



Neuro-Fuzzy estimation of permeability from SNMR and Electrical Tomography Methods: A case-study from Iran

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Surface Nuclear Magnetic Resonance (SNMR) is a new geophysical method currently developed for shallow investigations of aquifers. Compared to the other geophysical methods, SNMR is a water selective method. Therefore, hydraulic properties of media are achievable through SNMR investigations. Relative to classical electrical methods, SNMR still costs much. In order to reduce the expense of the survey, it should be better to perform a sufficient electrical tomography in the region, and then few SNMR sounding for acquiring aquifer properties. Then it is possible to use the Neuro-fuzzy estimator for estimating permeability in the regions without SNMR data. Neuro-fuzzy estimator is tested on a 3D synthetic model. A case study is also presented to explain the applicability of the Method. The study area is located in Iran. The scope of the survey is determining the best well site for drilling. The transmissivity map of the aquifer is contoured for selecting the best permeable site.