

Interactive comment on “Quantifying flow and remediation zone uncertainties for partially opened wells in heterogeneous aquifers” by C.-F. Ni et al.

Anonymous Referee #1

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General remarks:

The authors present a method to quantify flow and remediation zone uncertainties for partially screened wells in heterogeneous aquifers. The flow problem is formulated in two-dimensional cylindrical coordinates. Uncertainty is estimated for head and velocity components using first-order numerical spectral solutions. The basic formulation looks promising at the first glimpse. However, the restriction to radial conditions is a severe drawback since real-world heterogeneity is three-dimensional and not radial. The method is applied to two-dimensional radial flow configurations using various cor-

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relation lengths and also to one example with two layers.

However, the mean head distribution for the case according to Figure 3 clearly resembles a linear head distribution over r and not a log-like distribution far away from the well screen. Therefore we doubt that the example is radial. Consequently we also doubt that the further evaluations (Figures 4 to 11) are valid for radial conditions as promised in the text.

Therefore, we recommend that the manuscript is rejected. It may be reconsidered after complete revision of all examples in a consistent manner.

Specific remarks:

Page 3135, Line 17: "Kunstmann and Kinzebach, 2000". Correct: Kunstmann and Kinzelbach, 2000.

Page 3136, Line 3: Same

Page 3138: Obviously no horizontal/vertical anisotropy is considered. This is in contradiction to field observations.

Page 3139. The selected covariance model is missing.

Figure 1: The text within Figure 1 is not complete.

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