

## ***Interactive comment on “Information content of incubation experiments for inverse estimation of pools sizes in the Rothamsted carbon model: a Bayesian approach” by B. Scharnagl et al.***

**G. Wohlfahrt (Editor)**

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Two reviewer and one contributed (by Thomas Wutzler) comments are now available for this paper. The two reviewers recommend major and minor revisions will be necessary before the paper becomes acceptable for publication in BG. Both reviewers, in particular #1, comment on the fact that the analysis relies on synthetic data only, which in their view limits the practical significance of this study. I agree with the reviewers on this point and believe that the analysis should be extended: Firstly, the authors do not touch upon how their choice of fixed parameters affects their conclusions. Here the authors may want to vary the parameters and see whether, how and why their conclusions

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are affected. Secondly, as also one of the reviewers suggested, it would be useful for practical applications to know how the inversion performs when the other parameters are not fixed. Thirdly, some real-world test (i.e. the use of actual measured data) would greatly improve the practical significance of the paper. In this context I found the use of "observed" and/or "measured" for the actually simulated synthetic data very misleading - please clearly distinguish between the two. Finally, the suggestion by Thomas Wutzler of giving also the cumulative uncertainties of the pools after certain simulation times would be interesting.

Any revised paper should be (i) line-numbered, (ii) take into account the reviewer and my comments, and (iii) be accompanied by a point-by-point reply to the available comments.

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