The manuscript presents a 3D coupled (semi-)analytical model that simulates flow in both the unsaturated and saturated zones with localized recharge on the ground surface. The authors used a simplified model for flow through the unsaturated zone based on the linearized Richards´ equation. The resulting system of linear partial differential equation is then solved using the Laplace transform to eliminate the time derivative and the double Fourier transform which convert the original system of PDEs to a system of ordinary differential equation. They obtained the expressions of the heads in the unsaturated and saturated zones in terms of infinite double integrals. The final solution is presented in the Laplace domain and then numerical inversion of Laplace transform is required to get the solution in the time space.

The manuscript overall is well written and clear but it could be improved. The technique used is standard (Laplace transform coupled with cosine Fourier transform) for such kind of coupled problems, but I think the work addressed is very interesting and the topic, in my opinion, is appropriate for HESS.

The consideration of the unsaturated zone in the modeling of recharge is important and to the best of my knowledge this subject has never been addressed analytically. Although coupled unsaturated/saturated flow model have been already addressed analytically in the framework of pumping tests (see for instance, Mathias and Bulter (2006), Mishra and Neuman (2010, 2011), Tartakovsky and Neuman (2007)), the mathematical model presented here is different (3D cartesian). In think this work can be considered as new contribution.

I have however two comments that merits to be mentioned and discussed in a revised version of the manuscript:

1. The authors should mention the above cited works and discuss how they differ from their present work.
2. In section 3.4, the authors compare the proposed analytical solution to a finite element numerical solution obtained from the NDsolve function of Mathematica. They used the linearized system of equations (1)-(11) in the numerical solver. This is good to show the correctness of the analytical solution. However, It would be interesting to perform a comparison between a numerical solution based on the original "nonlinear" Richards´ equation to investigate the effect of linearization on the head distribution in the unsaturated and saturated zones. This may affects also the general results of the

manuscripts. I think, it would not need too much efforts to include the nonlinear Richards´ equation in the NDsolve function of Mathematica.

The original nonlinear Richards´ equation writes as follows (Kroszynski and Dagan, 1975)

$$K_x \frac{\partial}{\partial x}\left(K(\phi)\frac{\partial \phi}{\partial x}\right) + K_y \frac{\partial}{\partial y}\left(K(\phi)\frac{\partial \phi}{\partial y}\right) + K_z \frac{\partial}{\partial z}\left(K(\phi)\frac{\partial \phi}{\partial z}\right) = C(\phi)\frac{\partial \phi}{\partial t}$$

with $K(\phi) = e^{\kappa(\phi-\phi_a)}$ and $C(\phi) = S_y \kappa e^{\kappa(\phi-\phi_a)}$

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