

## **Geomorphic Evidence for Lateral Propagation of The Caspian Fault in West-Central Alborz Mountains, Iran**

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Alborz Mountains are located in the Alpine-Himalaya belt. They form a high arc-shaped orogen that formed by thrust and strike-slip faults. It is a result of the northward convergence between the central Iran and Eurasia, and westward motion of the South Caspian basin relative to the central Iran. The Caspian fault is the boundary between the Caspian plate and Alborz Mountains. The fault influences the structures in the northern flank of Alborz orogen, subsidence of the Caspian Sea in north, and uplift of the Alborz Mountain and its overthrusting on southern part of the South Caspian basin. Some longitudinal rivers flowing mostly in the backlimb of the anticlines in the hanging-wall of the Caspian fault, show evidences for active folding and faulting reflected in drainage evolution. Evolution of the drainage pattern such as asymmetry of the drainage, radial drainage basins, diversions of pre-existing transverse rivers to an axial course, transverse profiles in the fold area and development of wind gaps along a fold can be used to infer the direction and rate of lateral growth of the folds.

The Caspian fault is consisted of several various segments. We studied the western part of this fault, called Layalestan segment. Nose of a fold in the south of Komoleh indicates eastward continuation of this segment; the segment in the west terminates to the Lahijan fault. Layalestan segment transforms into a growing fold, the Komoleh anticline, in the eastern part. Unequal slopes at the north and south flanks of the anticline, three wind gaps across the longitudinal profile, and diversion of Barkili River around the nose of the anticline, all indicate a lateral propagating active fault-related folding in the hanging-wall of this segment of the Caspian fault. In this research, we studied some indices of active tectonics to investigate the activity of the Komoleh anticline, and the Layalestan segment.