

Interactive comment on “High resolution monitoring of nutrients in groundwater and surface waters: process understanding, quantification of loads and concentrations and management applications” by F. C. van Geer et al.

F. C. van Geer et al.

bkr@dmu.dk

Received and published: 10 July 2016

We are grateful for the valuable comments given by the referee. ‘Considering that the manuscript is an introductory paper that should give an overview of the general topic, it efficiently covers the state of the art on the subject. Nonetheless, I found two things that should be better addressed: a) there is a redundancy of classification and schematics that creates some confusion and makes the manuscript very repetitive. The most redundant part is the one on the time scales that: it is introduced and discussed from Line 10 to 27 in Page 3, section 1, then used for characterizing each monitoring

C1

objectives in section 2, and then again discussed in detail in a dedicated section (3). My suggestion is to shorten the manuscript by completing removing section 3. All the information contained in this section have been discussed in section 2, where they are very useful because directly relate the time scales to the monitoring objectives. There is no reason to repeat them in the next section with a different scheme. ‘ We have followed the suggestions in the revised manuscript for shortening of the manuscript by deleting repetitions and rearranging in the manuscript to overcome the problems highlighted above in section 3.

‘b) Moreover, some efforts should be directed to extend outlooks in section 5 where most of the space is dedicated to a summary of what described in the previous sections. The expectations that readers have in an overview paper are to receive some inspiring and exciting viewpoints on future technical, research and management challenges; they are very limited in this version of the manuscript.’ We have extended the outlook in section 5 of the revised manuscript by inclusion of a few more viewpoints on future technical, research and especially management challenges in section 5: High frequency data will in the future assist in achieving a better understanding about in-stream processes such as nitrogen and phosphorus assimilation, sedimentation and resuspension processes. Moreover, water quality models will be challenged when calibrated against high frequency data which in turn will force models to be more dynamic (run at lower time steps) and improve their internal process descriptions. High frequency monitoring data will also be able to assist water managers in getting a true picture of nutrient loadings and sources that will enable River Basin managers to implement more targeted and thereby cost-effective decisions when fulfilling the requirement under the EU Directives directed at water management such as the Water Framework Directive, the Nitrates Directive and the Groundwater Directive.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-169, 2016.

C2