Biogeosciences

Discussions

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Interactive comment on "Phosphorus attenuation in streams by water-column geochemistry and benthic sediment reactive iron" *by* Zachary P. Simpson et al.

Anonymous Referee #1

General Comments: In the manuscript entitled "Phosphorus attenuation in streams by water-column geochemistry and benthic sediment reactive iron," researchers assessed how excess phosphorus can be retained in the sediments through geochemical processes. Research on abiotic phosphorus retention in river networks draining watersheds with varying land cover and geology is lacking. This information would be useful to managers all over the world who are trying to find ways to improve nutrient removal in disturbed watersheds. The manuscript is well written, and few changes are necessary before it is ready to be published. Specific Comments: Line 76: Did you have any hypotheses about how the geochemical processes may differ between the three different stream geology types? Table S2. In the results section, you refer to this

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table twice. It was difficult to understand in lines 245-247 why you picked the Geology, H2O-P model as the best model. For clarity, I would make a note indicating that this is the best model when ASC is excluded. In many instances in the results, you restated results that are displayed in tables or figures. I have indicated these instances in the technical corrections. Technical Corrections: Line 141: What does "d.w." mean? Line 152: Change "RP" to "Reactive P". Line 171: Remove colon Lines 198-199: Delete concentrations and instead reference Table 2. Lines 210-211: Delete "log-activity of . . ..in Fig. 3" and just reference Fig. 3. Line 218: Delete first sentence of section 3.2. Line 218: Change to "The benthic sediments were largely neutral (mean pH of 7.10; Table 3)." Lines 228-229: Delete all the mean values and just reference Table 4. Lines 241-242: Change to "The least available sediment P pool analyzed, HCl-P was highest in volcanic basin and lowest in alluvium geologies." Line 245: Change sentence to "Using geology and sediment P pools. . .." Line 250: Delete means and just reference Table 3. Lines 268-269: Delete all the values and just reference Table 4. Lines 271-272: Delete the first sentence in the section. Move "ASC(a measure of P retention at low pH) and BWI (P retention at neutral pH and controlled Ca concentration)" to the methods section 2.4. Lines 274-275: Delete values and just reference Table 4. Line 404: "likely" is misspelled. Figure 3: Indicate that SI = saturation index.

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