

Gray numerical simulation of groundwater pollution

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Abstract Contaminant transport in underground systems usually occurs in varied flow fields and in anisotropic and heterogeneous media. Because the applicability of analytical solutions is extremely limited for such conditions, and the distribution and transport of pollutants in groundwater are controlled by physical chemistry and biological processes, which include advection, mechanical dispersion, molecule spreading, adsorption, solution, sorption and biodegradation functions, numerical techniques are essential for underground pollution modelling. Among the numerical techniques, the gray numerical method has become very popular and is recognized as a powerful numerical tool. The gray numerical method, particularly for pollution modelling, may be preferable to other methods. In this paper, the gray numerical model is applied to simulate one-dimension groundwater pollution. The results indicate that this method provides the references for the forecasting of pollutants and the management and evaluation of groundwater resources.

Key words groundwater pollution; gray model; numerical simulation
