

The submitted manuscript describes a novel experimental approach for combining in-field soil columns to create larger soil monoliths for laboratory study. Runoff properties of soil monoliths are examined using artificial runoff experiments to study outflow and runoff characteristics, suggesting that recombining soil monoliths may be a viable, cost-effective solution for conducting and collecting soil for use in laboratory experiments.

The manuscript is within the journal's scope and aligns with the special issue. The authors should consider revising the manuscript to consider the following comments. I suggest a minor revision.

General comments:

Consider revising the title. I don't think the title starting with 'Best of both worlds?' makes sense in the context of the article. I would remove this because it's arbitrary and doesn't refer to the second part of the title. Is this about being the best of both worlds in terms of being a balance between field- and laboratory experiments or being about the recombination of monoliths?

The article has a lot on chemical and statistical analysis, and I think this should be reflected in the title and abstract. Although the article discusses combining soil monoliths, there is a lot of material on chemical composition, so I believe the tracer experiments aspect should be stressed more.

You refer to 'push-methods', but this isn't defined. Some clarity in the abstract, introduction or methodology on what this relates to would benefit the reader.

Having read the full article, I wonder if this work is better defined as a research article than a technical note, given the length of the discussion and appeal to lots of different laboratory experiments. Technical notes are typically a few pages in length. See https://www.hydrology-and-earth-system-sciences.net/about/manuscript_types.html.

Specific comments:

Abstract:

- Please use the multiplication symbol (\times) rather than 'x' in the dimensions of soil monoliths
- Revise 'further research is needed for a definite conclusion' – please elaborate on this.
- I'm not sure the wording 'exported' within 'laterally exported water' makes sense. What does this refer to?

Introduction:

- Line 19: Considering revising wording 'cardinal' to 'fundamental'.
- Line 19 – 25: Are there any references which support this or discuss the shortcomings/advantages of laboratory and field experiments (e.g. Green, 2014, Modelling Geomorphic Systems: Scaled Physical Models or some of the references in the introduction of Green and Pattison, 2022: Christiansen Revisited)
- Line 23: List these three-dimensional characteristics – are these vegetation, hydrological, soil-mechanics, etc.
- I feel as though Line 39, 'The collection of large monoliths (over 1m³) necessitates heavy machinery...' should be stressed in the Abstract, as this is a key reason for the study methods.
- Line 38: 'Advisable to use as large soil slabs as possible' – but this is quite generalised in the context of soil monoliths. How large, and when you refer to a soil 'slab', does

this incorporate depth, width, and length? A reference here would be helpful to appreciate the scale or standard to use here.

- Line 42: 'Blocks below 300 kg are easier to handle...' – a reference here is provided, but more context would be helpful on why this figure. Is this because it can be handled using a particular type of machinery. This could relate to the previous comment – maybe 300 kg is a good balance between being small enough that it is practical and easy to work with and large enough that edge effects are minimised. Some extra discussion on this point would be helpful.
- Line 44: 'Combination of two or more...' – are these equally sized blocks? Change to a 'combination of two or more equally sized, smaller monoliths'. State here that the material should also be comparable, as presumably, you wouldn't want to combine different materials.
- Line 49: Multiplication symbol rather than 'x'. Add in 'equally sized monoliths' before the dimensions.
- Line 54: 'Done properly – the recombination procedure has no directional effect on runoff properties'. Discussing the correct procedure or recombination methods would be beneficial to support this statement.
- Line 55: Wording unclear '...do not differ regarding the (share of) outflow at...'. Please clarify the wording here. I think you are referring to separate outflows on combined monoliths, but the wording could be changed to make this clearer to the reader.
- Line 57: Runoff velocity? Please clarify as this is in the supplementary material to the main text...are you expressing runoff as a speed m s^{-1} , or is it discharge (volume/time). This needs to be made more apparent here.

Methods:

- Line 71: '...the soils occasionally dried up to some extent at the surface' – this is quite vague. I would consider removing this or putting more detail on this point. Line 85: Why were the slopes of 3% and 4% decided upon, and why did these change between runs.
- Line 77: I don't know whether SRF is a good abbreviation for surface runoff. Also, please define what laterally exported water refers to. I don't think the word 'exported' is clear – maybe this should be reworded to lateral flow or lateral spread/transmission. You mention these abbreviations later in the text (Line 120), so I would either remove these abbreviations from the text/tables altogether or not refer to the longer wording in the text again, as these have already been defined in Line 77. I would recommend removing these abbreviations from the text/tables for clarity.
- Line 85: Why were the slopes of 3% and 4% decided upon, and why did these change between runs.
- Line 90: 'Fully saturated and left to dry for 24 hours' – why? To reach field capacity? Please justify does this relate to a standardised methodology (*i.e.* BS).
- Line 92: 'A constant flow of 5 l/m was adjusted via a valve and water meter' – reword this to '...' was applied using a valve and water meter'.
- Line 92: Remove 'we used' and change it to 'deionised water spiked with ortho-phosphate was applied...'
- Line 93: When you refer to 'mimic agricultural runoff', why these concentrations? Are they specific to regulations in Austria for farming practices?
- Line 106: Reword 'we conducted' and subsequent use of 'we' pronoun.
- Line 108: 'We used the quotient of outflow (of the respective flow pathway) to actual inflow' – please reword for clarity.
- Line 114: Are the scripts in the Appendices/supplementary materials?

Results:

- Line 121: How much earlier? State this in the text.
- Line 134: High heterogeneity in the data – what might cause this? Some extra discussion on this would be helpful.

Discussion:

- Discussion is good. Because this is a technical note, do you have any 'lessons learned' or reflections that you could add if someone tried to replicate these experiments, how would they be able to improve their design?
- Line 167: 'Blocks need to be watered regularly to avoid drying up' – please state why this is important. Is this because drying up will cause the blocks to dissociate from each other and thus affect the experiments, or is there another reason for this?
- Line 191: 'Nevertheless, there was a trend of higher LAT outflow at re-combined blocks – does this refer to the monolith as a whole or just the interface at the contact area between the combined monoliths.

Conclusion:

- The conclusion is reasonable, but given the number of tracer experiments that the monoliths were subjected to in the manuscript results/discussion sections, I would summarise these key findings in the conclusions. Specifically, what were the take-home messages of this study and what are the implications of each experiment? For example, recombining monoliths to conduct salt tracer experiments. Bare in mind that this is a technical note when summarising the conclusions.

Figures/Tables:

- Figure 1: Annotate arrows to show slope direction (from overflow tank to outflow at the bottom) for clarity. Also, it would be helpful to annotate key hydrological processes (surface runoff, sub-surface interflow, percolation, laterally exported water) as arrows.
- Table 1: Reword caption 'Site and material characteristics. Add size fractions for clay, silt and sand (*i.e.* > 2.0 mm) – are these according to BS or an international specification.
- Table 2: Confusing layout...? Maybe plot the water budget...?