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CHANGE DETECTION IN THE CLUJ FOREST DISTRICT USING REMOTE SENSING AND GIS APPLICATION

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Abstract

This paper focuses on the testing and comparison of the sensitivity of vegetation indices to determine the changes occurred in forest areas of the Cluj Forest District during the post-socialist period, between 1986 and 2009. Concurrently, the paper pursues to assess the way in which the socio-economic and social changes have caused alterations of the forest areas. These have been significantly affected by the changes occurred over the past decades, as well as by the increase of the anthropization degree of the natural areas. Remote sensing applications are very efficient tools in detecting and assessing the changes both in space and over time. Two vegetation indices were used - NDVI and SAVI. The results show the spatio-temporal dynamics of the vegetation cover for approximately one third of the area, as the used indices presented decreasing values of up to 35% (NDVI 27%, SAVI 32%). The accuracy of classifying indices in decreasing, increasing and no-change areas is 88.20%, while the Kappa coefficient is 0.82. In addition, user's and producer's accuracy was calculated for each class.

Key words: forest vegetation changes, remote sensing, satellite images, vegetation index

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