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Interactive comment on “Identification of a general light use efficiency model for gross primary production” by J. E. Horn and K. Schulz

Anonymous Referee #1

Received and published: 8 January 2011

I reviewed the paper chiefly from the methodological point of view. I found it interesting and appreciated the substantial amount of work that it contains. However, the authors have not paid enough attention to the careful documentation of their work: as its present form, the article does not describe the methods sufficiently clearly and explicitly so that a reader could easily follow the ideas or that other scientists could reproduce the work. The overall structure of the paper is nice and clear, but the language would need to be clarified and revised.

A major scientific question that arose in my mind is the motivation for using dynamic linear regression (DLR) and state dependent parameter estimation (SDP) in the estimation of the time series of light use efficiency (ϵ) from the time series of gross photosynthesis (FG) and radiation (S_0 , APAR), as opposed to estimating ϵ as a simple ratio

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of FG and S0 or APAR. The application of these novel methods DLR and SDP is one of the points of the paper, and therefore their validity should be explained and discussed thoroughly. However, if the time series of ε are utilised merely in search for new model structures and not in the final model estimation and evaluation, as I believe is the case, this question is not crucial regarding the validity of the final model presented in the paper.

In the pdf supplement, I give more specific comments (and address also the above-mentioned issue in more detail) and list some technical corrections that I hope will improve the readability of the paper.

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/7/C4632/2011/bgd-7-C4632-2011-supplement.pdf>

Interactive comment on Biogeosciences Discuss., 7, 7673, 2010.

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