

RETRIEVAL OF BIOPHYSICAL VEGETATION PRODUCTS FROM RAPIDEYE IMAGERY

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ABSTRACT:

The accurate estimation of canopy biophysical variables at sufficiently high spatial and temporal resolutions is a key requirement for operational applications in the agricultural sector. In this study, recently available multispectral RapidEye sensor data were tested for their operational suitability to estimate canopy biophysical variables in the Italian Campania region. For this purpose, two model inversion methods and two commonly used vegetation indices were applied to estimate leaf area index (LAI), canopy chlorophyll content (CCC) and leaf chlorophyll content (LCC) from a range of crops. The physically based approaches outperformed the empirical methods, with a slightly higher retrieval accuracy of the look-up table (LUT) than of the neural network (NN) approach. However, the NN method performs much faster, rendering it potentially more appropriate for application in large areas. The empirical models showed dependencies of sensor and crops, but still performed reasonable in the estimation of LAI and CCC. Results demonstrated the suitability of RapidEye sensor data to retrieve canopy biophysical variables of agricultural areas.

TOPIC: Remote sensing applications

ALTERNATIVE TOPIC: Remote sensing applications