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Influence of active fault on the evolution of landscape and drainage: Evidence from lateral propagation of a branching out fault along Himalayan front and deflection of Dabka River, Kumaun Himalayas

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Ongoing tectonic activity along the Central Kumaun Himalaya is well revealed by the occurrence of moderate to large magnitude earthquakes as well as by the existence of the prominent tectonically controlled geomorphic indicators. Shaded-relief images created from the digital elevation models (DEMs) are helpful in indentifying faults in mountains terrains. Coupled with the detailed and high resolution CORONA and Google images, a number of active faults were mapped. These faults branch out from the Himalayan Frontal Thrust (HFT) and the Main Boundary Thrust (MBT) in the vicinity of Nainital foot hills. The compelling evidence of uplifted gravel deposits of recent alluvial fan surfaces together with the changing pattern of streams suggest that these faults are actively propagating and therefore, modifies drainage patterns. These faults are located close the major towns of Ramnagar and Kotabagh region of Nainital foothills, which are populated areas. Thus, the earthquake hazard in this region is to be reassessed.