

Interactive comment on “Incorporating changes in albedo in estimating the climate mitigation benefits of land use change projects” by D. N. Bird et al.

Anonymous Referee #1

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The Kyoto Protocol includes carbon sequestration from afforestation/reforestation. This paper deals with the importance of the carbon sequestration in relation to the change in surface albedo caused by afforestation/reforestation. Political decisions on CO₂ capture from afforestation/reforestation must rely on research of the highest quality. In particular, this is important since the net effect of afforestation/reforestation relays on the difference in the gain due to atmospheric CO₂ reduction (a cooling effect) and reduced surface reflection (a warming effect). This study in its present form is far from being sufficiently advanced to form a basis for political decisions on CO₂ capture from afforestation and reforestation. The method outlined is particularly weak on the effect of surface albedo changes and a simple analytical approach with approximate values

is not valuable when advanced tools are available.

In particular my concern is related to the following:

Scattering and absorption in the atmosphere cannot be simplified with average numbers when radiative transfer schemes are easily available. Further, the treatment of clouds is extremely simplified by using global mean information.

The method outlined in this paper relay on several sensitivity simulations showing that some of the input parameters are critical for the results. In conclusion I cannot see why this method should be used in future analysis and would not recommend publication of the paper with the applied method.

Interactive comment on Biogeosciences Discuss., 5, 1511, 2008.

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