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Interactive comment on “How do tree competition and stand dynamics lead to spatial patterns in monospecific mangroves?” by M. N. I. Khan et al.

Anonymous Referee #1

Received and published: 8 March 2013

This paper analyzes stand dynamics in a monospecific mangrove system using a combination of field data and simulation experiments. For the purpose of simulation experiments, the study used the KiWi model, which is well recognized for mangrove research. The model parameters have been derived using well defined methods. The focus of the analysis is the spatial patterns of trees in relation to growth, competition and mortality processes, and model output is compared to field data sets. The paper uses pair-correlation and mark-correlation functions for analyzing the spatial patterns of individual trees in relation to stand growth and self-thinning process. This kind of analysis is very useful in understanding basic ecological drivers in stand dynamics in plant population.

The paper presents some long terms monitoring data on mangroves, which is often

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lacking. The paper will be useful to readers that are interested in applying the information in dynamic growth model for mangroves (or tropical and subtropical biogeochemical models). The paper is well written and mostly clear. The paper is technically sound, the figures are easy to interpret and the paper reads fairly well.

Recommendation: The paper can be published in Biogeosciences in the present form after minor corrections.

Specific comments:

Page 9 Line 17: Re-write the sentence, “This reveals that in KiWi the tree size (through FON intensity) and growth rate influence the competition strength in individual trees, the probability of death of an individual tree depends of its growth performance.”

Page 13 Line 6: The term “normal respiration cost” should be “respiration cost”.

Page 24 Table 2 Submodels, Tree growth: in the equation the term CFON should be described.

Interactive comment on Biogeosciences Discuss., 10, 1685, 2013.

BGD

10, C253–C254, 2013

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