
Drainage networks are usually influenced by the type, orientation and recent activity of regional and local faults and folds in tectonically active regions. In the Zagros Mountain Range, Western Iran, most drainage systems are controlled by neotectonics processes. The development of the drainage system of Dinarkooh region in the late Quaternary depends mostly on the activity of Main Zagros Thrust Fault (MZTF) and similar NW-SE oriented faults in Zagros fault system. We have done a geomorphometric study by observing river profile and characteristics of mountain fronts in order to find spatial variations and style of rock uplift. Mountain front sinuosity (Smf), area-altitude relations (Hypsometric curves), Vf and AF indices differ significantly between different parts of the study area. River profiles indicate maximum river entrenchment in the southern part of Dinarkooh Region, probably related to the uplift of footwall of MZTF fault system. Therefore our geomorphometric analysis suggests that Southern and Western parts of Dinarkooh are tectonically more active and also Samand active fold plays a significant role in this activity because of an active blind thrust fault beneath it.

KEY WORDS: Active Tectonics, Drainage Network, Geomorphometry, Digital Elevation Model, Dinarkooh Region, Zagros Mountain Range.

INTRODUCTION

One of the fastest growing disciplines in earth sciences is active tectonics because of its developments in techniques and forwarding to more accurate analysis (Keller & Pinter, 2002; Bull, 2007, 2009a, b; Pérez-Peña & alii, 2010). Another reason is importance of its results for regional studies on active tectonics and evaluates hazards of natural disasters such as earthquakes (e.g., Cloetingh & Cornu, 2005; Pérez-Peña & alii, 2010). In Dinarkooh region, the study of active tectonics of Zagros on drainage network is important for landuse planning programs.

Recent and active tectonics is considered as the main factor affecting rock uplift on mountains ranges and their present-day topography is the result of the competition between tectonics and erosion processes. So drainage pattern analysis and geomorphic features can be used for evaluating active tectonics (e.g., Keller & alii, 2000; Beneduce & alii, 2004; Capolongo & alii, 2005; Bull, 2007, Bishop, 2007; Ribolini & Spagnolo, 2008; Pérez-Peña & alii, 2010; Mumipour & Nejad, 2011).

This paper aims to evaluate the active tectonics control and influence on drainage network evolution in Dinarkooh region located in the Zagros mountain range (Western Iran) by using geomorphic indices and stream profile analysis. Dinarkooh Region is a part of Western Zagros Fold