Comparison of the UCODE_2005 and the ensemble Kalman Filter for groundwater flow inverse modeling

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On the basis of the hydraulic head observations, a synthetic two-dimensional flow case with four no-flow boundaries is used to compare the UCODE_2005 with the Ensemble Kalman Filter (EnKF) to inverse and update hydraulic conductivity field. The study results indicate that the two inverse methods, UCODE_2005 and EnKF, will estimate the hydraulic conductivity field to a certain degree. The more observations and information about conductivities are available, the more accurate inverse results will be obtained for the UCODE_2005. The results obtained by the UCODE_2005 look better than those of the EnKF. This is possibly due to the fact that the UCODE_2005 uses observed head data at every time step, while EnKF uses only a few observed heads because of the filter divergence problem.