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Changes of the a priori stochastic structure in the conditional simulation of transmissivity fields

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The development of methods for the stochastic simulation of transmissivity (T) fields has progressed allowing simulations that are conditional not only to T measurements but to piezometric head and solute concentration data. Some methods are even able to honour secondary data and travel time information. However, most of this methods, require and a priori definition of the stochastic structure of T fields that is inferred only from T measurements. Thus, the additional conditioning data, that implicitly integrate information not captured by T data, might lead to changes in the a priori model. Different simulation methods will allow different degrees of structure adaptation to the whole set of data. This presentation illustrates the application of a new stochastic simulation method, the Gradual Conditioning (GC) method, to two different sets of data, both non multiGaussian, one based on a 2D synthetic aquifer and another on a 3D real case (MADE site). We have studied how additional data change the a priori model. Results show how the GC method honours the a priori model in the synthetic case, showing fluctuations around it for the different simulated fields. However, in the 3D real case study, it is shown how the a priori structure is modified not obeying just to fluctuations but possibly to the effect of the additional information on T, implicit in piezometric and concentration data.