

## ***Interactive comment on “Quantitative experimental monitoring of molecular diffusion in clay with positron emission tomography” by Johannes Kulenkampff et al.***

### **Anonymous Referee #1**

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This is an well-written paper that address the use of PET (positron emission tomography) to evaluate diffusion in porous media. The authors use computer modeling to account for scattering in the raw data to improve the quality of the imaging through image reconstruction. The manuscript cite several unpublished work (mainly for the same group it seems), something that makes it difficult to review the uniqueness of the work. The current manuscript use the same rock, tracer and method as previous (and unpublished) work, and overlap between the publications should be avoided.

In the abstract the authors state: "We established PET; applying a high-resolution PET-scanner, as spatially resolved quantitative method for direct laboratory observation of the diffusion process of a PET-tracer on the prominent scale of 1–100 mm".

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This can be interpreted as this work "establish" PET for this purpose, which is simply not true as can be seen from the cited work on similar processes with PET. The authors also did not cite a recent work by Ferno et al 2015 (GRL) that use PET to calculate diffusion coefficients (albeit with another tracer and another rock).

The manuscript is solid scientific work, and I recommend publication.

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Interactive comment on Solid Earth Discuss., doi:10.5194/se-2016-34, 2016.

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