Geoscientific
Instrumentation
Methods and
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Discussions

Interactive comment on "A new instrument to measure plot-scale runoff" *by* R. D. Stewart et al.

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The reviewer raises a couple of excellent points. First, we have added several of the pertinent references using the Stomph et al. 2002 flowmeter, replacing in the process several other less relevant citations [Lines 37-41]. However, we have left Stewart et al. 2014 as a reference because it involved the usage of a predecessor of the UBeTube.

Another important point brought up by the reviewer involves the question of timing and instrument "lag" and "buffering". While we initially ignored storage within the instrument, we have revised the paper to include an equation to calculate storage per timestep, similar to that proposed in Stomph et al. 2002 [Lines 152-164]. We also added a line to the "Considerations" section that addresses the utility of accounting for instrument storage in certain conditions [Lines 225-226].

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The reviewer also points out the potential for backwater effects when the device is attached so that inflow arrives from the bottom of the instrument. We have added a sentence to the text to address this concern [Lines 101-104].

The comment about sediment affecting the fluid density is another important point. We have added this to the "Considerations" section [Lines 231-234].

Finally, we agree that momentum effects on pressure measurements is a topic of concern, and have addressed this concern in the "Considerations" section. We have also added a sentence about alternative methods of measuring water level (such as capacitance sensors) that may avoid some of the momentum-related instrument error [Lines 239-245].

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