

## ***Interactive comment on “Ignoring detailed fast-changing dynamics of land use overestimates regional terrestrial carbon sequestration” by S. Zhao et al.***

### **Anonymous Referee #1**

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This seems to be a solid piece of work, with a large underlying dataset. It is all in all quite well written.

I recommend it for accepted subject for minor revisions.

In my view, the fortunate situation is when one can take a complex dataset and/or set of model runs, and derive some general conclusions from this. These conclusions can often be of a basically simple nature. Such reductionism is often the thing to strive for.

My major objection regarding this MS, is that it, probably unintentionally, in my view does a bit of the opposite. When stripping its conclusions down, the ignorance of mass flow (in this case C in timber) out of the system will lead to erroneous calculations.

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That is what I consider the heart of this, not so much the rapid changing land use. The latter might be a more "appealing/exciting" conclusion though, but can be perceived as a fancy wrapping of a simpler conclusion.

Treating densely forested areas like the ones in question as having no timber removal at all (the "static" scenario, Table 4) is in any case ignorance of known properties of the system. It appears that the model complex only considers timber removal when the 250 x 250 m grids change classification. I am not familiar with the practice in this part of the world, but the implicit assumption seems to be that timber harvesting only takes place when very quite areas are harvested simultaneously. In my part of the world (Northern Europe) thinning of selected trees within a conserved forest is a common practice. If this also takes place here, even the 1 year resolution may underestimate the timber removal.

My suggestion is therefore that the authors compare their removal of timber with values from the best obtainable regional statistics, and more clearly underline that the level of this removal is one of the major sources for the differences between time scales.

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Interactive comment on Biogeosciences Discuss., 6, 3215, 2009.

**BGD**

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