Clustering and preferential sampling, two distinct issues in Geostatistics

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Abstract: This work aims to overview two issues of sampling design, clustering and *preferability*, within the scope of geostatistics, area concerned with fitting spatially continuous models to spatially discrete data (Chilés and Delfiner, 1999). Firstly, data-locations are typically assumed as being uniformly representative of the observation region. Menezes et al (2008) shows that the impact of the clustered data on the variogram estimation is not negligible and proposes a kernel estimator for this type of data. Secondly, preferential sampling arises when the process that determines the data-locations and the process being modelled are stochastically dependent. Diggle et al (2008) proposes a model-based approach to deal with this problem. Here, we intend to emphasize the difference between these two potential problems of sampling design.

Keywords: geostatistics; clustered design; variogram; preferential sampling; model-based inference.