

Responses to Ass. Editor's Request for Minor Revisions

Daniel Richter

20 July 2018

We appreciate the work of the editor. I've included editorial comments here in entirety in plain text, as well as our responses which are in italix.

The historical context of geoscience and bioscience as diverging disciplines is interesting and the justification for their further re-integration is well-written. I appreciate the attention to detail regarding the benefits and disadvantages of the network approach given high-profile criticisms of many network approaches (e.g. Lindenmayer et al., doi: 10.1016/j.tree.2017.10.008).

Thank you. We agree that the historical development of the biogeosciences is of more than of mere "historical interest".

Note on line 266 that flux towers measure these fluxes, although sometimes they have to be estimated, and of course all measurements include uncertainty.

We change this statement to read:

*"FLUXNET (the global network of flux towers that estimate **measure** land-atmosphere exchanges of energy, water, and carbon)."*

I also wouldn't say that flux-gradient techniques have 'collapsed' as they are still in use, albeit infrequent. (I do very much agree that attention to soils in FLUXNET is cursory at best.)

I have discussed this comment with co-author Dennis Baldocchi who agreed that "collapse" might have been too strong of a verb. We substitute "collapse" with "near collapse" as when K theory and flux-gradient techniques were recognized not to be practically applicable, it was all but abandoned.

According to Baldocchi, in a 20 July email to Richter, "Eventually all/most of us abandoned use of K theory over forests. it suffered from two problems. Mixing was so great that gradients were tiny and hard to measure, plus K suffered from non local transport, as shown in later papers by Hogstrom/Bergstrom in Sweden and Shaw/Thurtell over borden forest in Canada and the Raupach papers over Uriarra in Australia."

The paper would also benefit from a quick check for usage (see for example line 563 and rogue minus sign on line 623).

I have made "a quick check for usage", and believe we have a clean ms. I've had my lab mgr read thru the ms as well. The two examples on lines 565 and 623 have been corrected.

Note also, as it happens, that there is an interesting study on animal contributions to biogeochemistry in Luquillo (doi: 10.1007/s00442-002-1071-9).

Thanks for this interesting citation. I tried to add it to the ms, but the paragraphs in which we discuss animal interaction studies, are directed at bio-geomorphological topics, so I decided not to force the citation into the ms. I appreciate the citation as it helps make the case for biogeosciences.

Fig. 2b doesn't come from Hood et al., 2006.

This has been corrected! Thank you.

Please make these rather minor suggested changes and thank you for the comprehensive overhaul of the manuscript in response to the referee comments.

We have made these changes and you are certainly welcome.