

Comparison of semivariogram models in rain gauge network design

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ABSTRACT:

The well-known geostatistics method (variance-reduction method) is common used to determine the optimal rain gauge network. The main problem in geostatistics method to determine the best semivariogram model in order to be used in estimating the variance. An optimal choice of the semivariogram model is an important point for a good data evaluation process. Three different semivariogram models which are Spherical, Gaussian and Exponential are used and their performances are compared in this study. Cross validation technique is applied to compute the errors of the semivariograms. Rainfall data for the period of 1975 – 2008 from the existing 84 rain gauge stations covering the state of Johor are used in this study. Result shows that the exponential model is the best semivariogram model and chosen to determine the optimal number and location of rain gauge station.

Keywords: keyword1; geostatistics; semivariogram; rain gauge