

***Interactive comment on “A comprehensive set of benchmark tests for a land surface model of simultaneous fluxes of water and carbon at both the global and seasonal scale” by E. Blyth et al.***

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Received and published: 17 November 2010

Overall this is a well-executed study with good intentions and interesting results. My comments nit-pick the overall framing of the paper:

- As the focus of the paper is on the benchmark datasets themselves, rather than the model performance against the datasets, it should be described quantitatively how the tests and datasets were selected. It is not good enough to hand-wave qualitatively that the selection was based on “expert opinion”, particularly because the focus is on the selection, and in a quantitative journal. For example, why those 10 FLUXNET sites and not more or less? Maybe summarize the Blyth et al. 2010 paper quickly here. Why

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those 7 rivers and for 10 years, and not more or less? Why choose NDVI from AVHRR and SeaWiFS?

- It is stated that there “is a need to evaluate the land surface component offline from the climate model” but it is not said why.

- Following the land surface isolation from the coupled climate model, why not isolate the individual equation for testing, such as photosynthesis or respiration?

- It is said that the tests revealed some weaknesses of the model, many of which are being worked on now to remedy. How can subsequent model improvement maintain independence from the benchmarking results, which was one of the criteria in choosing the benchmark datasets in the first place? Would these same benchmark datasets be used to test an improved model?

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Interactive comment on Geosci. Model Dev. Discuss., 3, 1829, 2010.