

SOME APPLICATIONS OF GAUSSIAN PROCESSES IN ENVIRONMENTAL SCIENCES

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Gaussian processes define probability distributions over functions and allow flexible and versatile nonparametric modelling. In statistics, they have traditionally been used in spatial, temporal and spatiotemporal applications. However, since 1990's they have become very influential also in many other application areas ranging from, e.g., machine learning to bio- and environmental sciences. In this talk I will treat Gaussian processes as a model block in hierarchical Bayesian models. I will also present applications from environmental sciences and discuss why and how they are applied there. Examples will include at least an inverse problem in air quality measurements and statistical calibration of environmental simulators.