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Geoscientific Model Development
Discussions
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Interactive comment on "Multi-site evaluation of the JULES land surface model using global and local data" *by* D. Slevin et al.

Anonymous Referee #1

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The paper by D. Slevin and coauthors present a multi-site evaluation for the JULES land surface model. It gives a detailed evaluation of model performance with data when using local or global forcings. This paper is very well written with no obvious writting corrections to be made, and the topic investigated with details and care. I very much apreciate the clear presentation of the objectives of this work introduced at the beginning of the paper, with insights summed up at the end. I therefore warmly recommend this paper for publication in Geoscientific Model Development with only a few minor corrections to be considered.

Introduction, line 8: as done for soil processes, could you specify by which processes a CL2 fertilization leads to an increase in plan CO2 uptake? Photosynthesis, LAI, etc. increase.

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2.1 Model description, first paragraph: Is JULES considering only natural vegetation types or also agricultural ones? In order to have a better idea of which PFTs are considered in JULES, could you please list their names?

2.1 Model description, second paragraph: is the LAI in JULES calculated for each canopy layer or is it based on a big-leaf approach? Is there a maximum LAI prescribed for each PFT that could affect the value calculated eventually, and therefore the model-data comparison?

2.2 Experimental design, first paragraph, line 24: could you specify which fluxes are directly, or less directly affected by an error in GPP estimates?

3.1 Global vs local fluxes, page 5353: site values for parameters such as Vcmax or maximum LAI were adjusted to global or local values, depending on simulations performed, for this evaluation. Do the author have an idea of the model performance when used in its standard configuration, including original values for parameters?

3.4 Forcing JULES with daily satellite phenology: regarding satellite data derived LAI, could the authors give a quick overview of the different datasets available, and known discrepencies?

Interactive comment on Geosci. Model Dev. Discuss., 7, 5341, 2014.