Biogeosciences

Discussions

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

Anonymous Referee #1

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This is a robust and well-written study that combines field measurements, multi-temporal satellite imagery, and airborne laser scanning data at the landscape scale to estimate rates of biomass accumulation in naturally regenerating forest vegetation in Khao Yai National Park in central Thailand. As such high-quality information is lacking from most regions of Asia, this study will be a landmark case and illustrates how combinations of different data sources can be used to track changes in landscape scale biomass accumulation and carbon storage in the absence of long-term monitoring data from forest sites. I applaud the authors on a job well done. One short-coming of their model is that very few field sites had low ABG values, so the model may not be as accurate at predicting AGB at low levels.

With the data that they have, the authors estimated the distribution of AGB values

across the landscape. These data were used to estimate mean landscape-scale AGB (and carbon density) for 2017. With the information on changing states of pixels from non-forest to forest (or from forest to non-forest), it should be possible to estimate how the distribution, mean, and total AGB within the landscape changed from the mid 1970s to the present day. This would be fascinating to do (if not in this paper, then in another one).

Additional comments:

Line 36-38: this statement does not describe what Chazdon et al. 2016 concluded. They found that 40 yr of carbon storage in regenerating forests of lowland regions of Latin American tropics alone offset the past 19 years of carbon emissions from fossil fuel burning and industrial sources from all of Latin America (not total carbon emissions).

Line 102: what is the age and prior land use of this secondary forest?

Line 112: were there any stands in the understory initiation phase? Some details from Chanthorn et al. 2017 should be included here.

Line 155: but only those > 5 cm dbh, right?

Line 241: I would take out the word "probably" Why wouldn't it? How has the carbon storage in the landscape changed over time? That would be great to show, not just for 2017 (would just need to assess these changes for the 17% of pixels that showed changes and keep the same AGB figures for the remaining 83% of the pixels). This projection would be nice to include in the final version of the manuscript.

Line 270: The Poorter et al. 2016 study is based on trees > 10 cm DBH. This may explain some of the discrepancy. Can you evaluate the contribution of trees 5-10 cm DBH in the total stand ABG? May be useful for comparing results with other datasets from other regions.

BGD

Interactive
comment

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