

## **Evaluation method for artificial recharge potential in a cone of depression in Jining City, China**

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**Abstract** A new method to evaluate the distribution of groundwater artificial recharge potential has been developed for the cone of depression in Jining city. Based on natural conditions and the simulation results of a numerical model, six factors including: precipitation infiltration coefficient, specific yield, thickness of depleted aquifer, depth of groundwater, exploitation intensity and type of land use, are used in assessing artificial recharge potential. All parameters are weighted and rated based on the numerical simulation results and AHP (Analytic Hierarchy Process) method. The exploitation intensity and land-use type are considered the most significant indexes. Based on thematic maps of these factors, the spatial distribution of the potential score is obtained using GIS. The study shows that about 40% of the study area has a relatively high groundwater artificial recharge potential rating. This groundwater artificial recharge evaluation method and the corresponding potential maps are effective for locating areas requiring more artificial recharge investigations for implementation.

**Key words** geographic information system; groundwater artificial recharge; index method; potential map

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