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Hydrology and Earth System Sciences
Discussions

Interactive comment on "A small volume multiplexed pumping system for automated, high frequency water chemistry measurements in volume-limited applications" *by* Bryan M. Maxwell et al.

Anonymous Referee #2

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In the present manuscript, the authors designed an integrated system for small-volume and high frequency water chemistry measurements. They elaborated the hardware components, the system configurations and the operation notes of the system. Laboratory and field applications of this system were also exhibited to demonstrate the usefulness of the system. The automated feature for sample collection and determination of water chemistry suits very welll in continuous monitoring in a water environment. Therefore, I suggest minor revision for this manuscript.

Major comments: No major comments.

Specific comments: 1.Although the well names (S.In.Mid, S.In.side, etc) used in the manuscript are understandable, but I found it very difficult to follow when I am trying to interpret the data plots. I often need to stop and recall the exact meaning of each name. So I strongly suggest the authors to replace the well names. Maybe S1- S4 for the wells in shallower depth and D1-D4 for the welss in deeper depth.

2.Page 5, Line 27-29. "The results show that without a DI rinse. . . by at least four times Vcuvette to make . . .". Is this correct? Because the p = 0.236 for 10x Vcuvette, which suggest negligible difference after 10 times purge, right?

3.Page 8, Line 13, determination of NO3- with optical methods should be detailed either in the manuscript or in the supporting information.

4.Page 10, Line 33, should be "referred to as Sediment mesocosms"

5.Although it is stated as small-volume sampling, it usually withdrew tens of milliliters of water, which might not be a big problem for overlying water. But the volume is relatively large when this device is applied to extract porewater from porous media, for example in the case of sediments. This could be a limitation for the implementation of the system designed. Also as a suggestion for the authors to improve the system in the future, maybe rhizon in situ samplers (Seeberg-Elverfeldt et al., 2005 Limnol. Oceanogr: Method 3, 2005, 361-371) could be included into the system as the fine pores on the sampler preclude the suction of fine particles (diameter > 0.2 μm).

6.Many typos such as "PTFE", "through" should be corrected.

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