

Morphometric Analysis of the Gal Oya River Basin Using Spatial Data Derived from GIS

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ABSTRACT: Basin morphometry is a means of mathematically quantifying different aspects of a drainage basin. In the present study, morphometric analysis of the Gal Oya river basin was done to elucidate information on the morphometry of the Gal Oya river basin and to assess its hydrological characteristics and flood potentials based on the morphological characteristics. The study was carried out using spatial data obtained from Geographical Information Systems (GIS). The morphometric parameters considered for the analysis include the linear, areal and relief aspects of the basin. Morphometric analysis of the river network and the basin revealed that the Gal Oya basin has 6th order river network (as per the Strahler's classification) with a dendritic drainage pattern and moderate drainage texture. The obtained values of bifurcation ratio, drainage density, circularity ratio, elongation ratio, form factor, stream frequency and drainage intensity indicate that the basin produces a flatter peak of direct runoff for a longer duration. Such flood flows emerging from elongated basins are easier to manage than those from circular basins.

Keywords: Flood characteristics, Gal Oya river basin, Geographical Information Systems, morphometric analysis, spatial data

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