Groundwater Flow Equations with Compound Poisson Distributed Input

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We discuss approaches for the computation of quantities of interest for the solution of flow equations in random media. The conductivity is obtained by smoothing or taking level cuts of a Lévy distributed random field, which may result in much rougher random fields than in the Gaussian case. For the special case of a compound Poisson distribution a product quadrature rule will be used and compared to Monte Carlo and Multilevel Monte Carlo simulations. We investigate confidence intervals for both Monte Carlo estimators and the computational effort needed to achieve a certain mean square error.

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