

## ***Interactive comment on “Non-stationarity of electrical resistivity and soil moisture relationship in heterogeneous soil system: a case study” by D. Michot et al.***

**Anonymous Referee #1**

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This valuable paper presents both, a survey of temporal and spatial changes of soil moisture and matric potential by a combination of Electrical Resistivity (ER) and tensiometer/piezometer measurements in Brittany/France. In order to investigate soil moisture changes as a function of climatic conditions and soil characteristics the authors applied Electrical Resistivity Tomography on a 28m long transect at 10 dates. ER results were compared with measured matric potential and groundwater level. Soil water volume contents (VWC) from ER were estimated using the Waxman and Smith model and from point scaled matric potential measurements using the Van Genuchten model. They found the mean changes in VWC contents in the top soil layer. The driest

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and the wettest state reveal obviously the main changes in spatial distribution. ER and matric potential are related in two different manners. Inside the root zone an  $R^2$  of 0.9 is reached for water contents based on Waxman and Smith and retention curve outside the root zone. Inside the root zone only  $R^2$  of 0.3 is reached, which was argued as the non-stationarity in a heterogeneous medium, which especially appear under dense root systems below hedgerows.

The overall quality of the manuscript is high. It offers interesting insights into the temporal and spatial distribution of VWC based on different estimation approaches. The entire results are discussed appropriate. In this context I suggest minor revisions. Please find my suggestions and comments attached:

Please also note the supplement to this comment:

<http://www.soil-discuss.net/2/C538/2015/soild-2-C538-2015-supplement.pdf>

Interactive comment on SOIL Discuss., 2, 955, 2015.

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