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Improved Classification of Mangroves Health Status Using Hyperspectral Remote Sensing Data

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Abstract. Mangrove ecosystem plays a crucial role in costal conservation and provides livelihood supports to humans. It is seriously affected by the various climatic and anthropogenic induced changes. The continuous monitoring is imperative to protect this fragile ecosystem. In this study, the mangrove area and health status has been extracted from Hyperspectral remote sensing data (EO- 1Hyperion) using support vector machine classification (SVM). The principal component transformation (PCT) technique is used to perform the band reduction in Hyperspectral data. The soil adjusted vegetation Indices (SAVI) were used as additional parameters. The mangroves are classified into three classes degraded, healthy and sparse. The SVM classification is generated overall accuracy of 73 % and kappa of 0.62. The classification results were compared with the results of spectral angle mapper classification (SAM). The SAVI also included in SVM classification and the accuracy found to be improved to 82 %. The sparse and degraded mangrove classes were well separated. The results indicate that the mapping of mangrove health is accurate when the machine learning classifier like SVM combined with different indices derived from hyperspectral remote sensing data.

[Conference Paper](#) (PDF, 1742 KB)

Citation: Vidhya, R., Vijayasekaran, D., Ahamed Farook, M., Jai, S., Rohini, M., and Sinduja, A.: Improved Classification of Mangroves Health Status Using Hyperspectral Remote Sensing Data, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-8, 667-670, doi:10.5194/isprsarchives-XL-8-667-2014, 2014.

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