

عنوان مقاله:

Numerical Modeling of Groundwater Flow during Pumping From a Well by Using of Finite Element Method

محل انتشار:

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خلاصه مقاله:

Groundwater is not static, it flows in an aquifer and its flow can be described using some partial differential equations and associated boundary conditions. The study considered two dimensional steady state groundwater flow. The general objective of this study was to develop and analyze a mathematical model of groundwater flow in dis-charging an aquifer at a well using the finite element method. Simulation of the model was carried out to deter-mine the relationship between the hydraulic pressure and groundwater flow in aquifer using the finite element method. The study focused on groundwater flow in discharging an aquifer at a well. It has been shown that the flow of groundwater in discharging an aquifer at a well is governed by the Poisson equation with Dirichlet and Neumann boundary conditions. It is shown that the pumping process of groundwater from an aquifer at a well lowers the hydraulic pressure at well node and the immediate neighborhood nodes, thus causing the groundwater to flow towards the well.

Therefore, pumping water from the well causes over extraction of groundwater from an aquifer

کلمات کلیدی:

Numerical Modeling; Groundwater; Pumping Stations

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