Characterization of Ox-bow Lakes of the Ghaghara River Basin, North India, using Remote Sensing Data

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ABSTRACT

River meanders are significantly delighted in the geomorphic literature, their leftover features (ox bow lakes) are hardly ever studied excluding as contributory topics. The significance of oxbow lakes lies in the information that they can provide about:

(a)   the processes affecting river meanders and mender cut-offs
(b)   the character and environments of the ancient river from which they formed
(c)   the nature and evolution of ox-bow lakes themselves

Morphometric classifications and characterization techniques are based upon the dimensions, shapes, variable components, degree of complexity, degree of ox-bow limb closure, and ox-bow lake symmetry of ox-bow lakes in the Ghaghra river basin. Oxbow lake elements are graphically defined which include oxbow lake axis, axial length, channel axis, major oxbow limb, minor oxbow limb, limb length and oxbow configuration width. These component width determine the shape of the oxbow lake, may be used as the basis for quantitative morphometric study. The first classification is based upon the degree of complexity, and consists of three categories: simple oxbow lakes, compound oxbow lakes and complex oxbow lakes. The second categorization is based upon the degree of closure of oxbow lake limbs, and also consists of three categories: open oxbow lakes, normal oxbow lakes and closed oxbow lakes.