Integration of Open Source Software in the Topographic Production Chain

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SUMMARY

As the main reference of cartographic production in Portugal, the Geospatial Information Center of the Army (CIGeoE) fulfills the highest quality standards. Over the last few years, CIGeoE has been introducing open source software applications in its production chain. In particular, the topography section has benefited from these applications, however it is necessary to make more efforts in optimizing and improving of the fieldwork validation process. In this context, this work intends to explore computer tools for the acquisition and visualization of data obtained in the field, thus exploring the added value of using some free and open source applications for this purpose. Three software applications, namely, QGIS, QFIELD and TRIMBLE MOBILE MANAGEMENT were explored for this purpose. The first two being responsible for visualizing and supporting the acquisition of alphanumeric information and the last one used for obtain precision in the collected data through the connection to a network of Global Navigation Satellite System (GNSS) permanent stations, which are operated in a hybrid laptop/smartphone connection system, simultaneously updating a common geospatial database, thus guaranteeing greater integrity of the acquired data, and no information acquired analogically.

This work describes also a GIS-based methodology to standardize the information contained in the spatial database, to create collection lists in order to facilitate the filling of contents of the working database, during field work. In this methodological proposal the number of features it was also reformulated from the previous 266 to 22 features, making the acquisition process easier and more operable in the fieldwork. The application of this methodological process guarantees the creation of a database with all the information acquired in the field and all the target fields of the military cadaster filled in. A folder of photographs with the correct designation for each object cadaster is also created in the geodatabase as well as a set of control points to validate the quality of the acquired data.