



Comparative study of connectivity indicators in surface hydrology

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The number of scientific publications referring to hydrological connectivity has increased exponentially in recent years. While the concept has received some recent attention to improve its scientific conceptual definition, hydrological connectivity still misses reference evaluation methodologies. Therefore, we extracted from the literature different methods used mostly in porous and fractured media (semi-variogram, bivariate entropy integrated scale, connectivity function integrate scale, percolation threshold, Euler number, volume to breakthrough, average path tortuosity), and adapted them to surface hydrology cases. Based on numerical runoff experiments on contrasted terrain models and on real observations of runoff pathways, we propose a comparative analysis of the various methods. The operability and potential of these methods for future integration in hydrological modelling are discussed.