

Interactive comment on “Modifications to Kozeny–Carman model to enhance petrophysical relationships” by Amir M. S. Lala

Anonymous Referee #2

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Please see attached document.

Please also note the supplement to this comment:

<http://www.solid-earth-discuss.net/se-2017-8/se-2017-8-RC2-supplement.pdf>

Interactive comment on Solid Earth Discuss., doi:10.5194/se-2017-8, 2017.

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Discussion paper



This is a review of the paper “Modifications to Kozeny–Carman model to enhance petrophysical relationships” by Amir M. S. Lala. It presents an interesting study where a modification of the famous Kozeny-Carmon equation is given to estimate the absolute permeability from porosity, tortuosity and grain or pore size distributions. Below are my comments and suggestions to improve this paper.

General Comments:

1. One major criticism is that the paper needs to include recent studies in the topic. There are many important and relevant papers that have investigated the KC model and proposed alternative forms. For this, the author needs to bring out clearly what is new in his work. For instance, Nooruddin and Hossain, 2011 did modify the tortuosity in the KC model making it a function of porosity and other parameters. The author here needs to explain his new idea very clearly and distinguish it from previous work.

Specific Comments:

- Eqs 2, 3, 4: citations are needed here.
- In Eq.2 : change q to Q
- Line 72: use the mathematical symbol used in Eq.2 to clearly indicate the definition of tortuosity – it looks as L^{-1} , while you mean (ℓ/L)
- Line 91 – 93: This depends on how you define porosity in the KC model in which it is most likely nothing but the effective porosity which - by definition - accounts for connected pores only (see for instance Nooruddin and Hossain, 2011). However, you