

Interactive comment on “Exploring the regolith with electrical resistivity tomography in largescale surveys: electrode spacing related issues and possibility” by Laurent Gourdol et al.

Anonymous Referee #1

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One feels always embarrassed to comment a well written and extended paper, but dealing with non-original subject and conclusions. As it the paper looks like more a master dissertation than a research paper.

While the main conclusion is that when the use of small Electrode Separation (ES) in ERT may give long acquisition time and limited investigation depth, you can improved the ERT results when added some selected levels with ERT acquisition with larger ES. However this solution is presented on a particular 3-layer model (conductive solum- resistive subsolum- conductive bedrock), is therefore ground dependant, and the authors do not conclude with a general improvement procedure.

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The paper is therefore justified by a particular case study on some hydrogeological catchment, but the study could be more efficient (especially on a plainly tabular ground) when simply dealing with the influence of the minimum electrode spacing in vertical electrical sounding for instance, on the model resolution, especially when there is some issues with first thin layers. The particular result about the maximum optimal ES linked to first layer thickness can be quickly demonstrated without ERT and Nash-Sutcliffe stuff !

Since the paper insists on the definite influence of a priori information (the so-called "adapted vertical resolution", p.21) from the field, not only for geophysical inversion and interpretation, but also for the geophysical acquisition parameters (a criterion often forgotten for instance, in ERT acquisitions with large to very large ES) the paper seems therefore worth on-line publication.

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