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Application of Easy Groundwater Model to the Area of the Middle Route Project of South-to-North Water Diversion in China

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For high efficiency of simulation of groundwater flow in the area of the Middle Route Project of South-to-North Water Diversion in China, a model named Easy Groundwater Model (EasyGWM) was developed for application. In this model, the research area is not divided into square grids or regular elements, but calculate unit according to administrative regions. Furthermore, simplified water balance and Darcy's Law were calculated for each calculating unit. Taking two years (2002∼2003) as a validation period, the simulation results of EasyGWM was compared with that of MODFLOW, a model that is famous for its high precision in groundwater flow simulation while is, nevertheless, time-consuming and complex. The results showed that, for large region and long term simulation, EasyGWM, which can be easily used when building models and save much time in computation of models, can obtain as precise results as MODFLOW. The groundwater flow of the research area in the following 40 years was also simulated by EasyGWM. It was shown that, with proper control of the groundwater exploitation after the middle route project comes into use, the decline of groundwater level can be effectively controlled.