



Optimal Design in Geostatistics under Preferential Sampling

Gustavo da Silva Ferreira*

Brazilian Institute of Geography and Statistics, Rio de Janeiro, Brazil - gustavo.ferreira@ibge.gov.br

The effects of preferential sampling in Geostatistics are analysed when the choice of new sampling locations is the main interest of the researcher. A Bayesian criterion based on maximizing utility functions is used. Simulated studies are presented and highlight the strong influence of preferential sampling in the decisions. The computational complexity is faced by treating the new local sampling locations as a model parameter and the optimal choice is then made by analysing its posterior distribution. Finally, an application is presented using rainfall data collected during spring in Rio de Janeiro. The results showed that the optimal design is substantially changed under preferential sampling effects.

Keywords: optimal design; Geostatistics; preferential sampling; point process.