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Biogeosciences Discussions

Interactive comment on "Exploring the "overflow tap" theory: linking forest soil CO_2 fluxes and individual mycorrhizosphere components to photosynthesis" *by* A. Heinemeyer et al.

Anonymous Referee #1

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I found the results from the time series analysis using wavelet coherence very compelling, but I am left in doubt about the quality of the original temperature corrections. The authors comment that the quality of the regressions (that were used to adjust for temperature differences in the various fluxes prior to TSA) were poor for some periods of the year. This is bound to affect the subsequent TSA. A more robust regression technique should be considered, e.g., linear mixed models or even better bayesian hierarchical models to properly propagate the uncertainty from period to period and to take advantage of the shrinkage of the coefficients and the strength-borrowing features of mixed/hierarchical models. On a similar note, I wondered whether vertical differences in soil T may be better accounted for than at presently done, e.g., by dis-

cretizing soil efflux as if coming from different vertical soil layers, ie., as done in the past by M Reichstein.

Interactive comment on Biogeosciences Discuss., 8, 3155, 2011.