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Biogeosciences
Discussions

Interactive comment on "Estimation of land-use change using a Bayesian data assimilation approach" *by* Peter Levy et al.

Anonymous Referee #2

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In "Estimation of land-use change using a Bayesian data assimilation approach" the authors present a Scottish test-case to demonstrate how Bayesian data assimilation could help to more objectively merge different data sources into a single land-use product (with uncertainty intervals on the gross changes). The method is well explained, the test-case is well presented and the discussion nicely balances the strengths and limitations of the method. I have few minor suggestions:

Figure 4 should be improved. In the current figure the CI dominate the signal making it uninformative to show the prior and observations. If that is the message of this figure, then search for a more elegant way to show it (could be a table). The current presentation already uses different ranges of the Y-axis but even then for some rows of subplots the range is not completely used.

Add a chart showing the flow of the method and linking the flow to the different sections on the text. Even the authors did a good job in explaining the flow, it is nice to get a visual overview of the method/manuscript before delving into the details.

I strongly suggest to change the title. The novelty is not in estimating land-use change (actually this study did not estimate land use change at all. It makes use of existing estimates), the novelty is in combining different sources in a reproducible and more objective way. The title should mention the following elements: (1) gross land use changes, (2) combining different data sources into a single product, and (3) uncertainty intervals on the product. If there is some space left you could mention that the approach was Bayesian.

Specific comments: - L 318 replace "sample sample" by "sample" - Fig 2 and 11 change the units of latitude and longitude to degrees, minutes, seconds.

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