Tree-Based Classification of Mangrove Forest using Hyperspectral Remote Sensing Data

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Abstract: The present study involves in decision-tree techniques, and support vector machine method for identifying the mangrove in the Muthupet forest using hyperspectral data. Delineation of mangrove is a complex procedure which is quite effective when optimized band rationing procedure is applied. A new mangrove vegetation index is developed and incorporated as one of the criteria for decision tree classifier. 163 bands of calibrated hyperion data has been selected for main data processing among which only 32 and 37 exhibited a strong reflectance across the very near infrared narrow bands of hyperion sensor, and insisted the presence of entire mangrove feature. The water band index (mangrove canopy), which delineate the dense mangrove. On the performance of machine classifier, it was observed that decision tree classifier with proposed new mangrove vegetation index resolved the limitation that exists in classifying the class, which has similar spectral signature information.

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Keywords: Atmospherically resistant vegetation indices, Decision tree, Hyperion, Normalized difference vegetation index