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The morphotectonic and drainage fractal constrains for the faults activity, case study of Esmaeil abad fault, Eastern Iran

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Abstract:

Esmail abad Fault with N-S trend (N10° W/80°W) and 40 Km length is one of the Nehbandan fault zone splay in 120 Km NW of the Nehbandan. There are 7 fault segments recognized along the fault based on geometrical discontinuity (S1 to S7 from North to South). Morphotectonic and neotectonic indexes such as scarpment, stream offset and surface morphology, mountain front morphology, vally morphology, river channel sinuosity are used for active tectonic analysis of Esmail-abad fault. Morphotectonic indexes for this fault include: Smf =1.03-1.19, F% =51 -80%, Vf =0.98-2.13, V =30 -58%, S =1.06-1.13, SL: 103-288m and stream fractal index: 1.982-2. The Habib segment (central part of fault) is the most active segment of Esmail abad Fault.

Keywords: Esmail-abad Fault, segmentation, morphotectonic, stream fractal, active tectonic.