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"Influence of the number and location of measurement points with respect to exploitation area on the determination accuracy of parameters of the model describing the subsidence of mining area"

The task aiming to define the parameters of mining influence theory necessitates that a certain level of determination accuracy of these parameters should be ensured. The value of the errors involving the determined parameters of the influence theory depends on the approximation accuracy used by the theoretical model to describe the measured deformations and on their location with respect to the ongoing mining exploitation. Furthermore, the errors depend on the geometry of exploitation area.

The analysis of literature, applied theoretical solutions and the results of geodesic surveying made it possible to formulate and prove the thesis of the work:

With a given scattering level of observation results with respect to the accepted theoretical model, the determination accuracy of the parameters of influence theory describing the subsidence of mining area depends on:

- **the number and location of measurement points with regard to the exploitation area,**
- **the geometry of exploitation area.**

In order to prove the thesis of the work, computer simulations were carried out which made it possible to define the relations allowing for the influence of measurement line location and number of observation points on the value of relative errors of the determined parameters $tg\beta$, A_1, a.

Basing on the carried out calculations the following main conclusions can be drawn:

- with the observation line moving away from the centre of full subsidence trough the value of maximum subsidence recorded on the line is decreasing, which results in the rise of mean errors of the investigated parameters,
- the increase of the dimensions of the exploitation area resulting in the development of subsidence trough has influence of the decrease of the mean error of the determined parameters.