

Interactive comment on “Autonomous distributed temperature sensing for long-term heated applications in remote areas” by A.-M. Kurth et al.

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Dear Professor van de Giesen

Thank you very much for your constructive comments! We are sure they will help us to greatly improve our manuscript. Please find below the changes we will implement in our manuscript according to your remarks. Unfortunately, it is impossible to change the font of the writing to easily distinguish between your remarks and our comments. Therefore, for ease of use, our comments were marked with a hyphen and the sections were numbered.

1). The paper gives a clear introduction and overview of how to set up an electrically heated fibre optic cable and DTS in remote areas. The paper is somewhat descriptive

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in tone, which is not really a problem. The paper is well written. As such the paper has a high practical scientific value for the rapidly expanding field of environmental DTS applications.

- Thank you.

2). The main thing that I miss is a results section. This would not need to be a full report on the collected data but I would appreciate to have at least a statement like: “We ran the design for so many weeks, with so many active temperature traces, using these DTS machines and this cable,…” etc.

- Unfortunately, the field site is in a remote valley that is being closed during winter due to frequent avalanches. As the autonomous DTS system was not fully developed by autumn, we couldn't install it on time and it is only lab-tested so far. The lab data was not included, as (i) the manuscript is intended as a technical report with “manual-character” (hence the “descriptive tone”) and (ii) the data from the autonomous DTS system is exactly the same as data from a non-autonomous DTS system.

3). Perhaps all the necessary information is available on the Swiss-Experiment website but it would also be nice to provide the reader with some of the scripts used. Even when researchers choose a different set-up, these may have important heuristic value.

- The scripts are “simple” one line cron scripts to ‘scp’ (secure copy) the data and mount them on a Linux machine in one of the authors' offices (a cron script does minor jobs on a PC, e.g. downloading emails when opening the email programme). As this was regarded to be “too simple” to be of any interest to the readers, it was not included in the text.

Two very minor points:

4). P. 859 l. 2: Please check one more time before submitting if there are (still) no papers on active DTS in hyporheic exchange research. There are some in preparation that may be published soon.

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- We checked again and couldn't find any. We'll therefore change the writing to "articles in preparation". If you know of any publications that will be published in the next week, we would be very grateful if you would inform us accordingly so we may include them.

5). P.864 l. 5: Because this paper is about remote deployment, the statement about the logistical problems of an ice bath could be stated more strongly: One simply cannot maintain such a bath under the circumstances described in the paper.

- Actually, the water bath with ice was just intended for "on site" calibration; later, the DTS would be "post-calibrated" with temperature data from the water baths (the way Stijn showed me) – therefore, ice would only be necessary for initial calibration, and in some settings (e.g. on a glacier) ice might be available. However, we understand your point and change "It can be logistically infeasible to use ice in the field, so instead..." to "As it is quite impossible to install and maintain an ice bath in a remote setting, two continuously mixed water baths...". We hope this will clarify things.

6). P. 865 l. 16: Nb. = ?

- "Nb." is Latin and stands for "nota bene", i.e. "note well" or, rather colloquially, "please note". The manuscript will be changed accordingly. All changes mentioned above will be implemented in the manuscript. We sincerely hope you find these changes to your satisfaction and will recommend our manuscript for publication. Thank you, once again, for taking the time to review our manuscript, your remarks were most helpful!

Best wishes

Anne-Marie Kurth

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., 2, 855, 2012.