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Hydrology and Earth System Sciences Discussions

Interactive comment on "Can we predict groundwater discharge from terrestrial ecosystems using eco-hydrological principals?" *by* A. P. O'Grady et al.

Anonymous Referee #4

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This paper considers the role of groundwater in water balance models and in influencing LAI in a range of terrestrial habitats. The study uses existing field data and ecohydrological principles in an innovative and interesting way and the paper is certainly worthy of publication.

I have a few comments and suggestions on the manuscript, although most of these have been addressed by other reviewers (and responded to by the authors). I reiterate a few key points:

1. The abstract does not sufficiently summarise the content of the manuscript in a

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general way. I suggest that it is revised to make it clearer. 2. The Budyko framework is fundamental to this study and warrants a clear and general description in the introduction. 3. Fig2b: I would suggest that the water-limit and energy-limit lines are included, to assist interpretation 4. p 8242, line 1: elevation - intercept would be more appropriate

The term groundwater discharge (i.e. a volumetric flow rate of groundwater) could be misleading for the hydrology readership, given the expression of it (in mm) in these balance equations. Perhaps this could be altered, or very briefly defined and explained in the paper, to avoid confusion?

Lastly, the importance of the work for estimating groundwater for water resource planning is emphasised in the manuscript, and I agree that there is a strong application for it. However, I wonder if the authors could say a bit more on exactly how this might be estimated and applied, particularly given variation groundwater levels over time?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 8231, 2011.