The TopoToolbox v2.4: new tools for topographic analysis and modelling

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The TopoToolbox v2 (TT2; available at https://github.com/wschwanghart/topotoolbox) (Schwanghart and Scherler, 2014) is a set of functions for the analysis of digital elevation models (DEM) in the MATLAB programming environment. Its functionality is mainly developed along the lines of hydrological and geomorphic terrain analysis, complemented with a wide range of functions for visual display, including a class for swath profiles. Fast and efficient algorithms in TopoToolbox form the backbone of the numerical landscape evolution model TTLEM (Campforts et al., 2017). In this presentation, we will demonstrate new functionalities that are part of the upcoming release v 2.4: DIVIDEobj and PPS.

DIVIDEobj is a numerical class to store, analyze and visualize drainage divide networks. Drainage networks are derived from flow directions and a stream network. We will present the extraction and analysis of the drainage divide network of the Big Tujunga catchment, CA, to illustrate it functionality and associated analysis tools. PPS is a class to explore, analyze and model spatial point processes on or alongside river networks. Specifically, PPS provides access to a set of statistical tools to work with inhomogeneous Poisson point processes that facilitate the statistical modelling of phenomena such as river bank failures, landslide dams, or wood jams at the regional scale.
