

Spectral separability of tropical forest tree species using airborne hyperspectral imager

ABSTRACT

In Malaysia, airborne hyperspectral remote sensing is a relatively new technique used for research and commercial value in forest inventory and mapping. An advantage of airborne remote sensing, compared to satellite remote sensing, is its capability of offering a very high spatial resolution images. Thus, UPM-TropAIR AISA's airborne hyperspectral imagery that has been used in this study provides great quantity, better quality and also lower cost in identifying, quantifying and mapping of the Malaysian tropical timber forest resources. For the first stage in this study, the development of spectral library is deemed required in order for the Spectral Angle Mapper (SAM) classification be used to separate and map individual tree species in a tropical mixed mountain forest of Gunong Stong Forest Reserve. Pre-processing, enhancement and interpretation of image were conducted using ENVI Version 4.0 software. Results indicated that a total of eight commercial timber tree species was identified and mapped in a study plot of 5 ha using the TropAIR airborne hyperspectral imager with the aid of ground truthings.

Keyword: Airbone; Hyperspectral; Spectral library; Spectral angle mapper