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Hydrol. Earth Syst. Sci., 11, 1243-1247, 2007
www.hydrol-earth-syst-sci.net/11/1243/2007/
doi:10.5194/hess-11-1243-2007

Technical Note: Water flow routing on irregular meshes

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Abstract. For spatially explicit hydrological modelling an algorithm was required that works as a cellular automata on irregular meshes. From literature it was found that the usual algorithms applied for this purpose do not route the water flow correctly between adjacent cells. In this study the hydraulic linking between mesh cells is done by calculating the flow cross section between the mesh cells. The flow cross sections are positioned in the centre of the mesh edges and are perpendicular to the local gradient of the digital elevation model. The presented algorithm is simple in its implementation and efficient in computation. It is shown that the proposed algorithm works correctly for different synthesised hill slope shapes.

Final Revised Paper (PDF, 1863 KB) Discussion Paper (HESSD)

Citation: Bänninger, D.: Technical Note: Water flow routing on irregular meshes, Hydrol. Earth Syst. Sci., 11, 1243-1247, doi:10.5194/hess-11-1243-2007, 2007. Bibtex EndNote Reference Manager XML