



Interactive comment on “Pure stands of temperate forest tree species modify soil respiration and N turnover” by N. Brüggemann et al.

N. Brüggemann et al.

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1. No response required. 2. No response required. 3. As the referee points out, it is important to know more about tree species influence on N turnover in soils. As the experimental site is located on a sandy soil and subject to considerable atmospheric N input, the paper presents new evidence for an obvious generality of tree species influence on N turnover, more or less independent of the substrate the trees grow on and the atmospheric N load they receive. Therefore, the relevance for modelling is given by the obviously general applicability of the concept. 4. What is the difference if I have one plot of the dimension 50 m x 60 m and take six samples out of it, or if I have six plots of e.g. 20 m x 25 m in direct vicinity (what they should be in if they are supposed to be comparable) and take one sample out of each? This argument can be applied to many studies, e.g. eddy covariance measurements at different locations all over the world. If e.g. a yearly flux rate is reported for one site, it consists of many, many replicates in time, but not of a single (!) replicate in space (as far as we know

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there are no parallel tower measurements available at any of the eddy covariance sites all over Europe). So if the argument of the reviewer is applied to these studies all results of e.g. the EUROFLUX, CARBOEUROFLUX and CARBOEUROPE-IP projects have to be discarded. It is a very common way to report soil N turnover rates based on dry weight, this was not an invention of the authors. Of course the rates could also be related to other soil parameters like SOC content, but the authors wanted to keep the paper as simple as possible. Does the referee know which fraction of the SOC is degraded according to which reaction constant? How many different fractions are there in SOC? Is it justified to assume only one or two or three reaction constants for the degradation of SOC, i.e. which fraction of the SOC can actually be regarded as the substrate of respiration? There are so many unresolved questions related to SOC that we cannot see an advantage in basing respiration on SOC content. Data on soil temperature are provided (Tab. 1), data on ammonium content in the soil and also average ammonia concentrations in the air can be provided. 5. I have seen no paper so far that concludes that everything has been done and no research is needed anymore. If the reviewer knows one, please let us know. 6. No response required. 7. Premature versions of the manuscript had a much more extended discussion section, which was shortened following peer advice. It can be easily reactivated, if necessary, although we think that we have addressed all major relevant issues. 8. No response required. 9. We could also accept the suggested title. 10. No response required.

Interactive comment on Biogeosciences Discussions, 2, 303, 2005.

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