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Biogeosciences Discussions

Interactive comment on "Applying biomass and stem fluxes to quantify temporal and spatial fluctuations of an old-growth forest in disturbance" *by* S. Liu et al.

Y-L Li

yuelin.li@uni-bayreuth.de

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Dear Referee #2,

We would like acknowledge the positive comments from the anonymous 2nd reviewer, which we view positively. We have adopted a significant portion of his/her comments into the new edition of our MS and believe that the outcome is of better quality. In certain areas however, we disagree with the reviewer and we provide explanations/reasons for our different opinions. Here are our detailed responses to the relevant comments.

Referee's comments: I would suggest to reject the paper since: 1) The paper is not

necessarily in the right journal. The paper deals mainly with changes in diameter distribution which are expanded (using preexisting biomass equations) into "biomass fluxes". 2) The native english speaking co-authors in the paper have clearly not done their job in correcting terminology and style (while the paper seems to have undergone a good language revision) I am not really shure why the authors talk about stem fluxes which does not seem to be a correct terminology.(foresters talk of ingrowth). 3) The study is a unreplicated single plot study. (which would not be fatal if the spatial analysis (presented in point four) would have been done properly. 4) The authors present sophisticated spatial images which remain a bit in the limbo, since they are not connected to the discussion or any formal spatial analysis. There is some work on subplots but there is no other analysis done by the subplots than a calculation of averages and standard deviations.It seems that somebody intended to do a formal spatial analysis and then left it on the way.....

Response 1): Before submitting our MS we thoroughly reviewed terms and scope of BGS and found it appropriate for publishing the results of our study. In fact, the editor(s) also reviewed briefly and found it appropriate for publishing then sent to you referee. In your review report, you indicate irrelevance of our study to this scope, although you don't point out what makes our study/MS irrelevant. We beg to differ with you on this and particularly that you make this as a major reason for rejecting our MS. This study is using a newer method, which is the biomass and stem fluxes, to study the fluctuation of a monsoon climate old-growth forest in disturbances during twelve-year period. This paper is about the biomass and stem fluxes, and the diameter was used to calculate the biomass. Therefore, we think it is reasonable.

Response 2): We do acknowledge the language weaknesses in the initial version of the MS. We have made efforts to address this weakness and the current edition has undergone thorough editing and we hope that the language is now clearer and errors minimized if not eliminated. We confidently think stem fluxes is the proper terminology. Lewis et al. (2004) first defined stem fluxes and successfully used stem fluxes to

study the stand-level changes within 50 long-term monitoring plots from across South America spanning 1971–2002. Detailed information and the definition of stem fluxes was given by Lewis et al. 2004. The detailed reference is provided below. Lewis, S. L., Phillips, O. L., Baker, T. R., Lloyd, J., Malhi, Y., Almeida, S., Higuchi, N., Laurance, W. F., Neill, D. A., Silva, J. N. M., Terborgh, J., Lezama, A. T., Vasquez Martinez, R., Brown, S., Chave, J., Kuebler, C., Nunes Vargas, P., and Vinceti, B.: Concerted changes in tropical forest structure and dynamics: evidence from 50 South American long-term plots, Philos. T. Roy. Soc. B., 359, 421–436, 2004.

Response 3): We don't think "the study is a unreplicated single plot study". A study site with area of 1 hectare is not a limit for our research. Essentially, replicated plots are reflected by our subplots. Based on our specified goal, the biomass and stem fluxes of the plot including three forest gaps permit us to further our study. We added several lines to explain the replication in the text.

Response 4): The spatial images were connected to the biomass fluxes and stem fluxes of three gaps in order to analyze the differences of biomass and stem fluxes between the disturbed subplots and the un-disturbed subplots. As discussed in the results, there are obvious differences between the disturbed and un-disturbed subplots as seen in the spatial images.

Finally, we wish to thank the referees for the valuable comments again, we have fixed many of the errors that you pointed out which improved the manuscript considerably. We hope that you would find our revised MS to be satisfactory for the publication in Biogeosciences.

Sincerely, Yuelin Li (for the authors)

Interactive comment on Biogeosciences Discuss., 6, 2723, 2009.