

Interactive comment on “Forest aboveground biomass stock and resilience in a tropical landscape of Thailand” by Nidhi Jha et al.

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In this study, field data is combined with lidar data to estimate the biomass of secondary forest for a landscape in Thailand. In addition, Landsat scenes were used to distinguish forest and non-forest for the years 1972 to 2017. This made it possible to investigate the biomass dynamic of secondary forest in more detail.

The study is very clearly structured and well written. The methods are applied straightforward. This study is very interesting and very important, even if it was only studied for a small region in Thailand. However, it is not clear to me why the authors did not use existing products and created their own products instead. A new biomass model is calibrated for the region in Thailand (from ALS with TCH as metric) - although

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there are already many studies on biomass estimation from ALS available with generalized models. Why calibrating a very specific equation for a small region? The same for the forest/non-forest maps. There are already products available (e.g. from Hansen or Sexton). Why generate your own product? There are certainly good reasons for this, but they should be discussed. In my view, the authors lose the opportunity to generalise this important study and apply them to larger regions.

Further comments:

Title: The title is too general and does not address the specificity of the study – the forest carbon recovery in secondary forests for the last 42 years.

L 160: What are the lidar metrics? “see below” make no sense to me. Please refer to Table S1.

Equation 4: What is the spatial scale of the biomass estimation (AGB_L)? Is it 0.5ha? Please add the scale and also the r2 beside RMSE.

Fig.2: The abbreviations (SIS, SES, OGS) only become clear if you read the whole text. It would be helpful to briefly explain the abbreviations here as well.

Fig.3: Assuming Eq. 4 gives the biomass at the scale of 0.5ha, how can you generate with this a biomass map with the spatial scale of 60m?

Fig.4: Why is there no transition from forest to non-forest? Could forest loss play a role in the results of the study?

Fig.5: This figure shows that the secondary forest allocates more and more biomass as it becomes older. But if you look at Fig. 3, you can see the highest biomass values between 300 and 400 Mg/ha. Shouldn't Fig.5 therefore show saturation in the AGB recovery at some point? Possibly a power model (red line) is not suitable as a model due to the unlimited growth, but rather a model with a capacity limit.