

UNIVERSITI TEKNOLOGI MARA

**Estimating the Above Ground Biomass Changes from
Multitemporal LiDAR Dataset at FRIM Forest,
Kepong Selangor**

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2016309981

Thesis submitted in fulfilment
of the requirement for the degree of
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(Hons)

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Forest biomass or above-ground carbon stock is the mass of carbon contained in trees that needs continuous monitoring to determine the amount of potential carbon accumulation in the forest. However, increasing CO₂ in the atmosphere has an impact on carbon sequestration and has an indirect impact on the potential growth of trees. Airborne LiDAR data were acquired in 2009 and 2014 and the comparability of both datasets was examined. Therefore, this study is aim to estimate the changes of biomass from multitemporal LiDAR data using two different years datasets at the same place. In order to achieve the aim, the objective of this study area 1) to produce the canopy height model (CHM) of two different LiDAR dataset, 2) to estimate the changes of above ground biomass (AGB) of two different year of datasets and 3) to generate a map of above ground biomass changes between different years of LiDAR datasets. In order to achieve the objective, the software used for data processing and analysis includes ArcMAP 10.4, Global Mapper and LASTools software. This project focused on forestry at Forest Research Institute Malaysia (FRIM). Five phases of method were used, which is data collection, pre-processing, canopy height model (CHM) classification, above ground biomass (AGB) changes and produced carbon stock map. This study is to estimate the changes of above ground biomass (AGB) and carbon stock produces by using allometric equation. The result of differences of AGB is 70.479kg while for carbon stock is 290982.514kg between years 2009 and 2014.

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