

Interactive
Comment

***Interactive comment on* “Chronic nitrogen addition causes a reduction in soil carbon dioxide efflux during the high stem-growth period in a tropical montane forest but no response from a tropical lowland forest in decadal scale” by B. Koehler et al.**

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First, we would like to thank the referee for the thorough review of our manuscript and for her/his constructive, helpful and kind critique. We would also like to thank Kirsten Küsel for acting as editor for the manuscript, and for her access-review. We will now answer to the referees questions and comments, and point out the revisions which we conducted based on the referees suggestions.

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Interactive Discussion

Discussion Paper



1) How did the N treatment affect aboveground productivity? We are presenting the effects of N-addition on aboveground productivity in the lowland and montane forest in the last paragraph of the introduction (Sect. 1), to deduce our hypotheses based on these.

2) How can you rule out that changes in root respiration/growth/turnover confound the increase in soil CO₂ efflux with increasing temperature? We agree with the referee that the seasonal pattern in soil CO₂ efflux probably resulted in part from changes in root biomass and production. If these were mainly regulated by a different factor than temperature (e.g. photosynthetically active radiation) they may have confounded the increase of soil CO₂ efflux with temperature. We revised the paragraph (Sect. 4.1) accordingly to point this out.

3) We included the fact that our experimental N loading was higher than anticipated atmospheric N-deposition rates in the final discussion section (Sect. 4.4) where we discuss the time-scale on which N-induced soil acidification with resulting changes in soil chemistry may ultimately reduce forest productivity and soil CO₂ efflux.

We are grateful for the suggested edits and included them in the final revised manuscript. We also thank for the helpful advice to merge figures 2 and 3.

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