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Hydrology and Earth System Sciences Discussions

Interactive comment on "Towards improved instrumentation for assessing river-groundwater interactions in a restored river corridor" *by* P. Schneider et al.

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This paper describes a suite of impressive instrumentation on and along the Thur River in Switzerland and its adjacent aquifer. The study is part of on-going efforts to holistically understand the effects of restoration on river corridors. The scale of the instrumentation surpasses all that I am familiar with for surface water-groundwater interaction studies and rivals those of multi-million if not billion dollar superfund contamination sites. Thus, lots of key insights are emerging from the study.

However, this paper simply presents instrumentation and some results. It is highly descriptive and observational – in fact, this is the main goal. This goal is achieved

quite effectively. The paper is very well written and edited – it's amongst the cleanest I have recently reviewed. The figures are generally of very good quality. I really have little else to add as far as improving it except for a few suggestions outlined below.

Specific comments

P2506 L13-17: This sentence needs to be rewritten. It's too long and awkward.

P2508 L17: This type of program needs

P2514 L3: The river stage is generally higher than stage in the side channels.

P2514 L22: Is the transect really just 'close to transect A in Fig. 2' or is pretty much along transect A? In any case, it has to be labeled in Fig. 2 clearly.

Section 3.3: There is discussion here about 'imperfect hydraulic contact between the gravel aquifer and the river'. I am not sure what this means and how it explains the lower-than-expected slug test results. I suspect their screen slot was simply too small and that they are partly measuring the screen conductivity and not just the gravel material. They should explain this further.

P2517 L6 and elsewhere: hydrogencarbonate -> bicarbonate (but I don't know what the HESS and EGU convention is)

P2518 L7-8: The discussion of additional instrumentation not discussed or presented seems irrelevant. They should remove this and other similar materials from the manuscript.

P2520: They need an introductory statement prior to discussing and describing the transects. It seems to come out of nowhere.

P2528: 'Water changes its status from...' is an awkward statement. Need to reword this.

Figure 2 is the most critical figure. It needs to be a lot bigger – almost twice as big.

I can't see anything. I needed to zoom in on it to cover my whole monitor just to see anything. Moreover, they should indicate where the geophysical cross-sections are located (ie Fig 4 and 5). Indicate flow direction.

Fig. 3: italicize scientific names of plants

Fig 6. I think a Piper diagram would be more instructive, and with different symbols for river and groundwater samples.

Fig 10. Indicate where the well-screens are if you can.

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