

عنوان مقاله:

Numerical Study on Effect of Subsurface Dam on Controlling Seawater Intrusion Coastal Aquifer

محل انتشار:

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نویسندگان:

Mehdi Hamidi - M.Sc. Student of Hydraulic Structures

Saeed Reza Sabbagh Yazdi - Assitant professor

خلاصه مقاله:

Saltwater intrusion widely occurs in coastal areas. Therefore, dissolved salts are the most common contaminants in freshwater in coastal aquifer and this contamination arises from saltwater invasion, caused primarily by human activities due to heavy urbanization. For investigation of the methods of increasing storage of fresh ground water and prevention of seawater encroachment, predicting the location and movement of the saltwater interface is crucial. Saltwater intrusion problem are so complex and generally cannot be analytically solved. Hence, numerical methods are ideal tools for the simulation and prediction of results. In this paper, a two-dimensional finite volume unstructured mesh methods (FVUM) based on a triangular mesh is developed for analyzing the evolution of the saltwater intrusion into coastal aquifer systems. The model formulation consists of a ground-water flow equation and a salt transport equation. Simulation results are compared with previously published solutions where good agreements is observed. Then, the model is used for simulation of the effect of a subsurface dam to protect the fresh groundwater resource. From the numerical analysis result can be concluded that the encroachment will be limited if the subsurface dam is constructed.

کلمات کلیدی:

Saltwater Intrusion, Coastal Aquifer, Sub-surface Dam, Unstructured Finite Volume

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