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IDENTIFICATION OF THE OPTIMUM GROUNDWATER QUALITY MONITORING NETWORK USING A GENETIC ALGORITHM BASED OPTIMIZATION APPROACH

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Abstract

Management of groundwater requires a sufficient coverage of accurate groundwater quality data. These data are usually collected from monitoring wells which are spatially distributed in the river basin or the groundwater body that is studied. A minimum number of monitoring wells with an optimum spatial distribution is desired to ensure a cost-effective observation of the groundwater body. Therefore, the configuration of groundwater monitoring networks and the number of required wells becomes an important engineering optimization problem. The goal of this study is to find an optimum monitoring network with the fewest wells that provides sufficient spatial coverage on groundwater quality. With the presented method redundant wells in an already existing network are identified. Here, a genetic algorithm (GA) based optimization approach is used in which each monitoring well in the watershed is

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