

Interactive comment on “Global-scale pattern of peatland *Sphagnum* growth driven by photosynthetically active radiation and growing season length” by J. Loisel et al.

J. Loisel et al.

jul208@lehigh.edu

Received and published: 24 May 2012

Response to Anonymous Referee #1 (BG-D 9, C515–C516, 2012)

GENERAL COMMENTS FROM REVIEWER: The paper “Global-scale pattern of peatland *Sphagnum* growth driven by photosynthetically active radiation and growing season length” represents a valuable piece of research. It is very important to consider vegetation patterns and changes (such migration of species, growth etc.) when looking into future climate scenarios. This research provides good results which can be used for further calculations of GHG balance at site/region or global level. I enjoyed reading this manuscript and I would like to congratulate the authors for delivering such

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a nice and useful piece of research. I definitely recommend this article for publication in Biogeosciences.

SPECIFIC COMMENT 1 FROM REVIEWER: Ideally, when plotting a global distribution of study sites it would be nice if this would also include sites from Asia, Africa and Australia (now 99% is Europe and N America). I am aware of the difficulty in collecting and managing large data sets and how unfortunately not everyone is willing to share their data, but, some data from sites in W Russia and E Russia (Siberia) are available. I would suggest to contact the PI's from the Fluxnet community and ask about data availability and publications on this subject. Perhaps this would also improve the quite low $R^2 = 0.31$ for continental sites.

RESPONSE: We agree with the reviewer that additional data could strengthen the relationship that we have found between *Sphagnum* growth and PAR0. However, we have not been able to find growth data of *Sphagnum magellanicum* and *Sphagnum fuscum* from peatlands in Asia, Africa, and Australia. In addition, we believe we have done our best to gather all published *Sphagnum* growth values: we first used the database that was previously generated by Gunnarsson (2005), and we also searched 2 scientific databases (ISI Web of Science and Google Scholar) using the terms ‘*Sphagnum*’, ‘peat moss growth’ and ‘cranked wire’. Analyzing published values is the best one can do, as we have done. We think our methodology is adequate as it reflects the state at which our science is at, including data availability.

SPECIFIC COMMENT 2 FROM REVIEWER: I would like to ask the authors to add in SI table a column with the site number and link it to Fig. 1. (perhaps add in Fig. 1 the site numbers too) to make it clearer and easy to follow in the discussion.

RESPONSE: That is a good idea that we tried implementing. However, due to the proximity of most sites, adding site ID number onto Fig. 1 is not very informative. We do provide the coordinates for each site in the S.I.

SPECIFIC COMMENT 3 FROM REVIEWER: Perhaps this can also be interesting:

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<http://www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.1001247>

RESPONSE: It is an interesting study, but we don't find it directly relevant to our paper.
Thanks for the suggestion.

Interactive comment on Biogeosciences Discuss., 9, 2169, 2012.

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