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Comment

Interactive comment on “Environmental change impacts on the C- and N-cycle of European forests: a model comparison study” by D. R. Cameron et al.

Anonymous Referee #2

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1 General comments

The paper presents a study of the application of four different dynamic models to quantify the future carbon and nitrogen balance in two forest types (pine and beech) throughout Europe.

The models have different inputs and different outputs. It is very difficult for the reader to grasp the differences and similarities between these models. Furthermore they have different initializations and outputs from one model are used in another. Thus the complexity of the methodology is very high and the quite lengthy text does not help

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much. It would be of great advantage if all these model initializations, parameter inputs, and outputs could be put into a table or some other kind of diagram. The text in the Introduction could also be shortened.

The output results of the models does not converge very well, so it is very difficult to judge what could be right or wrong. The authors are of course aware of this, e.g. p.11060, l.1: “There are some similarities ...” and p.11079, l.22-25: “The large differences found between the models ...”. So the question is what is the merit of this study other than demonstrating that the models disagree in very many respects?

2 Specific comments

p.11043, l.16: “sink” rather than “source”

p.11044, l.3-4: The last sentence of the abstract is partly redundant

p.11045, l.11: should read: “...since it **has** been ...”

p.11046, l.26: N deposition is actually decreasing in some areas due to pollution abatement. However, N-availability in soils might increase due to increased mineralisation.

p.11048, l.12: “... due to **increased** nitrogen deposition ...”

p.11050, l.25: The calibration procedure might not be obvious for everyone. Could you give a reference?

p.11053, l.27: Should it be “soil water content” rather than “drought”?

p.11058, l.13: Is “CDO” some kind of software?

p.11059, l.11: Should read: “... than **for** pine forests.”

p.11062, l.14: Maybe I missed it earlier in the text, but what is the argument for an optimum temperature of 10°C for beech?

p.11063, l.13: Why was Spain averaged for this model?

p.11065, l.20: Why does N deposition decrease over pine but increase over beech?

p.11071, l.19: I do not see that it is meaningful just to take the average of the output from the four models. The models gave very different output and the paper does not try to validate the models. I think it would be much better just to give the range.

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