

**XXVIII INTERNATIONAL SYMPOSIUM ON  
MODERN TECHNOLOGIES, EDUCATION AND PROFESSIONAL PRACTICE  
IN GEODESY AND RELATED FIELDS**

**Sofia, 08 - 09 November 2018**

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**COMPARISON OF CLASSIFICATION ALGORITHMS FOR  
LAND USE/COVER DETECTION**

**Nur Yagmur, Nebiye Musaoglu (TR)**

**ABSTRACT:**

Land use/cover and its changes are important components of global environmental issues and are addressed as key inputs to Earth system processes. Satellite images are among the important tools in determining the changes that occur on land use/cover. Image processing techniques like classification automatically categorize all of the pixels in an image into land use/cover classes. A Random Forest is an unity of classification trees in which each tree contributes to an important role for the assignment of the most frequent class to the input data. Minimum Distance method uses training data which is the objects (pixels) of known class. Each class is represented by its mean vector and new objects are classified by finding the closest mean vector. In this study, Random Forest (RF) and Minimum Distance (MD) classification results are compared in terms of thematic classification accuracy. Accuracy assessment determines the quality of the map created from remotely sensed data. An error matrix compares information from reference sites to information on the map for a number of sample areas. The matrix is a square array of numbers set out in rows and columns which expresses the labels of samples assigned to a particular category in one classification relative to the labels of samples assigned to a particular category in another classification. For this aim, a pilot area on the European side of Istanbul which has different land/use classes has been selected. The European side of Istanbul has more population than the Asian side of Istanbul because of its large industrial/commercial and social centres. Classification algorithms were applied on Sentinel-2 satellite image using same training data. Sentinel-2 has an innovative wide-swath, high-resolution, multispectral imager (MSI) with 13 spectral bands and its data are now available and ready for scientific purposes. Although it has been seen that both of the algorithms have greater than 90% overall accuracy in accuracy assessment, the most successful algorithm in this dataset found as RF.

**Keywords:** Land use/cover, Random Forest, Minimum Distance, Sentinel, Remote sensing.

**AUTHORS:**

**Nur Yagmur<sup>1,\*</sup>, Nebiye Musaoglu<sup>1</sup>**

<sup>1</sup> Istanbul Technical University, Geomatics Engineering Department, 34000, Istanbul/Turkey  
Email: yagmurn@itu.edu.tr; musaoglune@itu.edu.tr