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**Hydrology and Earth System Sciences Discussions**

# *Interactive comment on* "Self-potential investigations of a gravel bar in a restored river corridor" *by* N. Linde et al.

**N. Linde et al.**

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Dear Reviewer, Thank you for your review that contains many good comments that we incorporate in the new version of the manuscript (see below) that we will submit after the end of the open discussion (13 January, 2010). We are also pleased to learn about your overall positive assessment of our work.

1. We will include more details about the mentioned papers in terms of modeling and results.

2. We will provide the reference to the temperature dependence of the electrodes.

3. We will add the suggested references.



4. We will add the suggested references.

5. The hydraulic conductivity data came from multi-level slug tests, passive and active tracer tests. We will include appropriate references in the new version.

6. Yes, the clay is definitely impermeable compared to the gravel aquifer.

7. We didn't include these papers, as they don't deal with time-lapse data. We will include them in the new version.

8. We will provide the requested details about the SP measurements and detrending.

9. We will include a map of the thickness of the vadose zone under low-flow conditions.

10. We will provide more details about the cables used.

11. It is ok to use insulating boundary conditions on the right side (assuming symmetry), but you are right that we made an inappropriate choice on the left side. We will extend the modeling domain and add zero potential on the boundaries. The boundary condition is fine for water flux as we are considering vertical fluxes only.

Thank you again for your comments!

Niklas Linde On behalf of the authors

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 8987, 2010.