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Recent activity in the Eyvanekey foreland basin , Southern Alborz, Iran

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The Eyvanekey Foreland Basin in the southern Alborz Mountains and northern central Iran is a part of the Arabia/Eurasia collision zone. The northern basin is comprises Miocene-Pliocene Conglomerates (Hezardareh Formation) and the Plio-Pleistocene Kahrizak Formation. This area's altitude is about 1500 m. The Eyvanekey River flows from the Alborz Mountains into this area. A magnetostratigraphic study and analysis of rock magnetic characteristics of the Eyvanekey stratigraphic section constrain migration of facies in the Alborz foreland basin [2]. Coarse-grained deposits in the basin have often been interpreted as due to an increase in tectonic activity in the orogen [1], [5], [4], [2]. Along the basin margin fault (Eyvanekey–Parchin Fault) alluvial fans were formed. The creation of accommodation space in this area is closely linked to uplift of the source area. According to [8], rivers and fans adjust in response to changes in base level, tectonic movements or hydraulic conditions. Sediment accumulation occurs when the accommodation space is positive due to a rise in base level or to uplift of the source area, for example along a basin- margin faults [6], [9]. On the other hand, the present-day convergence between Arabia and Eurasia is primarily accommodated by distributed shortening and strike-slip faulting in the Alborz Mountains and along major intra-continental strike-slip faults [7], [3]. The analysis of alluvial fans and their drainage basins has demonstrated the important role of creation of accommodation space in alluvial fan development. Based on the morphology, morphometry and sedimentology of alluvial fans we propose that they are open fans with a radial angle of over 50° and a width to length ratio of between 0.73 to 1.34. Investigation in FCI, Smf, Vf, Fmf, Fd, Af, T, Sl, Bs sedimentology and geo-electric sections show that fan behavior varies with distance from the Sardareh Salt Diapir. Evaporite movements along faults in the Sardareh area in the eastern Eyvanekey basin and along the reverse fault in the southern basin created space for forming and improving Eyvanekey fans. During the compression phase from Late Miocene to present, the frontal faults of the Alborz Mountains and northern margin of the Eyvanekey basin were mostly transpressional faults.

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