

A review on application of hyperspectral imaging to forest resources in Malaysia

ABSTRACT

Remote sensing application of hyperspectral imaging is relatively new to Malaysian forestry. Through a wide range of wavelengths of hyperspectral data, precise and narrow bands of spectra are captured. Airborne sensors typically offer greatly enhanced spatial and spectral resolution compared to their satellite counterparts, and are able to control experimental design closely during image acquisition. Hyperspectral imaging for forest inventory in Malaysia was first conducted by The Centre for Precision Agriculture and Bioresource Remote Sensing of Institute of Bioscience, Universiti Putra Malaysia (UPM). This study which was conducted in 2001 used the ISA sensor manufactured in Finland. The main objective was develop methods that are directly suited for practical tropical forestry application at high level of accuracy. Forest inventory and tree classification including development of single spectral signatures of important interest. Studies have shown that retrieval of timber volume and tree discrimination using this system is successful and some is often better than other remote sensing methods. This article reviews the research and application of airborne hyperspectral remote sensing for forest survey and assessment in Malaysia.

Keyword: Hyperspectral imaging; Forest resources; Research application; Malaysia