



Remote Sensing Data Binary Classification Using Boosting with Simple Classifiers

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A b s t r a c t

Boosting is a classification method which has been proven useful in non-satellite image processing while it is still new to satellite remote sensing. It is a meta-algorithm, which builds a strong classifier from many weak ones in iterative way. We adapt the AdaBoost.M1 boosting algorithm in a new land cover classification scenario based on utilization of very simple threshold classifiers employing spectral and contextual information. Thresholds for the classifiers are automatically calculated adaptively to data statistics.

The proposed method is employed for the exemplary problem of artificial area identification. Classification of IKONOS multispectral data results in short computational time and overall accuracy of 94.4% comparing to 94.0% obtained by using AdaBoost.M1 with trees and 93.8% achieved using Random Forest. The influence of a manipulation of the final threshold of the strong classifier on classification results is reported.

Key words: land cover classification, boosting, artificial area, IKONOS.