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***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  $\text{CO}_2$ ” by O. Gavrichkova et al.***

**O. Gavrichkova et al.**

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We thank the referee for positive evaluation of our manuscript and for suggestions for its improvement. We have incorporated almost all proposed modification. In particular,

# Of note, I would suggest some mention of the ‘periodogram’ in the methods and delete the paragraph as detailed on p 2418.

We have added more details on what Periodogram is to M&M section. Mentioned paragraph was deleted.

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# As a general comment, are the authors aware of the influence of sugar alcohols on d13C, particularly in the phloem extracts? These would still be in the neutral fraction that was used for d13C determination. Some reference to this in the manuscript might be appropriate.

We thank for the suggestion. We have searched in the literature on the relative contribution of sugar alcohols to transport sugars in beech trees. Actually we didn't find any evidences for this particular species on sugars alcohols somehow significantly contribution to phloem transport organic matter. In beech, as was stated by Gessler et al. 2004, sucrose is the main transport sugar. No sugar alcohols were reported among sugar composition of beech leaves by Bacon et al., 1980, and very low quantity was found in branch sapwood by Hoch et al., 2003. We therefore have left unchanged our interpretation of PSS d13C.

# 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....."

We have only partially changed the phrase because we didn't measure other below-ground components than soil respired CO<sub>2</sub>.

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

Changed as requested.

# P 2413 line 27: (space)

Changed as requested.

# P 2414 line 5: "were much smaller being approximately..."

Changed as requested.

# P 2415 line 26: delete "also"

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Changed as requested.

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

Changed as requested.

# P 2422 line 2: “d13C of soil respired”

Text was modified completely

# P 2422 line 2: “our site reached more”

Text was modified completely

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

Text was modified completely

# P 2422 line 7: delete “any final”

Text was modified completely

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

Text was modified completely

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

Text was modified completely

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

Text was modified completely

# P 2424 line 1: Delete first comma

Changed as requested.

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

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Changed as requested.

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

Text was modified completely

# P 2424 line 14: delete “and”

Changed as requested.

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

“Isotopic signature” is frequently used among isotope-dedicated papers, also in paper’s title, it is evident if one perform a web search of literature. We therefore preferred to leave these phrases unchanged.

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

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8, C1438–C1441, 2011

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