Application of geospatial technology in determination of neotectonics of Chitral Valley, Hindu Kush Area, Northern Pakistan

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Abstract

Chitral valley Hindu Kush range, northern Pakistan, situated over the NW corner of collision region of Indian and Eurasian plate. It is one of the most tectonically active regions because of the abduction processes of Eurasian plate. Intermediate depth earth quakes are routine practice here. Mapping of Neotectonics is an issue of concern now a day. Neotectonics assist us in assessing of seismic hazards and to understand the nature of deformation of the region. The main purpose of this research is to detect the active and neo tectonics of Chitral Valley. For this purpose, 90 m SRTM DEM is used for automated stream generation. Geomorphic indices of steam profile analysis are analyzed in Mat lab over the stream network of study area, steepness and concavity maps are the final output. These maps are quite helpful for the analysis of active tectonics as erosion and uplift of the study area is computed. Further drainage density is calculated in order to verify the former results. All the minor and major streams were analysed. With the help of these geomorphic indices it is proposed that Drainage network of study area is totally tectonic induced and deformed because of active tectonics. Areas of active deformation along the major faults are also marked.