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**Mathematical Analysis of Transport of Pollutants in Two Dimensional Advection Diffusion Equation with Adsorption & Radioactive Decay**

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**Abstract**

Mathematical Model for two-dimensional transport of pollutants in uniform flow are being applied extensively in groundwater studies. Groundwater models may be divided in to two main categories, namely, solute transport models and groundwater flow models. The solute transport models are applied in connection with groundwater quality problems. The solute transport models are often extended with chemical sub-models for description of the fate of non-conservative polluting species while in some cases may be sufficient only to study the aquifer. It is often necessary to include some of the overlying layers in the hydro-geological description. This is of importance both with respect to estimation of recharge and to the assessment of the sources of groundwater pollution. Hence, a comprehensive groundwater modeling package also has to include models for the unsaturated zone as well as integrated ground water/surface water models. The impact of all physical factors and dynamic strategies which have an effect at the mass stability on groundwater which incorporates transport, diffusion, adsorption, and transformation via chemical reactions.

**Keywords:**

Solute transport models and Groundwater flow models

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