

A Cadastral Data Processing Toolbox

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SUMMARY

The essence of analytical cadastre, to the authors' perception, is finding the best definition of a parcel borders' turn points, as defined in the field during the settlement process or as a result of permutations (re-parceling, subdivision etc.) Or due to interpretation of deeds and land transactions accompanied by the appropriate drafts.

In addition, to enable a single value definition documentation of the border, including the geometrical moves leading to its establishment and a mathematical analysis of its accuracy. A prerequisite to this approach is a thorough inquiry of all the authentic measurements gathered along the years, which supplies the testimony of the border definition.

In the past, border determination wasn't done by coordinates recording, but was only a creation of a measurement's system product which only supplied enough data for drawing the borders, graphically; on the background plans (block map and permutations sheets). Therefore in certain cases it could be argued that the historical cadastre, in essence, is graphic while the future, analytical cadastre will be computerized and won't be a subject to interpretation.

This article reviews thoroughly the different kinds of authentic measurements, which should be gathered, including lengths and areas geometrical compulsions. It will discuss the cases of operating graphical reception, the conditions to be applied during the digitization and the direct measurements of borders and digitization merge.

Various field books examples will be introduced. Field books measured in the chain method in different eras, different measuring procedures, and different units and recording styles.

The collected data covers over three quarters of a century, so it should be mentioned that the information accuracy is a subject to various control networks, which were measured, in the technological means of each specific era. It should also be mentioned that our century held a rapid technological development, which influenced directly the measuring field.

The cadastral land surveyor toolbox represented in this paper contains many algorithms and procedures, helping with treating the cadastre data such as: Rigorous adjustment of control nets, polygonal adjustment of control net, and data collectors' modules, editing digital field books, sequential adjusting of combined chain and tachometric data with GPS vectors, rigorous adjustment of cadastre measurements.

All the modules written in object oriented technique and based on very friendly user interface.

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