SHADOW ALLOMETRY FOR MAPPING BIOMASS OF TROPICAL FOREST IN NORTHERN BORNEO

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**Abstract:** Tropical forest is biologically and structurally complex. These complexities can be observed in a high resolution satellite image. Forest stands with different canopy heights cause spatial variations of shadow in the satellite image. We acquired an IKONOS image for a tropical forest in northern part of Borneo. Path radiance was corrected using the histogram method and topographic effect correction was carried out using the Minnaert correction method. Supervised classification using maximum likelihood algorithm was conducted and tree shadows were extracted for statistical analyses against structural variables and biomass. Shadow percent was significantly related with tree height, diameter at breast height and biomass. The shadow allometry can be potentially useful in producing a biomass or carbon stock base map for strategic planning of REDD+ implementation.

##### **Keyword** : Shadows, Biomass, IKONOS, Tropical forest