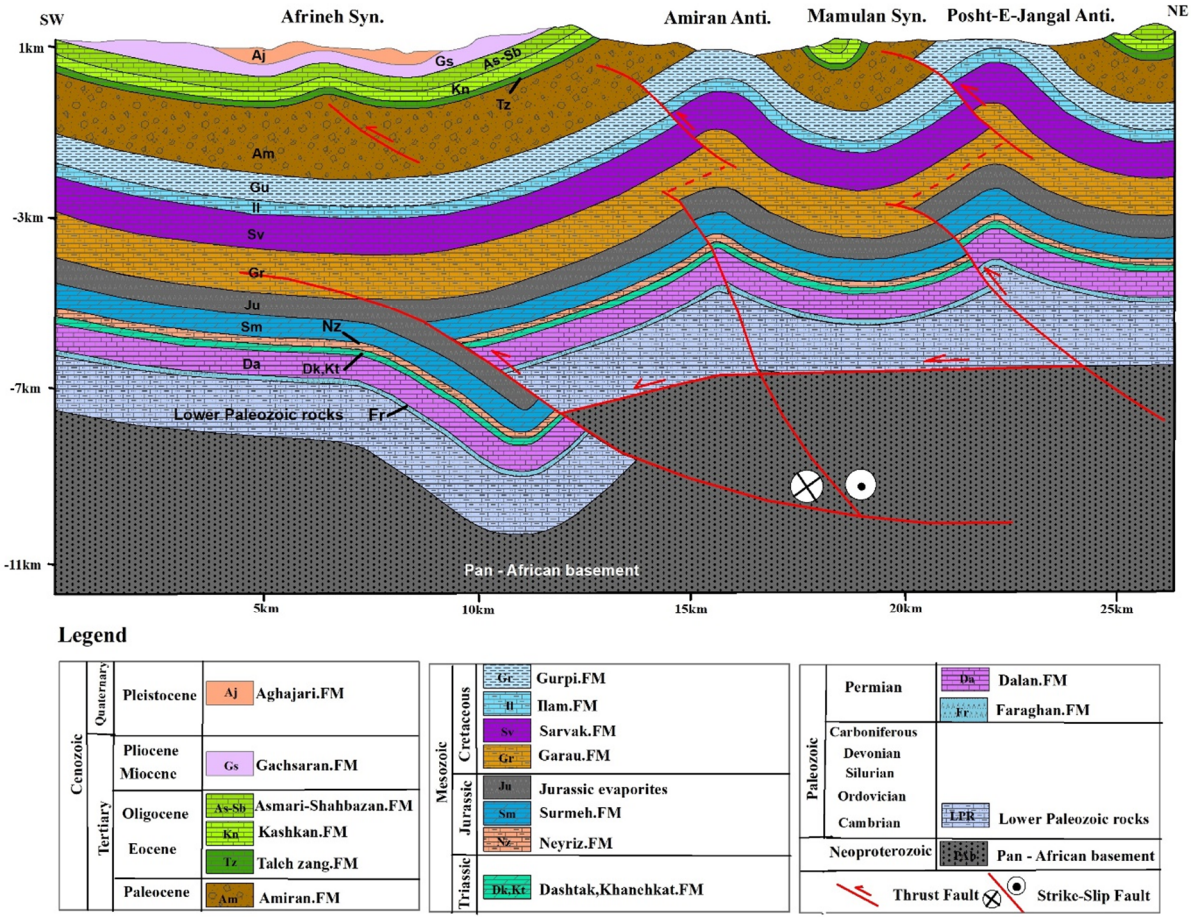

Figure 1. Geological cross section from the internal part of the Lurestan zone. Strike-slip and thrust faults originated from the pan-African basement.

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