Geophysical Research Abstracts
Vol. 19, EGU2017-2758, 2017
EGU General Assembly 2017

An application of the ensemble Kalman filter for the simultaneous identification of a contaminant source and aquifer hydraulic conductivities by assimilating piezometric heads and concentrations

Teng Xu, J. Jaime Gómez-Hernández, and Zi Chen
Spain (feitengyan@gmail.com)

When we want to forecast contaminant spreading or make a groundwater environmental risk assessment, knowing the source of the contamination is important. In this work, we have applied the ensemble Kalman filter (EnKF) to the simultaneous characterization of hydraulic conductivities and identification of contaminant source information including source location, initial release time, release duration, and release concentration by assimilating both piezometric heads and solute concentrations. A test in a synthetic confined aquifer is carried out. The results prove that EnKF is capable of simultaneously identifying hydraulic conductivities and source information by assimilating a sufficient amount of state variable measurements.