



Semivariogram functions usage for a surface modeling with kriging method using data acquired with GNSS satellite method

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The subject of the paper is creating a land surface representation in the form of DTM (digital terrain model), widely used in many areas nowadays – from the environment protection through engineering projects to the innovative military applications.

The aim of the paper is to present the possibilities of using geostatistical interpolation method - kriging in the process of generating digital terrain models. Kriging interpolation begins with the analysis of spatial data structures, figured with the means of so-called. semivariogram. The semivariogram is used in the estimation of an unknown variable, which is the height in the DTM. A hypothesis connected with the theoretical semivariogram selection on the interpolation accuracy was verified, and thus also the accuracy of the resulting terrain model. The size of this effect was determined with two parameters: the kriging variance and root-mean-square error (RMS). The accuracy of the surface modeling is based on, inter alia, the nature of the study area.

The method has been used for a DTM geostatistical construction based on source data that came from RTK GNSS satellite measurements.