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Interactive comment on "Temporal and spatial decoupling of CO_2 and N_2O soil emissions in a Mediterranean riparian forest" *by* Sílvia Poblador et al.

Anonymous Referee #3

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The paper is interesting, methods reliable and results almost as expected. The main concern is missing of data on potential N2 emission which is the main product of denitrification. Therefore, I cannot agree with the statement in paper that low N2O emission is a result of low intensity denitrification. In opposite, it could be that the denitrification process is complete and most of N2O produced will be transformed to N2. However, without evidences on (potential) N2 emission (either based on 15N or He-O2 analysis or even the acetylene method which gives underestimated but at least some values) and denitrification control genes (nirS+nirK and nosZi+II) it is hard to say about the intensity of denitrification. It can also be that a part of N2O is coming from nitrification. This kind of discussion is missing and may be it is too much to require analysis

of all those components. However, authors should avoid to declare that denitrification intensity is low because the N2O flux is low. Also, it is recommended to include some relevant references on denitrification intensity (N2:N2O ratio) in riparian zones and develop a short discussion based on this knowledge.

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