

# uDig Spatial Toolbox: A Specialised GIS tools for hydro-geomorphological analysis

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## Abstract

uDig is an open source desktop application framework, built with Eclipse Rich Client (RCP) technology, which is mainly for software and model building community. However, recently uDig GIS can be very much resource for GIS users too. Spatial toolbox of uDig GIS is a specialised GIS tools for the analysis of topography for geomorphometrics and hydrological analysis of a basin. There are large numbers of components embedded in the toolbox for terrain analysis, river network, basin topology characterisation. The components of the tool covers from from different river network extraction, to different method of ordering the extracted river networks, and are coupled with different hydrological models. The aims of this paper is to present the Spatial toolbox of uDig GIS for hydro-geomorphological characterisations of a basin. Posina river basin in the Alps region of Northern Italy has been used as a case study for the analysis. The output of different methods of channel river extraction has been compared with digitised real river networks. The performance of different channel extraction methods has been evaluated as to which method perform better at which part of the basin. The implication of the result on hydrological model has been discussed.

**Keywords:** JGrass GIS, Drainage network, Network extraction