

Summary of doctoral dissertation

Fri.: "ANALYSIS OF GEODETIC MEASUREMENT TECHNIQUES FOR THE NEEDS OF THE MODELING SURFACE AREA"

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The purpose of this dissertation is the analysis of geostatistical spatial data and methods of interpolation of the data, with particular emphasis on the impact on the modeling of the ground with strictly defined conditions, ie. without stabilization points during the measurement, while taking into account their distribution and density in areas with different surfaces.

Based on conducted preliminary analysis and literature research could put the following thesis dissertation:

It is possible to determine a precise model of the ground surface using a variety of measurement techniques without permanently stabilized measuring points and warp measurement provided their proper placement and compaction, which are used during the observation.

At work, specifically set out the assumptions and measurement criteria for selecting research facilities in terms of creating a digital terrain model for model GRID. The study involved different test areas and the independent measurement techniques. Based on these results from the measurement data, visualization made using models differences between the used measurement techniques, created numerical terrain models GRID and selected the most accurate measurement method for determining the vertical displacement on the selected objects on the surface. There is also analysis of land surface modeling, evaluation of accuracy of the DTM models (also in relation to each other), as well as the distribution and density of points. At the work has been used and evaluated different methods of interpolation of spatial data, including stochastic and geostatistical.

In addition, the measurement data, apply the following purposes: to determine the proper method of data interpolation, creating models of DTM, identification and determination of vertical displacement (using the own program), as well as to try to reduce workload and economic factors.

In the final part of this work, there is a summary of work and also presented findings and conclusions regarding: applied of the techniques of measurement, designing of the measurement networks, used digital terrain model (GRID), methods for data interpolation and the results obtained from interpolation, analysis of the density and distribution of measuring points, research vertical displacement on the test areas, as well as the modeling of surface area without stabilization points during measurements. The proposed thesis in the beginning has been confirmed.

Key words: modeling of the land surface, analysis of geostatistical and geospatial, interpolation of spatial data, vertical displacements, DTM

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