

Interactive comment on “Cross-shore gradients of physical disturbance in mangroves: implications for seedling establishment” by T. Balke et al.

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Received and published: 25 May 2013

In my review, I have taken into account the following aspects: 1. Does the paper address relevant scientific questions within the scope of BG? Yes. 2. Does the paper present novel concepts, ideas, tools, or data? Yes, the paper presents novel concepts on aspects of disturbance of mangroves. 3. Are substantial conclusions reached? Yes, the paper clearly demonstrates the importance of physical disturbance processes in the establishment of mangrove seedlings and, therefore is of relevance in considerations of mangrove replanting and restoration. 4. Are the scientific methods and assumptions valid and clearly outlined? Yes, the authors have clearly outlined their scientific methods and assumptions. 5. Are the results sufficient to support the interpretations and conclusions? Yes, the results come from both a lab study and field measurements. 6.

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Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes, the experiments and methodology can readily be replicated. 7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes, proper credit is given to earlier work although there is a heavy bias towards studies conducted in Asia. 8. Does the title clearly reflect the contents of the paper? Yes. 9. Does the abstract provide a concise and complete summary? Yes. 10. Is the overall presentation well structured and clear? Yes. 11. Is the language fluent and precise? Yes. 12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? 13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? 14. Are the number and quality of references appropriate? See possible additional references that may enlarge the range of Asian examples cited by the authors. 15. Is the amount and quality of supplementary material appropriate?

A few comments that the authors may want to consider: - In lines 58-62, the authors may also wish to mention the importance of elevation, alongside the other parameters (inundation stress, salinity, predation on propagules or seedlings and pre-dispersal frugivory) they have outlined. This is an important criterion, distinct from inundation stress, in terms of both the methodological approach (topography rather than hydrology) and the importance of elevation in various substrate characteristics relevant to mangrove colonization. The importance of elevation is, in fact, implicitly mentioned elsewhere in the paper (lines 298-299). For the elevation criterion, see the following references:

Anthony, E.J., Gratiot, N., 2012. Coastal engineering and large-scale mangrove destruction in Guyana, South America: Averting an environmental catastrophe in the making. *Ecological Engineering*, 47, 268-273. Gensac, E., Gardel, A., Lesourd, S., Anthony, E.J., Proisy, C., Loisel, H., 2011. Short-term prediction of the evolution of mangrove surface areas: The example of the mud banks of Kourou and Sinnamary, French Guiana. *Journal of Coastal Research*, Special Issue 64, 388-392. Proisy, C., Gratiot, N., Anthony, E.J., Gardel, A., Fromard, F., Heuret, P., 2009. Mud bank col-

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onization by opportunistic mangroves: a case study from French Guiana using lidar data. *Continental Shelf Research*, 29, 632-641. - Please give a brief description of the hydrodynamic conditions (lines 148-151, waves, tidal range, etc). - Line 149, what are Dugongs (mangroves?). Please define briefly. - In lines 237-244 (and subsequently 256-260) regarding the discussion of sedimentation in mangroves, the authors may want to mention a paper on mangroves in West Africa that enriches your examples on sedimentation rates and variations in grain-size hinged on hydrodynamics cited almost exclusively from Asia. At least it provides a reference from another part of the world! Anthony, E.J., 2004. Sediment dynamics and morphological stability of an estuarine mangrove complex: Sherbro Bay, West Africa. *Marine Geology*, 208, 207-224. - Please add geographical coordinates on your location map. Show locations (Mandai, Sungei Buloh, Singapore in figure 1).

Minor linguistic/typo correction - Lines 26-27: "Mangroves grow in an active sedimentary environment and are therefore closely linked to physical coastal processes". Not all mangrove sedimentary environments are active. Some are very much sheltered and subject to little change. Therefore, I suggest a more conditional statement: "Mangroves may grow... " - Line 33: "passing a surface erosion thresholds of". Please correct as: "above a surface erosion threshold of". - Line 39: "and are therefore" (instead of "and is therefore").

Interactive comment on *Biogeosciences Discuss.*, 10, 5361, 2013.

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