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Revealing spatial variability structures of geostatistical functional data via Dynamic Clustering

Elvira Romano, Antonio Balzanella, Rosanna Verde

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In several environmental applications data are functions of time, essentially con- tinuous, observed and recorded discretely, and spatially correlated. Most of the methods for analyzing such data are extensions of spatial statistical tools which deal with spatially dependent functional data. In such framework, this paper introduces a new clustering method. The main features are that it finds groups of functions that are similar to each other in terms of their spatial functional variability and that it locates a set of centers which summarize the spatial functional variability of each cluster. The method optimizes, through an iterative algorithm, a best fit criterion between the partition of the curves and the representative element of the clusters, assumed to be a variogram function. The performance of the proposed clustering method was evaluated by studying the results obtained through the application on simulated and real datasets.

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