**Hydrology and
Earth System
Sciences
Discussions**

Interactive comment on "Analyzing the effects of geological and parameter uncertainty on prediction of groundwater head and travel time" *by* X. He et al.

Anonymous Referee #1

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This is a very nicely written and easy-to-read paper describing an application of multiple point geostatistics with a three dimensional training image to the analysis of a complex three-dimensional aquifer in Denmark. Unfortunately, I cannot see any original contribution in it and, to me, the papers falls short of the expectations implied by its title.

Everything is parameter uncertainty, and in this case, everything is hydraulic conductivity uncertainty due to its spatial variability. In the paper the spatial variability is limited to the spatial variability of the geometry of the different facies of the model, while within facies variability is completely disregarded. The authors do not explain why the within

facies variability is ignored, and they should know that this variability could (or could not) be as important as the variability induced by facies geometry heterogeneity. All solute transport simulations could be so much influenced by the within facies variability, that unless the authors could prove that it is irrelevant, all their analyses on groundwater age are worthless.

The conclusions are specific to this case study, and, more importantly, to the way this case study is carried out.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 2789, 2013.