

Comparison of the Redundant and the Non-Redundant Verification for the Hydraulic Tomography Analysis

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In the groundwater study, it estimated the heterogeneous spatial distribution of hydraulic properties, there were many scholars use to hydraulic tomography (HT) from field site pumping tests to estimate inverse of heterogeneous spatial distribution of hydraulic properties, to prove the most of most field site aquifer was heterogeneous hydrogeological parameters spatial distribution field. Many scholars had proposed a method of hydraulic tomography to estimate heterogeneous spatial distribution of hydraulic properties of aquifer, the Huang et al. [2011] was used the non-redundant verification analysis of pumping wells changed, observation wells fixed on the inverse and the forward, to reflect the feasibility of the heterogeneous spatial distribution of hydraulic properties of field site aquifer of the non-redundant verification analysis on steady-state model.

From past literature, finding only in steady state, non-redundant verification analysis of pumping well changed location and observation wells fixed location for inverse and forward. But the studies had not yet pumping wells fixed or changed location, and observation wells fixed location for redundant verification or observation wells change location for non-redundant verification of the various combinations may to explore of influences of hydraulic tomography method. In this study, it carried out redundant verification method and non-redundant verification method for forward to influences of hydraulic tomography method in transient. And it discuss above mentioned in NYUST campus sites the actual case, to prove the effectiveness of hydraulic tomography methods, and confirmed the feasibility on inverse and forward analysis from analysis results.

Keywords: Hydraulic Tomography, Redundant Verification, Heterogeneity, Inverse, Forward