

Interactive comment on “Patterns of dissolved organic carbon (DOC) and nitrogen (DON) fluxes in deciduous and coniferous forests under historic high nitrogen deposition” by S. Sleutel et al.

Anonymous Referee #3

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This manuscript reports useful data on concentrations and fluxes of DOC, DON, DIN in three forest stands. Although not much new information about mechanisms and processes came out, I think that the data set deserves to be published. My major concern is about the experimental design and the statistical evaluation (see comments below). The authors need to consider the limitations in their experimental design in the results and discussion sections. It is important to state that more than one forest stand per tree species is needed in order to make any definitive conclusions about causes for observed differences.

Prior publication the authors should consider the following comments:

C1885

p.7135, l.4-16. Erroneous formulation. The source for DOM is litter, both above ground and below ground, and to a minor extent canopy

p. 7139. Note that this experimental design gives pseudo replication. There is only one plot per “treatment” (= the three stands). The three replicated plots within each stand only give an indication of the within-plot variation. You will be able to say something about differences between stands, but you can not say anything for sure about the reason(s) causing this difference.

p. 7142, lines 12-13. If you have three forest stands you should use ANOVA, rather than paired t-test. You have to make a new analysis and change results and discussions accordingly.

p. 7144, lines 2-4. “DOC concentrations in the forest floor leachate was obviously related to the water flux. . .” This statement needs to be verified in a better way, e.g. by making a correlation analysis.

p. 7146, lines 22-23. What compounds would have caused a DOC/DON of 2 in bulk precipitation. To publish such a figure you have to convince that your analytical methods have an excellent precision, since DON is measured by difference calculations.

Table 2. Report C pools of O horizon in this table.

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