

## ***Interactive comment on “Representation of vegetation effects on the snow-covered albedo in the Noah land surface model with multiple physics options” by S. Park and S. K. Park***

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**General comments:** The paper "Representation of vegetation effects on the snowcovered albedo in the Noah land surface model with multiple physics options", by S. Park and S. K. Park, addresses relevant scientific modelling questions, in my opinion, within the scope of GMD. The topic of the paper is the improvement of the parameterization of snow albedo over vegetated areas in the Noah-MP model, which is one of the land surface model more used and popular, and is also included in some mesoscale meteorological models, such as WRF. The question is important, as snow albedo strongly affects energy budget, and an erroneous evaluation can affect also hydrological com-

C993

ponents. The results obtained represent advances in modelling science suitable for addressing relevant scientific questions within the scope of EGU. To my knowledge, the method proposed and the results obtained are novel and represent a sufficiently substantial advance in modelling science; the authors have also clearly indicated their own original contribution. The methods and assumptions are valid and clearly outlined, but in some parts of the paper there are some sentences unclear and some details are missing. Nevertheless, the results are sufficient to support the interpretations and conclusions. The description of the methodology is sufficiently complete and precise to allow their reproduction by fellow scientists, but a few details should be specified better. The overall presentation is structured in a good way, despite some confusion in some technical passages. Regarding the language, in my opinion a thorough revision of English language is required.

⇒ *We appreciate the positive comments by the referee. The referee fully understands the major questions and results addressed in this study. We have improved the manuscript by making some unclear sentences clearer and by adding more details to some parts that details are missing. We also tried to avoid confusions in some technical passages in the revised manuscript. The revised manuscript went through a thorough language check.*

**Specific comments and technical corrections:** In the attached version of the manuscript, I have reported several notes, concerning some corrections, suggestions and requests. Please also note the supplement to this comment: <http://www.geosci-model-dev-discuss.net/8/C548/2015/gmdd-8-C548-2015-supplement.zip>.

⇒ *We do appreciate the detailed comments by the referee, which helped us improve the quality of the manuscript. We have faithfully revised the manuscript following the referee's specific comments with some corrections, suggestions and*

C994

*requests. An item-by-item response to the referee's specific comments in the supplement is also prepared to be submitted to the referee and the Editor along with the revised manuscript.*

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