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IMPACT OF THE SOUTH-TO-NORTH WATER DIVERSION PROJECT ON GROUNDWATER RESOURCES: A CASE STUDY IN PINGGU BASIN, BEIJING, CHINA

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Abstract

The South-to-North Water Diversion Project is a huge project to better utilize water resources available to China, especially for solving the shortage of water resources in northern China. Increasing attention has been paid to the impact of the project on the groundwater of water-receiving areas. Beijing is one of the important water-receiving areas of The Middle Route, and the water will be transferred into Beijing in 2014. The main objective of this study is to analyze the influence of S-NWDP on groundwater resources, and a real aquifer system in Beijing was selected to study. A three-dimensional transient groundwater flow model was developed in the Pinggu basin, where two well fields for Beijing downtown were located. After calibrated and validated, the root mean square error between observed and computed groundwater levels were 1.742m. With the validated model, several pumping scenarios related were simulated and groundwater resources management strategies were suggested for the long-term sustainability of groundwater by analyzing the results.

Key words: groundwater, numerical model, South-to-North Water Diversion Project, sustainability, well field

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