

## ***Interactive comment on* “Technical note on measuring run-off dynamics from pavements using a new device: the weighable tipping bucket” by T. Nehls et al.**

### **Anonymous Referee #2**

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#### General comments:

To understand the urban water balance and to differentiate dominant processes involved, the measurement of run-off events from permeable paved urban soils with high temporal and spatial resolution is indispensable. The use of precise weighing lysimeters has the potential to measure exactly most components of the water balance equation. Traditional tipping buckets, intensively used in meteorology and soil hydrology are not able to detect the dynamics of both small and big flow events from fully or partially paved surfaces. The authors developed a "weighing tipping bucket"

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by coupling a standard tipping bucket to a balance. The use of this measuring device enables to very precisely describe the flow dynamics and to synchronize flow measurements to the constantly times measurements of other water balance components. In principle the reviewer agrees with the main content of the manuscript.

Specific comments:

Nevertheless it is recommended that some issues have to be discussed in more detail:

p. 9274, 1.1, 18 ff: Why is it not possible to measure the storage of rain on the lysimeter surface as the change of lysimeter mass from starting point of the rain event and the starting point of the run-off event. The reason might be the time steps of the detection of mass change of the lysimeter or the resolution of the balance used. Additional information would be helpful.

p. 9278, 2.2, 22 ff: Why is it necessary to use a tipping bucket coupled to a balance. Using a balance to weigh the cumulative sum of run-off from the lysimeter surface in short time intervals will precisely describe the flow dynamics and can be synchronized to constantly timed measurements of other water balance components.

Technical corrections:

p. 9273, 1, 16: "...fore casted..." or "...forecasted..."?

p. 9276, 1.3, 14: "...of a expected..." or "...of an expected..."?

p. 9279, 2.3, 13: "...water weight..." or "...water mass..."?

p. 9279, 2.3, 19: "...measured by TB is..." or "measured by TB (ROTB) is..."?

p. 9280, 2.3, 15-16: "...measured by WTB is..." or "measured by WTB (ROWTB) is..."?

p. 9283, 3.2, 22: "...linear RC of..." or "linear run-off coefficient (RC) of..."?

p. 9290, Fig. 2: can you give dimensions of the different components?

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