

Abstract

# Studying Land Use and Land Cover Spatial Patterns Distribution in Crete, Greece with Means of Satellite Remote Sensing <sup>†</sup>

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**Abstract:** Multi-temporal Land use and Land cover (LULC) monitoring is a crucial parameter for assessing an area's landscape ecology regime. LULC changes can be effectively used to describe dynamics of both urban or rural environments and vegetation patterns as an important indicator of ecological environments. In this context, spatial land use properties can be quantified by using a set of landscape metrics. Landscape metrics capture inherent spatial structure of the environment and are used to enhance interpretation of spatial pattern of the landscape. This study aims to monitor diachronically the LULC regime of the island of Crete, Greece with the use of Landsat satellite imageries (Landsat 5, Landsat-7 and Landsat-8) in terms of soil erosion. For this reason, radiometric and atmospheric corrections are applied to all satellite products and unsupervised classification algorithms are used to develop detail LULC maps of the island. The LULC classes are developed by generalizing basic CORINE classes. Following, various landscape metrics are applied to estimate the temporal changes in LULC patterns of the island. The results denote that the diachronic research of spatial patterns evolution can effectively assist to the investigation of the structure, function and landscape pattern changes.

**Keywords:** spatial pattern; land use/land cover (LULC); landsat; crete; landscape ecology

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