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Evaluating the hydraulic and transport properties of peat soil using pore network modeling and X-Ray micro computed tomography

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Abstract

Micro-scale properties of peat pore space and their influence on hydraulic and transport properties of peat soils have been given little attention so far. Characterizing the variation of these properties in a peat profile can increase our knowledge on the processes controlling contaminant transport through peatlands. As opposed to the common macro-scale (or bulk) representation of groundwater flow and transport processes, a pore network model (PNM) simulates flow and transport processes within individual pores. Here, a pore network modeling code capable of simulating advective and diffusive transport processes through a 3D unstructured pore network was developed; its predictive performance was evaluated by comparing its results

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