

exPrior: An R Package for the Formulation of Ex-Situ Priors

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Abstract The exPrior package implements a procedure for formulating informative priors of geo statistical properties for a target field site, called ex-situ priors and introduced in Cucchi et al. (2019). The procedure uses a Bayesian hierarchical model to assimilate multiple types of data coming from multiple sites considered as similar to the target site. This prior summarizes the information contained in the data in the form of a probability density function that can be used to better inform further geostatistical investigations at the site. The formulation of the prior uses ex-situ data, where the data set can either be gathered by the user or come in the form of a structured database. The package is designed to be flexible in that regard. For illustration purposes and for easiness of use, the package is ready to be used with the worldwide hydrogeological parameter database (WWHYPDA) Comunian and Renard (2009).

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