

Multiscale integration of satellite, airborne and field data for Mediterranean vegetation studies in the natural area of the Castelporziano Estate (Rome)

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Abstract

A new experimental approach to land analysis has recently been developed, based on the integration of information acquired on different scales; it enables the structure and the functionality of the vegetation in natural ecosystems to be analysed. This research aims at assessing the potentiality of the experimental approach by the integration of airborne and satellite remotely sensed data with ground measurements of structural parameters. In July 1999 a joint campaign for the acquisition of airborne (MIVIS, spatial resolution 3 m) and satellite remotely sensed data (Landsat 5TM, spatial resolution 30 m) and measures taken at ground (PAI), was deployed in the Presidential Estate at Castelporziano (Rome, Italy). The spectral signatures of the main vegetational types of the Estate were examined and the PAI were related to NDVI values, calculated by means of satellite and airborne images. The adopted approach enabled PAI maps to be produced. The linear relation between measured PAI and estimated PAI showed a higher coefficient of determination when the MIVIS data were used. The sensor high spectral resolution has moreover allowed to better describe the structural characteristics of the main plant typologies at Castelporziano Estate.

Keywords

MIVIS;Landsat;Plant Area Index (PAI);down-scaling;Mediterranean vegetation

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References

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
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