Contribution ID: **525** Type: **Oral Presentation**

A quadrature-based scheme for numerical solutions to linearized unsaturated flow equation

Tuesday, 31 May 2022 12:15 (15 minutes)

In this work we propose a numerical method for computing solutions to unsaturated flow equation within Gardner's framework. In order to do so, we resort to Kirchhoff transformation of Richards' equation in mixed form, obtaining a linear second order partial differential equation. Then, leveraging the mass balance condition, we integrate both sides of the equation over a generic grid cell and discretize integrals using trapezoidal rule. We prove that this method is l^2-stable and convergent to the exact solution under suitably conditions on step-sizes, retaining the order of convergence from the underlying quadrature formula.

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Time Block Preference

Time Block A (09:00-12:00 CET)

Participation

Online

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