



The classification of submerged vegetation using hyperspectral MIVIS data

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Abstract

The aim of this research is to use hyperspectral MIVIS data to map the *Posidonia oceanica* prairies in a coastal lagoon (Stagnone di Marsala). It is approximately 12 km long and 2 km wide and is linked to the open sea by two shallow openings. This environment is characterised by prairies of phanerogams, the most common of which is *Posidonia oceanica*, an ideal habitat for numerous species of fish, molluscs and crustaceans. A knowledge of the distribution of submerged vegetation is useful to monitor the health of the lagoon. In order to classify the MIVIS imagery, the attenuation effects of the water column have been removed from the signal using Lyzengas technique. A comparison between classifications using indices obtained using band pairs from only the first spectrometer, and using band pairs of the first and second spectrometers, shows that the best classification is obtained from some indices derived from the first spectrometer. Field controls carried out in July 2002 were used to determine the training sites for the supervised classification. Twelve classes of bottom coverage were obtained from the classification, of which four are homogeneous and eight are mixed coverage. The methodology applied demonstrates that hyperspectral sensors can be used to effectively map submerged vegetation in shallow waters.

Keywords

water column correction; shallow water; hyperspectral imagery; submerged vegetation

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References

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