ABSTRACT

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Characterisation of Gypsum Karst Aquifers by Heat and Mass Transport Simulations Using a Pipe Flow Model

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A modelling tool is presented, which is designed to support the characterisation of the conduit system of gypsum karst aquifers by simulating short-term fluctuations of gypsum concentrations and temperatures of the spring water. Both parameters depend on the geometric and hydraulic properties of the conduit system. If only one of them is analysed, a unique identification of the structure of the conduit system may not always be obtained. Unsteady-state simulations of both heat and mass transport, however, show that different conduit systems, which are equivalent with respect to spring signals of one parameter, can be distinguished by taking into account the second parameter.