INLA for extremes

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In this tutorial, we will discuss latent Gaussian modeling for extremes based on efficient Bayesian inference using the Integrated Nested Laplace Approximation (INLA; [6]) implemented in the R-INLA package ([2]). By specifying Gaussian process priors for fixed and random effects in generalized additive models, a very wide and flexible class of models becomes available. This class of models can be specified through a hierarchical formulation, where observations are assumed to be conditionally independent given a latent Gaussian random field that drives the (space-time) trends and dependence observed in the data, and a set of hyperparameters. We will focus on applied aspects of the INLA framework, study the current generalised extreme value and generalised Pareto implementations, and illustrate the R-INLA package through several examples.

References

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