EXAMPLE OF OBJECT BASED APPROACH IN LAND COVER CLASSIFICATION OF VHR SATELLITE IMAGE FOR AGRICULTURAL AREAS

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Due to very high spatial resolution VHR satellite images present great potential as a quite detailed source of thematic information in various applications, including the control with remote sensing technique in IACS domain. Usually, spatially and spectrally complex agricultural landscape needs to be analysed with adequate data and methodology. CwRS is one of the methods for verification of EU Common Agricultural Policy aid applications by farms in Europe. In the context of the above mentioned control the VHR images can be used for determination of the area but they can be used also for land cover and land use identification of declared agricultural parcels.

The paper presents a results from case study in which two different approaches to digital image analysis of very high resolution images were tested, aimed at identification and delineation of land cover and land use features in agricultural areas. The goal of the study was to evaluate the performance of selected methods. The defined test area represent a diverse range of terrain characteristics and levels of spatial structure complexity.
Two main approaches were applied: pixel based image classification (with maximum likelihood algorithm) and object oriented image analysis based on eCognition, with classification of image objects extracted stepwise in an image segmentation approach.
The tests were carried out for original multispectral sets of VHR imagery, as well as for pan-sharpened bands. The results show the usefulness of VHR images in digital classification of complex agricultural areas as well as advantages of object based approach.