

From Multivariable to Functional Cokriging: An Alternative for Space-Time Prediction

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Abstract: We study an extension of cokriging analysis from random vectors to the case where the observations consist of samples of random functions. Our method allows to predict one variable at a time, with the predictor using data from auxiliary variables (cokriging) given in terms of observed values of random functions. We use basis functions to smooth the observed data. A linear model of coregionalization is used for establishing spatial dependence among coefficients of basis functions, and for estimating functional parameters. The methodology is illustrated with a real data set corresponding to temperature time series observed at 35 Canadian weather stations.

Keywords: Basis functions; LMC; Multivariable cokriging.