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Comment

## ***Interactive comment on “Comment on “Solute specific scaling of inorganic nitrogen and phosphorus uptake in streams” by Hall et al. (2013)” by R. González-Pinzón et al.***

**R. González-Pinzón et al.**

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We truly appreciate the comments submitted by anonymous reviewer # 1 on May 8, 2015. Through our collegial comment to the paper by Hall et al. (2013), we wanted to share with the broader scientific community some of our thoughts on the topic of scaling nutrient uptake in stream ecosystems. Our research group is very interested in nutrient cycling in streams and rivers and so we found the goal of the manuscript by Hall et al. (2013), to examine these topics in the context of stream size, very exciting. After careful review of such manuscript, we believe that some of the fundamental correlations between stream nutrient cycling parameters presented in the analysis of

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nutrient uptake across stream orders may be wrong. In our comment, we presented a reanalysis of a subset of the data used by Hall et al. (2013) and demonstrated that their correlations between nutrient uptake lengths ( $S_w$ ) of ecologically important solutes and specific discharge ( $Q/w$ ) may be spurious. Recently, Steven Thomas (from University of Nebraska, Lincoln) submitted an interactive comment on our work arguing that the  $S_w$  values used by Hall et al. (2013) were 'empirically' derived and that, therefore, our observation that  $S_w$  vs.  $Q/w$  becomes  $u/Kc$  vs.  $u \cdot h$  (i.e., a spurious correlation) is wrong. In our reply to his comment, we demonstrated that there is indeed a mechanistic (model-based) and empirical (how we estimate  $S_w$  from field data) relationship between  $S_w$  and  $u/Kc$ , which supports our disagreement with some of the work by Hall et al. (2013).

As pointed out by anonymous reviewer #1, what follows in our comment after making the point that there is a spurious correlation supporting the modeling by Hall et al. (2013) is a topic previously discussed in the scientific literature (see citations in our paper). However, we strongly believe that in this digital era it is harder to keep track of scientific progress due to the large volume of material available and, therefore, readers will appreciate having both a short explanation and a relevant example (using water quality data) supporting our points. If there is need to shorten our comment, we believe we can reduce the number of figures from 4 to 2.

Thanks again to anonymous reviewer # 1 for devoting the time to review our comment.

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Interactive comment on Biogeosciences Discuss., 12, 5991, 2015.

**BGD**

12, C2154–C2155, 2015

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