

Many thanks to Dirk de Boer for the constructive review. The implementations of the corrections will greatly improve the manuscript. We especially thank him for the editing. In the following you can find our detailed responses (in red) to the comments (black):

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1. Does the paper address relevant scientific questions within the scope of HESS? Based on the scope of HESS as provided on its homepage I would say yes.

2. Does the paper present novel concepts, ideas, tools, or data? The paper presents a study on different techniques for evaluating sediment transport and intrusion into the channel bed. Although not novel, the results are useful for comparing the disparate results obtained in other studies.

3. Are substantial conclusions reached? The conclusions would be very useful for researchers planning a study on fine sediment transport in small streams.

4. Are the scientific methods and assumptions valid and clearly outlined? Yes, they are.

5. Are the results sufficient to support the interpretations and conclusions? Yes, interpretations and conclusion are firmly based on the results.

6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Yes. The experiments are well described in this papers or in its references.

7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? Yes, proper credit is given where it is due.

8. Does the title clearly reflect the contents of the paper? The paper concerns both sediment transport in the water column and sediment intrusion into the bed. This latter part is not indicated in the title, but perhaps it should be.

**Author reply:** We believe that the “fine sediment dynamics in a small river” reflect the sediment transport in the water column as well as the sediment intrusion into the bed. Otherwise the title would become very long.

9. Does the abstract provide a concise and complete summary? Yes, the abstract is concise and complete.

10. Is the overall presentation well structured and clear? Yes, the paper is well structured.

11. Is the language fluent and precise? No, this paper will require some editing to prepare it for publication in an international journal.

**Author reply:** We will try to improve the language of the manuscript. We are fully aware that we are not native speakers and will appreciate any comments or hints to improve the manuscript.

12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Yes.

13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No, the paper is fine in terms of its length and in the number of figures and tables.

14. Are the number and quality of references appropriate? Yes, the number and quality of the references are appropriate for the paper's scope and length.

15. Is the amount and quality of supplementary material appropriate? Yes.

### **Detailed comments**

page line comment

11316 17 "accumulation" should be "net accumulation"

**Author reply:** changed.

11318 17 "dynamic" should be "dynamics"

**Author reply:** changed.

11320 17 "commercially available one meter 110 x 4.2mm PE pipes" is unclear. What are all these different dimensions?

11320 18 "(inner diameter (i.d.)=101.6 mm)" should be " with an inner diameter of 101.6 mm"

**Author reply:** changed to: "They were one meter long and consisted of commercially available PE pipes with an outer diameter of 110 mm and a wall thickness of 4.2 mm. They were sealed...".

11322 11 Is heterogeneity the right term here? Spatial or temporal variability may be better.

**Author reply:** Yes, changed.

11322 24 “copped” should be “capped”

**Author reply:** No, the steel pipe was copped and capped. Consequently we wrote “copped and plugged”.

11323 10 11 microns is pretty large. Standard would be 0.45 microns.

**Author reply:** We used 11  $\mu\text{m}$  filters to accelerate the filtering process and to avoid frequent clogging of the filter.

11324 23 “In the fall months drifting leaves” should be “In the fall months, drifting leaves”

**Author reply:** Yes, changed.

11324 28 “Regularly water samples” should be “Regular water samples”

**Author reply:** Yes, changed.

11325 3 “grain size composition” should be “grain size distribution”

**Author reply:** Yes, changed.

11325 15 “D50 of the SS” should be “The D50 of the SS”

**Author reply:** Yes, changed.

11326 5 “until” should be “below”

**Author reply:** Yes, changed.

11326 10 “Our results confirm the conclusions of previous field studies that infiltration of fine sediment is maximum during peak discharge” should be “Our results confirm the conclusions of previous field studies of maximum infiltration of fine sediment during peak discharge”

**Author reply:** Changed it to: “Our results confirm the conclusions of previous field studies of maximum fine sediment infiltration during peak”

11326 17 “Spearmen rank correlation tests showed that these differences had no influence on the amount of sediment infiltration though” should be “Spearmen rank correlation tests, however, showed that these differences had no influence on the amount of sediment infiltration”

**Author reply:** Yes, changed.

11326 23 “for site B” should be “at site B”

**Author reply:** Yes, changed.

11326 28 “most possible explanation” should be “most likely explanation”

**Author reply:** Yes, changed.

11327 1 “due to difference flow velocity” should be “due to the difference in flow velocity”

**Author reply:** Yes, changed.

11327 14 “As such, comparisons of sediment infiltration rates from studies with different sampling intervals have to be done with caution, especially if the results are related to each other quantitatively” should be “As such, quantitative comparisons of sediment infiltration rates from studies with different sampling intervals have to be done with caution”

**Author reply:** Yes, changed.

11328 11 “Thus, the down stream scouring of fine sediment seems to play a more important role on the total sediment accumulation than the sediment infiltration” should be “Thus, downstream scouring of fine sediment seems to have a greater effect on total sediment accumulation than on sediment infiltration” or “Thus, downstream scouring of fine sediment seems to have a greater effect than sediment infiltration on total sediment accumulation.” Note that these two alternatives have different meanings.

**Author reply:** The second suggestion describes better what we meant. Accordingly, we changed the sentence.

11328 24 “This fraction deposits” should be “This fraction is deposited”

**Author reply:** Yes, changed.

11328 27 “higher” should be “greater”

**Author reply:** Yes, changed.

11329 13 “also significant (t.test,  $p < 0.05$ ) higher fraction of silt and clay” should be “also a significantly higher fraction of silt and clay (t.test,  $p < 0.05$ )”

**Author reply:** Yes, changed.

11330 10 In various places, “water level” is used. “Discharge” would be a better term as it is the flow conditions that are of interest rather the level of the water.

**Author reply:** Yes, you are right, discharge would be more interesting. Unfortunately we do not have discharge measurements. We only have water level measurements.

11330 16 “smaller <2mm” is double.

**Author reply:** Yes, changed to “smaller 2 mm”.

11330 21 What is meant by SS here? The load or the concentration?

**Author reply:** We meant SS collected by the SS samplers during one week. Changed to “SS load” for better understanding.

11330 23 “boarder” should be “border”

**Author reply:** Yes, changed.

11331 9 Suspended sediment load or concentration?

**Author reply:** We meant suspended sediment load as well as suspended sediment concentration. Changed it to: “Both methods revealed a significant increase in suspended sediment (both SS load and SS concentration) along the river and significant higher suspended sediment in the season 2009/1010 than the season 2010/2011.”

11331 26 “probably due to the discussed negligence of the cross channel differences” should be “probably due to the cross channel differences discussed earlier ”

**Author reply:** Yes, changed.

11332 1 “But the fixation of the sensors” should be “But the installation of the sensors”

**Author reply:** Yes, changed.

11334 1 “site A the one with the largest data set” should be “site A, which has the largest data set”

**Author reply:** Yes, changed.

Everywhere: do not use SS, OBS, CV, VHG etc in the text. These terms should be spelled out.

**Author reply:** We will spell out CV and VHG. We think it is more convenient to reader if SS is not spelled out due to its frequent usage in the manuscript. Also, this abbreviation is used in most of the papers dealing with suspended sediment. OBS is also a widely used abbreviation.

Everywhere: the term “infiltration” is misleading as it is usually used for water infiltrating into the soil. Perhaps a better term to use would be “sediment infiltration” (as used in some of the references).

**Author reply:** We changed “infiltration” to “sediment infiltration”.

Everywhere: ‘t.test’ should be ‘t-test’

**Author reply:** Yes, changed.