Analysis and discussion of groundwater pollution source based on iterative local update set smoothing algorithm

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\textbf{A B S T R A C T}

To better manage groundwater and evaluate environmental risks of groundwater pollution, the fate of pollutants was accurately predicted, with the help of the numerical simulation. A set of iterative updating local smoothing algorithm was put forward. In the process of implementing the algorithms, each sample in the set was not directly updated, but local sample set of each sample was updated to fully explore the possible multi-peak distribution. In order to verify the effectiveness of ILUES algorithm, five numerical examples were verified, taking into account different prior parameters, such as parameter prior multi modal, parameter posterior multi modal and parameter high dimension. These example results showed the effect of the ILUES algorithm in the parameter inversion of the complex model. To sum up, compared with the common MCMC algorithm, the ILUES algorithm has a significant advantage in computational complexity.

\textit{Keywords:} Groundwater pollution; ILUES; MCMC

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