

## ***Interactive comment on “Electrical resistivity tomography for studying liquefaction induced by the May 2012 Emilia-Romagna earthquake ( $M_w = 6.1$ , North Italy)” by A. Giocoli et al.***

**Anonymous Referee #1**

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Authors collected the data for resistivity tomography using three different arrays: why they did not perform a cumulative inversion of all gathered data? This would have helped resolution. Line 2 and following of page 5550: I do not understand why FCU is characterized by  $>15$  Ohm.m values, while it is composed of “medium to fine gray sands”. In alluvial ambient, this formation, when saturated, is generally characterized by much greater values (usually around 50 Ohm.m and more). Ranges selected by authors are confusing. On the other hand, from figs. 3 and 4 much greater values of resistivity pertaining to FCU are inferred ( $>30$  Ohm.m). Moreover, by watching the same figures and calibrating direct information added, I argue that MU unit (essentially

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clays, locally with peat added) is characterized by resistivities lower than 15 Ohm.m. While authors are cautious throughout the text, in Conclusions they claim that “ERT has proved to be an effective reconnaissance technique for characterizing the subsoil affected by coseismic liquefaction, providing valuable data for understanding the liquefaction phenomenon and assessing the associated hazard”: I do not understand where and how ERT provided “valuable data for understanding the liquefaction phenomenon and assessing the associated hazard”. The contribution of ERT to resolve MFGS is nil, both because of the intermediate resistivity values of this formation between FCU and MU lithologies and of its relatively small thickness as compared to its depth. This is an at least partly unsatisfying, although relatively well understood, result.

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