

Interactive comment on “The carbon budget of terrestrial ecosystems at country-scale – a European case study” by I. A. Janssens et al.

I. A. Janssens et al.

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General Comments:

1) *From my point of view, methods need to be explained in greater detail.* See reply to comment 1 of anonymous referee. We tried to give all information related to what we did with the published data, not with how these published data were obtained.

2) *More detailed uncertainty analysis and sensitivity analysis.* We now present some extra information on the uncertainties, but could not do a sensitivity analysis because we did not perform the model runs ourselves, but used published results.

3) *especially the adjustment of the output of the CESAR model is questionable.* This has been more clearly explained in the revised manuscript.

4) *a more detailed presentation of the results* All data and their uncertainties are given in a newly added table.

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5) *add paragraph on mitigation options for individual countries* OK. This paragraph has been added at the end of the manuscript.

Specific Comments:

1) Abstract. As requested, the sentence on peat drainage has been revised.

2) Introduction. *emphasize the importance of country-specific estimates for the Kyoto protocol.* OK. This has been done.

3) Materials & Methods. As requested, we have given considerably more info on materials & methods. Regarding the CESAR model, we have clearly explained why we did not use the best model output. We believe that Jan Siemens misinterpreted our previous Table 1, because the Table gives model predictions after our adjustment, not before. Without the correction, the model overestimated in all 4 countries. Hence, the arguments that are given further down in the same comment are not valid.

4) Materials & Methods. More on the CESAR model, Jan Siemens requested a sensitivity analysis of the CESAR model. This was unfortunately not possible (a study on its own).

5) Materials & Methods. More on the CESAR model. A more sophisticated model is currently being developed, but will take a long while before it is parameterized and validated.

6) Results & Discussion. *Figures 1, 3, and 4 are difficult to interpret.* I agree and this is addressed by clarifying the figure legends.

7) Results & Discussion. *Replace the figures by one big table.* We have added the requested Table with country-specific data, but preferred to leave the figures because they convey additional information, which otherwise would make the data table very large.

8) Results & Discussion. *Discuss Biomass Expansion Factors.* This was not the objective of this paper and would distract the reader from the core message. Our objective

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here is to bring together the best available data, not to improve the quality of individual components (which is of course very crucial towards the future). Nonetheless, I performed the suggested analysis and the hypothesized effect did not show up because the BEF-induced variation was overwhelmed by the effects of differences in productivity between regions. For neighbouring countries it does hold, but as stated above, this was not the objective of this study.

9) Results & Discussion. *Page 179, L16-23*. See reply to comment 2 of Marcus Lindner below.

10) Results & Discussion. *Page 180, L6-29 appears too lengthy*. Because the anonymous referee liked this chapter, we did not reduce this part.

11) Results & Discussion. *Page 175, L8-28 is a copy from the Science paper*. This is true, but we liked it as it was and decided not to change it. Making it longer without providing additional information would only dilute the message.

All **Technical Comments** have been corrected in the revised manuscript.

Interactive comment on Biogeosciences Discussions, 1, 167, 2004.

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1, S474–S476, 2004

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