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Hydrology and Earth System Sciences Discussions

Interactive comment on "Assessing the model performance of an integrated hydrological and biogeochemical model for discharge and nitrate load predictions" *by* T. Pohlert et al.

T. Pohlert et al.

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We appreciate the valuable comments of referee #2. Please find our responses below.

In the summary of the review, referee #2 criticizes the lack of novelty of our paper and the fact that we have submitted the conceptualization of the new model SWAT-N to a different journal than HESSD. The paper Pohlert et al. (Ecol. Model., in review), deals about the conceptualization of SWAT-N and the testing of the new N-cycling concept with N-leaching data taken from a long-term fertilization experiments conducted at a lysimeter station. The lysimeter was modelled as one single HRU. A validation or testing approach on the catchment scale (multiple HRU's, multiple subbasins, flow routing)

was not conducted in the previous paper.

As stated in the introduction (page 2817 and 2818), the novelty of this work is the application of an intensive model testing for discharge, nitrate load, and nitrate concentration predictions, **without** further calibration of parameters that control the nitrogen cycle. The methodology includes a split-sampling test for discharge at the final outlet, proxy-basins tests with 4 additional discharge gages (see Table 2, Fig. 4), an independent evaluation of predicted nitrate loads at two gages without further calibration (see Table 3 and Fig. 6), the test of predicted versus measured longitudinal profiles of nitrate concentrations taken at 4 different dates (see Fig. 8) as well as an visual inspection of mapped nitrate emissions for plausibility checks (see Fig. 9). Although none of these aforementioned methods are new itself, the novelty of this work is the fact, that this type of intensive model evaluation has rarely, or strictly spoken, has not been done so far.

We are grateful to the referee #2 for his comment to clarify the motivation of our study. In a revised version we will reformulate the introduction to sharpen the focus of our paper and emphasize the novelty of the paper. Furthermore, we will provide detailed responses to referee's #2 major and minor criticisms in a final response letter at the end of the discussion process.

Yours,

Thorsten Pohlert and Co-authors

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 3, 2813, 2006.