Dear Colleague,

Thank you for your review, which will help us improve our technical note. Please find below a detailed response to the points you raised:

**It would gain in scientific merit if the ranges of applicability of the new parameterisation and its predictive uncertainty were discussed. The number of parameters is increased by one (from two to three), which might not seem to be much but it must introduce more uncertainty to the results.**
We have computed the predictive confidence interval, as it is common in case of linear regression (Jonnston, 1972 pp. 154-155; see also the discussion in Andréassian et al., 2007) and present the results in Figure 1 below. The figure speaks for itself: the predictive interval (blue surface for a 50 % predictive confidence interval, red for 95%) is much narrower for the 2S-APS relationship. This means that predictive uncertainty is more impacted by the error than by the number of parameters. We will add this graph in the final version of the paper.
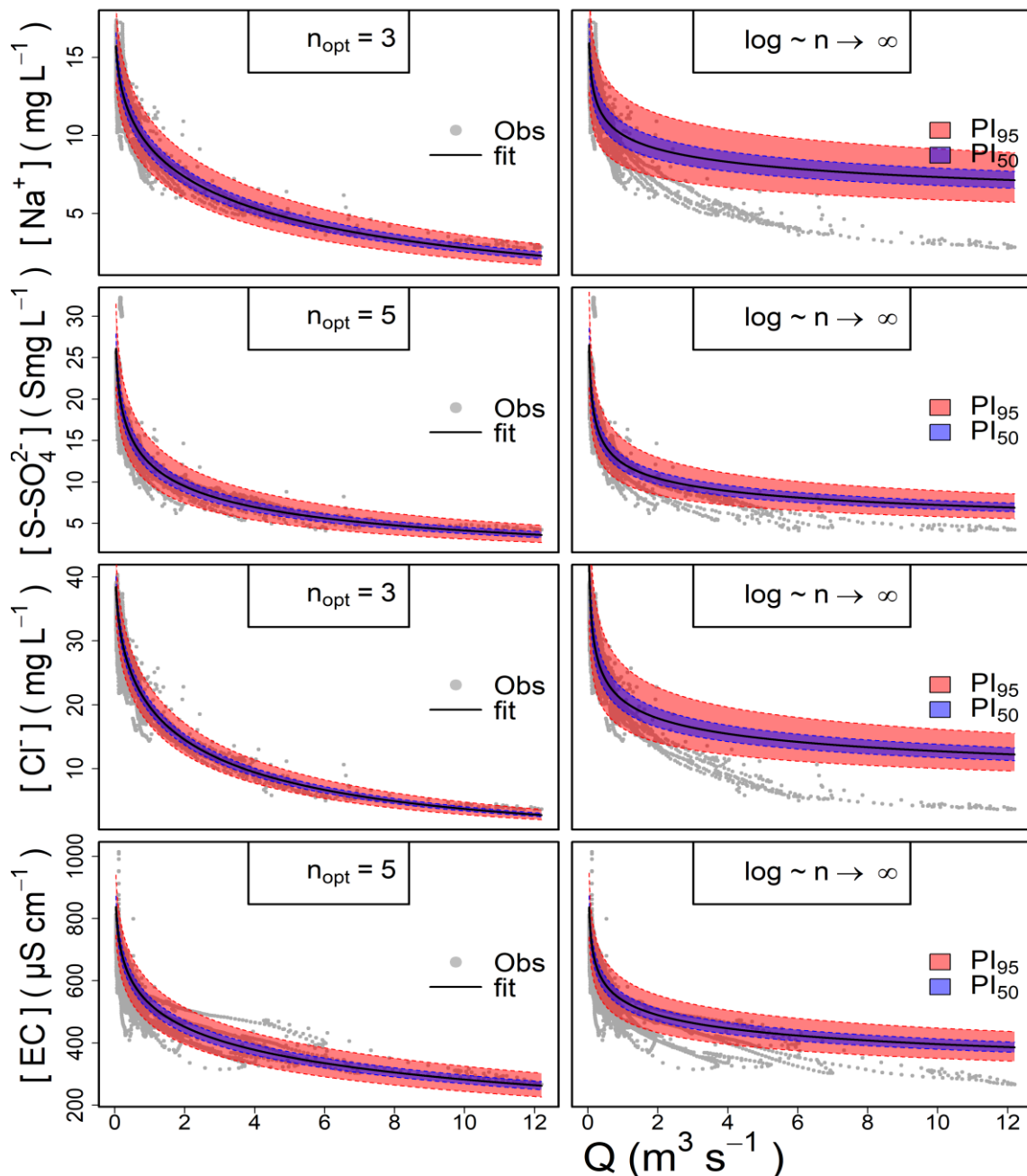


**Figure 1: Predictive confidence interval computed for the 2S-APS relationship and the power-law for the 3 ions and the EC relationship. In blue the 50 % and in red the 95 % predictive confidence intervals**

**Specific comments**

**1.  Table 1: The authors use "sulfate" instead of sulphate throughout the whole paper. It is an American spelling and personally I would prefer the classic spelling.**

We will change it in the revised manuscript

**2. Page 8 line 138... (a,b) pairs from eq. 3...**

We will change it in the revised manuscript

**References:**

Andréassian, V., Lerat, J., Loumagne, C., Mathevet, T., Michel, C., Oudin, L., and Perrin, C.: What is really undermining hydrologic science today?, Hydrological Processes, 21, 2819-2822, 10.1002/hyp.6854, 2007.

Jonnston, J.: Econometric Methods, McGraw - Hill Book Company, USA, 437 pp., 1972.