

Geomorphologic Evolution of the Southern Hable-Rud River Basin, North of Iran

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Abstract : Hable-Rud River basin (HR), up to 100 km length, one of the largest watersheds which drain into deserts to the north of Central Iran (Dasht-e Kavir). This stream is oblique with the NE-SW trending, flow in the southern range of central Alborz Mountains and the northern border of Central Iran. The end of the ~17 km suddenly change direction and with the southern trending to have a morphology which meanders passes through the Alborz Mountain ridge and flows into the Garmsar plain where it forms one of the largest alluvial fans in Iran, i.e. the vast Garmsar alluvial fan with an area of 476 km². This study was carried out through morphometric analyses, longitudinal river profiles, and study of geomorphologic evidence such as fluvial terraces, gypsum-salt domes, seismic data, and satellite images. This study aimed to investigate the changes in the pattern of rivers in the southern part of the HR river basin. The southern part of HR river basin located at the southern foothills of the Central Alborz is characterized the thrust faults (Sorkheh-Kalut and Garmsar faults), folds, diapirs and arid climate. The activity of more than 10 salt domes that belong to the Oligocene-Miocene period has considerably influenced the pattern of streams in this region. Dissolution of these domes has not only reduced the quality of water and soil resources, but also has led to the formation of badlands and gullies. Our results indicated that the pattern of rivers in the southern part of HR river basin was influenced by discharge of the HR river in Quaternary, geological structure, subsidence of Central Iran and vertical uplift of Alborz mountain. These agents caused the formation meanders in the southern part of the HR River and evaluation of the seasonal rivers like Shoor-Darre and Garmabsar.

Keywords : geomorphologic evaluation, rivers pattern, Hable-Rud River basin, seasonal rivers

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