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## **STATISTICAL SPATIAL MODELS OF SOIL PARAMETERS. AN APPROACH USING DIFFERENT METHODS AT DIFFERENT SCALES**

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### **Abstract**

The Romanian Soil Survey System does not imply, up to the present date, the use of digital methods in representing field campaign results or for mapping soil parameters. The presented study tests several geostatistical methods to model some soil parameters (soil pH and topsoil humus content), mainly in order to observe the differences induced by the scale of the approach and to test existing data. In this respect, three differently dimensioned analysis scales were chosen, all parts of the same larger region, located in Iași County. On the chosen areas the main three categories of methods used in pedometrics were tested: methods of the kriging family (ordinary kriging, cokriging), regression methods applied both globally and locally (Geographically Weighted Regression) and the combined approach of regression-kriging respectively. In order to test the results were used cross-validation and independent sample validation. The root mean square error (RMSE) was used as selection criteria for the choice of the optimum method. The study proves that among the various interpolation methods tested, the regression-kriging approach gives better results and that the local approach, using GWR, is superior to the global regression approach. Moreover, the pH proved to be more spatially predictable compared to the topsoil humus content.

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