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THE IMPACT OF TRAINING DATA ON LAND CLASSIFICATION BY USE OF SATELLITE
IMAGES PROCESSING

Abstract

The potential machine learning application in satellite data processing as a basis for quickly generating valuable information for land cover classification is by now widely recognized. Remote sensing data, both optical and microwave form is the basis for calculating crop areas, planning agricultural lands, crop yield assessment, and forecasting. Remote sensing with an optical aperture is one of the most attractive options, as some data are available for a free of charge for scientific research purposes. The main aim purpose of this research was determination of impact training data on land cover classification for implementation of agricultural monitoring. The methodology of this research presents an effective method for classification of satellite images with semi-training, which does not require the availability of training samples for all classes due to the main goal of research. Satellite images from different satellites were processes from the study area using different time periods. Training data represents ground data for 39 test fields in 2019, such as field area, coordinates and type of crop and crop yield. As supporting data topographic and web maps were used. In accordance with the complex approach of the research methodology supervised classification methods of satellite images have been applied. A comparison of the classification results and vegetation indices values obtained from satellite images were made. As a result of this research, using both satellite images Azersky and Planetscope to achieve the best accuracy of mapping to classify the main crops grown in the study area has been determined. At the end of this research, land cover maps were developed. Using vegetation indices identified the lowest and highest photosynthetic productivity areas for testing fields. In this research, the significant role of the impact of training data in image processing in order to accurately classify the land is demonstrated. It has been achieved based on classification method with semi-training which proposed for distinguishing user-defined classes in various satellite images. Thereby, results of experimental studies of the method on real data are presented throughout of its effectiveness. The results of study were delivered to farmers for theirs further decisions in improvement and achievement of expected agriculture productivity with high efficiency of result.