

Generalization at the Institut Cartogràfic i Geològic de Catalunya

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Abstract

Since its foundation in 1982, one of the main duties of the former Institut Cartogràfic de Catalunya (ICC) was the production of topographic data. Databases at different resolutions were produced and maintained ranging from 1:1000 to 1:250.000 scales. The most detailed topographic database covers the urban areas at 1:1000 scale (20cm of accuracy), while data at 1:5000 scale (1m accuracy) and 1:25.000 (2,5m accuracy) covers all the territory of Catalonia. These databases are compiled in 2.5D using stereoploting on top of digital photogrammetric systems. Smaller scales such as 1:50.000 and 1:250.000, covering also all the country, are collected in 2D, digitizing on top of orthophotoimages.

After a first generation of data collected using CAD systems, more complex models were designed to enrich the data (unique ID's, life cycle attributes, metadata at element level, etc) and to allow new data exploitations. These models have been implemented in a photogrammetric GIS environment. Although the data models have been designed to preserve the semantic coherence between scales, there are no yet explicit relationships between the representations of the same geographical object in the different databases, and each topographic database is produced independently.

The huge demand of more updated information and the high pressure to obtain derived products for visualization in internet and mobile devices has introduced new requirements, costly to achieve with the current workflows. The implementation of a MRDB that integrates the current topographic data at different scales could be a solution to fulfill these requirements. The MRDB, in addition to a better management of the updating processes, will allow optimizing the generation of high quality products derived from generalization. As an alternative, completely automatic generalization workflows for generating information from the master database are also under study, especially for applications where the updating speed must be balanced with cartographic quality.

The presentation will explain aspects related with the design and the first steps in the implementation of the ICGC topographic MRDB, describing the current situation of the databases, the existing limitations in commercial software, the requirements to be implemented in the ICGC production environment and the problems to achieve reasonable productivity ratios. Requirements related to the implementation of a completely automatic generalization workflow will be also described.