

Positional Accuracy Improvement of Land Cadastre Index Map in Republic of Slovenia

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Key words: Cadastre; Digital cadastre; History; Land management; Positioning; Real estate development; Spatial planning; positional accuracy improvement, membrane adjustment, Franciscan cadaster, index map

SUMMARY

Due to the increasing use of digital land cadastral data in the administration of the state, it is necessary to ensure adequate quality improvement of the land cadastral positional data. The Surveying and Mapping Authority of the Republic of Slovenia will provide positional accuracy improvement (PAI) of the land cadastral data gradually, with the project named "Positional accuracy improvement of land cadastre index map" managed within the Ministry of the environment project package »The Programme of the projects eSpace«.

Positional accuracy improvement of land cadastral index map is performed by using neighborhood adjustment - the method of membrane model based on a mechanical analogy and a mathematical derivation of Hooke's Law. PAI is based on existing GIS cadastral layer (index map), accurately measured coordinates of the existing and additional cadastral points. Additional cadastral points are provided by filed measurements and photointerpretation and digitalisation of the images of analytical hill shading and the digital orthophoto images. The set of such evenly distributed absolute reference points and the triangulated irregular network of GIS cadastral layer points (relative geometry) provides network for adjustment and homogenisation of positions of cadastral index map.

Procedures of data preparation and calculations are supported by software packages SysGeoPro™ and Systra, provided by the Slovenian and German contractors. The results of the positional accuracy improvement will significantly contribute to the greater quality of cadastral geometric data, especially in the areas of lower quality of the cadastral index map. We will present the project and the status of the operation, intermediate results, experiences and consequences for the owners.

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FIG Working Week 2020
Smart surveyors for land and water management
Amsterdam, the Netherlands, 10–14 May 2020