

SUBSURFACE CONTAMINATION MODELLING THROUGH MULTIPHASE APPROACH

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Abstract

With the growing global concern about our environment and the recognition of the need for its protection, the study of flow and transport related to groundwater contamination has become the focus of several researchers. A key to the management of groundwater is the ability to model the movement of fluids and contaminants in the subsurface. Over the past several decades, flow and transport through porous/fractured media have gained significant attention in the context of pollution and water quality. Ever increasing exploitation of groundwater and growing solute concentrations in aquifers due to leaking repositories and use of fertilizers have made flow in porous/fractured media a matter of concern for research. Different investigators approached the problem from many view points. These are flow and transport, flow and dispersion, miscible displacements, immiscible displacement and multiphase flow approaches. This paper mainly presents a brief study of the works, especially multiphase approach, to address such subsurface contamination issues. Issues that need further study are pointed out to facilitate future research directions for a greater understanding and more comprehensive analyses of the subsurface contamination phenomena under various geological settings.

Keywords: Contamination modeling, Multiphase approach, Migration, Saline intrusion.