

Interactive comment on “Practical considerations for enhanced-resolution coil-wrapped Distributed Temperature Sensing” by K. P. Hilgersom et al.

Anonymous Referee #2

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The paper is interesting and give important informations on temperature measurement errors caused by the measurement setup used in high resolution DTS applications. However, there are some questions that should be clarified:

1) The Authors should be better explain how they separated the temperature profile into (1) measurement points that were only in contact with the tube (T_{tube}) and (2) measurement points that were in contact with both air and the tube (T_{air}). It unclear how this could be done taking into account that there is a very large difference between machine resolution and the perforation diameter (e.g. machine resolution is 0.3 m, and the perforations are 0.02 m). According our experience with a so large difference between the resolution and the perturbation is very difficult obtain quantitative data. Correctly, the Authors affirm that this results in an underestimation of the temperature difference between the cable in the air and attached to the tube. However, this a crucial param-

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eters that strongly influence the measurements errors. The Authors should clarify if have compared the T_{air} , measured with the tube, with actual air temperature.

2) The Authors should clarify if the air temperature used in the energy balance model of the cable is the actual air temperature or the T_{air} , measured with the tube, and the influence on measurement errors

3) Have the Authors performed a comparison between the thermal inertia of the three tubes? As underlined by the Authors fast changes in temperature will not be correctly reported due to the thermal inertia especially for measurements of air temperature.

4) Measurement setups of the three experiments reported in fig.3 should be better depicted. Additional pictures could strongly help to better understand the different auxiliary constructions on which the fibre optic cables were mounted.

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