

A multidisciplinary study of sediments' connectivity and transport parameters for aquifer analogues

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Abstract A multidisciplinary approach is applied to the study of aquifer analogues, i.e. outcrops of geological structures which can be easily investigated and which resemble the buried aquifers. The application of this approach to some cases selected to represent typical structures of the alluvial aquifers in the Po Plain (northern Italy) shows the importance of joining field work (sedimentological, petrographical, geophysical, hydrological) with stochastic simulation, modelling tools and connectivity analysis. The final goal of this research programme is to enhance the match between the heterogeneity of hydrofacies at a fine scale and the behaviour of flow and transport at a large scale.

Key words groundwater; aquifer analogues; alluvial aquifers; hydrostratigraphy; mathematical modelling; geostatistical simulations; connectivity