

Abstract

A task for organizations that create and maintain cartographic databases is the need to update those databases sufficiently frequently. Nowadays geospatial data are usually updated manually, however it is very time-consuming and expensive. In this thesis, a semiautomatic change detection approach based on classification of Quickbird imagery is introduced. The main aim was to develop a classification procedure to support the update of buildings in the geospatial database ZABAGED.

The image analysis was evaluated through the Definiens 5 Professional software that uses an object-oriented approach. Classification is based on features calculated for segments. These features not only draw on spectral values but may also be related to e.g. shape, texture or neighbourhood relations.

The evaluation of the results shows that it is possible to classify buildings successfully using satellite imagery. The tests demonstrate that using the relative high of objects as an additional information can help to detect buildings more accurately. The transferability of the presented method from one data set to another proved satisfactory results.

The products of classification are polygons of buildings in vector format. These were compared with the layer of buildings in ZABAGED and the update was performed in the test site.

The potential of using this method to support the update of cartographic databases can be considered very high, especially in rapidly changing urban fringe areas. The satellite can be used to obtain frequent snapshots of rapidly changing areas, enabling change to be detected more readily than is possible by other methods.