

## **Influence of Tectonics on the Channel Pattern of Alaknanda River in Srinagar Valley (Garhwal Himalaya)**

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By

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Abstract

This paper describes the results of a continuing investigation of tectonic influence on channel pattern and morphology of Alaknanda River in Lesser Garhwal Himalaya, Uttarakhand, India. Extensive field investigations using conventional methods supported by topographical sheets and remote sensing data (LISS IV), were undertaken. The results are classified into three sections :- tectonics, channel pattern and impact of tectonics on channel pattern. The channel length is divided into 8 meanders sets of 3 segments from Supana to Kirtinagar. Thereafter, a litho-tectonic map of the Srinagar valley was prepared. The style of active tectonics on deformation and characterization of fluvial landscape was investigated on typical strike-slip transverse faults near the zone of North Almora Thrust (NAT). NAT is a major tectonic unit of the Lesser Himalaya which passes through the northern margin from NW to SE direction.. The structural and lithological controls on the Alaknanda River system in Srinagar valley are reflected on distinct drainage patterns, abrupt change in flow direction, incised meandering, offset river channels, straight river lines, palaeo-channels, multi levels of terraces, knick points and pools in longitudinal profile.

The results of the study show that the sinuosity index of the river is 1.35. Transverse faulting is very common along the NAT. An earlier generation of linear tectonic features were displaced by the latter phase of deformation. Significant deviations were observed in river channel at deformation junctions. Moreover, all 8 sets of meanders are strongly influenced by tectonic features. The meandering course is, thereby, correlated with tectonic features. It is shown that the river channel is strongly influenced by the tectonic features in the study area.

Key Words: Tectonic, Meander, Channel pattern, deformation, Knick point.