

## عنوان مقاله:

Modeling of the Advection–Dispersion–Decay Equation for GroundWater Contaminant Transport through Finite Porous Media Subject to Time-dependent Boundary Condition

## محل انتشار:

دومین کنفرانس بین المللی مهندسی و تکنولوژی های سبز برای آینده پایدار (سال: 1395)

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## خلاصه مقاله:

Advection-dispersion equation (ADE) used to describe the blended dispersion-convection mechanisms of contaminant transport in ground water through porous media, has drawn considerable attention with a wide range of applications in several disciplines. The current study focuses on developing asemi-analytical solution to ADE combined with first order decay expression for the problem of contaminant transport in ground water through porous media in one–dimensional finite spatial regions assuming transient boundary conditions utilizing Laplace transform to calculate the contaminant concentration inside the porous media. Furthermore, finite difference and finite element based numerical solutions were utilized to validate the semi-analytical solution results, which were subsequently compared with experimental data gathered from the literature, to demonstrate the accuracy and robustness of the derived semi-analytical solution. Results demonstrated that, generalized semi-analytical solution can be regarded as a reliable mathematical lever to explain contaminant transport phenomenon in ground water through porous media limited to .determined transient boundary conditions and also for numerical andexperimental result verification

## کلمات کلیدی:

contaminant transport, ground water, advection-dispersion equation, analytical model

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