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Analysis of Active Tectonic in the North Basins of Shaharchai (Mianeh)

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Abstract

The northwest of Iran has located in a collision zone of two continental plates (Eurasian and Arabian plates). Also it is one of regions of active tectonics. It seems that Shaharchai basin is an active tectonic region. Because south Boagoosh fault and Garacheman fault have located in Shaharchai basin. Therefore, active tectonic was analyzed by geomorphic indices and geomorphological evidences (landforms) of this region. The indices used include: ratio of valley-floor width to valley height (Vf), stream length–gradient index (Sl), drainage basin asymmetry (Af) and index of mountain from sinuosity (Smf). For the estimation of indices of and recognition geomorphological evidences we used topographic maps, geological maps, and digital elevation model while several field observations were done in the study region. Maps and charts were drawn by ArcGIS and Excel. The results of the analyses show that 57.1 percent of drainage basins in the study

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region have moderate tectonic activity, 28.6 percent have high values of tectonic activity and 14.3 percent have the lowest values of tectonic activity. There are several geomorphological evidences such as scarps, alluvial fans, fault valleys and meandering of the river in the high and moderate active tectonic basins.

Keywords: Geomorphological evidences, Geomorphic Indices, Active tectonic, Northbasins of Shaharchai.