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ABSTRACT

The relationship between kriging, conditional simulation and other inversion approaches is discussed. We recall that kriging, radial basis functions, splines are formally identical, and that kriging can also be seen as a regularisation approach. The relationship between conditional simulation, Bayesian inversion and Kalman filtering is also addressed. This is illustrated by practical examples of geostatistical seismic inversion and production data inversion using Ensemble Kalman Filtering. Then the issues associated with the joint integration of geological, seismic and dynamic data are discussed, and it is stressed that there is still a long way to go, especially as far as uncertainty quantification of the jointly inverted model is concerned. We conclude by more general considerations about the geostatistical and the Bayesian approach.