

Interactive comment on “Controls of terrestrial ecosystem nitrogen loss on simulated productivity responses to elevated CO₂” by Johannes Meyerholt and Sönke Zaehle

Anonymous Referee #2

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This study investigates the influences of three different N loss mechanisms in ecosystem models on carbon cycle under elevated CO₂. The topic is of general interest and the simulation experiments are well designed, and I recommend it for publication after minor revision.

The result that N loss showed minor impact on carbon sequestration is unexpected, in particular in northern temperate and high-latitude regions where ecosystems are usually thought to be strongly N-limited. The authors did not give exact reasons for this phenomenon but inferred that the varying C:N ratio in the O-CN model is a possible explanation, although it cannot fully explain the result. Here, in my opinion, it will be

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more persuasive to simply give the changes in plant N uptake which directly controls vegetation productivity.

Other comments: Line 28 Page 10: change "N available" to "N availability"

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