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Active Fault Influence on the Evolution of Drainage and Landscape: Evidence from Frontal Areas Along Northwestern Himalaya, India

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The northwestern part of Himalaya which falls under seismic zone V has experienced Kangra earthquake of 1905 with magnitude 7.8. The present study provided an opportunity to understand the influence of active faults in shaping up the landscape and evolution of the drainage in the area. Active fault traces identified along the frontal fault system – Himalayan Frontal Thrust (HFT) associated with the foreland fold – Janauri anticline provides ideal site to study the ongoing tectonic activity. The occurrence of flat-uplifted surface in the central portion of Janauri anticline probably represents the paleo-exit of the Satluj River. It is suggested that initially when the tectonic activity propagated southward along the HFT the Janauri anticline was growing along two separate fault segments (north and south faults), the gap between these two fault and related folds allowed the channel of Satluj to flow across the area. Later due to lateral propagation of both the faults towards each other resulted into interaction of fault tip causing rapid uplift of the area at the same time. The rapid uplift of the area resulted in the disruption and longitudinal deflection of the Satluj channel. The fluvial deposits present on the flat uplifted-surface and trace of paleo-channel in Indo-Gangetic Plain suggest existence of earlier fluvial system which flowed this area during recent past.