

Selection of Variogram Model for Environmental Variables

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Abstract : The present study investigates the selection of variogram model in analyzing spatial variations of environmental variables with the trend. Sometimes, the autofitted theoretical variogram does not really capture the true nature of the empirical semivariogram. So proper exploration and analysis are needed to select the best variogram model. For this study, an open source data collected from California Soil Resource Lab1 is used to explain the problems when fitting a theoretical variogram. Five most commonly used variogram models: Linear, Gaussian, Exponential, Matern, and Spherical were fitted to the experimental semivariogram. Ordinary kriging methods were considered to evaluate the accuracy of the selected variograms through cross-validation. This study is beneficial for selecting an appropriate theoretical variogram model for environmental variables.

Keywords : anisotropy, cross-validation, environmental variables, kriging, variogram models

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