

Interactive comment on “Short-term natural $\delta^{13}\text{C}$ variations in pools and fluxes in a beech forest: the transfer of isotopic signal from recent photosynthates to soil respired CO_2 ” by O. Gavrichkova et al.

Anonymous Referee #2

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Turnover time of carbon in terrestrial ecosystems is an area of research in desperate need of attention. This article focuses on central process that dictate C turnover. The novelty in the approach taken here is in the resolution of sampling plant/soil/atmosphere components. This paper would provide a valuable contribution to the present literature.

By-enlarge I have only minor suggestions and have chosen not to reiterate the comments from reviewer 1. Of note, I would suggest some mention of the ‘periodogram’ in the methods and delete the paragraph as detailed on p 2418.

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As a general comment, are the authors aware of the influence of sugar alcohols on $\delta^{13}\text{C}$, particularly in the phloem extracts? These would still be in the neutral fraction that was used for $\delta^{13}\text{C}$ determination. Some reference to this in the manuscript might be appropriate.

Specific comments:

P 2404 line 6: Suggest: “... photosynthesis down to roots and in general to below ground components, up to its release in soil respiration in a beech (*Fagus sylvatica*) forest. We have measured....”

P 2409 line 7: What is shacked? Do you mean shaken?

P 2413 line 27: (space)

P 2414 line 5: “were much smaller being approximately...”

P 2415 line 26: delete “also”

P 2419 lines 6-8: Should state explicitly that the opposite is also often observed.

P 2422 line 2: “ $\delta^{13}\text{C}$ of soil respired”

P 2422 line 2: “our site reached more”

P 2422 line 7: replace “not enough” with “insufficient”

P 2422 line 7: delete “any final”

P 2422 line 7: replace “about” with “regarding”

P 2422 line 8: “respiration hence further, focused and integrated experiments are required”

P 2423 line 9: No new paragraph here – just continue with “Similarly....”

P 2424 line 1: Delete first comma

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P 2424 line 1: “did not detect a periodic signal”

P 2424 line 3: “This observation corresponds to the”

P 2424 line 14: delete “and”

Figure 4 caption: delete the word “signature” here and suggest elsewhere in the manuscript.

Interactive comment on Biogeosciences Discuss., 8, 2403, 2011.