

Interactive comment on “The European forest sector: past and future carbon budget and fluxes under different management scenarios” by Roberto Pilli et al.

Anonymous Referee #2

Received and published: 7 January 2017

General comments

This study uses the empirically-oriented Carbon Budget Model to estimate forest dynamics for the EU26 countries, both present-day and future, estimating C stocks and fluxes with respect to disturbance, management, harvest strategies, etc. This is important information for countries' planning, international agreements, etc., and as far as I can tell (but it's impossible to know; see below) the authors have done a solid job. The ms is generally solidly written, although there are many minor English errors. The uncertainty section is interesting and well done.

There are some significant problems. First and most fundamentally, is this science, or at least, is it appropriate for Biogeosciences? I'm not sure. The model isn't open;

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the data aren't available; and there's relatively little new insight brought to bear. I don't mean to suggest that this isn't difficult and important work, or of interest to many parties; it's just not obvious to me that Biogeosciences is the appropriate venue for it.

Other issues: more information about previous work (Pilli et al. 2014-2016) would be useful, and how the current study differs from those. The figures and tables need improvement for clarity and to better convey information (e.g., split-level pie charts on a map seem a poor choice for conveying complex information). The text is overly verbose in many areas—I would suggest a 25% reduction, focusing better on most important points. Finally, there's no mention of data or code availability: it's 2017, and I generally expect all code and data (at least that backing the main results) to be included as supplementary info, or posted in a repository. It's not acceptable to produce results from a black box.

Specific comments

1. Line 16: perhaps “modeled” instead of “quantified”, which makes it sounds like you made measurements
2. L. 23-: many minor English problems. “with losses dominated by...removals). Direct fire emissions were only”
3. L. 31-32: what does this mean (incipient aging process for forests existing in 1900)?
4. L. 40: statistical differences? Can you be more specific?
5. L. 58: start new paragraph for readability
6. L. 132: “is reported”
7. L. 138-139: this is quite unclear
8. L. 399: “ecosystem balance” in what specific sense?
9. L. 469: “confirms”...perhaps weaken/qualify this language a bit

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10. L. 490: again “detected” sounds like measurements, not modeling
11. L. 519-: this whole section is very nicely done, given the limitations of the national-level data you’re working with. Nice job
12. L. 588: “depending on”
13. L. 590-: one obvious (to me) point of comparison would be the CMIP5 archive. Any reason this wasn’t used?
14. L. 613-638: this can all be deleted; conclusions should give conclusions, not restate results
15. All tables: define all acronyms in table captions! Don’t make reader go hunt for them
16. Figure 1 caption (and to a lesser extent Figure 3 caption): this is wildly excessive length. Trim down the caption so that it succinctly helps the reader understand the figure, and move other material to methods

Interactive comment on Biogeosciences Discuss., doi:10.5194/bg-2016-525, 2016.