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Geoscientific Model Development
Discussions

Interactive comment on "Implementation of a soil albedo scheme in the CABLEv1.4b land surface model and evaluation against MODIS estimates over Australia" *by* J. Kala et al.

Anonymous Referee #3

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General comments:

This paper describes and evaluates the CABLE land-surface scheme with respect to predicting albedo. The authors also propose a soil albedo parameterisation and evaluate its performance in CABLE with respect to MODIS data. However, the parameterised albedo performs somewhat more poorly compared to the prescribed albedo. Although I think the paper has definite merit and should eventually be published, it is not clear why the authors did not trial a statistical parameterization as well, or possibly tuned the soil colour dataset to achieve better agreement with the MODIS dataset. If this issue could be addressed, then I recommend the paper for publication in GMD.

Specific comments:

1) Although the analysis of the new parameterization is valid, the proposed soil albedo parameterization seems to fail in a similar way as for BATS. Can the authors suggest a context where the parameterize scheme would have an advantage compared to the prescribed soil albedo? Alternatively, could the authors trial a 'statistical' approach which may achieve their goal of improving the model parameterization.

2) Is it possible to estimate errors for the observed soil albedo (i.e., using alternate datasets), or some measure as to what accuracy would be sufficient for the new soil albedo parameterization.

3) Is it possible to derive a soil colour dataset which would be more consistent with the MODIS data? Possibly this parameter could be adjusted to improve the consistency with MODIS?

Technical corrections: Appendix A: Equation (A1) – Authors should mention than A1 assumes equal partitioning between shortwave and longwave radiation.

Fig 1: Text for "Fraction of direct-beam shortwave radiation. . ." seems incomplete

Interactive comment on Geosci. Model Dev. Discuss., 7, 1671, 2014.