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Using field spectroscopy and atmospheric correction methods for Land use/Land cover monitoring in Crete, Greece.

Dimitrios D. Alexakis and Ioannis K. Tsanis

Technical University of Crete – TUC, Water Resources Management & Coastal Engineering Laboratory, School of Environmental Engineering, Chania / Crete, Greece (alexakis@hydromech.gr)

Satellite remote sensing has been an attractive source in Land use / Land Cover mapping (LULC), providing valuable information in delineating the extent of land cover classes as well as performing temporal land cover change analysis at different scales. Furthermore, field spectroscopy is a mean of remote sensing that can contribute significantly in distinguishing plant species. In this study, both approaches were simultaneously employed in order to monitor a typical Mediterranean landscape in Chania Municipality, Crete, Greece. Specifically, the study aims to map the spatial distribution of Mediterranean vegetation for understanding and forecast phenomena such as desertification. Various field spectroradiometric campaigns were carried out and a corresponding plant species spectral signature database was developed. Additionally to in situ spectral data, Sentinel-2 satellite imageries were collected and processed. Various atmospheric correction methods either image based or radiative transfer codes were applied to satellite imageries and supervised classification algorithms were employed in conjunction with field data in order to perform efficient LULC mapping. The overall results highlighted the potential of integrated use of field spectroscopy and satellite remote sensing in effective LULC monitoring under the application of various atmospheric correction methods.

Keywords: Sentinel 2, Field Spectroscopy, LULC, Atmospheric correction, Crete

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