

Interactive comment on “A soil non-aqueous phase liquid (NAPL) flushing laboratory experiment based on time domain reflectometry (TDR) and modeling” by Alessandro Comegna et al.

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I have to admit that I was fully expecting not to like this paper. The idea is very simple - using a dielectric mixing model to assess NAPL saturation in an otherwise water saturated medium. But, the simple approach worked, leaving me to wonder - why hasn't this been done before??

My only complaint is that the authors have not used original sources. There was a lot of work done on mixing models and rewriting these models as alpha mixing models

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to determine fluid saturations. I would suggest that they avoid citing review articles (even though some of these will positively impact my H index) and look for the citations within these citations. Similarly, go to lengths to avoid self citation if you can find older references. I would recommend in particular that the authors look at references by Rosemary Knight, Dave Redman, and Timo Heimovaara.

The explanation of the rapid mobility is not as strong as it could be, although I don't know if this is critical. I suspect that the disagreement with the model has to do with the spatial, pore-scale distribution of NAPL during the initial flushing. This could point to difficulties in using this approach in other than homogeneous media, where NAPLS may collect along layer boundaries or in extended ganglia. But, again, this response is not central to the overall demonstrated ability to monitor NAPL concentrations with dielectrics.

In summary, I would like to congratulate the authors for filling a gap that I have not seen filled in this use of TDR.

Best Ty Ferre

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