

Interactive comment on “Modelling the inorganic nitrogen behaviour in a small Mediterranean forested catchment, Fuirosos (Catalonia)” by C. Medici et al.

Anonymous Referee #2

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The authors model the daily nitrogen cycle behavior in a small Mediterranean catchment. They couple a novel nitrogen sub-model to three already existent hydrological models, one of them lumped and two semi-distributed with increasing complexity. The aim of this work is to improve the assessment of nitrogen cycle. I believe the authors succeed in their intention even if I am not sure if their result can be generalized to other catchments. They analyze only one case and only one year of validation data. In my view, before the paper can be accepted for publication on HESS, the authors are encouraged to answer the following questions. I think this should entail minor revisions.

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Page 5675 Line 13 Figure 5. It is hard to distinguish between the different lines. In particular the lines of denitrification and the soil moisture content, H1, are too similar. Figures 8 and 10 have the same problem.

Page 5676 Line 14 The authors say: “LU4-R-N model reproduced the nitrate concentration peak observed during April 2002 that was not simulated by the LU4-N”. It is difficult to see it in the figures 4a and 4b. Can you provide a zoom in of this peak as you did for the discharges in figure 9?

Page 5678 Line 19 and Page 5682 Line23 The authors state that SD4-R-N failed to reproduce daily NH₄ concentration. The same is observed with the other two models. Could you explain this fact? How the proposed models can be improved in order to describe satisfactory also the NH₄ behavior?

As last comment, I found that the paper is well written but I suggest to add more paragraphs to improve its clarity and readability specially in Section 5 and Section 4.2.

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